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FINANCING FOR DEPLOYMENT OF CLEAN ENERGY

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

TO

RECEIVE TESTIMONY REGARDING LEGISLATION TO IMPROVE THE AVAILABILITY OF FINANCING FOR DEPLOYMENT OF CLEAN ENERGY AND ENERGY EFFICIENCY TECHNOLOGIES AND TO ENHANCE UNITED STATES COMPETITIVENESS IN THIS MARKET THROUGH THE CREATION OF A CLEAN ENERGY DEPLOYMENT ADMINISTRATION WITHIN THE DEPARTMENT OF ENERGY

APRIL 28, 2009

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FINANCING FOR DEPLOYMENT OF CLEAN ENERGY

TUESDAY, APRIL 28, 2009

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

The committee met, pursuant to notice, at 10:02 a.m., in room SD–366, Dirksen Senate Office Building, Hon. Jeff Bingaman, chairman, presiding.

OPENING STATEMENT OF HON. JEFF BINGAMAN, U.S. SENATOR FROM NEW MEXICO

The CHAIRMAN. OK. Why do we not get started here? Thank you all for coming.

The purpose of today's hearing is to look at the latest draft of the proposal that Senator Murkowski and I have put together to improve the availability of financing for deployment of clean energy and energy efficiency technologies.

Several of you who are testifying here today have been here before to help us understand the challenges that clean energy technologies face in reaching the broader commercial marketplace and how we might address those challenges with this legislation. You have all provided helpful guidance on the proposal that we are considering today, and I look forward to hearing your judgment on how our thinking has progressed over the many months that we have been working on this.

Yesterday, the President spoke at the National Academy of Sciences and recognized our country's proud heritage of scientific discovery and innovation that is embodied in that institution. He pledged his support for the continued leadership of the United States in basic sciences and in the pursuit of scientific discovery. Obviously, I think we all share his commitment.

My experience with the national energy laboratories and with the academic research institutions in the country gives me great confidence that many of the important discoveries needed to meet our energy and climate security challenges this century will be made here in the United States. The key question that we are here to discuss today is will those technologies see their commercial fruition here in the United States as well.

I have said before and I believe that the world is at a transition point in the way that we generate and use energy. Advances in renewable energy, highly fuel efficient, and electric drive vehicles, smart grid technology, ultra-efficient lighting and appliances, all of those signal that environmentally sustainable alternatives can be

available to us, but we will need to reach the point where they are economically competitive with legacy technologies.

One part of the foundation for this transition is recognizing the cost to our society and our children of continuing down the current path of pricing carbon emissions. I am glad that we are beginning to seriously engage in that debate here in the Congress.

But another fundamental piece of the puzzle is to recognize that even with a price of carbon, there are significant barriers to rapidly deploying innovative energy technologies. It is a capital-intensive business. New electricity generation can easily cost into the billions. Investors are understandably cautious to branch out beyond the technologies that they know very well. The safer path is to wait for someone else to prove the technology can work at a commercial scale before committing to make a significant investment in that technology.

So this leads to a funding gap that stifles innovation, impedes our ability to lead in the worldwide competitive marketplace for clean energy technologies. The goal of this legislation is to find ways to bridge that gap while recognizing the difficulty in forecasting exactly which technologies should be supported or in what precise way while also avoiding the crowding out of private investment. We should be careful not to lose sight of the fact that while the current credit problems are holding back many technologies, this problem of funding innovation was with us before the economic downturn and will certainly remain once the economy recovers. So the new entity that must be focused on here has to deal with the problems of today, but also be able to be flexible in its approach to account for changing circumstances.

We have set an audacious goal to not only address our past under-investment in clean energy development but to move to a leadership position in the world in developing these technologies. I believe that these goals are all achievable. We have tried to strike the necessary balances in this draft to move us forward in an aggressive, yet prudent way, and I look forward to hearing your views on what is now proposed.

Senator Murkowski, why do you not go ahead?

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

Senator MURKOWSKI. Thank you, Mr. Chairman. I want to welcome the witnesses here this morning, and I want to thank you, Mr. Chairman. I always have my back to you and it is not because I am not favorably inclined. I just have to put my leg this way.

The CHAIRMAN. I understand.

Senator MURKOWSKI. He understands it, but for those of you, we have got a great working relationship here. I think that that is demonstrated in the draft that we have before us today. I think it is a pretty good bipartisan work product. I think it is also the result of identifying a problem and developing a solution to that problem.

The inability of clean energy technology and the project developers to obtain financing, I think we all recognize, has been a longstanding problem. Back in 2005, with the passage of the Energy

Policy Act, at that time we took a major step toward addressing the problem by creating the loan guarantee program there at DOE.

More recently, this committee considered two bills in the 110th Congress to build upon the loan guarantee authorities for clean technology development, and at those hearings, we heard frustration from the clean tech developers. They said that we can get support from OPIC. We can go to ExIm for projects overseas, but here in the United States, we cannot do that.

So finding a way to fix that problem is both necessary and really very practical. I think through a collaborative process, we have attempted to negotiate a solution, and I am confident that we have developed one that can actually work.

There are two factors that underscore my support for legislation to create this Clean Energy Deployment Administration within DOE. First is a precedent that exists for the Federal Government effectively providing credit support to promising projects at the Rural Utility Service at OPIC and ExIm and it also represents an opportunity to address the emission of greenhouse gases in an aggressive way but, at the same, does not impose new mandates or regulatory burdens.

I want my colleagues to understand that a great deal of care has been taken to balance the deployment of clean energy technologies with a requirement that this entity be responsible and absolutely transparent in its operations.

At last year's hearing when we discussed the bill that you had, Mr. Chairman, and that that Senator Domenici had, we were looking at two bills at that time. I look forward to hearing the witnesses' assessments of our attempt to have merged those two bills together, any insights that you might have with that, and look forward to your testimony.

Thank you.

The CHAIRMAN. Thank you very much.

Let me just introduce the panel and then we will hear from each witness. Matt Rogers is the Senior Advisor to the Secretary of Energy for the American Recovery and Reinvestment Act now in the Department of Energy. Dan Reicher is, of course, the Director of Climate Change and Energy Initiatives for Google.org, which we are glad to have him back before the committee. John Denniston is also a regular testifier here, really as all these witnesses are. He is with Kleiner Perkins Caufield & Byers in Menlo Park. Jeanine Hull is counsel with Dykema Gossett, and Joe Hezir is Vice President of EOP Group.

Thank you all very much for coming to give us your thoughts, and why do we not start with you, Matt? Take 5 or 6 minutes and tell us the main points that you think we need to understand, please.

STATEMENT OF MATTHEW ROGERS, SENIOR ADVISOR FOR THE AMERICAN RECOVERY AND REINVESTMENT ACT, OFFICE OF THE SECRETARY OF ENERGY, DEPARTMENT OF ENERGY

Mr. ROGERS. Chairman Bingaman, Senator Murkowski, and members of the committee, thank you for this opportunity to be before you today to discuss the Department of Energy's loan guar-

antee and direct loan programs, our credit programs, as well as the proposed legislation to establish the Clean Energy Deployment Administration under the 21st Century Energy Technology Deployment Act.

We appreciate your personal leadership in setting up the title 17 loan guarantee program and in seeking the conditions for its success.

As you know, the Department of Energy's credit programs are an urgent priority for Secretary Chu. He is personally reviewing the programs and is committed to giving the programs the attention, departmental resources, and oversight they need to succeed while ensuring that taxpayers' interests are protected. Delivering on this opportunity to help drive economic recovery and make a down payment on the Nation's energy and environmental future represents an essential leadership role for the Department of Energy.

The credit programs are comprised of a highly professional and rapidly growing group of people. The staff has been responsive to Secretary Chu's suggested changes to accelerate and streamline procedures, where possible, to make the program more user-friendly.

Within the first 56 days of the administration, Secretary Chu entered into a conditional commitment to guarantee a $535 million loan for Solyndra to support the company's construction of a commercial-scale manufacturing plant for its proprietary cylindrical solar photovoltaic technologies. The company expects to create new U.S. jobs during construction and operation of the plant, and while it deploys its solar panels across the United States and Europe.

The credit programs have a strong set of applications from 5 title 17 solicitations and applications from the Advanced Technology Vehicles Manufacturing Incentive Loan program. These applications are currently under consideration.

We continue to greatly improve the processing of applications and are looking to expedite evaluation and loan and loan guarantee awards under the streamlined processes while ensuring responsible stewardship of taxpayer funds, consistent with the goals of the American Recovery and Reinvestment Act of 2009. We are also contemplating the development of new solicitations.

I appreciate the opportunity to comment on the 21st Century Energy Technology and Deployment Act as proposed by the U.S. Senate Energy and Natural Resources Committee. The administration is still evaluating the proposal and looks forward to working with the committee to ensure efficient and effective programs for providing assistance for energy infrastructure investment.

Our task is to allocate credit assistance where it is most effective, maximizes policy goals, and to demonstrate to Congress and the American people that loan guarantee programs can provide good value for money. DOE is working to implement the title 17 program in line with the intent of the Recovery Act and consistent with the priorities outlined through the Presidential memoranda issued in February and March. DOE has received applications from previous title 17 solicitation and expects that funds will be utilized consistent with these goals.

I will highlight four principal reactions to the proposed legislation.

First, the experience from the first loan and loan guarantees made under the existing credit programs will provide a tangible track record and inform program design to make the credit programs more effective. We want to make sure that any program changes support the Department's ability to provide credit assistance quickly, effectively, and transparently while protecting the taxpayers.

Second, appropriations for credit subsidy and for operating expenses through the loan guarantee program under the Recovery Act were a very positive step forward, enabling the institution to develop the appropriate scale organization and deliver a consistent loan guarantee pipeline. Ensuring any future loan programs have appropriate appropriations is a very important design feature.

Third, we are committed to leveraging private capital, including maintaining the requirement for significant equity for credit assistance and seeking to engage additional debt funding partners to bring private capital off the sidelines through our financing activities. The first conditional loan guarantee should show that sponsor equity is available for good projects. The program will be successful if, and only if, the Federal Government becomes a relatively secondary lender in the markets, overall, over time where there is significant private sector lender involvement and strong credit markets can take the place of Federal assistance.

Right now, in these extreme market circumstances, we need to provide loans to mature, renewable technology projects that the market was considering funding in full as recently as last summer. We will make these loans to spur rapid renewables capacity additions in the market and to enhance economic recovery.

But the goal should be to have the Federal Government focus on its unique role in accelerating market development for advanced technologies. Title 17 support should not be a long-term financing solution for troubled energy companies, nor should the Federal assistance crowd out private lenders who may provide better commercial underwriting capabilities than the Federal Government; and ultimately more efficient allocation of the Nation's resources. The Department of Energy has a clear role to play. We will provide strong returns to the American taxpayer if we remain focused on our unique role in filling a gap in advanced energy technology markets.

Fourth, the administration believes that the loan program should conform to standard budget laws and controls, including the Federal Credit Reform Act of 1990, as amended, and with Federal credit policies. We would welcome discussions with the committee on these and any additional issues that may come to light during our review to ensure that any final legislation successfully addresses the Nation's energy needs efficiently and effectively.

Mr. Chairman, thank you for the opportunity to appear before you today. This concludes my testimony, and I am happy to answer any questions. Thank you.

[The prepared statement of Mr. Rogers follows:]

PREPARED STATEMENT OF MATTHEW ROGERS, SENIOR ADVISOR FOR THE AMERICAN RECOVERY AND REINVESTMENT ACT, OFFICE OF THE SECRETARY OF ENERGY, DEPARTMENT OF ENERGY

Chairman Bingaman, Senator Murkowski and members of the Committee, thank you for this opportunity to be before you today to discuss the Department of Energy's Loan Guarantee and Direct Loan Programs (or "Credit Programs") as well as the proposed legislation to establish the Clean Energy Deployment Administration under the "21st Century Energy Technology Deployment Act." We appreciate your personal leadership in setting up the Title XVII loan guarantee program and seeking conditions for success.

INTRODUCTORY STATEMENT

As you know, the Department of Energy's Credit Programs are an urgent priority for Secretary Chu. He is personally reviewing the programs, and has committed to giving the programs the attention, departmental resources and oversight they need to succeed while ensuring that taxpayer interests are protected. Delivering on this opportunity to help drive economic recovery and make a down payment on the Nation's energy and environmental future represents an essential leadership role for the Department.

The Credit Programs are comprised of a highly professional and rapidly growing group of people. The staff has been responsive to Secretary Chu's suggested changes to accelerate and streamline procedures where possible to make the program more userfriendly. Within the first 56 days of the Obama Administration, Secretary Chu entered into a conditional commitment to guarantee a $535 million loan for Solyndra, Inc. to support the company's construction of a commercial-scale manufacturing plant for its proprietary cylindrical solar photovoltaic panels. The company expects to create new U.S. jobs during construction and operation of the plant, while it deploys its solar panels across the U.S. and in Europe.

The Credit Programs have an exceptionally strong set of applications from five Title XVII solicitations, and applications from the Advanced Technology Vehicles Manufacturing Incentive Program currently under consideration. We continue to greatly improve the processing of applications, and are looking to expedite evaluation and loan and loan guarantee awards under streamlined processes, while ensuring responsible stewardship of taxpayer funds, consistent with the goals of the American Recovery and Reinvestment Act of 2009 (Recovery Act). We are also contemplating the development of new solicitations.

21ST CENTURY ENERGY TECHNOLOGY DEPLOYMENT ACT

I appreciate the opportunity to comment on the "21st Century Energy Technology Deployment Act" (the Act) as proposed by the U.S. Senate Energy and Natural Resources Committee. The Administration is still evaluating the proposal, and looks forward to working with the committee to ensure efficient and effective programs for providing assistance for energy infrastructure investment.

Our task is to allocate credit assistance where it is most effective, maximizes policy goals and to demonstrate to Congress and the American people that loan guarantee programs can provide good value for money. DOE is working to implement the Title XVII program in line with the intent of the Recovery Act, and consistent with the priorities outlined through Presidential Memoranda issued in February and March. DOE has received applications from previous Title XVII solicitations and expects the funds will be utilized consistent with these goals. I will highlight four principal reactions:

First, the experience from the first loans and guarantees made under the existing credit programs will provide tangible experience to inform program design to make the Credit Programs more effective. We want to make sure that any program changes support the Department's ability to provide credit assistance, quickly, effectively, and transparently, while protecting the taxpayers.

Second, appropriations for credit subsidy and for operating expenses through the loan guarantee program under the Recovery Act was a positive step forward, enabling the institution to develop the appropriate scale organization and deliver a consistent loan guarantee pipeline. Ensuring any future loan programs have appropriate appropriations is an important design feature.

Third, we are committed to leveraging private capital, including maintaining the requirement for significant equity for credit assistance, and seeking to engage additional debt funding partners to bring private capital off the sidelines through our financing activities. The first conditional loan guarantees should show that sponsor equity is available for good projects. The program will be successful if and only if

the federal government becomes a relatively secondary lender in these markets over time—where there is significant private sector lender involvement and strong credit markets take the place of Federal assistance. Right now, in these extreme market circumstances, we need to provide loans to mature renewable technology projects that the market was considering funding in full as recently as last summer. We will make these loans to spur rapid renewables capacity additions in the market. The goal should be to have the federal government focus on its unique role in accelerating market development for advanced technologies. Title XVII support should not be a long-term financing solution for troubled energy companies—nor should the Federal assistance crowd out private lenders who provide better commercial underwriting capabilities than the Federal government, and ultimately a more efficient allocation of the nation's resources. The Department of Energy has a clear role to play, and we will provide strong returns to the American taxpayer if we remain focused on our unique role in filling a gap in advanced energy technology markets.

Fourth, the Administration believes that loan programs should conform to standard budget laws and controls, including the Federal Credit Reform Act of 1990, as amended, and with Federal credit policies. We would welcome discussions with the committee on these and any additional issues that come to light during our review, in order to ensure that any final legislation successfully addresses the Nation's energy needs efficiently and effectively.

CONCLUSION

Mr. Chairman, thank you for the opportunity to appear before you today. This concludes my testimony and I am happy to answer questions. Thank you.

The CHAIRMAN. Thank you very much.

Mr. Reicher.

STATEMENT OF DAN W. REICHER, DIRECTOR, CLIMATE CHANGE AND ENERGY INITIATIVES, GOOGLE.ORG, MOUNTAIN VIEW, CA

Mr. REICHER. Chairman Bingaman, Senator Murkowski, and members of the committee, thank you for the opportunity to testify. I am Dan Reicher and I serve as Director of Climate Change and Energy Initiatives for Google.org, a unit of Google which has been capitalized with more than $1 billion of Google stock to make investments in advanced policy and technology in several areas, including energy and climate change.

Prior to my position with Google, I was President of New Energy Capital, a private equity firm that invests in clean energy projects. Prior to this position, I was Executive Vice President of Northern Power Systems, one of the Nation's oldest renewable energy companies. Prior to my roles in the private sector, I served in the Clinton administration in several positions, including as Assistant Secretary of Energy for Energy Efficiency and Renewable Energy.

Mr. Chairman, as I testified last summer at a hearing in this committee, there is an established pathway for investment in clean energy. It generally starts with Government investment in early stage, high-risk research. It moves to corporate and venture capital funding of technology development. It then proceeds to large-scale deployment of technologies through project finance.

The bill being reviewed today is focused on the final stage, the deployment of clean energy technologies at a scale significant enough to actually address our energy-related challenges like climate change, energy security, economic competitiveness, and job creation. However, the bill has an even more particular and critical focus: the point at which an energy technology is ready for scale-up from a pilot project to a full-scale plant. This problematic moment is often when many promising energy technologies die. In the

clean energy business, we call it the "valley of death" and it looms large. Failing to bridge it has cost us serious progress in many clean energy technologies. In some cases, investors from other countries have stepped into the breach, but we have lost the tax and employment benefits of a U.S.-based company.

Looking ahead, the valley of death will be a particular challenge for scale-up of promising technologies, including, for example, concentrating solar power, enhanced geothermal systems, various onshore and offshore wind technologies, advanced batteries, and biomass power and fuels. Today's bill would increase the capital available for clean energy projects, thereby helping critical technologies cross the valley of death and get to scale. We welcome the bill and its innovative and focused approach.

There are typically two elements of financing in energy projects: equity and debt. Federal tax credits have stimulated equity investment in clean energy projects. Securing loans for projects has been more problematic, especially for higher-risk projects. Bankers are generally reluctant to provide a loan for a project involving a technology that has not been proven at commercial scale. A common refrain from the bankers is: "We'd be delighted to finance your third or fourth project. Come see us after you have built the first couple of full-scale plants and you've got solid operating data proving that your technology works."

Bank financing plays a critical role because a commercial-scale energy project can often cost hundreds of millions or billions of dollars, generally beyond the capacity of venture capital investors who have often advanced the technology through the pilot stage. The projects also generally have rates of return below what the venture community expects.

Let me provide a bit of perspective. Over the last 5 years, venture capital investment in the broad array of renewable energy technology companies was roughly $12 billion worldwide. In contrast, investment in projects deploying these renewable energy technologies was more than 20 times this, at about $275 billion. In very rough terms, venture investors expect average returns on a per-transaction basis to be 35 to 40 percent in a basket of deals ranging from home runs to total losses. In contrast, returns for equity investors on individual energy projects are roughly 8 to 12 percent and 6 to 8 percent for banks providing debt, with the expectation that most energy projects will perform as promised and none will be outright failures.

Mr. Chairman and Senator Murkowski, the key point is that the valley of death projects sit precariously between the venture capital and project finance worlds. They are generally too big in terms of required capital and too small in terms of returns for the venture capital community. They are often too risky for project finance players, especially for the banks which typically provide the great majority of a project investment. This is why the legislation you are proposing is so critical.

The bill is an improvement over the approach you and Senator Domenici took last year in two different bills.

First, there is specific focus in the bill on breakthrough technology, i.e., a technology with significant potential to advance critical national energy goals but that is not commercially ready.

Second, the Clean Energy Development Administration will have a board of directors and an advisory council to help ensure consideration of financial and technical risks.

Third, the bill provides this administration with a broad array of tools, including loans, loan guarantees, letters of credit, bonds, as well as profit participation.

Fourth, the Clean Energy Development Administration would use a portfolio investment approach to mitigate risk and diversify investments.

Overall, the bill takes the absolutely right approach to moving critical technologies across the valley of death to full-scale commercialization, but there are some areas for further improvement. Critical is ensuring that CEDA, the Clean Energy Development Administration, ends up successfully funding the right set of projects.

In addition to reaching out to private financiers on every transaction, CEDA might also work to prearrange financing for subsequent plants in partnership with private financiers, conditional on the initial couple of plants meeting performance criteria. Alternatively, CEDA could reserve a senior position in the capital structure of the first project.

Once a project has been selected, the next task is structuring the deal and determining the degree to which CEDA can benefit from a successful project. The bill provides for profit participation, allowing CEDA to be compensated for risk with upside and successful projects, thereby helping to make the Clean Energy Investment Fund self-sustaining.

This provision could be further improved if CEDA were allowed to take equity positions through purchase of warrants in the underlying technology companies or of the right to invest in future projects on favorable terms.

In conclusion, Mr. Chairman and Senator Murkowski, your legislation obviously comes in the midst of an economic crisis, but this is precisely when clean energy projects are facing increasing difficulty in getting finance and your proposal is so important. This is especially so for projects involving innovative technologies with higher associated risk, the very technologies that may well hold the keys to addressing the climate crisis, oil dependence, a deteriorating electric grid, and the struggling economy. When the economy improves, these valley of death projects will continue to need the critical financial support that this bill provides, hopefully also driven by robust Federal support for the R&D which created them and economy-wide limits on carbon emissions that would make them so compelling.

At Google, we stand ready to help you advance this important legislation. Thank you very much.

[The prepared statement of Mr. Reicher follows:]

PREPARED STATEMENT OF DAN W. REICHER, DIRECTOR, CLIMATE CHANGE AND ENERGY INITIATIVES, GOOGLE.ORG, MOUNTAIN VIEW, CA

Mr. Chairman and members of the committee, my name is Dan Reicher and I am pleased to share my perspective on legislation to improve the availability of financing for the deployment of clean energy and energy efficiency technologies. I serve as Director of Climate Change and Energy Initiatives for Google.org, a unit of Google which has been capitalized with more than $1 billion of Google stock to make investments and advance policy and technology in the areas of climate change and energy, global poverty and global health.

At Google we have been working to lower the cost and increase the deployment of renewable energy through our Renewable Electricity Cheaper than Coal (RE<C) Initiative and also to accelerate the deployment of plug-in vehicles through our RechargeIT Initiative. We have also recently announced the development of a product called Google PowerMeter which will facilitate near real time monitoring of home energy use. Google engineers have been working for nearly a decade to optimize the efficiency of our data centers. We're also focused on increasing the sustainability of our offices in both the U.S. and other countries as well as using on-site renewable energy when possible. Recently, I served on President Obama's transition team where I was involved with the development of the stimulus package for clean energy.

Prior to my position with Google, I was President and Co-Founder of New Energy Capital, a private equity firm funded by Vantage Point Venture Partners and the California State Teachers Retirement System to invest in clean energy projects. New Energy Capital has made equity investments and secured debt financing for ethanol and biodiesel projects, cogeneration facilities, and a biomass power plant. Prior to this position, I was Executive Vice President of Northern Power Systems, one of the nation's oldest renewable energy companies. Northern Power has built almost one thousand energy projects around the world and also developed pathbreaking energy technology.

Prior to my roles in the private sector, I served in the Clinton Administration as Assistant Secretary of Energy for Energy Efficiency and Renewable Energy, the Acting Assistant Secretary of Energy for Policy, and Department of Energy Chief of Staff and Deputy Chief of Staff.

1. THE COMPELLING NEED FOR CLEAN ENERGY PROJECT FINANCE

As I testified last summer at a hearing in this committee, there is an established pathway for investment in clean energy:

- It often starts with government investment in early stage high risk technology research;
- It moves to corporate and venture capital funding of technology development;
- It then proceeds to actual deployment of technologies through project finance and other mechanisms.

The bill being reviewed today—the 21st Century Energy Technology Deployment Act—is focused on the final stage of this continuum—the deployment of clean energy technologies at a scale significant enough to actually address our energy-related challenges like climate change, energy security, economic competitiveness, and job creation. However, the bill has an even more particular and critical focus: the point at which an energy technology is ready for scale-up from a pilot project to a full-scale plant. This problematic moment is often when many promising energy technologies falter—and a significant number die. In the clean energy technology industry it is known as the "Valley of Death". Helping cutting-edge technologies survive this difficult phase is an element of our RE<C (Renewable Electricity Cheaper than Coal) initiative at Google.

The Valley of Death looms large. Failing to bridge it has cost us serious progress on many clean energy technologies from wind, solar, and geothermal, to biofuels and efficiency. In some cases investors from other countries have stepped into the breach and the technology has advanced but we have lost the tax and employment benefits of a company based in the U.S.

The good news is that there is a broad array of clean energy technologies that have been developed with government and private sector investment that could address our many energy-related challenges. The not so good news is that investment in the actual deployment of these technologies—"steel in the ground" as they say in the project investment world—is inadequate. And the Valley of Death will be a particular challenge for scale-up of promising technologies including, for example, Concentrating Solar Power (CSP), Enhanced Geothermal Systems (EGS), various on-shore and off-shore wind technologies, advanced batteries, and biomass power and fuels.

Aggressive federal policy can drive private sector investment—measured in the trillions of dollars—that will be required to move the nation and the globe toward a more sustainable energy future. There are several critical steps the federal government must take:

- First, we must significantly increase public funding of research and development of advanced energy technologies.

- Second, the federal government must put a price on greenhouse gas emissions in order to internalize the costs of climate change and move energy investments toward lower carbon and more efficient technologies.
- Third, we must remove barriers to cleaner and more efficient technologies and establish rigorous standards to move these technologies to market.
- And fourth, the federal government must, in partnership with the private sector, help increase the capital available to move immature and often higher risktechnologies to commercial scale.

Mr. Chairman, this fourth role is illustrated by the bill you and Senator Murkowski have recently introduced, the 21st Century Energy Technology Deployment Act. The bill, if enacted, would increase the capital available for clean energy projects, thereby helping to mature the underlying technologies and move them to scale. We welcome your bill and its innovative and attractive approach to improving clean energy project finance. In this testimony we provide our thoughts on some of the bill's important elements and how the legislation might be further strengthened.

2. THE 21ST CENTURY ENERGY TECHNOLOGY DEPLOYMENT ACT

There are typically two elements of energy project finance: equity and debt. Federal tax credits have stimulated equity investment in wind, solar, geothermal and other clean energy projects. Securing loans for projects has been more problematic, especially for higher risk projects. Bankers are generally reluctant to provide a loan for a project involving a technology that has not been proven at commercial scale. A common refrain from the bankers is: "We'd be delighted to finance your third or fourth project. Come see us after you've built the first couple of full-scale plants and you've got solid operating data proving that your technology works."

Bank financing plays a critical role because a commercial-scale energy project can often cost hundreds of millions or billions of dollars, generally beyond the capacity of venture capital investors who have often advanced the technology through pilot scale. The projects also generally have rates of returns well below what the venture community expects. There are other sources of private equity beyond venture capital but these players generally require the lower cost debt provided by the banks to be part of the project finance deal in order to meet their return thresholds.

Let me provide a bit of perspective on the scale of energy project transactions and expected rates of return. Over the last five years venture capital investment in wind, solar, biofuels, biomass, geothermal, small hydro and marine energy companies was roughly $12 billion worldwide. In contrast, investment in projects deploying these technologies was more than twenty times this, at about $275 billion. And in very rough terms, venture investors expect average returns on a per transaction basis to be 35-40% in a basket of deals ranging from "home runs" to total losses. In contrast, returns for equity investors on individual energy projects are roughly in the 8-12% range and 6-8% for the banks providing debt, with the expectation that most energy projects will perform as promised—and none will be outright failures.

The key point is that the Valley of Death projects sit precariously between the venture capital and project finance worlds. They are generally too big in terms of required capital and too small in terms of returns for the venture capital community. And they are often too risky for the project finance players, especially for the banks which typically provide the great majority of a project investment. Mr. Chairman, this is why the CEDA is so critical.

Mr. Chairman, the bill you introduced last year, S. 3233 was designed to increase the willingness of banks to make loans for clean energy projects by providing a secondary market for their loans through the 21st Century Energy Deployment Corporation. I concluded last year that if implemented well this secondary market should increase the capital available for the scale-up of clean energy technologies with lower risk profiles. The question I raised, however, was whether the Corporation in its operation would also purchase loans from higher risk Valley of Death projects. I was concerned that the bill as drafted last year would fail to address precisely the kind of higher risk Valley of Death projects—as part of a larger portfolio of projects—that most need a smart push from the government.

I was also concerned that last year's bill did not include critical tools, including loan guarantees, letters of credit, direct loans and related mechanisms, which could directly address higher risk projects. Loan guarantees, for example, help borrowers obtain access to credit with more favorable terms than they might otherwise obtain in private lending markets because the federal government guarantees to pay lenders if the borrowers default. By doing so we could help leverage the vast amounts of private sector capital that is so critical to taking clean energy technologies to scale.

The new bill, the 21st Century Energy Technology Deployment Act, deals precisely with these issues in several respects and includes a number of important provisions to ensure effective and efficient financing of clean energy projects. The legislation would incorporate the existing DOE loan guarantee program into a new Clean Energy Investment Fund. Importantly, it would also create a new financing entity called the Clean Energy Deployment Administration (CEDA) housed within DOE but with a degree of independence like the Federal Energy Regulatory Commission enjoys. The Clean Energy Investment Fund would become the seed fund for CEDA.

The bill is an improvement over last year's approach for several reasons:

- First, there is specific focus in the bill on "breakthrough technology", i.e. technology with significant potential to advance critical national energy goals but that "has generally not been considered a commercially ready technology as a result of high perceived technology risk or other similar factors". It is this breakthrough technology, with its significant risk profile, that faces difficulties raising capital for the first few commercial-scale plants.
- Second, CEDA will have a board of directors and an advisory council that will have the background and skills to help ensure that the financial and technical risks of the agency's clean energy project investments are adequately considered.
- Third, the bill provides a broad array of tools to CEDA to accelerate deployment of clean energy technology including direct loans, loan guarantees, letters of credit, and other credit enhancements. The CEDA may also issue bonds, notes, debentures or other obligations or securities. In addition CEDA can use alternative fee arrangements such as "profit participation" to increase the upside in a transaction and offset the risk.
- Fourth, the CEDA would use a portfolio investment approach to mitigate risk and diversify investments across technologies.

3. AREAS FOR IMPROVEMENT

Overall, the 21st Century Energy Technology Deployment Act takes the right approach to moving critical technologies across the Valley of Death but there are some areas where it might be further improved. At the core of these improvements is ensuring that CEDA ends up successfully funding the right set of projects that will move breakthrough technologies through the Valley of Death to full scale commercialization.

We can think about the universe of possible CEDA projects as a three-layer cake. The top layer, the most financeable projects, will get financed by private investors. The bottom layer involves projects that are far too risky and should not be financed at all. The layer in the middle has projects that don't quite meet the bar of private lenders but have promising technologies and should be financed by CEDA. The challenge that CEDA has is figuring out which projects are in the middle layer and where the layer starts and ends.

In meeting this challenge CEDA has three related tasks.

1. Select the projects that it will fund;
2. Structure the transactions to mitigate risk and be compensated for residual risk;
3. Set the loan loss reserve to cover potential losses.

The bill has mechanisms addressing all these tasks but there is little focus on the most obvious mechanism which is to engage private financiers in some way. There are several reasons to do so:

- They may have already reviewed the transaction, know the participants, and can identify the risks and issues.
- They will be financing the projects after projects one or two so they can provide the performance criteria required in order to finance subsequent plants.
- Their degree of interest in participation in future projects will be an indicator of future success.

Engaging the private financiers can be as simple as encouraging CEDA to adopt a practice of actively reaching out to private financiers on every transaction. CEDA might also run an annual finance conference with the private sector to solicit feedback.

CEDA might also work to pre-arrange financing for the 3rd or 4th plant in partnership with private financiers conditional on the initial plants meeting certain performance criteria. Alternatively, CEDA could reserve a senior position in the capital structure of the first project for private lenders. This should be an option rather

than a requirement since even if the private financiers did not participate in the first deal, CEDA would have gained a second opinion on the risk.

Coupled with CEDA's own assessment, this process would leave CEDA better informed on whether to fund a particular project, how to structure it and what reserve level to set. It would also provide the private investors early exposure to the project so that they could track its progress, making it more likely that they would finance later projects.

Once a project has been selected, the next task is structuring the deal and determining the degree to which CEDA can benefit from upside that comes from a successful project. The bill allows for "profit participation" under the Alternative Fee Arrangements section.

This is critical to the success of the program because it allows CEDA to be compensated for risk with upside in successful companies. This will help meet the critical goal of making the Clean Energy Investment Fund, which undergirds CEDA, self-sustaining. This provision could be further improved if CEDA were allowed to take equity positions through purchase of warrants in the technology companies. CEDA would then benefit from the rising value of companies that successfully transitioned to commercial products. CEDA could do this either directly or through a fund in partnership with private investors. CEDA might also acquire rights to invest in additional future projects on favorable terms.

The third task CEDA faces involves setting the loan loss reserve, which is the percentage of capital the agency should keep as a buffer against potential losses. Since the loan loss reserve depends both on the quality of the deals selected and the structure of the transactions, progress on the first two tasks above should make it easier to set a reasonable loan loss reserve. This is important because the lower the loan loss reserve the more loans CEDA can make for the same amount of appropriation. For example, the current figures of $10 billion in appropriations with a 10% reserve—the initial assumption of a loan loss reserve in the bill—would provide about $100 billion in loans. If the reserve percentage was reduced to 5% then about $200 billion in loans could be provide for the same $10 billion.

Some might argue that CEDA should simply charge higher fees for riskier projects but that would not mitigate the risk. In fact it might increase the risk because it would place additional burden on the borrower. This can be problematic when riskier borrowers are charged more interest and fees, making them more likely to default.

A final issue involves collateral sharing: The previous loan guarantee program did not share collateral fairly between the commercial lender and the DOE. The DOE was first in line for the collateral so if the project went bad the commercial banks may have limited claim on the assets. This would be roughly equivalent to having a first and second mortgage on a house but in the event of a foreclosure only the DOE would get the house leaving the commercial bank with insufficient recourse. Congress needs to ensure that if CEDA is created there is a fair sharing of collateral.

4. CONCLUSION

Mr. Chairman and Senator Murkowski, the legislation you are jointly advancing obviously comes in the midst of an economic crisis. But it is precisely at this moment - when clean energy projects so vital to our economy, environment and security are facing increasing difficulty getting financed—that the mechanism you propose is so important. This is especially the case for projects involving innovative technologies with higher associated risk—the very technologies that may well hold the keys to addressing the climate crisis, our oil dependence, a deteriorating electric grid and also provide a major stimulus to the faltering economy. And when the economy improves, these Valley of Death projects will continue to need the critical financial support that this bill provides. At Google we stand ready to help you advance this important legislation.

The CHAIRMAN. Thank you very much for your testimony.

John Denniston, we are glad to have you here. Go right ahead.

STATEMENT OF JOHN DENNISTON, PARTNER, KLEINER PERKINS CAUFIELD & BYERS, MENLO PARK, CA

Mr. DENNISTON. Thank you. Good morning, Chairman Bingaman, Ranking Member Murkowski, members of the committee. My name is John Denniston. I am a partner with a venture capital firm, Kleiner Perkins Caufield & Byers. I am really honored to be

here today to share my views on how Federal policy might help build a more sustainable energy system for America.

I am deeply inspired to watch the Clean Energy Deployment Act taking shape at such an opportune time, both for our planet and for our economy. We must move quickly. America's leading scientists predict we only have a short period of time to make dramatic cuts in our greenhouse gas emissions or risk potentially catastrophic climate change. Time is also of the essence as we move ahead to address our energy security and restore America's global competitive position.

Today, to our peril, America is trailing in the race to build renewable energy industries, the very industries destined to become the economic engine of the 21st Century. The news is sobering. Only five U.S. companies appear on the international lists of the top 10 firms producing solar modules, wind turbines, and advanced batteries. That is only 5 out of the top 30 companies in these crucial industries, a paltry 17 percent market share and a far cry from the dominant market position American companies enjoyed during the information technology revolution.

Consider this. Today, more Germans are employed by their green tech industry than by their auto industry. If we fail to reverse this equation, we will forfeit our hope of solving our energy security crisis. Future Americans will still depend on other countries for our energy. They will simply be importing innovative green technologies instead of crude oil.

U.S. venture capital and technology industry professionals stand ready and are eager to help turn this situation around, and we know that America can, once again, lead the way.

Turning now to the pending Clean Energy Deployment Act, I first want simply to repeat my enthusiasm. There is so much to praise in the CEDA legislation. I particularly admire the adroitly worded goals and the creation of a diversified portfolio weighted in favor of breakthrough technologies that will surely deliver the biggest bang for the buck in terms of combating our energy crisis.

I am also heartened to see your skillful efforts to level the playing field for these credit-starved companies, including provisions that may reduce over-burdensome costs.

But most importantly, this far-sighted bill directly addresses one of the most daunting impediments to swift adoption of renewable energy sources, the longstanding unavailability of loans for breakthrough clean technologies which has been greatly aggravated in the current financial crisis.

You heard Dan Reicher speak of the valley of death, a period during which companies with breakthrough technologies find it difficult, if not impossible, to obtain loans. Dan is correct. Most banks just are not interested in lending until those novel technologies have been fully demonstrated over a period of time in the marketplace. As you might imagine, the financial crisis has made this valley of death even drier. CEDA will now allow many of these companies to cross the valley of death by enabling them to access the credit markets.

I elaborate on several other reasons for my enthusiasm in my written testimony, but would like to take this time to mention four suggestions for how to build on your success.

First, I urge you to review the bill's stipulations concerning hiring. American taxpayers will expect CEDA to retain the best available talent to make decisions involving many billions of dollars' worth of complex loans, loan guarantees, and other forms of credit enhancement. But the current draft threatens to tie administrators hands with restrictive policies when it comes to hiring that talent. This provision merits another look.

Second, I suggest you broaden out the expertise of the CEDA advisory council by including professionals with financial and energy market know-how, emphasizing experience with renewable energy. I am confident you can do this, even while keeping the advisory council relatively small in size. While it is clearly essential to gain the benefit of scientific input, I believe business expertise will also be instrumental.

Next, CEDA amends the existing DOE loan guarantee program in important ways, but I recommend one further step, eliminating the need for a credit rating agency review in the case of emerging growth companies. These credit agency reviews are very costly and, in the case of emerging growth companies, simply confirm what everybody already knows, that fledgling companies have low credit ratings.

Finally, in a very short period of time, Energy Secretary Steve Chu's team has made remarkable progress on the existing DOE loan guarantees, including issuing the first conditional guarantee and reducing the complexity and costs of applying for the guarantees. I would encourage you to implement CEDA in a fashion that does not interfere with the recent impressive progress we have witnessed.

My main wish, however, is for the swift passage of this commendable bill which is all the more timely and prescient in view of the progress you and your colleagues are making with comprehensive energy legislation. As America finally moves to limit greenhouse gas emissions, we will obviously need to have new, clean energy technologies up and running as soon as possible.

I am heartened by this committee's efforts to address this formidable challenge and grateful for the privilege of collaborating with you.

[The prepared statement of Mr. Denniston follows:]

PREPARED STATEMENT OF JOHN DENNISTON, PARTNER, KLEINER PERKINS CAUFIELD & BYERS, MENLO PARK, CA

Good morning, Chairman Bingaman, Ranking Member Murkowski and Members of the Committee. My name is John Denniston, and I am a partner at the venture capital firm Kleiner Perkins Caufield & Byers. I most recently testified before you in July of last year, and am honored to return today to share my views on how federal policy might help build a more sustainable energy future.

I'm inspired to witness the manner in which you've been tackling our energy crisis with bold legislation, including the pending Clean Energy Deployment Act, CEDA. This bill couldn't be more essential at this juncture, promising to provide not only strong environmental stewardship but also well-timed help for our struggling economy, and a tonic for U.S. international competitiveness.

Making the clean energy loans enabled by CEDA even more opportunely timed is the progress you and your colleagues are making toward adopting comprehensive energy legislation. As America moves forward to reduce greenhouse gas emissions and enhance our climate security, it becomes all the more urgent to empower our capital markets to support new, clean energy technologies.

Together with most of the rest of America, venture capital and technology industry professionals—Democrats and Republicans alike—we are deeply concerned about

the risks posed by our energy crisis: a tripartite challenge encompassing climate change, energy security, and increasing threats to our global competitiveness. At the same time, our industry is in a unique position to help seize the opportunities these challenges present to rebuild our economy, creating jobs and prosperity along the way.

Even in these difficult economic times, the American venture capital sector stands ready and able to spur new, innovative businesses and boost employment. According to an IHS Global Insight Study soon to be released, venture-backed companies in 2008 employed more than 12 million Americans, and generated nearly $3 billion in U.S. sales, corresponding to 10.5% percent of U.S. private sector employment and 20.5% percent of U.S. GDP. From 2006—2008, venture-backed companies grew jobs at three times the rate of the private sector taken as a whole.

In fact, over the past several decades, U.S. technology companies have accounted for as much as one-half of GDP growth, providing Americans with one of the world's highest standards of living. Our country would look quite a bit different today had we not, several decades ago, become a global leader in biotechnology, computing, the Internet, medical devices, semiconductors, software, and telecommunications.

Founded in 1972, and based in California's Silicon Valley, Kleiner Perkins is one of America's oldest venture capital firms. We have funded more than 500 start-up companies, backing innovative entrepreneurs in the digital, green technology and life science industries. More than 170 of our companies have gone public, including Amazon.com, AOL, Compaq Computer, Electronic Arts, Genentech, Google, IDEC Pharmaceuticals, Intuit, Juniper Networks, Millennium Pharmaceuticals, Netscape, Sun Microsystems, Symantec, and VeriSign. Today, our portfolio companies collectively employ more than 275,000 workers and generate nearly $100 billion in annual revenue.

Kleiner Perkins is a member of the National Venture Capital Association and a founding member of TechNet, a network of 200 CEOs of the nation's leading technology companies. I serve on TechNet's Green Technologies Task Force. My testimony today reflects my own views.

Before I respond to your invitation to comment on the pending Clean Energy Deployment Act, I'd like to briefly recap and augment some of my previous testimony—an overview of the way many of us in the venture capital industry perceive the energy challenges and opportunities now facing our country. I've touched on some of the following points in my previous testimonies, but at the risk of a little repetition, I think it's worthwhile to bear in mind the scope of our challenges as we move forward to address them.

THE ENERGY CRISIS

There's a fast-growing consensus among Americans today about the need to confront our three main energy challenges: the climate crisis, our dependence on foreign oil, and the risk of losing our global competitive edge by failing to champion the new green technologies which are destined to become a dominant economic growth engine over the coming years and decades.

Addressing these challenges vigorously may well be our best opportunity to alleviate our financial crisis, create jobs and get back on the road to prosperity. Green technologies—including sun, wind and geothermal power, as well as advanced batteries, electric transportation, and waste- to-energy processes—offer this country's best hope of combating climate change, rebuilding our domestic economy and regaining our edge as an economic superpower. But we have little time to spare.

Climate Change

America's leading scientists predict we have only a short period of time to make dramatic cuts in our greenhouse gas emissions or risk potentially catastrophic climate change. Global temperatures and sea levels are already rising and will continue to do so; the question now is whether we can slow down the projected rate of future increases.

Climate change is no longer a partisan issue: both President Obama and Republican former presidential candidate Senator John McCain have publicly declared we must confront this crisis, with President Obama putting it at the top of his policy agenda. Yet to our peril, we have so far failed to move with the requisite speed and determination.

Energy Security

As for our energy security dilemma, this Committee is well aware that America continues to import approximately 70% of our oil needs. Given both rising international competition for these supplies and the political instability of some of our major suppliers, this is clearly a high-risk, unsustainable strategy.

Global Competitiveness

Finally, our future prosperity is at risk, and here I speak from personal experience. As I've traveled on business to Asia and Europe, I've watched other governments strive, and often succeed, in emulating in the renewable energy sector the technology innovation that has been a hallmark of the U.S. economy. Determined public policy has given overseas entrepreneurs advantages, including financial incentives and large investments in research and education.

Simply put, America is trailing in the race to build renewable energy industries—the very industries that offer us our best hope of job creation and a rising standard of living. The news is sobering: Only five U.S. companies appear among the international lists of the top-ten firms producing solar modules, wind turbines and advanced batteries. That's five out of the top thirty companies in those crucial industries, a paltry 17% market share, and a far cry from the dominant position American companies enjoyed during the information technology revolution. Consider this: today, more Germans are employed by their greentech industry than by their automobile industry.

If we fail to reverse this equation, we'll forfeit our hope of solving our energy security crisis. In that case, future Americans will still be dependent on foreign energy imports—the only difference is they'll be importing innovative green technologies instead of crude oil.

As much as we've already fallen behind, however, I'm convinced there's still time for the United States to catch up, and once again lead a global technological revolution.

RENEWABLES: THE OPPORTUNITIES

Moore's Law & The Pace of Technological Progress

In Silicon Valley, we often refer to a principle known as Moore's Law: a prediction, credited to Intel cofounder Gordon Moore back in the 1960s, that semiconductor performance would double every 24 months. Moore's law underpins the information technology revolution of the past three decades. Better, faster, and cheaper silicon chips led the way, over just the past quarter of a century, from an era of big and expensive mainframe computers to affordable hand-held cell phones that today connect people all over the world to the Internet and to each other.

Over the past decade, we at Kleiner Perkins have seen signs of a Moore's Law dynamic operating in the energy sector, giving us confidence the rate of greentech performance improvement and cost reduction will lead to energy solutions we can't even imagine right now.

Alternative energy has become increasingly affordable. We're seeing breakthroughs in a host of energy-related scientific disciplines, including material science, physics, electrical engineering, synthetic chemistry, and biotechnology.

These improvements have occurred over a period of time in which there has been relatively little government policy support or entrepreneurial focus on these sectors. Today, we're witnessing many of our best and brightest innovators stream into the greentech sector. Imagine what American ingenuity might accomplish in the future as we combine our world-class entrepreneurial talent with a powerful policy push!

RENEWABLES: THE CHALLENGES

Our opportunities are breathtaking. Yet today, three major obstacles still impede fastercommercialization of renewable energy.

The Financial Crisis

Our current economic downturn poses a dire threat to our overdue efforts on energy reform. Energy companies—both green and brown—depend on a flow of debt and equity investments to survive and prosper. But the financial crisis has squeezed financial markets, particularly prejudicing the emerging clean energy industry.

Long before this recession began, renewable energy companies with breakthrough technologies faced a unique "valley of death" challenge: it has been difficult, and often impossible, for these innovative companies to obtain debt financing on projects at their earliest stages. Banks are typically not interested in providing loans to companies with novel technologies until they have been fully demonstrated, over a period of time, in the marketplace.

As you might imagine, the global downturn has turned this valley of death even drier. Many promising new technologies today are being delayed or thwarted by the scarcity of commercial loans. The credit markets are unwilling or unable to assume the risk to help them grow.

A Tilted Playing Field

The high cost of renewable energy sources, relative to the incumbent fossil fuel and nuclear competition, is a second barrier to greater capital investment and more rapid adoption of clean power. Why does green power still cost more? Primarily because it's still so new, meaning innovators have only just begun to work on cost-reducing breakthroughs, and production volumes are still so low that providers have yet to benefit from economies of scale. In other words, these cost-down and scale-up phenomena are still in their infancy in the renewable energy industries. In contrast, most coal-fired and natural-gas plants were constructed many years ago, have already achieved the benefits of cost reductions, and are now fully amortized, meaning their owners no longer need to pass on these costs to ratepayers.

It's also worth noting that government policy to date has provided powerful and costly support for fossil fuels and nuclear energy. In the special case of nuclear power, the federal government has for many decades assumed enormous costs for research and development, plant operations, insurance and waste disposal—all of which, if borne by nuclear plant operators, would make this power source a much less viable option.

Beyond government subsidies, the fossil fuel industry has long benefited economically by escaping responsibility for the costs of the environmental consequences of its emissions—instead, society has paid that price. These traditional power sources would become much more expensive, and alternative sources of energy more cost-competitive, if plant owners had to bear the true costs of these emissions.

Scarce Research Funding

The third major impediment to swift commercialization of clean energy is America's woefully long record of underfunding basic, translational and applied research for green technologies. At a time when faculty interest in this field has never been keener, our leading research institutions are begging for federal funding. Amounting roughly to just $1 billion annually—most of which is ear-marked—DOE funds dedicated to clean energy research are minuscule relative to the problem at hand, especially when you take into account that America's energy arsenal lacks a sufficient array of technological strategies to solve our energy crisis. If we don't start filling our pipeline with innovative new approaches, other countries which have long been more prescient about this opportunity will continue to dominate this critically important market.

THE PENDING LEGISLATION

Turning now to the pending Clean Energy Deployment Act, I first want simply to repeat my enthusiasm. This far-sighted and skillfully drawn bill directly addresses one of the most daunting impediments to the more rapid adoption of renewable energy sources: the longstanding unavailability of loans for breakthrough technologies now aggravated by our financial crisis.

CEDA'S PROGRESS

Goals and Priorities

While I applaud your efforts in general, I particularly admire several specifics of this bill, including the adroitly worded goals, and the tactic of creating a diversified portfolio, weighted in favor of the most effective technologies. By setting out your goals so clearly and drawing on scientific expertise to prioritize projects accordingly, you are taking a big step to favor the technologies that will give us the biggest bang for the buck, in terms of protecting the climate, providing new jobs, and establishing energy security.

Breakthrough Technologies

I heartily commend CEDA's rational and balanced approach of supporting newer technologies, eventhough they carry with them somewhat higher commercialization risks than conventional energy sources. The loan-loss reserve provisions send a clear signal that CEDA's managers are to provide the maximum practicable percentage of support to promote breakthrough technologies—a recognition that these innovations will lead the way in addressing our energy crisis. In contrast, a zero risk tolerance policy would defeat our efforts to mobilize America's inventive spirit in this endeavor.

From my reading of the bill, it also appears that once our current financial crisis ends and credit markets return to normal, CEDA managers will be authorized to step back from lending to recipients that can secure their own private funding. This will allow the federal government to focus its limited resources on those breakthrough technologies struggling to cross the "valley of death."

Yet another welcome nod to younger companies is CEDA's stipulation that its managers, in appropriate cases, may reduce, or even eliminate, previously required initial "loan loss reserve" payments, currently calculated by multiplying the loan guarantee amount by an actuarially determined default probability. Most emerging growth companies cannot afford these payments. Similarly, CEDA lightens the burden for companies pioneering breakthrough technologies by minimizing application fees for loan guarantees.

Loan Aggregation

Loan aggregation is another terrific, and again, timely feature, since it will both facilitate the rapid increase of clean energy loans and energize the local banks that provide them. Under this approach, CEDA will be able to bundle together loans from multiple borrowers, which will both finance the upfront cost of renewable energy products for large numbers of buyers and reduce the cost of capital by lowering interest rates.

A Broadened Range of Eligible Loans

The legislation furthermore wisely expands the types of loans and credit enhancements that may be issued. This flexibility will empower federal officials, for example, to help provide financing to manufacturers and loan guarantees for customer purchases of clean technologies, such as solar panels and fuel cells. In light of the credit crisis, many potential manufacturers and customers would be otherwise unable to produce and buy renewable energy products.

Finally, I note that CEDA has been structured in a manner that allows government and private sector lenders to collaborate. I can imagine that one potential approach would allow CEDA and private lenders to share collateral. This could be done, for instance, by allowing a private lender to obtain a senior security interest on specific equipment, while at the same time, an additional, CEDA-enabled loan could attach its senior security interest to the remainder of the project. This flexibility will create a multiplier effect on the capital made available to clean energy companies under CEDA.

RECOMMENDATIONS

All these features go far along the way to ramp up urgently needed energy reform. Since you've asked, however, I'd like to recommend five ways you might go even further:

1. Loosen Hiring Restrictions

American taxpayers will expect CEDA to retain the best available talent to make decisions involving many billions of dollars worth of complex loans, loan guarantees and other forms of credit enhancement. The current draft of the legislation allows CEDA to hire up to 20 employees outside of the customary federal hiring restrictions, and only in extraordinary situations, for example, where the CEDA Administrator certifies that CEDA "would not successfully accomplish an important mission without such an individual."

I recommend CEDA not be bound by unnecessarily restrictive federal hiring policies, as the DOE loan guarantee authority is today. These hiring restrictions to date have certainly slowed the implementation of the loan guarantees authorized under the 2005 Energy Policy Act. I believe a better approach would be to allow CEDA to employ and contract expertise as it sees fit, providing compensation consistent with prevailing private sector rates.

2. Add Business Expertise to the Advisory Council

While I'm encouraged to note CEDA's refreshing strategy of welcoming scientific expertise to the new bank's Advisory Council, I recommend you balance that know-how with financial and energy market expertise, particularly individuals with experience with renewable energy. I believe this combination of scientific and business expertise will lead to the best decisions at the Advisory Council level.

3. Address Other Shortcomings of Existing Loan Policy

CEDA amends the existing DOE loan guarantee program in important ways, but I recommend one further step: eliminating by statute the need for a credit rating agency review in the case of emerging growth companies. Such a review typically costs at least $150,000, and in the case of start-up firms simply confirms what everyone already knows—that fledgling companies have low credit ratings. This requirement should be eliminated in the case of young companies.

4. Collaborate with the Department of Energy

As I'm sure this Committee is already aware, the first conditional DOE loan guarantees were issued only very recently, even though Congress granted loan guarantee authority more than three years ago, in the 2005 Energy Policy Act. Energy Secretary Stephen Chu's team has been working hard to correct this state of affairs and get loans out the door to credit-starved energy companies. In addition to issuing conditional guarantees, Secretary Chu and his team are working to reduce the complexity and cost of applying for loan guarantees—efforts that will be particularly helpful to start-up companies. I would encourage you to implement CEDA in a fashion that doesn't interfere with the recent, impressive progress we've witnessed.

5. Communicate Progress and Challenges

As our government moves ahead with its clean energy campaign, an effort that will surely require substantial cost and sacrifice, it will be particularly important to communicate to Americans what their tax dollars are achieving.

To this end, I'd like to remind you of a suggestion I've made in past testimony, which is to create a national energy dashboard—perhaps managed by the DOE—to monitor our national energy transition. Updated monthly and widely disseminated, the dashboard might measure greenhouse gas emissions, the share of U.S. energy consumption powered by imported fuel, U.S. market share of the global renewable energy industry, federal funding for renewable energy research, and perhaps now even the ramping up of federal loans and credit enhancement.

CONCLUSION

Today's energy challenges are so vast and varied that we're ultimately limited only by our imagination in the ways we can most effectively address them. Again, however, I'm heartened by this Committee's efforts, and grateful you've once again invited me here to collaborate with you.

I look forward to today's hearing and to learning more about how we can work together to build a more secure future for America and the world.

The CHAIRMAN. Thank you very much.

Jeanine Hull, we are glad to have you here. Please go right ahead.

STATEMENT OF JEANINE HULL, COUNSEL, DYKEMA GOSSETT, PLLC

Ms. HULL. Thank you very much, Mr. Chairman, Ranking Member Murkowski, and members of the committee. I am honored to be invited to convey my great respect for the work the committee and committee staff have done since the last time several of us testified on legislation to create a Federal clean energy funding entity.

I am of counsel at Dykema Gossett, a Detroit-based law firm, where I advise clients on energy infrastructure and project finance issues. My testimony today, however, reflects exclusively my personal opinions based upon more than 30 years of experience in the energy infrastructure and finance sector.

In my opinion, the committee's discussion draft of the 21st Century Energy Technology Deployment Act, which creates the Clean Energy Deployment Administration, or CEDA, has brilliantly reconciled and improved the bills introduced in the 110th Congress by Chairman Bingaman and then-Ranking Member Domenici, which were the subject of the July 2008 hearing. Although similar to each other in most critical respects, S. 2730 focused on rapid deployment of existing technology while S. 3233 focused on development of breakthrough technologies, and each bill authorized the use of different tools to achieve its respective purpose. As the discussion draft recognizes, however, both purposes and both sets of tools will be required to achieve the scope and scale of low and zero carbon technology deployment necessary to meet the four challenges of re-

liable domestic energy supply, environmental protection and avoidance of major climate change damage, economic growth, and physical security.

The fundamental purpose of CEDA is to use the limited financial resources of the Federal Government, combined with the expertise found in the outstanding laboratories, operated by the Department of Energy and elsewhere, to leverage the resources of the private sector capital markets for rapid commercialization and deployment of energy efficiency and renewable technologies to meet these four challenges. We appear to no longer be debating whether such an entity is required, only how to ensure that it achieves its mission with minimal risk to the taxpayers.

Those who are concerned about any similarity between CEDA and Fannie Mae or Freddie Mac should take comfort in the fact that CEDA will terminate after 20 years, not likely long enough to compete with other market participants, and in addition, as a governmental entity, CEDA is not owned by shareholders and is not, therefore, driven by a quarterly earnings requirement and, thus, will not be subject to the kinds of incentives and pressures applied to Fannie and Freddie.

However, CEDA can only succeed in its mission to manage technological and financial risks if it is built on a solid foundation of prudence, transparency, accountability, and confidence. I believe such a foundation has been established in this draft bill, and in my written testimony, I specifically emphasize and support the numerous protections contained in the bill to ensure these elements.

I do, however, want to note specifically that the Secretary of Energy is required to establish specific goals for CEDA. These goals are further refined by an energy technology advisory council which will establish the assessment methodology to be applied to all funding requests and provide independent due diligence on specific technology approaches. I believe this requirement for technology due diligence by the council will be one of CEDA's major contributions to the market. The council will be composed of experts from a broad array of relevant fields, enabling the council to develop a more accurate appraisal of specific technology than any investor or investor group is likely to be able to produce otherwise. Private investors will, therefore, be able to rely on the council's assessment which will provide a strong market signal of technical feasibility. This in itself should greatly facilitate private capital market funding.

In addition, the administrator is explicitly tasked with the responsibility to ensure that the administration operates in a safe and sound manner. This is defined as including the establishment and review of internal controls, consistent with section 404 of the Sarbanes-Oxley Act. Having been a compliance officer in energy trading firms, I have come to believe that the only controls that are effective on a daily basis are these internal hard controls that separate deal initiation or front-office activities from accounting and other back-office activities by having different people perform those tasks who themselves report to different officers. Charges of rogue employees are simply to me corporate speak for a lack of internal controls. That this section is included in the discussion draft indicates the care taken to ensure the long-term viability of this entity.

I believe that a careful review of the discussion draft shows that the committee has gone the extra mile to ensure that CEDA's mission is clear, achievable, and focused; that CEDA is provided with the necessary tools, authorities, and flexibility to achieve its mission; and that CEDA has been structured to ensure, as far as possible, that its resources are managed carefully and with strict accountability, transparency, and prudence, all the while ensuring the safety and soundness of the entity.

However, the other critical task of the legislation is to encourage CEDA to take on risky, but promising investments necessary for it to meet its mission of fostering breakthrough technologies without fear that the failure of one or more of those technologies will eliminate support for its risk-taking mission. Here again, I believe the committee has done an outstanding job.

It is critical to be very clear that, if enacted, CEDA will support some projects that, despite best efforts and thorough due diligence, will result in losses. It is very hard for any entity to acknowledge and accept losses or failures, but it is particularly difficult for an entity subject to public scrutiny and accountability to do so.

This is why I believe the heart and soul of this bill is section 7(a)(1)(C), a section simply titled "Risk." The key part of this section requires the establishment of a loss reserve, the very existence of which acknowledges the inevitably of losses and provides a buffer against such losses. However, cash held in loss reserves is by definition not available for productive use or investment. The initial loss reserve requirement, pending setting a requirement tailored to its own risk experience, while appropriate for private firms, is probably too low for CEDA since CEDA is tasked to facilitate the funding of higher-risk projects than private equity is willing to fund. However, the goal of loss protection is in tension with the need to make as much capital as possible available to maximize the number of funded projects, as the chairman noted in his opening remarks. This is a perfect illustration of the perpetual tug of war between risk mitigation and potential payoff, which is the defining characteristic of this type of entity.

Only if CEDA knows that it is acceptable—in fact, expected—to recognize losses will it allow itself to take on the risk it must take to achieve its mission. I would argue that if it does not fail enough, it is not taking the appropriate level of risk. Courage and boldness, along with prudence, are required on all frontiers, and we are most definitely on a technology frontier.

Mr. Chairman, Ranking Member Murkowski, thank you for the opportunity to testify today in support of legislation that is so vital to our country. I urge this committee to act on this bill and move it to the floor as quickly as possible. Time is truly of the essence.

This concludes my prepared remarks.

[The prepared statement of Ms. Hull follows:]

PREPARED STATEMENT OF JEANINE HULL, COUNSEL, DYKEMA GOSSETT, PLLC

Good morning Mr. Chairman, Ranking Member Murkowski, and members of the Committee. I am honored to be invited back to convey my great respect for the work the Committee and Committee staff have done since the last time many on this panel were invited to give our thoughts on legislation establishing a federal clean energy funding entity.

I am currently 'of counsel' at Dykema Gossett, PLLC, a law firm based in Detroit, where I advise clients on energy infrastructure and project finance issues. My testimony today, however, reflects exclusively my personal opinions based upon more than 30 years in the energy infrastructure and finance sector.

The subject of my comments today is the Committee's Discussion Draft of the 2lst Century Energy Technology Development Act which would create the Clean Energy Deployment Administration ("CEDA"). In my opinion, this Draft has brilliantly reconciled and updated bills introduced in the 110th Congress, S. 3233 and S. 2730, by Chairman Bingaman and Ranking Member Domenici respectively, which were the subject of the July 2008 hearing. Although similar to each other in most critical respects, those bills differed in two fundamental respects: S. 2730 was focused on rapid deployment of existing technology while S. 3233 focused on development of "breakthrough" technologies, and each bill authorized the use of different tools to achieve its respective purpose. As the Discussion Draft recognizes, both purposes and sets of tools will be required to achieve the scope and scale of low and zero carbon technology deployment necessary to meet the four challenges of reliable domestic energy supply, environmental protection and avoidance of climate change damages, economic growth and physical security.

Testimony last year focused primarily on the need for a clean energy funding facility, the seriousness of our energy related climate and security problems, and the need for a federal funding entity to facilitate the rapid deployment of not only existing energy efficiency and renewable energy technologies, but also of breakthrough technologies that have the potential to be 'game-changers' in a carbon-constrained economy.

There was significant discussion then about the crisis already developing in the credit markets which balked at financing novel energy technologies, and the decades of failure to achieve significant efficiencies in energy use. So many things have changed since that hearing in mid-July 2008: among many other things, the advent and collapse of $4.50/gal. gasoline; the near total collapse of domestic credit markets which spread globally; alarming new findings about how much more quickly climate change is occurring than had been predicted just 2 years earlier; a change of Administration; failures in key domestic economic sectors, and the enactment of a nearly trillion dollar federal stimulus package to address some of these events. All this occurred in a matter of months!

The bright spot in this otherwise dreary litany is that now we are no longer debating whether to take action, but how. Evidence of the seriousness with which this Committee addressed the task of reconciling the two excellent bills from last year is before us in form of the Discussion Draft. The Committee clearly listened last year, not only to the formal witnesses, but also to those whose concerns about federal funding entities rose sharply with the trouble experienced last fall by Fannie Mae and Freddie Mac, resulting in their takeover by the federal government. The drafters of the Discussion Draft have taken great pains to tailor the authorities and responsibilities of CEDA, as well as the oversight functions of an independent Inspector General, the Government Accountability Office and Congress. The drafters also provided a focused and specific task, specific goals and the appropriate tools to accomplish those goals.

Last year the Committee was encouraged to leverage the Government's resources through the private capital markets and to provide credit support or risk transfer to encourage private capital markets to fill the gaps in existing lending practices. One specific lending gap discussed was the infamous 'valley of death,' that is, the difficulty of finding funding for projects attempting to pass from pilot scale demonstration to commercial deployment. The other gap identified was the lack of funding for widely available and proven, but small scale, efficiency and renewable projects which cannot support standard transaction costs. Witnesses testified that government funds were appropriately applied to offset technology risk in breakthrough or novel technologies, and financing/credit risk in small scale applications that when deployed in massive numbers can provide disproportionately large savings of carbon-based energy. Although it has long been recognized that funding of basic research and development is an important governmental function, justifying the expenditure of millions of dollars annually, we are now beginning to acknowledge the need and legitimacy for federal assistance to accomplish rapid and widespread commercialization and deployment of appropriate technologies.

Congress tested the waters for deployment support in the 2005 Energy Policy Act by creating the Loan Guaranty Program within the Department of Energy. The fact that as of April 2009, no loan has yet been guaranteed is not entirely the fault of the Department. The legislative changes to the loan program are ones that should substantially improve its ability to perform on a more timely basis. In part, the lack of speed of the loan program demonstrates the need for more than a single tool to

accomplish such a monumental task. This challenge has been met with the bill before you.

The draft 21st Century Energy Technology Deployment Act has resolved the tension between the difference in focus and authorities granted in S. 3233 and 2730. The new bill sets forth CEDA's mission in Section 2 as (in paraphrase) promoting the domestic development and deployment of clean energy technologies by creating an attractive investment environment through partnership with and support of the private capital market, with a priority on breakthrough technologies. In short, the goals of both earlier bills have been melded together while clearly putting the government in a limited, but critical support role with respect to private markets. This subordinate role is underscored by the fact that CEDA has a limited life of 20 years. It is to provide the foundation for capital market development and then terminate, not remain to compete in the markets it helps create. And quite soundly, the draft provides all of the tools that were included in last year's Bingaman and Domenici bills.

Those who are concerned about any similarity between CEDA and Fannie Mae or Freddie Mac should take significant comfort in the fact that CEDA is structured from the 'get-go' as a support facility for private capital markets, and is not intended to stay in existence long enough to compete in that market with the other for-profit participants. This limitation alone is in all likelihood, sufficient to prevent CEDA from following the paths of Fannie and Freddie.

However, CEDA can only succeed in its mission to manage technological and financial risks to promote commercialization of clean energy technologies if it is built on a solid foundation of prudence, transparency, accountability and competence. I believe such a foundation is established in this bill and want to specifically emphasize and support the need for the following provisions:

I. SAFETY AND SOUNDNESS

a. PRUDENCE

Numerous provisions of the draft require the CEDA Administrator or the Secretary of Energy to create a well-thought out plan of how to achieve the goals established by the bill. I shall address transparency in a moment, but of course, all final planning documents will be publicly available and subject to review. This approach carefully balances the need for speed and flexibility with the need for prudent consideration of various approaches and options.

Section 5 of the draft requires the Secretary of Energy to establish specific goals for CEDA with respect to ensuring adequacy of domestic energy supply, reducing reliance on foreign energy resources, developing clean manufacturing capabilities, improving and expanding energy infrastructure, and preventing energy waste, among other things.

These goals are further refined by an Energy Technology Advisory Council which will establish the assessment methodology to be applied by the Administration to all funding requests, and provide independent due diligence on specific technological approaches. I must note here that the requirement for technology due diligence by the Council will be one of CEDA's major contributions to the market. The Council will be composed of experts from a broad array of relevant fields, enabling the Council to develop a more accurate appraisal of a specific technology than any investor or investor group is likely to be able to otherwise acquire. Private investors will be able to rely on the Council's assessment with confidence, providing a strong market signal of technical feasibility. The Council's imprimatur will give great credibility to CEDA's decision to fund a particular project or technology. This in itself should greatly facilitate private capital market funding.

The Administrator is required to establish and maintain an adequate loss reserve, an amount of cash or liquid securities set aside to protect the Administration against expected losses. This is consistent with safety practices required by the banking, credit union and savings and loan regulators, the Securities and Exchange Commission and the Commodity Futures Trading Commission in regard to entities subject to oversight.

In addition, the Administrator is explicitly tasked with the responsibility to ensure that the Administration operate in a 'safe and sound' manner. This is defined as including the establishment and review of internal controls, consistent with §404 of the Sarbanes-Oxley Act. (See §6(b)(2)(B) of the Draft).

Having been a compliance officer in a number of energy trading firms, I have come to believe that the only controls that are effective on a daily basis are internal "hard" controls, not licensing requirements or other external behavior prohibitions. Internal controls that separate deal initiation, or "front office activities," from accounting and other "back office" activities, by having different people perform those

tasks who themselves report to different officers, are the best means to avoid "rogue bankers." In my experience, charges of "rogue bankers" or "rogue traders" are simply corporate-speak for a lack of adequate internal controls, both functional and behavioral. That this section is included in the Discussion Draft indicates the care taken to ensure the long-term success of this entity.

b. TRANSPARENCY

As part of the US Department of Energy, CEDA is subject to oversight by the authorizing and appropriating committees of Congress and is required to report annually on its activities to Congress. It is subject to oversight by the Office of Management and Budget and it is subject to the provisions of the Administrative Procedures Act and the Freedom of Information Act, two laws, among others, which can provide a substantial level of transparency into CEDA's decision-making and activities. Moreover, the Administrator is required to develop policies and procedures that promote transparency and openness in CEDA operations.

c. ACCOUNTABILITY

The Administrator, who also serves as chair of the Board of Directors, is appointed by the President, reports to the Secretary of Energy, and, along with other Directors, may be removed from office by the President for cause. The Administrator is responsible and accountable for meeting the goals established by the Secretary. In addition, the Secretary of the Treasury will have an independent responsibility to monitor the aggregate level of activity by the Administration.

The Government Accountability Office is required to audit CEDA on a regular basis, and is granted access to all personnel, records, property, etc. necessary to perform its audit. Further, the Administrator shall annually order an independent audit of CEDA's financial statements by an independent public accountant, to be conducted in accordance with generally accepted auditing standards. In addition, the Administrator shall prepare and submit annual and quarterly reports to the Secretary of Energy in the form prescribed by the Secretary.

Taking a page from recent securities legislation, the Administrator, as the Chief Executive Officer, and the Chief Financial Officer are required to personally certify the accuracy and completeness of these reports. Those reports will be made public after receipt by the Secretary. An Inspector General will be assigned to CEDA on a permanent basis.

d. COMPETENCE

The Draft recognizes the need for the types of specialized expertise and experience which does not normally reside in the federal workforce. The Administrator is granted significant flexibility to bring in personnel with necessary expertise where justified, subject to a limit on the total number of 'exempt' staff at any given time, and certain other limitations.

I believe that a careful review of the Committee Draft shows that the Committee has gone the extra mile to ensure that CEDA's mission is clear, achievable and focused; that CEDA is provided with the necessary tools, authorities and flexibility to achieve its mission; and that CEDA has been structured to ensure, as far as possible, that its resources are managed carefully and with strict accountability for its decisions, ensuring all the while the safety and soundness of the entity.

II. RISK

After ensuring an appropriate mission and providing a structure for safety and soundness, the next important task is to allow CEDA to take on risky investments necessary for it to meet its mission of fostering breakthrough technologies, without fear that the failure of one or more supported technologies or projects will reduce or eliminate support for its risk-taking mission. Here again, I believe the Committee has done an outstanding job.

It is critical to be very clear that, if enacted, CEDA will support some projects that, despite best efforts and thorough due diligence, do not perform as expected, resulting in financial losses to CEDA. This will happen and only means that CEDA is doing its job. If there were little or no risk in CEDA's mission, there would be no need for it in the first place. It is very hard for any entity to acknowledge and accept losses or failures, but it is particularly difficult for an entity subject to public scrutiny and accountability to do so because of the potential for public humiliation in the wake of such loss, something CEDA's counterparts in private equity do not usually have to face.

That is why I believe the heart and soul of this bill is Section 7(a)(1)(C), a section simply titled "Risk." This section requires the establishment of a loss reserve, as discussed above, and even provides an initial loss reserve requirement, pending suffi-

cient data to create a requirement more tailored to its own risk experience. The selected loss reserve requirement is one common among private equity and other risk firms. This loss reserve level, appropriate for private firms, is probably too low for CEDA, since CEDA is tasked to facilitate the funding of higher risk projects than private equity is willing to fund. However, this goal is in tension with the need to preserve as much capital as possible to maximize the number of projects which receive funding. This is a perfect illustration of the perpetual tug of war between risk mitigation and potential payoffs, which is the defining characteristic of this space.

This section requires a portfolio or diversified approach, while other sections of the bill allow for the creation of multiple risk silos, with separate qualifications, fees and characteristics to accommodate a diversified portfolio. Most importantly, this section requires CEDA to provide the "maximum practicable percentage of support to promote breakthrough (i.e., the riskiest) technologies."

These provisions are critical to the achievement of CEDA's mission, which is nothing short of attempting to retool our economy to support a 'low-to-no-' carbon footprint. Only if CEDA knows that it is acceptable, in fact, expected to recognize losses, will it allow itself to take on the risks it must take to achieve its mission. I would argue that if it does not 'fail' enough, it is not taking the appropriate level of risk. Again, what is 'enough' failure and what is too much can be answered only by experience. We will not crash through the carbon-based economy barrier with timidity or by being risk averse. Courage and boldness are required on all frontiers—and we are most definitely on a technology frontier.

III. NATIONAL ENVIRONMENTAL POLICY ACT ("NEPA")

I encourage the Committee to consider narrowing the applicable scope of the National Environmental Policy Act to this program.

Most of CEDA's activities and support will be focused on leveraging private capital markets by providing some means of mitigating technology risk, either through loan guarantees, credit support, insurance, or by other means short of direct investment or lending. When acting in a purely credit support role, it would be beneficial if the project under consideration for such support could be subjected to significantly less than full NEPA assessment or review. Of course, if CEDA is considering investing equity or making a direct loan, a fuller evaluation would be appropriate. This is particularly important in view of the recognition by both the Department and the Committee that most applications should receive a final determination within 180 days of submission.

IV. CONCLUSION

In my testimony last year, I identified four primary challenges to our nation's future. I believe that, as proposed in the 21st Century Energy Technology Deployment Act, CEDA will address each of the four security challenges as follows:

> Energy Security will be enhanced by the development of domestic, affordable, reliable and sustainable sources of energy to meet the demand for fuels and electricity while simultaneously making the system less vulnerable to intentional and unintentional disruption.
>
> Economic Security will be enhanced through the increased ability of the United States to insulate itself from the inflationary pressures of dependence on a petroleum-based economy, as well as slow the imbalance of payments to oil- and gas-producing nations, many of which wish to do us harm. By retaining petro-dollars at home and refocusing them on a "greener" economy, the United States can maintain and enhance its manufacturing and intellectual competitiveness, create and maintain good jobs and support (and export) thriving new technologies.
>
> National (Physical) Security will be enhanced by reducing our need to protect foreign oil and gas infrastructure and reducing our presence in unstable areas which harbor those who may wish to retaliate against the United States on its homeland as well as abroad.
>
> Environmental Security will be enhanced by reducing the volume of emissions which contribute to climate change and otherwise pollute the air, water and soil.

Mr. Chairman, Ranking Member Murkowski, thank you for the opportunity to testify today in support of legislation that is so vital to our country. I urge this Committee to act on this bill and move legislation to the floor as quickly as possible. Time is truly of the essence.

This concludes my prepared remarks. I look forward to your questions.

The CHAIRMAN. Thank you very much.

Joe Hezir, we are glad to have you here.

STATEMENT OF JOE HEZIR, VICE PRESIDENT, EOP GROUP

Mr. HEZIR. Thank you for the opportunity to be here today. My comments are going to be perhaps more specific and targeted to the budgetary and financial management aspects of the committee discussion draft bill, the 21st Century Energy Technology Deployment Act.

I served in several career positions at the Office of Management and Budget for over 18 years, and during that period of time, I had oversight for energy technology R&D programs, including demonstration and deployment activities. I currently serve as a consultant and an advisor to a number of entities that are participating in the title 17 program, but my comments today are my own and reflect the result of my cumulative Government and private sector experience and do not represent the views of any particular entity.

Let me speak first to the amendments to title 17 of the Energy Policy Act. Title 17 originally established a simple and flexible structure for the program at DOE. However, this structure, because of its flexibility and lack of definition, in some cases has actually contributed to delays or uncertainties, and the amendments contained in this bill do much to provide needed clarification and direction to DOE.

I just want to highlight several particular aspects of those amendments, such as the revision to the definition of commercial technologies which moves the definition to more of a financial needs-based definition.

Second, the amendments give DOE greater flexibility to use a combination of fees and appropriated funds to pay for budget subsidy credit costs, which gives DOE the flexibility to support smaller-scale projects and to support projects with higher risk, but greater technological breakthrough potential.

The amendments also clarify that appropriations act authority is not needed for the Department to issue loan guarantees that are paid 100 percent by the borrower. This amendment codifies an April 20th, 2007 GAO legal opinion that ruled that the so-called self-pay authority in the Energy Policy Act was independent of the Federal Credit Reform Act and not subject to the Federal Credit Reform Act. This amendment provides that needed clarification that DOE can proceed with the issuance of loan guarantees without further appropriation actions in cases where the borrower is willing to pay 100 percent of the cost of the budget credit subsidy.

There also is an amendment in this bill that provides greater flexibility for DOE to enter into collateral-sharing agreements with other lenders, as well as to allow multiple equity investors that hold undivided interests in project assets. When title 17 was enacted and the original regulations were developed, they were developed primarily based on the presumption that this program would operate with projects that had a single equity holder and a single lender. In reality, the financing structures, some of which were described here this morning, may involve multiple equity holders, as well as several co-lenders, including in some cases foreign export credit agencies.

The amendments in this bill, if accompanied with the appropriate changes in the DOE regulations, would enable DOE greater flexibility to hold collateral in undivided interest structures. It would enable DOE to adopt parallel lending structures and would allow DOE to accept other collateral other than project assets. This will help to reduce the risk exposure to the Federal Government and in many cases enable DOE to strengthen its collateral position.

The amendments also allow for the program to be converted to a revolving fund, which is a customary Federal budgetary account that allows it to better use its fee revenues and to establish loan loss reserves.

These amendments, I believe, set the stage for the establishment of the proposed Clean Energy Development Administration, or CEDA. CEDA builds upon this and establishes a new entity within DOE without creating a wholly new entity such as a Government corporation. I think this balance will permit faster startup while ensuring appropriate independence.

There are four pieces of the CEDA financial mechanisms that I would like to briefly comment on.

The first has to do with what I call the CEDA business model. CEDA financing authorities are modeled after the successful business models that have been currently used in the Federal Government in the U.S. Export Import Bank and the Overseas Private Investment Corporation.

The Export Import Bank, as many of you know, provides guarantees for buyers of U.S. goods and services overseas. The bank is authorized to engage in credit activities up to $100 billion, and their programs have been very successful. In fact, the bank earns fees in excess of its loan losses and its administrative expenses.

OPIC provides loan guarantees and political risk insurance for U.S. investors that are seeking to invest in developing countries and emerging markets. They currently have a portfolio of about $7 billion, but OPIC also earns net revenues on its political risk insurance and it has a cost of only about 2 percent on its loan guarantee portfolio.

The other aspect of the bill that I think is important is that the Federal Credit Reform Act would apply to the transactions of this entity which provides a very rigorous risk-based methodology for the CEDA to evaluate and process applications.

The CEDA legislation also, I believe, has a very good provision and provides for a portfolio approach with the clear objective that the portfolio become self-sustaining.

I think also it is very important that the legislation requires CEDA to establish a loan loss reserve. Establishing a clear, upfront policy on loan loss rates, I believe, is critical to guide CEDA's risk appetite for clean energy technologies.

Fourth and finally, the bill includes a number of provisions to ensure a high level of transparency and accountability. These include a separate inspector general, GAO reviews and oversight, audited annual financial statements, and several reporting requirements to Congress.

In conclusion, I would just like to say that the proposed CEDA will not be risk-free. Financing the deployment of clean energy technology projects, including those with potential breakthrough

possibility, will entail risk. But I believe that the framework that is created in the draft bill will provide a rigorous framework to ensure prudent risk management.

Thank you, Mr. Chairman. That concludes my remarks. I would be happy to answer any questions.

[The prepared statement of Mr. Hezir follows:]

PREPARED STATEMENT OF JOE HEZIR, VICE PRESIDENT, EOP GROUP

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to discuss with you today the budgetary and financial management aspects of the Committee discussion draft bill, the "21st Century Energy Technology Deployment Act."

I served in several career executive positions at the Office of Management and Budget for a period of 18 years, the last 6 years as Deputy Associate Director for Energy and Science. While at OMB, I was responsible for oversight of energy technology R&D programs, including policies for technology demonstration and deployment.

I currently am a consultant and advisor to a number of companies participating in the DOE Title XVII loan guarantee program. I also advise several industry trade associations on loan guarantee program issues. My comments today are my own and reflect my cumulative government and private sector experience and do not represent the views of any particular company or organization.

My comments are focused on three topics:

- the proposed amendments to Title XVII of the Energy Policy Act of 2005;
- the financial management provisions of the proposed Clean Energy Deployment Administration (CEDA); and
- the transition process from the current DOE Title XVII program to the proposed new CEDA.

AMENDMENTS TO TITLE XVII OF THE ENERGY POLICY ACT OF 2005

The enactment of Title XVII of the Energy Policy Act of 2005 (EPACT 2005) posed a major challenge to the Department of Energy. Title XVII authorized not only a new program in DOE, but one that was of an entirely different character than any existing DOE program. Implementation of the Title XVII loan guarantee program for innovative technologies required the establishment of a new office, hiring of staff with expertise that did not exist within DOE, development of new regulations, and development of a new business model within DOE. Although the pace of implementation has not been as rapid as many observers would like, the DOE Loan Guarantee Program Office has made substantial progress and has now gained momentum that should become evident in decisions in the near future.

Title XVII of the EPACT 2005 established a relatively simple and flexible structure for the DOE Loan Guarantee Program. However, the absence of detailed and prescriptive direction in the original statute has contributed to delays and uncertainties.

New developments since the time of enactment, such as the potential for co-financing from foreign export credit agencies and the collapse of commercial lending and private equity markets, created issues that were not envisioned at the time of EPACT 2005.

The draft bill contains a set of amendments to Title XVII that provide much needed clarification and direction. In particular, the proposed amendments would:

- revise the definition of "commercial technologies" so that the criterion for eligibility for a loan guarantee would reflect the inability of a proposed clean energy technology project to obtain commercial financing, rather than simply the number of times that the technology was deployed in previous projects receiving DOE Title XVII loan guarantees;
- allow DOE to use a combination of fees and appropriations to pay for budget credit subsidy costs, providing DOE flexibility to adjust fees as needed to support smaller scale projects or projects with higher risk but greater technological breakthrough potential;
- clarify that appropriations Act authority is not necessary for the volume of loan guarantees that are supported through 100% self-pay fees. This amendment codifies an April 20, 2007 Government Accountability Office (GAO) Legal Opinion that the so-called self-pay authority in Section 1702 (b)(2) of EPACT 2005 was independent from the requirement of Section 504 (b) of the Federal Credit

Reform Act of 1990. Section 1702 (b) of Title XVII provides clear DOE authority to issue loan guarantees through the self-pay mechanism, whereby DOE can charge, collect and deposit in the Treasury such payments without the need for appropriations. This does not limit the ability of Congress to establish limits on self-pay guarantees; it merely clarifies that no further appropriations action is necessary in order for DOE to exercise the authority provided in Section 1702 (b).

- provide greater flexibility for DOE to enter into collateral-sharing agreements with other lenders, especially foreign export credit agencies, as well as allow multiple equity investors that hold undivided interests as joint tenants in project assets. EPACT 2005 and the DOE implementing regulations were premised on an assumption that Title XVII projects would have a single equity holder and a single lender. Financing structures, particularly for larger power generation projects, may involve multiple equity holders, using the ownership structure of joint tenancy, as well as several co-lenders. In some cases, equity holders with undivided interests may provide a corporate guarantee beyond their ownership interest in the project which would yield a significantly stronger credit position for DOE. The proposed amendment on subrogation, supplemented with changes in the DOE regulations, will enable DOE to:

  —hold collateral in undivided interest structures;
  —adopt parallel financing structures (including co-lending from Export Credit Agencies), and
  —more easily accept collateral other than project assets.

These arrangements will lower the risk exposure to federal taxpayers and enable DOE in many cases to strengthen its collateral position;

- convert the current DOE Loan Guarantee appropriation account into a revolving fund, which is the customary type of federal budgetary account used for business-like transactions. This modification will provide greater funding certainty by enabling DOE to utilize fees immediately upon collection, without further appropriation, to pay for the continuing ramp-up in staff and support services. The proposed change in the budget accounting would reinforce the current requirement for DOE to recover 100% of administrative costs through fees; and
- provide clearer direction to DOE to complete its reviews of project applications within 180 days. This will help guide internal DOE program planning, while providing greater schedule certainty to project applicants.

In short, these amendments provide DOE greater clarity to overcome uncertainties in implementation, and provide greater flexibility to respond to the types of project applications received to date. These amendments are necessary to achieve expeditious implementation of both the original Title XVII program, as well as the new Section 1705 program authorized by the Recovery Act, without diminishing program effectiveness or accountability. However, it will be necessary for DOE to promptly make corresponding changes in its Title XVII regulations to reflect these changes.

THE PROPOSED CLEAN ENERGY DEPLOYMENT ADMINISTRATION (CEDA)

The proposed Clean Energy Deployment Administration (CEDA) builds upon and greatly strengthens the current DOE Loan Guarantee Program Office without the need to establish a new, wholly independent entity such as a government corporation. Placing the CEDA within the Department will enable the new organization to achieve operational status more quickly, while establishing its independence in the areas of personnel management, legal support, procurement and administrative services. This organizational placement also will foster better integration of CEDA activities with the proposed Energy Technology Deployment goals established by the Secretary of Energy.

The proposed CEDA will have two principal financing authorities:

- direct provision of credit enhancements in the form of loans, loan guarantees and related instruments; and
- indirect encouragement of commercial lending for clean energy technologies through the purchase and resale of commercially-originated loans for clean energy technologies.

The draft bill provides that, upon transfer of Title XVII functions to CEDA, an additional $10 billion in direct funding will be provided to CEDA from the Treasury. Assuming that the CEDA manages its portfolio with a loan loss target rate of 10 percent or less, the funding should be sufficient to support over $100 billion in

loans, loan guarantees and other forms of credit enhancement. These amounts are in addition to the amounts made available in the Recovery Act and the Fiscal 2009 Omnibus Appropriations Act. In addition, CEDA is authorized to borrow $2 billion from Treasury for securitization of clean energy technology project loans originated by commercial lenders. The borrowing authority will provide the initial capital to "prime the pump" as CEDA develops a self-sustaining securitization program.

There are four aspects of the proposed CEDA financing authorities that I would like to highlight: (1) the design of the CEDA financing provisions based on the experience of other federal credit agencies, (2) application of the Federal Credit Reform Act, (3) provisions to encourage prudent risk management, and (4) transparency and accountability requirements.

First, it is important to note that the CEDA financing authorities are modeled after the successful business models of the U.S. Export-Import Bank (ExIm Bank) and the Overseas Private Investment Corporation (OPIC).

- The ExIm Bank provides loans and loan guarantees to international buyers for the purchases of U.S. goods and services. The Bank is authorized to issue loans and loan guarantees up to a statutory cap of $100 billion. The current portfolio has an outstanding balance of over $40 billion. The ExIm Bank makes credit decisions on the basis of a credit risk model that classifies prospective borrowers by host country and ownership structure. The country risk ratings are developed through an Interagency Country Risk Assessment System (ICRAS) that is applicable to all federal international assistance programs. ExIm Bank's programs have been highly successful. It expects to earn revenues from fees in excess of loan loss reserves and administrative expenses.
- OPIC provides loans, loan guarantees and political risk insurance to encourage U.S. firms to invest in the economic and social development of developing countries and emerging market economies. OPIC also uses the ICRAS system in assessing host country risk. OPIC has a current portfolio of loans and loan guarantees of about $7 billion. OPIC earns net revenues from its political risk insurance program, and has a budget subsidy cost of only about 2 percent on its loan guarantee portfolio.

The financing authorities of the proposed CEDA are similar to those of ExIm Bank and OPIC, and should enable CEDA to manage a large and self-sustaining credit portfolio employing a disciplined risk management process.

Second, the proposed CEDA would be subject to the Federal Credit Reform Act of 1990 (FCRA), and would utilize the tools of FCRA to manage loans and loan guarantees. FCRA provides three benefits: (1) a rigorous methodology for evaluating project risk, (2) a disciplined process for periodic review and re-estimate of the risks associated with credit portfolios, and (3) reliance on permanent indefinite budget authority to liquidate any losses in excess of the budget credit subsidy cost (or loan loss reserve). The application of FCRA has had a beneficial impact on the performance of federal credit programs. At the end of fiscal year 2007, the last full fiscal year prior to the current economic recession, the federal government held a portfolio of $260 billion in direct federal loans and $1.2 trillion in loan guarantees. OMB budget data show that, on a government-wide basis, the budget subsidy cost for new loan guarantees issued during fiscal 2007 was 2.1 percent, and that losses from guaranteed loans terminated for defaults amounted to only 1.03 percent of the outstanding balance of the portfolio.

Third, the draft bill requires prudent risk management. The draft bill directs CEDA to adopt a portfolio approach, with a clear objective that the portfolio becomes self-sustaining. As part of this portfolio approach, the draft bill requires CEDA to establish a loan loss reserve, and further states that the Administrator of CEDA ". . .shall consider establishing an initial rate of up to 10 percent for the portfolio of investments under this Act." The draft bill also provides for an annual review of loan loss rates by the Board of Directors and an annual report to Congress on the results of that review. Establishing a clear, up-front policy on loan loss rates is critical to guide CEDA's risk appetite for clean energy technologies, especially breakthrough technologies. Regardless of the specific numerical target selected by CEDA, the portfolio will encompass a range of project risk, and it is likely (and desirable) that a significant portion of the portfolio will have loan loss risk that is substantially less than the average loss rate used to establish reserves.

Fourth, and finally, the draft bill provides a number of important provisions to ensure a level of transparency and accountability for CEDA that exceeds the current Title XVII program. Specific measures include:

- a separate, dedicated Inspector General;

- application of Sarbanes-Oxley standards for the maintenance of internal controls and capital adequacy;
- independently audited annual financial statements;
- quarterly and annual reports to the Secretary on CEDA's financial condition;
- annual loss rate review by the Board of Directors and reports to Congress; and
- oversight and audits by GAO at the discretion of the Comptroller General.

None of these requirements currently apply to the DOE Loan Guarantee Program Office. These measures will provide a high degree of openness and transparency, providing ample early warning of any emerging problems or issues.

In summary, the CEDA will not be risk free. Financing the deployment of clean energy technology projects, and potential breakthrough technologies, will entail risks. But the draft bill creates a rigorous framework to ensure prudent risk management.

TRANSITION FROM THE CURRENT DOE LOAN GUARANTEE PROGRAM OFFICE TO THE PROPOSED CEDA

The draft bill contains special provisions to promote a seamless transition of the current DOE Title XVII program to the proposed CEDA. Currently, the Title XVII program is managed by the Loan Guarantee Program Office (LGPO) under the Chief Financial Officer. The LGPO is relatively small but has an exceptionally high workload. There may be 75 or more applications currently pending at the LGPO, and the implementation of the new Section 1705 loan guarantee program authorized in the Recovery Act will add substantially to that total.

While the early pace of LGPO has not been as rapid as many outside observers would like, it has been gaining momentum, and it is reasonable to assume that the Department will complete due diligence and take action on a large number of these applications prior to activation of the proposed CEDA. Thus, it is critical that the credit review activities currently underway within DOE be sustained without loss of momentum as the program transitions to the new CEDA.

IMPACT OF THE FISCAL YEAR 2009 OMNIBUS APPROPRIATIONS ACT

The Fiscal 2009 Omnibus Appropriations Act made significant changes to the funding resources of the DOE Title XVII program. The Act extended indefinitely the previous $38.5 billion in prior year loan guarantee volume, and provided for $8.5 billion in additional loan guarantee volume, for a total volume of $47 billion. These amounts are in addition to the $6 billion appropriated in the Recovery Act to cover approximately $60 billion in loan guarantee volume under the new Section 1705 loan guarantee program.

The Omnibus Act also contained new and extremely restrictive language regarding the issuance of new loan guarantees that qualify within the $47 billion loan guarantee volume limitation. Specifically, the Act prohibited DOE from issuance of loan guarantees to projects that have other federal contracts, leases or other forms of federal assistance. Further, the Act requires a certification by the Director of OMB for each loan guarantee issued under this authority. This provision unnecessarily restricts the ability of DOE to issue loan guarantees to projects that have other legal relationships with the federal government, and will inevitably slow the pace of the program due to the need for case-by-case OMB determinations.

The impacts of this provision need to be addressed in the consideration of the draft bill because, if left unchanged, the restrictions will carry over along with any unused authority that is transitioned to the proposed CEDA.

CONCLUSION

In conclusion, the draft bill:

- provides many needed clarifications and modifications to the existing Title XVII authorities. These amendments need to be accompanied by expeditious changes in the implementing regulations;
- creates a sound platform for an effective clean energy technology deployment financing program, with an emphasis on breakthrough technologies;
- provides a robust set of financing tools to accelerate the deployment of clean energy technologies, especially those with breakthrough potential;
- establishes checks and balances to ensure prudent risk management, promote transparency and establish strict accountability; and
- defines a transition mechanism that will sustain the growing momentum of the current Title XVII program.

This concludes my prepared statement. I would be pleased to answer any questions.

The CHAIRMAN. Thank you very much. Thank you all for your excellent testimony.

Let me ask a few questions here and then I am sure Senator Murkowski and others will have questions.

Matt Rogers, let me start with you. One of the concerns we heard loud and clear at the previous hearing that we had was that if we were to establish any kind of new entity, it might impede the ability of the Department of Energy to move out aggressively with implementing the current loan guarantee program. I think the consensus that I sort of picked up at that time from witnesses was that we needed to make changes in the law to facilitate a better working of the existing loan guarantee program, and we also needed to perhaps have an expanded capability in an entity separate from the Department of Energy, but that we did not want the second of those to get in the way of the first.

I guess I would ask you whether you think we have found the right balance here. Are there provisions in here we need to look at changing in order that we not impede what Secretary Chu is now trying to do with the existing loan guarantee program? We are trying to assist the Secretary with implementation of that program rather than impede it, and I want to just be sure that we are doing that, if possible.

Mr. ROGERS. We appreciate very much the work that you and Senator Murkowski have put into collaborating with the Department on the changes necessary to make the current program work more effectively.

There are a couple of technical language changes that we can work with staff on to further enhance the ability of the current programs to move out efficiently, effectively, and to protect the taxpayers' interests, as we move forward here, that could be included in the context of this legislation to make it stronger both for the near term and long term.

As we think about that goal, which you set out so clearly, it is one that we clearly share, which is to move out the existing pipeline of loans within the existing authority that you have given us in a very expedited fashion to contribute to the Recovery Act. Utilizing vehicles like this to enhance that capability, I think that will enhance the Recovery Act and set things up for future success.

The CHAIRMAN. Let me ask. One of the suggestions that I believe you had in your testimony—I believe it was in yours, John—where you talk about the possibility of this CEDA taking equity positions. Was that in your testimony? That was in Dan Reicher's testimony, I guess, suggesting that we provide additional authority in that regard.

Could you elaborate on that as to what you think is lacking in what we currently have before us?

Mr. REICHER. Mr. Chairman, I think the provision, as written, goes a long way, and the suggestion was a further improvement. There is what is called profits participation that is already spelled out in the bill. The idea would be if there was additional equity interest that could be taken, for example, in the underlying company that is providing the technology for the project that is being de-

ployed. That is a fairly standard technique that is used in the project finance world, and there are several others that might be looked at. We can definitely work with staff to think this through.

But what overall it would do is basically put this fund that you are creating on an even firmer footing so that it is in fact self-perpetuating. There will be returns as a result of the loans that get made. There also may be upside as well in both an ownership interest in the project itself and, as I said, potentially even an ownership interest in the underlying technology company, and that can be done through warrants or any number of other mechanisms.

The CHAIRMAN. Let me ask John Denniston if he has any thoughts about this suggestion.

Mr. DENNISTON. Yes. So you ask an excellent question. Just as a macro perspective, in our current financial crisis, there is an extreme scarcity of capital across the board. I believe that is your question, both debt and equity. So this legislation addresses the debt portion of that challenge, that crisis in the market today.

Your question is should you also do something about equity, to encourage equity investment. I think that is a great question. It is a complicated question. One of the wonderful things that you have done in the legislation is put CEDA in a position to not actually write checks, but issue a loan guarantee. So actually the expected outlay from the U.S. Treasury is relatively small relative to the boost that you put into the capital markets from the debt that will come, strengthened by and enabled by that guarantee.

There is an equity scarcity. So people taking equity risks on projects—it is very, very difficult to come by that. There are two potential paths that Congress could take.

The first is to actually put the Federal Government in the business of writing equity checks. There are concerns around that, adverse selection and so forth, because that is an actual outlay. But there is clearly a need for it.

Another path to get to the same point is to create greater incentives for the private market to come forward with that equity risk capital. Tax incentives are one. There are very powerful tax incentives that could be put in place right now for green technologies that would be a strong encouragement for private sector equity capital to come into clean energy technology companies.

Mr. REICHER. Mr. Chairman, if I might, just adding on that. Somewhere in the middle, I think, is this notion of actually taking an equity stake. It does not necessarily mean that the Federal Government has to make an equity investment but in a sense taking an equity stake in the form of warrants or something else in the project or in the underlying technology company.

This is a complicated area, and I am the first to admit it. But I think it is worth probably another set of discussions with staff to frame it in a way that will put this, as I say, on the firmest footing to be self-perpetuating and deal with this financial crisis we face right now.

The CHAIRMAN. Senator Murkowski.

Senator MURKOWSKI. It is complicated and it certainly raises a whole host of issues. I think when we look at what is happening within the automobile industry right now and Government looking

at taking equity interest, raises great concerns. I think we need to be very careful in this area.

But I am also cognizant of the fact that right now with the capital markets as they are and just the upheaval that we have seen, this is a different time for us in terms of availability of credit for whatever the project, and level of risk. I think we are all hoping that we are going to ride through this and we are going to get on more stable footing, but right now it really complicates the picture.

Mr. Rogers, I want to go back to your response to the chairman regarding anything that we need to be doing right now. I appreciate your response that you think we can work through some of the language. Recognizing Secretary Chu's desire to issue loan guarantees in the next month or so on a very expedited basis and I appreciate his enthusiasm and his commitment. Is there anything that we need to be doing at this point in time, recognizing that this legislation is still in the development stages? But we have talked previously about the issues of superiority of rights, cross-default issues. Is there more that we can be doing to help you at this point in time?

Mr. ROGERS. The two specific issues that are standing out there—one is the CBO language that was adopted as part of the 2009 budget resolution which limits the ability of the Federal Government to make loans to entities that are doing business with other parts of the Federal Government. That encumbrance does, in fact, limit us from making a set of loans to a set of very good counter-parties that are currently in the pipeline. So it is something that, given that it as part of the statutory language of the 2009 budget bill, requires a statutory fix to address.

The same thing is true, we believe, of some of the discussions about the undivided interest issue that you raised and the cross-default issues there. I think, again some of that is addressed in here. There are some language fixes that would make it clearer because what we want to do—and there is a set of loans, again, coming forward quite quickly where the undivided interest and the pari passu treatment would enable other parties to co-fund some of these projects in the United States with us. The Japanese Export Bank, for example, would like to fund some of the nuclear facilities that we have currently under consideration. The way the rules are currently written, we are not able to do that in a way that works for that entity. This is a way to diversify the risk, reduce the risk for the American taxpayer, and get these projects done more rapidly. So your help in those statutory changes will be appreciated.

Senator MURKOWSKI. Ms. Hull, you mentioned the loan loss reserve, and you stated that in your opinion the amount we are providing for is perhaps too low at this point in time. I would be curious to hear from those of you at the table as to what you might consider to be an appropriate percentage limit for the loan loss reserves. 10 percent is consistent with the safest thrift institutions, CBO's most recent interpretation of stimulus funding for the loan guarantee. So there was rationale for that. But can you just briefly speak to what you think might be a reasonable loan loss reserve? You can start, Ms. Hull.

Ms. HULL. Thank you. I think it is a great idea that there is the recognition of the need for a loss reserve. I think what the com-

mittee has done with that in terms of balancing that tension between having sufficient capital available to put to productive use versus the capital reserve to protect against losses—it is a tough balancing act. As I said, the percentage that is the initial percentage structured in the bill, as it stands now, is appropriate for what is for private equity now.

I think, however, since we are asking this entity to do two things—not only invest in breakthrough technologies so you would need a slightly higher percentage because those are technologies that, by definition, have much greater risk than what is being financed now, but we are also asking this entity to finance energy efficiency and existing renewable technology deployment in small-scale applications so that they can be aggregated and, therefore, financed in a way that the market is just not doing today. That does not entail risk. It does entail risk. It does not entail the same level of risk.

Therefore, you have got two silos. One is very high risk; one is very low risk. So as long as all of your projects are not in the high-risk silo, you have probably come up with what I consider to be a responsible loss reserve. The only issue is how much goes into the breakthrough technologies, how much goes into the deployment of the low-risk technologies. That is something that experience of this entity will dictate the appropriate level. So in my opinion, it is something to be aware of, but I am not sure I would change anything in the bill now.

Senator MURKOWSKI. My time has expired, but I would ask if anybody else has any comments to respond. Mr. Denniston? I think, Mr. Reicher, you had suggested it might want to be lower.

Mr. DENNISTON. I would actually suggest that it be higher. Dan—I respect his view, and I am sure he will have great insight as well.

I think what this committee is looking at is two competing factors. When you look at the loan loss reserve, which is a critical metric in this legislation, the one objective is you want to minimize Federal outlays in this budgetary environment. The other is that you want to accelerate, as much as possible, breakthrough clean energy technologies into the marketplace. In my view, as you increase the loan loss reserve—the Government is taking greater risk—you accelerate the marketed option of breakthrough technologies. That is, I think, what we are trying to do.

So the question for the committee is what is the proper percentage to set. It is not scientific, but there is math involved with it, and the math is you make a—in this legislation, there is a fresh $10 billion appropriation. If the loan loss reserve is 10 percent, then the expected Treasury outlay is $1 billion. If, for example, you set the loan loss reserve at 25 percent, to pick a figure, the expected outlay is $2.5 billion.

So in my view, I would rather see a 25 percent loan loss reserve because I think that will send a signal to Matt Rogers and his team at DOE that we really want to get breakthrough technologies into the market. We want to have advanced batteries that triple or quadruple the energy density for electric transportation or solar panels that cut in half the cost of solar electricity. That is what we are trying to do.

The implication of that for the U.S. Treasury is the difference $2.5 billion outlay at 25 percent and $1 billion. So the difference is $1.5 billion. Again, the beauty of what you have done is the leverage created through loan guarantees means that there is only a Treasury outlay for some percentage of the loan authority going out in the marketplace.

Mr. REICHER. So just following up on that, the other part of the math, which is important, is that a 10 percent loan loss reserve would provide about $100 billion in loans. If it was at 5 percent, it would provide about $200 billion in loans. So there is a big implication of how you set it.

But I think the real answer today is we really cannot set it today. It is OK to put it as 10 percent nominally, but echoing my colleagues, it really is going to depend on the mix of transactions, the types of transactions, the relative types of risk, the investment structures that we use for those transactions. I think this is exactly the sort of thing that a smart administrator with a good board of directors and staff can establish, and I think it is wise to both set a nominal rate now, but give the administrator and the agency the ability to adjust that with input and oversight by the board of directors. So I think I am comfortable with where it is, and I think the important thing is let us get going and let the new agency figure this out in the way that the private sector has to deal with every day.

The CHAIRMAN. Senator Stabenow.

Senator STABENOW. Thank you, Mr. Chairman. I want to thank you personally for your work and the ranking member's work, and I appreciate the opportunity to work with you on what I believe to be one of the most important pieces of energy policy to really move us forward in terms of new technologies, getting us off of not only foreign oil but foreign technologies, and being able to create jobs. So I think this is very, very important, and we need it yesterday.

I appreciate, Mr. Chairman, your allowing doubting industries to come in in March and testify. Jeff Metz who spoke talked about a new injection molding process for wind turbine blades, and they are ready to go. These are folks that were in the auto industry, ready to move, have developed this new technology. But the issue for them is financing. So we see this over and over again.

When I think about the issues for us around not having done this, it is costing us jobs. Asia has been so far ahead of us around batteries, and we have seen what that has resulted in in terms of many challenges, as well as now wind and solar and other areas. So I believe this is very, very important that we do it and it adds to what we did in the recovery plan.

I had one technical point. Mr. Denniston, you talked about credit rating reviews, eliminating those. I wondered if anyone else would want to comment on that. It has been my experience, particularly most recently around various issues we have been working on with autos and so on, it is very difficult when there are challenges and you are trying to help, but particularly if it is startups, particularly in high-risk situations, as you indicated, we would know what the credit rating review would be on this. So I wonder if anyone else would want to comment about the suggestion Mr. Denniston had of eliminating that language from the bill.

Yes, Ms. Hull.

Ms. HULL. Senator, I strongly agree with Mr. Denniston's proposal. As he noted—there is really little to add to what he noted—the requirement for the credit report is a very expensive and time-consuming requirement that provides, I will say flatly, zero new information. It is intended as a fig leaf or some kind of something to hold onto that really does not give you anything additional and is a tremendous burden on the applicants.

Senator STABENOW. Anyone else? Yes.

Mr. HEZIR. Yes, Senator. Just to give you a little bit of context for the credit assessment, this was a general recommendation that CBO has made for all Government credit programs. It tends to make more sense for loans and loan guarantees where there is not technological risk because the credit rating agencies, for all the reasons that were stated here this morning, are just not in a good position to make those kinds of assessments when the primary risk is technological.

When DOE wrote the regulations, OMB had asked them to include this requirement because it had been part of, as I said, a CBO Government-wide recommendation. I think at a minimum, it probably needs some greater flexibility because there probably are instances where it provides very little, if any, additional value.

Senator STABENOW. Thank you.

Mr. REICHER. I would just second that.

Senator STABENOW. Thank you.

Mr. Chairman, I would hope we would look at that provision regarding the credit rating risk. I know what we want to do is to be able to encourage quicker deployment of higher-risk kinds of investments to get new breakthrough technologies. It seems to me this would be potentially a barrier for that.

I wonder if I might just take a final moment, Mr. Rogers, since we have you here, to ask a couple questions regarding the recovery plan because we did put in place the $2 billion for batteries. I appreciate the efforts now on section 136 and the loan guarantees and so on. But we also put in place a manufacturing credit of 30 percent, which has a cap on it of $2.3 billion, which frankly we could use all of that right now in Michigan. So I would love to see us raise that cap or take it off.

But in the investment and production tax credits, we did something innovative, which I think is very important, what I would like to see expanded, and said if someone is not currently making a profit or they are a startup company and they qualify for the credits around alternative energy but cannot take them because they are in a loss position, they would be able to get a grant equaling the value of the credit.

I wonder if you could just indicate where we are in that process. Has that been developed? How soon will businesses be able to use that feature in the Recovery Act?

Mr. ROGERS. Senator, the Department of Energy has been working quite closely with our colleagues at the Department of Treasury to work out the details of how to administer that program effectively. It is, as you describe, a program that has the industry quite excited because it takes away a set of uncertainties and risks and

levelizes the playing field between firms that are already profitable and firms that are pre-profit in this context.

What we have set out is a plan. Treasury should be announcing it here momentarily. I thought they were going to do it either in the last couple days or next couple days, but it is in a shorter period of time to describe exactly how that is going to work.

In simple terms, the Department of Energy is working with Treasury to underwrite some of the risk. One of the things the Department of Energy does especially well is reviews at the technologies and underwrites whether or not those are advanced technologies that meet the terms of the act. But then the Treasury is actually quite good at administering the follow-up through the IRS. So we are working through that and the details have actually been pretty well worked out and that should be available shortly.

Senator STABENOW. Thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman, and thank you for your insights to all of the panelists.

I want to follow up a little bit on Senator Stabenow's question about the credit rating because I think, Mr. Denniston, you actually very accurately described the conflict and the challenges. How do we reassure taxpayers on the one hand and, on the other hand, promote lending and risk-taking that is required for these new technologies?

For you or for anybody else, are there other ways that we can look at some of these startup companies who are looking for funding and say these are good risks, and should we have any other means of evaluating or trying to lay that out as part of the bill?

Mr. DENNISTON. It is a great question, Senator Shaheen.

Let me come back to the emerging growth company scenario. Just so people understand, what is being required today is that a company with a very weak balance sheet that is just getting going, trying to raise money, has to go out and spend hundreds of thousands of dollars to get a credit rating agency review, which comes back and says this company has a weak balance sheet and is not a AAA rating.

I think if to check the box, that there needs to be a credit rating agency letter, CCC or whatever the lowest rating is, you know, quadruple Z, let startup companies say, we volunteer, we are the lowest level. If that is 4 Z's, that is us. Do not make us spend the $200,000. We will stipulate that that is our rating, and you have done what the rating agency would have done. Virtually every startup company would say that is us.

I think that this bill has been very skillfully drafted in that it establishes an advisory council with scientific expertise because the question is which breakthroughs stand the best chance of making a difference for our energy crisis. So it establishes an advisory council populated with scientific expertise. As I said in my testimony, I would add to that, augment it with business expertise. That then gives the DOE, the CEDA, I think the best viewpoint in terms of how the loan and loan guarantee authority ought to be issued.

This is not a credit rating agency question. Furthermore, a lot of these loan guarantee decisions are not on a company. They are on a project. Project financing does not relate to the credit of the company. It relates to the merits of the project itself. So there is no point in having a credit rating agency review on a company. It is the merits of the project. The advisory council, I would submit to you, has a much better informed viewpoint on the merits of that than a credit rating agency.

Mr. REICHER. Senator, let me just echo John's point. The focus is on a particular energy-generating or energy-saving project. I was in that business for a while and it is a much narrower set of issues to analyze. It is a particular technology being deployed in a particular place with a combination of debt and equity. You can go out and see how the venture capital company's pilot plant worked or did not work. You can see what other applications there have been. You can do some analysis around that project. So you are not starting from scratch looking at a technology idea in a small company and are they even going to get it to pilot stage. You know that it works at pilot stage. Now the question is can you back this at a full deployment stage. So, as John said, it is not so much around the credit of the company. It is around the quality of the project, the people behind it, and the history of the technology that undergirds it.

Senator SHAHEEN. Thank you. I am not advocating for the rating but just echoing the concern that you all raised, that there is a real conflict here between what we are trying to do.

Mr. Rogers, first, I want to thank you for all of the hard work that is going on to get those economic recovery dollars out as fast as possible. We are looking for them in New Hampshire at every opportunity and appreciate that everyone is going very hard to try and get administrative rules written, but would just echo what I am hearing at home that that is a real concern as people are looking at how to apply for dollars.

I heard as part of a discussion something that is not directly pertinent to this legislation, but I think it is related and so is worth raising. One of the concerns that I heard in meeting with some bankers was a question about how to value green technology and how to look at that in terms of granting loans and credit. I think there is a real void there, as we are looking at trying to encourage lending in the private sector for new energy technologies for green buildings, for everything related, that there is not a real understanding of how this adds additional value or how to value green technologies and green buildings at all. I do not have any magic ideas for how to address this, but I think it is a concern, particularly as we are looking at spending the dollars in the economic recovery act and as we think going forward about the investments that we are making, how do we help make sure that we are valuing these in a way that is real.

Thank you.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman, and thanks for holding this hearing. I certainly support this legislation.

But I wanted to ask our witnesses today if they could—I think, Mr. Reicher, in your testimony you talked about over the last 5

years VC capital putting something like $12 billion into green technology or various renewable technology programs. My first question is just really to understand where we think we are today since October in actually getting projects approved. I do not mean difficult technologies. I mean basically already tried and true, implemented in the marketplace. So where are we? Just give me a percentage. What percentage of projects do you think, since October, are getting funded? Either Mr. Denniston or Mr. Reicher.

Mr. REICHER. I cannot give you a specific percentage, but I can tell you that there really has been a major fall-off in the ability to finance basic run-of-the-mill renewable energy projects, you know, the 150th or 200th wind project, basic established technologies with established forms of debt and equity. It is very, very difficult these days to get these done, which makes it even harder, obviously, to go out and deploy a new, less proven technology. So these two things come together in the form of this legislation.

Senator CANTWELL. So fall-off—I am assuming you mean more than 50 percent. Probably more like 75 or 80 or 90 percent when you say fall-off.

Mr. REICHER. It is very significant. I just, unfortunately, do not have a number for you.

Mr. DENNISTON. I do. I have got a couple of data points. Actually one which I think is important. Venture capital in the first quarter of 2009 in the U.S. was $3 billion. The run rate in 2008 on a quarterly basis was roughly $8 billion. So we are down by 60 percent just overall venture investment. I think the clean tech portion of that is representative. I do not have that exact figure.

What I would say, Senator Cantwell, is that the debt markets have gone for renewable energy virtually to zero. So that is a 100 percent reduction, which is why this bill is absolutely mission-critical. The equity portion I think is reflective of the number that I just gave you.

Senator CANTWELL. That is why I think today—and this bill is a given. The question is really to me what else we should be doing given the crisis. This is not about hard-to-fund technologies. This is just about funding technology, and with the credit markets frozen up, we have very viable energy technology that is basically not being deployed, not being implemented, not getting onto the grid, and job creation being deterred because we have not gotten our capital markets flowing in a way that would fund these projects.

So one thing that I want to ask about is if you think a low-cost capital program either to meet an RES requirement or a smart grid requirement, something that would be basically amortized over a long period of time, you know, 30 years, something like that, would help in providing patient capital into the marketplace and help stimulate it. So basically the Government putting low-interest, long-term loans out there as a way to help build confidence back and boost some of those credit markets to come back on line.

Yes, Mr. Denniston.

Mr. DENNISTON. Sure. Senator, I think you are asking the right question, which is our capital markets are broken. What can the Government do to break the logjam and resolve our energy crisis at the same time? So I think your idea of low-cost loans is a good one.

Your prior question, which is what is happening on the equity market side, a similar question that was raised earlier, is exactly right. This bill does not attempt to resolve the shortage of equity capital. As I say, there are multiple paths to go there. One is for the Government to actually write checks for equity investment. The other is to provide incentives through the tax system or low-cost capital to do that. There is a screaming need for it. I will say that.

Mr. REICHER. The beauty of the bill is that it does strike a balance between breakthrough projects which it finances and more standard issue commercial projects. That is, in fact, how I think it will ultimately become self-sustaining because those standard-issue projects will actually have a good flow of capital back and keep this going. So I think it is a start.

The beauty of the loan guarantees, as opposed to direct loans, is the huge leverage. We talk about $10 billion leveraging $100 billion in projects. That is a huge leverage.

So I would second what John said about figuring out additional ways to do it, but I think this is a very, very good way to start. It is a critical need.

I will give you one quick data point, as you asked the question about the state of the debt markets and funding for clean energy. I would note that Wachovia, AIG, and Lehman Brothers were in the renewable energy finance business up until about a year ago. So even the players that have fallen flat on their backs on the street were in there. So we have a real serious problem right now moving these projects forward.

Senator CANTWELL. I agree, and so I think we should be even bolder.

I appreciate the boldness that the chairman and the ranking member have worked on this, but I think given the fact that things are way beyond proven technology and lack of funding, we need to do something in addition.

So thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

I could go on here with other questions, but I think maybe we will stop where we are. I think this has been very good testimony, and we appreciate the very constructive suggestions that we have heard here. We hope to incorporate some of those ideas into a new, improved version here and perhaps be in a position to introduce this as freestanding legislation later this week and then proceed to deal with it here in our committee in the next week or so. So that is our hope. Thank you all very much.

That will conclude our hearing.

[Whereupon, at 11:26 a.m., the hearing was adjourned.]

[The following statement was received for the record.]

PREPARED STATEMENT OF MICHAEL J. MCINNIS, MANAGING DIRECTOR, THE ERORA GROUP, LLC

We appreciate the opportunity to share our suggestions about how Congress can help improve the availability of financing for deployment of clean energy and energy efficiency technologies, in particular coal-gasification facilities and CO_2 pipelines.

In our view, creation of a new federal "Energy Bank" and related initiatives will be essential for our nation to achieve a low-carbon economy. We thus support measures such as the draft 21st Century Energy Technology Deployment Act. A new Clean Energy Deployment Administration (CEDA) could help bring to market not

only new and unfamiliar green energy technologies, but also promising carbon capture and storage projects that are well understood but lack financing because of constraints in the credit markets. This new agency or a new "Energy Bank" should have the authority to provide various types of credit, including loans, loan guarantees, and other credit enhancements, as well as measures that provide secondary market support.

CASH CREEK GASIFICATION PROJECT

Deploying a fleet of coal-gasification projects plugged into a network of dedicated CO_2 pipelines will be an important step toward a low carbon economy. Coal gasification coupled with carbon capture and geologic sequestration in connection with enhanced oil recovery is the only cost-effective, near-term, comprehensive solution to reducing greenhouse gas emissions utilizing our country's most abundant natural resource.

The prospect of a coal-fired power fleet with the emission profile of natural gas combustion turbines is not a distant reality. In fact, we are in the final stages of developing the Cash Creek Gasification Project ("Project") in Henderson County, Kentucky. But the financing of low-carbon emission coal facilities in the current economic environment requires federal support.

With near-term federal support, the Project will create 1,000-1,500 construction jobs and 200-300 new permanent employment positions, while supporting thousands of manufacturing jobs related to equipment purchases. When operational, the project will gasify 2.8 million tons of coal per year, producing natural gas and generating electricity in a natural gas combined cycle plant. Once built, the plant will be the cleanest coal-fueled facility in the country, with a greenhouse gas emissions profile similar to that of a natural gas combined cycle facility. In fact, the facility will capture nearly 100% of the carbon dioxide resulting from the gasification process and greater than 75% on a plant-wide basis. The captured carbon dioxide can then be transported by pipeline to support enhanced oil recovery in other parts of the country or could be geologically sequestered as that opportunity arises.

Our facility has in hand, or soon will have secured, all the necessary permits to commence construction, including all required water use and air quality permits. By working with local chapters of the AFL-CIO and executing a project labor agreement, we have ensured that a trained workforce will be ready to commence construction.

During the course of developing the Cash Creek project, we contemplated applying for a loan guarantee under the existing title 17 program. Even when we had access to adequate sources of project debt funding, we decided not to file an application because we faced too much economic uncertainty about whether the credit subsidy cost would make our project either uneconomic or significantly less economic. In the current economic environment, the risks associated with the credit subsidy cost process are too great to bear. We were thus pleased that Congress agreed to cover with appropriated funds the credit subsidy cost in the new title 17 loan program established as part of the American Recovery and Reinvestment Act. Congress should do so for projects funded under the prior loan program as well. In addition, we appreciate the ongoing efforts of Congress and the Department of the Energy to streamline the loan guarantee program so that it will not stand as an impediment to future projects.

We set forth below our recommendations on ways that CEDA or an Energy Bank could help finance gasification facilities, CO_2 pipelines, and other projects in order to help get lowemission coal projects off the ground. In addition, we make recommendations for further improvements to the Department's title 17 loan guarantee program.

CEDA/ENERGY BANK RECOMMENDATIONS

We believe it is essential that the new entity have the authority to provide loans, not just loan guarantees, and that Congress appropriate the funds to support it as early as may be practicable. In the current and foreseeable economic environment, we do not believe loan guarantees will address the principal challenge companies such as ours face—access to capital—even if the credit subsidy cost problem is addressed.

In drafting legislation, Congress should authorize the new entity to provide loans to support gasification projects and CO_2 pipelines that have the following characteristics:

- Projects that are fueled with domestic sources of solid fuels and that avoid, reduce, or capture and geologically sequester the highest levels of CO_2 should receive priority;

- Projects that have necessary air, water, and other permits in hand—and thus are closest to being shovel ready—should receive priority; and
- The new entity should have sufficient funds to allow it to lend up to 80% of the capital costs of up to 10 low-carbon emission coal-gasification facilities and CO_2 pipelines to geologic sequestration sites, including enhanced oil recovery operations.

TITLE 17 RECOMMENDATIONS

We recommend that the Department revise the regulations that implement title 17 of the Energy Policy Act of 2005 to address two important issues. First and foremost, we believe that the Secretary should issue an additional project solicitation and prioritize the award of loan guarantees based on a project's greenhouse gas emissions profile and how soon the project will have all permits necessary to commence construction. Implemented in this way, the title 17 loan guarantee program not only would serve as a catalyst to stimulate the economy by supporting shovel-ready projects, but also would encourage applicants to develop the cleanest possible projects. Second, the Department should revise the implementing regulations to streamline the application process and to address the implementation problems that discouraged us and other companies from seeking loan guarantees as a tool to bring commercially available technology to market.

As a related initiative, Congress should make modest changes to section 703 of the Energy Independence and Security Act of 2007 to encourage not only research and development projects, but also deployable projects that are using state-of-the art technology. With a few simple modifications, Congress not only would encourage the development of technologies for the large-scale capture of carbon dioxide from industrial sources, but also would speed their deployment.

CONCLUSION

If the United States is to retain its economic and technological competitiveness, while at the same time making a significant contribution to reducing its overall greenhouse gas emissions, it is essential that large scale commercially viable CCS and coal gasification technologies be deployed. By authorizing CEDA or a new Energy Bank to provide loans and by improving the loan guarantee program, Congress can address the problems caused by the current credit crisis and meet the twin goals of creating new green energy jobs and placing a down payment on technology that will make the United States more energy efficient and energy independent.

APPENDIX

RESPONSES TO ADDITIONAL QUESTIONS

RESPONSES OF MATTHEW ROGERS TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. Many questions remain as to DOE'S interpretation of Title 17 provisions from the 2005 Energy Policy Act, specifically on the superiority of rights and cross default-issues for projects with multiple owners or creditors.

Answer. The Department of Energy is committed to review all issues associated with the proposed ownership structures on a case-by-case basis. Separately, it is studying these issues in the context of the proposed legislation and its current rules. In general, the DOE believes appropriately designed project structures can create opportunities to reduce the risk to U.S. taxpayers and increase the positive impact from the loan guarantee program.

Question 2. Given Secretary Chu's desire to issue loan guarantees in the next month or two, how is the loan guarantee office is interacting with applicants to make sure that their questions and concerns are addressed?

Answer. After a Department of Energy loan guarantee application is received, it is reviewed for completeness by the loan guarantee office and for technical merit at one of the national laboratories. Complete applications, that meet the technical and financial requirements under the Energy Policy Act of 2005 (EPACT), move into the due diligence phase. In this phase, the project is assigned a Senior Investment Officer. The Senior Investment Officer consults with the Treasury Department on the terms and conditions of the guaranteed loan and works with the project sponsors to ensure that all parties understand how the project will be evaluated by the Title XVII Loan Guarantee Program and addresses any questions or concerns the project sponsor may have, on a consistent basis.

Question 3. There appears to be some disagreement among the witnesses as to what is an appropriate percentage limit for the loan loss reserve. Ten percent is consistent with the safest thrift institutions and CBO's most recent interpretation of Stimulus funding for the Loan Guarantee Program.

Answer. The Department does not set a threshold for an acceptable rate of default for projects participating in the program. Title XVII requires that there must be a reasonable prospect of repayment in order for the Department to issue a loan guarantee. Under Title XVII, therefore, each loan is reviewed on its own merits. The Department goes through a rigorous due diligence and underwriting process utilizing in-house as well as independent external advisors to assess and mitigate the risks. The Department calculates a quantitative credit subsidy cost for each of the loan guarantees under the program; OMB has final approval of these cost estimates. Consistent with the Federal Credit Reform Act, the actual subsidy cost for any particular Title XVII loan guarantee will be determined based on the specific characteristics of the individual loan, including credit risks and the terms and conditions of the contracts. Moreover, under the Federal Credit Reform Act, the subsidy cost reflects the best estimate of the long-term cost to Government of the loan or loan guarantee, excluding administrative costs. There is no need for a separate loan loss reserve.

Question 4. Can you elaborate further on what you think is a reasonable level for the loan loss reserve to be set at, and how that compares to existing treatment of credit subsidy costs for comparable programs in the federal government?

Answer. The Department does not set a threshold for an acceptable rate of losses for projects participating in the program. The statute requires that there must be a reasonable prospect of repayment in order for the Department to issue a loan guarantee. Under Title XVII, each loan is reviewed on its own merits. The Department goes through a rigorous due diligence and underwriting process utilizing in-house as well as independent external advisors to assess and mitigate the risks associated with default. The Department calculates a quantitative credit subsidy cost for the loan guarantees under the program; OMB has final approval of these cost

estimates. Consistent with the Federal Credit Reform Act, the actual subsidy cost for any particular Title XVII loan guarantee will be determined based on the specific characteristics of the individual loan, including credit risks and the terms and conditions of the contracts. Moreover, under the Federal Credit Reform Act, the subsidy cost reflects the best estimate of the long-term cost to Government of the loan or loan guarantee, excluding administrative costs. There is no need for a separate loan loss reserve.

Question 5. Legislation similar in concept to the draft we are discussing today has been introduced in the House. Have any of you had a chance to review that bill, and if so, how does its risk profile, structure and operation compare to the contents of this Senate draft?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment.

RESPONSES OF MATTHEW ROGERS TO QUESTIONS FROM SENATOR BARRASSO

Question 6. Would this legislation influence or slowdown the Department of Energy's processing of the applications that are already pending for the Loan Guarantee Program?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment. We appreciate the Committee's diligent efforts to make the loan guarantee program successful. Additionally, any organizational change always creates concerns about talent retention.

Question 7. Would staffing for CEDA come from current DOE Loan Guarantee Program employees? What would be the net increase in federal employees due to this legislation?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment. The current loan guarantee program is staffing up aggressively to support existing loan authorities.

RESPONSES OF MATTHEW ROGERS TO QUESTIONS FROM SENATOR BENNETT

Question 8. Mr. Rogers I understand that since Congress established the loan guarantee program in 2005, (EPACT) DOE has received hundreds of applications, but has announced that it is in negotiations on only its first potential award—(Solyndra—a solar manufacturing company.) February 19, 2009 Secretary Chu announced that DOE was going to begin offering loan guarantees under the Recovery Act by early summer and disperse 70% of the investment by the end of next year. Additionally, Secretary Chu has stated that the loan program would be streamlined and the process would be simplified. Can you please update the Committee as to what the Department's plans are to improve the implementation and to make awards under this program and when will DOE issue new guidelines consistent with the Secretary's objectives?

Answer. The Department of Energy's Credit Programs are an urgent priority for Secretary Chu. He is personally reviewing the programs, and has committed to giving the programs the attention, departmental resources and oversight they need to succeed while ensuring that taxpayer interests are protected. Delivering on this opportunity to help drive economic recovery and make a down payment on the Nation's energy and environmental future represents an essential leadership role for the Department. The Loan Guarantee Program is moving forward aggressively to make loans to companies that have applied for credit assistance for a variety of advanced technologies. Our plan is to deliver loan guarantees by the end of this year. As required by the 2009 Omnibus Appropriations Act we have sent an implementation plan to the Appropriations Committees in anticipation of issuance of new solicitations.

Question 9. Mr. Rogers, during negotiations on the FY'09 budget, CBO raised concerns that the loan guarantee program might encourage the federal government to enter into 3rd party financing arrangements that could result in increased exposure to mandatory spending. CBO decided that if the Subcommittee was to avoid an additional score of "hundreds of millions of dollars", we must include language in the Energy and Water bill that would discourage 3rd party financing arrangements. This language is written in a manner that is very broad and has already created several unintended consequences including prohibiting several legitimate projects from consideration this year. I know this has been a frustration of Sen. Dorgan and the entire subcommittee. We have been working together to resolve this, but we believe a solution can only be crafted if DOE, OMB and Congress work together on

a solution. Mr. Rogers will you arrange a meeting in the next week with the Deputy OMB Director, yourself, Chairman Bingaman, Chairman Dorgan, Sen. Murkowski and myself to resolve this issue with CBO to ensure loan guarantees can be made consistent with the Act?

Answer. The Department is working to resolve this issue. We hope to find a resolution to it in the near future.

Question 10. Are you aware of any 3rd party financed loan guarantee projects currently being considered by the Department? Would the Department undertake any projects that commit the federal government to long term financing arrangements with another federal entity without first identifying the necessary appropriated funding?

Answer. The Department is working to resolve this issue. No projects have been precluded at this time as we hope to find a resolution to it in the near future, however there are several projects that have submitted applications that potentially may be adversely affected by specific language in the 2009 appropriations, and those projects have been communicated to appropriate Congressional staffers.

Question 11. Mr. Rogers, Congress provided an additional $6 B to pay the subsidy cost of loan guarantees made under a new Section 1705 authority for renewable energy technology and transmission lines. The Department has not made any announcements regarding the implementation of this new authority and how it will work with the existing solicitations for renewable energy technologies. Can you please tell the Committee how the two programs will be implemented and when we can expect loans to be awarded?

Answer. The Department is currently developing its approach to implementation of the new authority under the American Recovery and Reinvestment Act.

Question 12. As part of the FY'09 Continuing Resolution signed last fall (September 30th, 2008), auto companies were give $25 B in loan guarantees to help transition these companies to building factories to manufacture more energy efficient automobiles. As of yet, I am not aware of a single award that has been made to any auto company. What are the Department's priorities and goals for this program and how will these funds be used to improve the fiscal condition of Detroit automakers?

Answer. The FY 2009 Continuing Resolution signed last fall provided funding for the Advanced Technology Vehicles Manufacturing Incentive Program (ATVMIP), which was established by Section 136 of the Energy Independence and Security Act of 2007. Section 136 of the Energy Independence and Security Act of 2007 establishes an incentive program consisting of both grants and direct loans to support the development of advanced technology vehicles and associated components in the United States. Only the loan portion was funded.

Under Section 136, the ATVMIP provides loans to automobile and automobile part manufacturers for the cost of re-equipping, expanding, or establishing manufacturing facilities in the United States to produce advanced technology vehicles or qualified components, and for associated engineering integration costs. Stringent evaluation criteria were outlined in statute and regulation for both applicant and project eligibility. Included in these eligibility requirements is that the applicant be financially viable without the assistance of other federal funding for the same project and that the applicant have a positive net present value. In addition, several technical criteria were also provided, including meeting certain fuel efficiency standards for vehicle manufacturers and a verification of future installation on a specified advanced technology vehicle (ATV) for component manufacturers.

As a Secretarial priority, the ATVMIP's goal, is to accelerate the manufacture and development of fuel efficient, advanced technology vehicles. We have completed the technical review of nearly 200 projects contained in more than 100 applications and are working through the financial viability reviews on more than two dozen companies. We are in detailed negotiations with the first group of potential borrowers and expect to make a series of loan commitments during the summer.

Question 13. What is the timeframe for making loans to struggling automakers?

Answer. This program is a high priority for the Department and as such, the Department is working quickly and responsibly to ensure that the most deserving of applicants have the financing they need to develop tomorrow's advanced vehicle technologies. The Department's ATVMIP expects to make a series of loan commitments during the summer.

Question 14. Is your office prepared to act in a timely manner to ensure support Raser's bid to transform the Hummer Division of GM to a hybrid electric platform, rather than sell the division to a Chinese manufacturer?

Answer. The ATVMIP is prepared to act on any and all applications in accordance with the evaluation procedures established in the program's Interim Final Rule. This procedure allows for the in-depth financial and technical evaluation of all ap-

plications. To date, the program has received over 100 applications, 40 of which have been determined to be substantially complete.

During the application review period, the Department is not at liberty to discuss individual applications due to the sensitivity of the application process.

Question 15. This legislation proposes that the Clean Energy Deployment Administration would be retained within the Department of Energy, similar to the Energy Information Administration. However, as we approach the 4th anniversary of the EPACT's signing, I am skeptical that the Department is able to implement this program in an effective and timely manner. Over the past several years, DOE has struggled to set up this program and fought both OMB and CBO over scoring and implementation strategies. While, I don't doubt Secretary Chu's commitment to implementing this program, the facts speak for themselves. I would prefer see an entity that is entirely focused on implementing and supporting the deployment of clean energy based on sound financial fundamentals. I fear that political pressures within the Department will drive the investment strategy, rather than allowing commercial fundamentals and sound risk management strategies to dictate the outcome. Do you agree that creating this program within the existing DOE bureaucracy, which will compete for personnel and budget needs, is in the best interest of the program? Based on DOE's track record is this the best organizational model to drive investment into our energy sector?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment. Our task in the near term is to demonstrate to Congress and the American people that the Department's existing loan guarantee authority represents good value for money. Our ability to execute the first loan guarantees should provide important information to Congress as it considers alternatives for making loan guarantees a long term, sustainable policy tool.

Question 16. This new legislative authority creates a nine member board and an eight member advisory council to advise the board of technology and investment priorities. Over the past three years, we have faced difficulty in implementing this program as a result of interference from OMB regarding the implementation of the program rules and regulations. It is unclear how an additional layer of bureaucracy will improve the program implementation. In addition, as part of the Stimulus bill Congress provided $400 M to establish the Advanced Research Projects Agency—Energy (ARPA-E) within the Department to advise the Secretary in the deployment of energy technology. This legislation seems to go out of its way to create new and redundant layers of bureaucracy. Does anyone believe it is vital that the advisory council be included in this text? Why can't we rely on the existing program offices, laboratories and ARPA-E to advise the board on the promising technology options?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment. The current program relies heavily on technical support from the Department of Energy's core operating programs, including the Office of Nuclear Energy, the Office of Fossil Energy, the Office of Electricity Delivery and Energy Reliability, and the Office of Energy Efficiency and Renewable Energy for reviewing applications, defining program technical requirements, and promoting the program. DOE's national laboratories also provide essential technical support.

Question 17. Based on DOE's existing track record and significant delays in implementing the existing loan guarantees, do you have any concerns about the Department's ability to expand the financial offerings prescribed in this bill? Does the Department have sufficient capability at the staff level to implement, evaluate and support the new authorities provided in this legislation, including securitization of energy projects, which has never been done in the federal government? (There is no secondary market for these investments) Does the Department have any familiarity with financial risk management to ensure the investment portfolio is balanced and not overexposing taxpayers to unnecessary investment risk?

Answer. The Administration is still evaluating the proposal, and looks forward to working with the Committee to ensure efficient and effective assistance for energy infrastructure investment.

Question 18. Compliance with the National Environmental Policy Act, including environmental assessments for loan guarantee projects, has contributed to the delays in awarding the Loan guarantees. This legislation is a mixed bag when it comes to waiving onerous hiring regulations to bring on qualified federal staff and pay them competitive salaries, but it also does nothing to accelerate the NEPA reviews and it raises the cost of construction of energy projects by requiring compliance with Davis Bacon rules. Aside from waiving federal hiring and compensation rules are there any other positive reforms that would lower the cost of energy projects or speed their deployment? Should we do more in this regard?

Answer. The Department has not conducted research or analysis on this issue. However, Secretary Chu has directed us to accelerate the loan guarantee review process significantly and deliver the first loans in a matter of months, while maintaining appropriate oversight and due diligence to protect taxpayers' interests. We are taking steps to reduce the cycle time from application to loan guarantee so that viable projects are funded, with all due speed and due diligence.

[Responses to the following questions were not received at the time the hearing went to press:]

QUESTIONS FOR JEANINE HULL FROM SENATOR MURKOWSKI

Question 1. There appears to be some disagreement among the witnesses as to what is an appropriate percentage limit for the loan loss reserve. Ten percent is consistent with the safest thrift institutions and CBO's most recent interpretation of Stimulus funding for the Loan Guarantee Program. Can you elaborate further on what you think is a reasonable level for the loan loss reserve to be set at, and how that compares to existing treatment of credit subsidy costs for comparable programs in the federal government?

Question 2. Legislation similar in concept to the draft we are discussing today has been introduced in the House. Have any of you had a chance to review that bill, and if so, how does its risk profile, structure and operation compare to the contents of this Senate draft?

QUESTIONS FOR JEANINE HULL FROM SENATOR BENNETT

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QUESTIONS FOR DAN W. REICHER FROM SENATOR MURKOWSKI

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Question 2. Legislation similar in concept to the draft we are discussing today has been introduced in the House. Have any of you had a chance to review that bill, and if so, how does its risk profile, structure and operation compare to the contents of this Senate draft?

QUESTIONS FOR DAN W. REICHER FROM SENATOR BENNETT

Question 3. This legislation proposes that the Clean Energy Deployment Administration would be retained within the Department of Energy, similar to the Energy Information Administration. However, as we approach the 4th anniversary of the EPACT's signing, I am skeptical that the Department is able to implement this program in an effective and timely manner. Over the past several years, DOE has struggled to set up this program and fought both OMB and CBO over scoring and implementation strategies. While, I don't doubt Secretary Chu's commitment to implementing this program, the facts speak for themselves. I would prefer see an entity that is entirely focused on implementing and supporting the deployment of clean energy based on sound financial fundamentals. I fear that political pressures within the Department will drive the investment strategy, rather than allowing commercial fundamentals and sound risk management strategies to dictate the outcome. Do you agree that creating this program within the existing DOE bureaucracy, which will compete for personnel and budget needs, is in the best interest of the program? Based on DOE's track record is this the best organizational model to drive investment into our energy sector?

Question 4. This new legislative authority creates a nine member board and an eight member advisory council to advise the board of technology and investment priorities. Over the past three years, we have faced difficulty in implementing this program as a result of interference from OMB regarding the implementation of the program rules and regulations. It is unclear how an additional layer of bureaucracy will improve the program implementation. In addition, as part of the Stimulus bill Congress provided $400 M to establish the Advanced Research Projects Agency—Energy (ARPA-E) within the Department to advise the Secretary in the deployment of energy technology. This legislation seems to go out of its way to create new and redundant layers of bureaucracy. Does anyone believe it is vital that the advisory council be included in this text? Why can't we rely on the existing program offices, laboratories and ARPA-E to advise the board on the promising technology options?

Question 5. Based on DOE's existing track record and significant delays in implementing the existing loan guarantees, do you have any concerns about the Department's ability to expand the financial offerings prescribed in this bill? Does the Department have sufficient capability at the staff level to implement, evaluate and support the new authorities provided in this legislation, including securitization of energy projects, which has never been done in the federal government? (There is no secondary market for these investments) Does the Department have any familiarity with financial risk management to ensure the investment portfolio is balanced and not overexposing taxpayers to unnecessary investment risk?

Question 6. Compliance with the National Environmental Policy Act, including environmental assessments for loan guarantee projects, has contributed to the delays in awarding the Loan guarantees. This legislation is a mixed bag when it comes to waiving onerous hiring regulations to bring on qualified federal staff and pay them competitive salaries, but it also does nothing to accelerate the NEPA reviews and it raises the cost of construction of energy projects by requiring compliance with Davis Bacon rules. Aside from waiving federal hiring and compensation rules are there any other positive reforms that would lower the cost of energy projects or speed their deployment?—Should we do more in this regard?

QUESTIONS FOR JOSEPH S. HEZIR FROM SENATOR MURKOWSKI

Question 1. There appears to be some disagreement among the witnesses as to what is an appropriate percentage limit for the loan loss reserve. Ten percent is consistent with the safest thrift institutions and CBO's most recent interpretation of

Stimulus funding for the Loan Guarantee Program. Can you elaborate further on what you think is a reasonable level for the loan loss reserve to be set at, and how that compares to existing treatment of credit subsidy costs for comparable programs in the federal government?

Question 2. Legislation similar in concept to the draft we are discussing today has been introduced in the House. Have any of you had a chance to review that bill, and if so, how does its risk profile, structure and operation compare to the contents of this Senate draft?

Question 3. Your testimony focuses on the operation of existing entities, like EXIM and OPIC, which are similar to the "Clean Energy Deployment Administration" as outlined in the draft bill. How do the loans, loan guarantees and other forms of credit support provided by these similar entities compare to grants and cost-shared demonstrations in terms of a return on the use of taxpayer dollars?

QUESTIONS FOR JOSEPH S. HEZIR FROM SENATOR BARRASSO

Question 4. Do you think there is adequate accounting transparency to guarantee that the Clean Energy Deployment Administration does not over-leverage itself or take irresponsible risks? Are there additional steps that can be taken to minimize taxpayer exposure?

Question 5. The government has a poor track record of picking winners and losers in the marketplace. Do you think this legislation provides a framework for an independent, pragmatic review of applications and not fall prey to political whims?

QUESTIONS FOR JOSEPH S. HEZIR FROM SENATOR BENNETT

Question 6. This legislation proposes that the Clean Energy Deployment Administration would be retained within the Department of Energy, similar to the Energy Information Administration. However, as we approach the 4th anniversary of the EPACT's signing, I am skeptical that the Department is able to implement this program in an effective and timely manner. Over the past several years, DOE has struggled to set up this program and fought both OMB and CBO over scoring and implementation strategies. While, I don't doubt Secretary Chu's commitment to implementing this program, the facts speak for themselves. I would prefer see an entity that is entirely focused on implementing and supporting the deployment of clean energy based on sound financial fundamentals. I fear that political pressures within the Department will drive the investment strategy, rather than allowing commercial fundamentals and sound risk management strategies to dictate the outcome. Do you agree that creating this program within the existing DOE bureaucracy, which will compete for personnel and budget needs, is in the best interest of the program? Based on DOE's track record is this the best organizational model to drive investment into our energy sector?

Question 7. This new legislative authority creates a nine member board and an eight member advisory council to advise the board of technology and investment priorities. Over the past three years, we have faced difficulty in implementing this program as a result of interference from OMB regarding the implementation of the program rules and regulations. It is unclear how an additional layer of bureaucracy will improve the program implementation. In addition, as part of the Stimulus bill Congress provided $400 M to establish the Advanced Research Projects Agency—Energy (ARPA-E) within the Department to advise the Secretary in the deployment of energy technology. This legislation seems to go out of its way to create new and redundant layers of bureaucracy. Does anyone believe it is vital that the advisory council be included in this text? Why can't we rely on the existing program offices, laboratories and ARPA-E to advise the board on the promising technology options?

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Question 9. Compliance with the National Environmental Policy Act, including environmental assessments for loan guarantee projects, has contributed to the delays in awarding the Loan guarantees. This legislation is a mixed bag when it comes to waiving onerous hiring regulations to bring on qualified federal staff and pay them competitive salaries, but it also does nothing to accelerate the NEPA reviews and it raises the cost of construction of energy projects by requiring compliance with

Davis Bacon rules. Aside from waiving federal hiring and compensation rules are there any other positive reforms that would lower the cost of energy projects or speed their deployment?—Should we do more in this regard?

Question 10. Mr. Hezir, your testimony suggests that the Federal Credit Reform Act has had a generally positive effect on the federal government's management of credit instruments. However, in the context of the Title XVII loan guarantee program there are concerns that the credit subsidy cost will be so high that it is a barrier to applicants. Is that a result of Federal Credit Reform Act, in general, or has DOE and OMB interpreted FCRA too narrowly?

Question 11. As your testimony notes, the CEDA is directed to consider risk on a portfolio-basis. Will this reduce the credit subsidy cost for applicants?

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