S. HRG. 110–685

# CLEAN ENERGY AND "GREEN" JOBS

## HEARING

BEFORE THE

## COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

SECOND SESSION

TO

RECEIVE TESTIMONY REGARDING INVESTMENTS IN CLEAN ENERGY AND NATURAL RESOURCES PROJECTS AND PROGRAMS TO CREATE GREEN JOBS AND TO STIMULATE THE ECONOMY

DECEMBER 10, 2008

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# CONTENTS

## STATEMENTS



## APPENDIXES

### APPENDIX I



### APPENDIX II

# CLEAN ENERGY AND "GREEN" JOBS

**WEDNESDAY, DECEMBER 10, 2008**

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

The committee met, pursuant to notice, at 9:35 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 don't we go ahead and get started. The hearing will come to order.

With the economy now in recession, many economists have urged that the Congress get busy early in the new Congress and adopt an economic stimulus package that focuses on spending for infrastructure and other goods and services that will maximize job create over the short term, and also a return on our investment over the long term. President-elect Obama also favors such a strategy; and, particularly, he had called for a stimulus bill that focuses on investments in clean energy programs and infrastructure and conservation projects that create green-collar jobs.

The stimulus bill is expected to be taken up early in the new Congress. Although there's no final decision about the size or scope of the stimulus package, all reports are it will be big.

The purpose of today's hearing is to discuss a range of energy and natural resource programs that should be considered as part of an economic stimulus package. I'm glad that we have the excellent witnesses we have today on the subject.

Clearly, there are a number of important energy measures that can be implemented quickly and that will provide green jobs and will result in significant energy savings, and will enhance the incorporate needed to move to a clean energy economy. Those, in my view, should be a central part of any stimulus package. I'm very glad that the President-elect has made this a priority.

I also hope that the package will include a substantial investment in the critical infrastructure needs facing the land and water management agencies under this committee's jurisdiction. These agencies face many billions of dollars in deferred maintenance of roads, trails, dams, and buildings, much of which is in very great need of repair at this time.

In addition to this physical infrastructure, we need to invest in restoring our natural infrastructure; that is, our forests, wetlands, rivers, and rangelands. For example, national park and forest res-

toration, water reuse, and abandoned mineland reclamation projects can be as good an investment, in the context of an economic stimulus strategy, as our other public work projects. I hope we can see a significant amount of the funds in a new stimulus bill devoted to land and water resource management agencies in the Department of the Interior and the Forest Service to restore the physical and the natural infrastructure that they manage for the American people.

I'd also like to note that, in addition to the stimulus package, I do believe—and I've said this publicly several times—that we have a real opportunity in the new Congress to make progress on comprehensive and forward-looking energy policy. I look forward to working with all my colleagues, both Democrat and Republican, on this committee to get people's best ideas for what ought to be included in that proposed energy legislation.

Soon after the new Congress convenes, I hope we're in a position to put forward draft legislation, for the committee to consider, that is bold and, I hope, broadly supported.

Today, our first panel will discuss clean energy proposals, and our second panel will discuss how we can stimulate the economy through projects related to land and water management.

Before going to the first panel, let me call on Senator Domenici for any opening comments that he'd like to make.

[The prepared statements of Senators Salazar, Cantwell, Murkowski, Sessions, and Bunning follow:]

PREPARED STATEMENT OF HON. KEN SALAZAR, U.S. SENATOR FROM COLORADO

Thank you Chairman Bingaman and Ranking Member Domenici for holding today's hearing on investments in clean energy and natural resources projects and programs to create green jobs and to stimulate the economy. We all know how critical these issues are, and I am pleased to have the opportunity to explore solutions that will not only create jobs for the hard-working people of America, but that also lay a foundation for a clean and secure future. I would like to thank our witnesses for being here today to share their expertise with us.

I believe each of our witnesses and many members of this committee are driven by a common insight that renewable energy will enhance our energy, environmental, and economic security. In Colorado I have witnessed firsthand the economic potential of clean energy, where our citizens' commitment to a renewable electricity standard has attracted thousands of new jobs to the state. In the Denver metro region alone, the number of renewable-energy sector jobs tripled between 2004 and 2007. This economic growth, through clean energy and natural resources projects can be expanded throughout our nation. We can invest in projects on public lands that protect our water resources, decrease wild-fires, and improve our aging infrastructure and we can invest in our energy infrastructure, incorporating new high-tech solutions that help us to curb our usage and improve energy efficiency. These jobs can reach out to all sectors of our economy, helping blue-collar workers to research scientists, and providing jobs to folks in our rural areas as well as in our cities.

We have taken great strides over the past few months in advancing our energy policy and I hope today's hearing will help us understand the how to maximize the benefits of the work we have already done in order to make even greater strides. Our nation holds the technological potential and the workforce to implement these green initiatives, now we must restart the economic system in order to capitalize on it. Time and again throughout our history Americans, their hard work and ingenuity have risen to meet our greatest challenges.

I believe that implementing homegrown solutions to our energy and economic problems will not only help us here at home, but open new economic opportunities to export these technologies to the rest of the world. Clean energy will be an economic driver for the 21st century, and I believe it is what we need to turn to now to put our nation on a path to a clean and secure future. I look forward to hearing

the testimony and would like to thank the Chairman and Ranking member once again.

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PREPARED STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Thank you, Mr. Chairman, for calling this timely and important hearing.

I feel we have finally reached a national consensus on something most members of this committee have long known—to remain a world economic leader and military superpower we urgently need to transform and revitalize our nation's energy system to be cleaner, more diverse, and more distributed.

I'd especially like to welcome Bracken Hendricks here today. Bracken and I worked first worked together in 2003 to launch the Apollo Alliance.

Back then the notion that a significant multi-billion dollar investment in clean energy could be an engine of economic growth and competitiveness, and create millions of high-wage manufacturing jobs that could not be outsourced, was not well appreciated.

Today the need for this investment has been recognized and embraced by both sides of the aisle and really the rest of the world so I look forward to hearing Bracken's specific ideas.

A GENERATIONAL OPPORTUNITY

While some may argue that our current economic crisis makes it harder to be bold and make the necessary investments, I believe this is actually a generational opportunity to invest in America's long neglected energy infrastructure.

A generational opportunity to repower America and end our debilitating and costly over reliance on fossil fuels.

A generational opportunity to reestablish America at the forefront of technological advancement and leadership.

A generational opportunity to harness our nation's manufacturing prowess to make the trillions of dollars of new clean energy technologies our world will need.

A generational opportunity to establish a robust clean energy export market.

A generational opportunity to get serious about tackling and slowing down global warming.

AMERICA'S TRANSMISSION GRID OUTDATED

Our nation's electricity grid is one area in particular I believe suffers from a lack of public investment. While America's grid has been called the most complicated machine on earth, with age and strain it's grown a little creaky—and I'm afraid it's never been very smart.

Today's grid is based on outmoded technology that makes it less reliable and requires greater generation resources than it should.

And with electricity demand predicted to grow by 17 percent in the next decade, this is an urgent problem that will only get worse.

Now is the time to make the long neglected investments necessary in our nation's electricity grid to increase its efficiency and reliability and to meet future demand growth by integrating more renewable and distributed sources of energy.

According to a recent report by the Department of Energy, 20 percent of the United States could be powered by wind energy by 2030. But, we must commit approximately $60 billion in new transmission capacity over the next 20 years to reach that target.

BPA BORROWING AUTHORITY

In the Northwest, we are blessed to have a more centralized authority, the Bonneville Power Administration, which historically has ensured our region has sufficient and reliable transmission capacity.

However, future demand growth and the need to accommodate vast new wind farms threatens to overwhelm BPA's current infrastructure and limit the deployment of green energy and green jobs.

That's why I plan to work with the Northwest delegation to push for an additional $5 billion in Treasury borrowing authority that will allow 4,700 megawatts of renewable resources to come online in the next two years.

This green power investment means 50,000 green jobs—including high wage construction jobs and economic multiplier spinoffs that benefit local communities.

And unlike many stimulus measures, taxpayers are all but guaranteed to get paid back with interest. BPA has a consecutive 25-year record of making its annual payment to the U. S. Treasury.

WANT TO HEAR IDEAS ON HOW TO REVITALIZE GRID

Besides giving BPA access to the capital it needs, I look forward to hearing from our witnesses on other measures we can enact in the upcoming stimulus bill to build the transmission lines we need.

What we need to do to ensure our grid has the capacity and flexibility to incorporate a diverse range of new renewable generation sources.

And to make sure we are simultaneously infusing intelligence into America's electric power grid to make it more efficient and dependable.

INVESTING IN A SMART GRID

Making our electricity grid smarter has been one of my top priorities, and I'd like to welcome Steve Hauser, a long time collaborator on this issue.

Steve played an important role in helping me draft the smart grid legislation that became the Smart Grid Title of the 2007 Energy Bill.

Steve and the many members of the Gridwise Alliance know revitalizing our nation's grid will take more than just putting more steel in the ground and copper wires in the sky. Any new grid investments must incorporate smart grid technologies that are able to record and communicate valuable information on condition of supply, consumer loads, or system performance.

We need to make the investments necessary to take our two-lane dirt road electricity grid and turn it into the superhighway with on-ramps for all sorts of new clean energy sources.

*PNNL Smart Grid Study*

In a groundbreaking study earlier this year, the Pacific Northwest National Laboratory in my state of Washington reported on the results of a year-long effort to put the power grid in the hands of consumers through technology.

By enabling consumers to be active participants in improving power grid efficiency and reliability, consumers who participated in the project saved approximately 10 percent on their electricity bills

*Plug in Electric Vehicles*

Making our electricity grid smarter and more flexible is key not only to making our grid more reliable and efficient, but also to making distributed generation sources and plug in vehicles work for America. Without smart grid technologies that can help ensure all these new generation sources are managed wisely, we will potentially have future peak demand problems during the day and underutilized grid capacity at night.

CONCLUSION

There are immense technical and logistical issues involved in transitioning to a clean energy system, but the benefits are clear.

The history and the strength of our nation lie in our ability to continually invent new and better ways of doing things.

Whether it is building the most reliable electric system in the world, laying down a massive interstate highway system, or creating the Internet, Americans have marched forward making breathtaking discoveries.

These achievements and investments have historically provided us with immense prosperity as a nation and a quality of life we cherish.

The upcoming stimulus bill is a once in a generation opportunity to ensure we have the infrastructure we need to reinvent, repower, and revitalize America.

I look forward to working with my colleagues and the stakeholders here today to find the right mix of investments to achieve our shared goals.

Thank you.

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

Mr. Chairman, Thank you for holding this hearing on this important topic. Let me start by thanking Senator Domenici for his kind words. It is hard to believe that this is truly the senator's final hearing of his 36-year career. We all will miss him terribly, and the country will miss his wisdom, integrity and his commitment to sound public energy and land use policy. He leaves giant shoes to fill, which is not lost on any of us on our side of the aisle as we look to the next Congress.

As Senator Domenici said about this hearing, given that our economy is now officially in the recession we have all assumed has been underway for months, it is important that we work to find a way to stimulate our economy. Clearly this month

and early next year the new Administration of President-Elect Obama, and in fact, all of Congress, will want to work quickly on efforts to lessen the length and severity of this economic downturn.

Given last week's jobs report where we lost an unexpectedly large number of jobs in November—533,000 of them—bringing the total to 1.9 million jobs so far this year—we need to do more than our action during the first lame duck session last month of extending unemployment insurance compensation for an additional 13 to 26 weeks.

But given that our national debt as of today is $10.66 trillion dollars, meaning each citizen's share of the debt is now nearly $35,000, and that our debt is increasing by about $3.8 billion a day, and given that we could face a trillion dollar budget deficit for FY '09 even if we don't pass a second stimulus bill; I will want to be very certain that a new stimulus bill is not just a glorified supplemental appropriations bill.

I will want it to contain projects that will jumpstart our economy by both creating jobs, AND also result in useful capital stock that will stimulate both the economy and the productivity of American workers for decades to come.

When every dollar we are spending is going to have to be borrowed, admittedly at this moment at low interest rates, this bill is going to have to make America's economy more productive in order for us to afford to pay this money back in the future without diminishing our standard of living and harming our way of life.

I certainly believe that spending money for improvements in our energy infrastructure can meet that definition. As I said recently, I believe that the sharp record increases in energy prices of this summer were a key trigger to the financial/mortgage meltdown that we have seen this year.

While oil and natural gas prices currently are plummeting, oil today costing just 28% of what it did five months ago, if we don't improve our energy system and increase our production of domestic energy, Americans will be right back to paying unsustainable prices for energy as soon as the global economy improves. Even worse, if OPEC nations are successful at drastically cutting back their oil production, we may be paying high prices again even before the global economy fully bounces back.

We still need a balanced national energy policy that promotes renewable energy and energy efficiency, but also an expansion of domestic fossil fuel production—the three-legged stool that I have so often talked about in this committee.

Thus I am supportive of additional funding in a recovery bill for weatherization—only if we can effectively spend more than the $487 million that is now proposed through past spending and the $250 million more we added to the continuing resolution Sept. 30th (Section 130).

I support additional spending for electric vehicle battery development—especially for aid to get such batteries made in the U.S.—provided it does not overlap the $25 billion in loans to U.S. auto manufacturers we approved in the Energy Independence and Security Act (EISA) just a year ago this week.

But rather than just copying President Roosevelt's Civilian Conservation Corps program and building more parks—even though I like parks—I will want to see a significant amount of any stimulus spent to help fund renewable, alternative and technological upgraded energy projects, conventional energy projects on Native and Indian lands, and national electricity transmission grid development that is so vital to get new power from where it is generated to where it is needed.

I agree with the criteria that is rumored to likely be imposed on all projects funded through a new stimulus: that they be already authorized at least broadly, that they involve significant job creation, that they can start construction, preferably within three to six months, at least within 24 months, and help lead to the creation of 2.5 million new jobs within the life of the 111th Congress, and that when they are completed, they will do "double duty," both providing a stimulus during construction; and making our economy more efficient and making us more productive over their design lives.

I happen to believe that providing financial incentives NOW in a stimulus for appropriate alternative energy projects and improvements to conventional fuels will pay big dividends later.

For example, my home State of Alaska, is in the process of awarding $100 million in state aid for renewable energy projects. Alaska has identified 120 projects needing $311 million, from small hydro projects, to geothermal, from biomass co-generation to solar electrical generation, that could be under construction within a year—more than 20 of the projects could be under construction by this spring.

All of these projects would have the advantage of cutting electricity costs in their local communities by between 20 and more than 50 cents per kilowatt hour compared to the cost of diesel-generated power currently used. And many of the projects

would create jobs, both during construction and operation. And the projects for Alaska were authorized in Section 803 of EISA and the geothermal projects were authorized by Section 625 of EISA in both Alaska and across the country.

I'm sure Alaska is not unique. I'm sure utilities across the country could suggest in short order renewable energy projects that would help them to diversify their sources of power, while reducing carbon emissions, and projects that might be economically competitive with fossil fuels, especially after the receipt of this grant incentive. These projects can all help make green energy companies viable by improving their economies of scale, thus helping our economy grow.

High voltage transmission funding is another area that should be included. Many here have spoken to T. Boone Pickens who wishes us to help expand wind generation from the Great Plains. But his plan only works if the nation's transmission grid is rapidly expanded. Given justified concerns about brownouts in both the Northeast and California in the near future, spending money now on transmission makes vital sense.

In the Energy Policy Act of 2005 in Title 5 we authorized $2 billion of grants to help get energy projects going on Native lands and Indian reservations—all intended to help the resource owners and make America less dependent on foreign energy sources. We have actually funded about $1 million of those grants. There is a lot of pent up demand for such aid. In my home State of Alaska, Cook Inlet Region Inc. Native Corporation could start work on a huge Fire Island wind farm to supply power to Anchorage, Alaska's largest city, if such money were appropriated to help with the project.

And there are a host of carbon capture and storage projects, many involving coal gasification technology , that are also ready to proceed. There are nuclear projects also awaiting loan guarantees and in some cases for new designs grant aid. We could quickly assemble a list of such projects, if money were likely to become available.

I just hope that as we and staff work with the President-Elect to settle on the details of a new economic recovery bill, that we keep an open mind and include funding for a wide variety of clean-energy, alternative energy and improved conventional energy projects and transmission.

That is the way that we will improve American productivity and get our economy back on track most quickly. Spending more on energy infrastructure truly will be the gift that keeps giving to this nation, long after the holiday decorations are put away.

I hope the witnesses when they recommend spending comment on the number of jobs such spending may produce, whether the jobs are short term or likely long-term in nature and provide any specific information they have on the stimulative benefits of their proposed spending. I look forward to the testimony of our witnesses and especially to getting a chance to question them. Thank you Mr. Chairman.

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PREPARED STATEMENT OF HON. JEFF SESSIONS, U.S. SENATOR FROM ALABAMA

I favor reducing our dependence on imported oil and I strongly support any viable program that will reduce the amount of money that we export to unfriendly foreign nations for oil. It is a sound policy to redirect that money towards creating wealth and jobs here at home in the United States, and we need to increase our domestic energy supply.

I also support effective policies that will reduce pollution and $CO_2$. We have the potential to move forward with a productive Energy Plan, but the tendency of Congress has been to overreact and throw money at programs that do not work or which are not cost effective.

There needs to be a realistic approach that will benefit American citizens and the American economy, and at the same time lower gasoline and electricity prices and reduce pollution and $CO_2$ emissions.

In a December 5th , Washington Post article by the able and liberal columnist, E.J. Dionne Jr. he states that "Obama's luxury is that the economic demands of the moment almost perfectly coincide with his political interests. With even conservative economists urging Obama not only to cut taxes but also to spend and spend and spend some more, he has an opportunity to keep a whole raft of political promises all at once."[1] Dionne goes on to say that "what we should fear most is not that Obama will get to keep some of his campaign pledges but that the stimulus will fall victim to classic logrolling. With so much cash on the table, the temptation will

[1] http://www.washingtonpost.com/wp-dyn/content/article/2008/12/04/AR2008120402860__pf.html

be enormous to lard the package with a slew of unproductive projects and all manner of narrow tax breaks for interests that probably never knew existed."[2]

There is truly a chance to reach a political consensus on programs that we all know will work. Let's get busy and do those things and do them quickly. On matters that are more dubious or more questionable, let's get busy and follow our chairman as he seeks the most accurate and up to date information concerning best priorities for action. It is plain to me that the expanded use of nuclear power for electricity generation must be a part of any serious program for clean energy.

Creating jobs in clean energy programs can work. By redirecting our transfer of wealth abroad to purchase energy, mainly oil, to cost effective American energy production, we in effect, create these jobs with the wealth we were transferring abroad. Count me in on this effort.

Still, I believe that not every program is worthwhile. Not every program is as good as another. Thus, this country and this Congress should take great care to not waste a single dollar and to ensure that supported programs are the best bang for the buck.

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

Thank you Mr. Chairman. At a time when the average American's pocket book is getting tighter and tighter, it is imperative that we carefully consider each new government spending initiative.

Whether it is in the form of a bailout or a stimulus, spending is still spending and it is all "green."

When looking at how to best promote economic growth within our nation's energy sector, we must be careful not to pick winners and losers. All too often through over-regulation or open-ended subsidies, American taxpayers pay the price for the government's political handouts.

I have long supported market-based initiatives to improve energy efficiency and lower emissions through new technology. I have authored bills and fought for provisions in the 2005 and 2007 energy bills to expand Clean Coal Technology.

I believe that carbon sequestration technology is an integral part of the future of coal.

Over half of our nation's electricity comes from coal power plants. Without cheap energy from coal, Americans would pay much higher electricity bills and our country would lose more manufacturing jobs to foreign countries.

While the coal industry is important to our nation's economy, they also have obligations to our environment. The future of coal must be clean coal. Through the adoption of new technologies we can reduce emissions and clean up the coal power process.

When considering any new green energy initiatives we must consider all initiatives—including clean coal. Until alternative forms of energy and renewable are more technologically sound, it is important not to turn our backs our nation's most abundant resource.

A true energy policy needs only a light touch from Washington and must be technology neutral and based on free markets.

Thank you Mr. Chairman and I look forward to questioning the witnesses.

## STATEMENT OF HON. PETE DOMENICI, U.S. SENATOR FROM NEW MEXICO

Senator DOMENICI. First, Senator Bingaman, I've been treated harshly most of the time, in New Mexico—my next-door neighbor hasn't come down to visit me. I mean, I've had at least ten events that I thought Salazar would come down to, but I look around, I called his name, and he never came.

[Laughter.]

Senator SALAZAR. Your staff forgot to invite me.

Senator DOMENICI. No, you were invited. I mean, it may be that we didn't do it right. Anyway, I look forward to seeing you there.

I thought that I had finished with hearings, because I was already celebrating my departure. Now you called a meeting, and you

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[2] Id.

said it was urgent, and so, I came. I'm glad I came, except I can't do anything except try to be part of the party, here, because I'm not going to have any votes next year. But, I do think your idea of getting started early and quick and putting good people on this issue of what things in the energy area—call them "green," call them whatever you would like—that we've already authorized but one still waiting. Which ones can we do? Which ones might be part of a big deal? If we don't do something, rest assured, they won't be there.

The second thing that I wanted to comment on, and I hope you will not consider this to be trying to dump on environmental rules and regulations, but I believe one of the things you're going find most difficult about this is that almost anything you do in this area is going to be subject to long delays up front because of NEPA rules and regulations and the kinds of things that are going to be required to approve the projects. I even thought, as I reviewed this package last night, that maybe if I were doing it and had enough time, I might even do the crazy thing of suggesting an expedited process for all of the environmental rules for these projects that you are going to try to get done as part of the stimulus package. Now, that may turn a lot of people off immediately, because, when you talk about that, that's the end of the world, right? I mean, I'm free to say these kind of things now that I'm not running.

[Laughter.]

Senator DOMENICI. But, I used to say them before, too.

In any event, my statement, which I'm going to put in the record, I believe is important, but there's too many Senators present, and they want to participate. But, I did outline what this committee did regarding the energy crisis. I, frankly, believe, under your leadership for 2 years, my leadership for 2 years, and the other time that you've had it when we weren't in control, that we have done more in 6 years than has been done in 30 years or more to move America ahead in the energy crisis. Many of the things being talked about by this administration as things we ought to do because they'll help with the energy crisis, we've already authorized them. There's billions of dollars authorized in programs that will, indeed, fit the bill that you're talking about.

We did three main bills that changed the energy face of America, and probably the next people that look at it are going to build on them and not even whisper that we already did them. I hope you all will build on them because that wasn't easy work. The passage of the big bill was difficult, and it's filled with good things that we can do under Chairman Bingaman's leadership. Filled with them. You know, they're talking about green buildings. We have all the authorization for green buildings in the Federal Government already authorized. I mean, 2, 3, $4 billion worth is already in there. We aren't doing anything with it. Nobody's putting any money up.

So, I'd just like to put my statement in the record.

[The prepared statement of Senator Domenici follows:]

PREPARED STATEMENT OF HON. PETE V. DOMENICI, U.S. SENATOR FROM NEW MEXICO

Mr. Chairman, thank you for convening this important hearing today. Obviously, these are extraordinary times. Congress is in session this week to consider a bailout package for the Big 3 automakers, but our country's economic woes go far beyond

the domestic auto industry. We have seen a rapid rise in unemployment and a distressed housing market. A credit freeze threatens our nation's largest financial institutions. And we have seen record declines in the stock market wipe away literally trillions of dollars of wealth.

In response, President-elect Obama is contemplating the largest public works program since the 1950s. The purpose of today's hearing is to explore ideas within this Committee's jurisdiction for inclusion in the expected stimulus package in January.

After 36 years in the Senate, it is difficult to leave this great institution—but even more so with our country facing such tremendous challenges. However, I can say with pride that we have all worked hard—and in a bipartisan manner—to address the nation's energy and natural resource needs in the 2005 Energy Policy Act, the 2006 Gulf of Mexico Energy Security Act, and in the 2007 Energy Independence and Security Act.

Indeed, in the last four years we've done more to advance energy policy than had been achieved in the past 30 years, including:

- Codifying, in 2005, the most extensive amendments to the U.S. energy tax laws in over a decade, with $15 billion in energy tax incentives—$4.5 billion of which was dedicated to renewable energy incentives;
- Opening 8 million acres on the Outer Continental Shelf to access 1.25 billion barrels of oil and 6 trillion cubic feet of natural gas resources;
- Promoting the construction of clean energy projects through the establishment of a Loan Guarantee Program. While I have been disappointed with the Administration's implementation of this Loan Guarantee Program, we now have applications for about 30 new nuclear units before the NRC. This program has never been more important than it is now when it is so difficult to secure the necessary funding to build clean energy projects. It is my hope that the Obama Administration can realize the promise of the Loan Guarantee Program we created in a bipartisan fashion;
- Directing the Federal Government to lead by example by purchasing electricity generated from renewable resources, "greening" their substantial building stock through increased energy efficiency measures, and imposing federal fleet conservation requirements;
- Increasing the production of biofuels through the establishment of a Renewable Fuels Standard; and
- Increasing the Corporate Average Fuel Economy Standards for vehicles.

Of course, this is in no way a complete list of the numerous policy advancements promoted by these bills. In fact, many of the suggestions we will hear today are not new ideas at all. Instead, the witnesses will ask that funding be provided for the programs this Committee has already authorized. It is unfortunate that partisan politics has prevented the handling of the appropriations process pursuant to regular order as perhaps some of these important programs would have already received needed funding.

For purposes of today's hearing though, we must make sure that we are not simply throwing money at the problem. Instead, any Congressional action must have a demonstrable impact on jobs in the near-term, meaning within the next 12 to 24 months.

With regard to natural resource issues, there is great potential for physical infrastructure projects, such as maintenance, restoration, and reclamation projects, to provide jobs and stimulate the economy. However, as we all know, such major projects undertaken by our federal land management agencies are more often than not subject to legal challenges over environmental issues. This begs the question of whether any natural resource-related jobs will be available within the desired two-year timeframe unless waivers or an expedited NEPA process are addressed in the stimulus package. One only has to look at the anemic progress made on the Healthy Forest Restoration Act to understand how slowly the wheels of progress turn.

This will be, of course, my last hearing as a member of this prestigious Committee. I leave it in the capable hands of our Chairman and the incoming Ranking Member, Senator Murkowski. I have no doubt that they will provide outstanding leadership on energy and natural resource issues while continuing the Committee's well-deserved reputation for bipartisanship.

Senator DOMENICI. In summary, I think there are many things already included in the energy bills and energy laws that we have passed, that we could look at them carefully and get a very good, powerful basketful of things that you should spend money on if you're going to spend it. I'm not sure how much we should spend,

because I'm not sure that this kind of money has gotten us out of recessions in the past, but maybe our new President knows something I don't know, and maybe we can get out of it with spending money on new projects.

We used to do it, when I started here, until they sent a team out, and, for two consecutive recessions, they measured them and found that the jobs came on 36 months after the recession was over. That wasn't a very good plan, right? So, we stopped that, we didn't put that kind of program in. Now, it's here again. I think the new President is very worried. So, we'll see.

Thank you, Senator. Thank you very much.

The CHAIRMAN. All right. Let's go ahead and hear from our first panel. Let me just introduce them, and then we'll hear each of them take 5 to 6 minutes to summarize the main points we need to know, and then each—I'm sure each member here on the panel, each Senator, will want to ask some questions.

First is Mr. Bracken Hendricks, who is a senior fellow with the Center for American Progress here in Washington; next, Mr. Kevin Book, who is senior vice president and senior analyst with Friedman Billings Ramsey & Company, in Arlington, Virginia; next, Mr. Malcolm Woolf, who is a director of the Maryland Energy Association; Mr. Joe Loper, who is the vice president for policy and research with the Alliance to Save Energy; and Mr. Steve Hauser, who is vice president of GridPoint, in Arlington, Virginia.

So, thank you all for being here, and please go right ahead.

## STATEMENT OF BRACKEN HENDRICKS, SENIOR FELLOW, CENTER FOR AMERICAN PROGRESS

Mr. HENDRICKS. Thank you very much, Chairman Bingaman, Senator Domenici, members of the committee. It's an honor to speak before you today. I do want to commend you for your leadership.

I couldn't agree with you more, Senator Domenici, that many of the things that need to be done today have already been moved forward in energy legislation, but there has been a lack of commitment to actually appropriate and to put the funds forward to make the sort of investments that we need to steer a clean energy future and to move our country onto a low carbon path that reduces our dependence on oil. But, most importantly for today, doing all of those things will jumpstart our economy. It will create a tremendous new investment in the foundation of our economy, in productive infrastructure, and, very critically, in job creation.

I'm a senior fellow with the Center for American Progress. We are a nonpartisan, multi-issue think tank. But, interestingly, we have come back to the position that clean energy is at the foundation of all of the elements of our policy. It really is at the root of our national security strategy. It's at the root of our plans to invest in the domestic economy. It's at the root of our plan to rebuild cities and create jobs.

So, I want to talk to you briefly today to set the context of why a green stimulus—why investing in a clean energy strategy a the core of an economic recovery package makes sense as economic policy, not only as environmental policy. I think that your committee

is positioned to lead in this critical conversation around what an economic recovery package will look like.

We stand at a unique moment in American economic history. This is one of the deepest and longest recessions that we've faced in a generation. The decline in GDP in the third quarter was the biggest since the recent recession of 2001. Job losses in 2008 are almost 2 million, half a million in November alone. Household income is lower now than it was in 1999. One in 11 mortgages is delinquent or in foreclosure. Credit-market borrowing has dropped by about 45 percent. This is a very serious contraction. It's a contraction that's lasted for over a year. The resulting loss of demand in the economy is not going to go away within 3 to 4 months.

I could impress upon you one thing in this conversation, it would be that we need a recovery package, and that the traditional rules of stimulus, while they are critically important in a V-shaped, short-term downturn, in a U-shaped recession, which has a prolonged trough with sustained job losses, needs not only an infusion of capital, an infusion of demand and new borrowing, new spending in that very short 3- to 4-month window, but it critically needs it over the course of 12 and 18 months, as well.

So, we've put forward a 12-month economic recovery package at the Center for American Progress. We feel that it's important that it be balanced. It's about split equally between short-term impacts that will use tax credits and immediate spending to increase demand, but also longer-term projects that will be released a little bit more slowly—investments in transit, investments in energy infrastructure, like the electrical grid, investments in green buildings, schools, and critically needed projects that have been neglected that will produce a long-term legacy, as well.

I also want to impress upon you that the size of the recovery package matters, as well. There's a unique convergence right now. The Chamber of Commerce and the Center for American Progress stand side by stand in calling for significant investments in infrastructure. Paul Krugman, a progressive economist, has called for a $600-billion recovery package, about 4 percent of GDP. Interestingly, Goldman Sachs has come to almost the same number: 500 million.

So, the Center for American Progress is putting forward a call for a $350-billion first-year recovery package, with the possibility of a 2-year plan. That's over 2 percent of GDP. We've called for about a third of that package being focused on critical needed energy investments.

I want to stress for you that these investments will create vitally important jobs. We did a job study, starting in the summer, when we could see that a recession was looming and that a recovery package would be needed, and we found that $100 billion invested in smart grid, green building, manufacturing job creation would be critically important to jumpstart the economy. Very interestingly, it would create 2 million jobs.

When we compared that to spending on a traditional consumption-based stimulus that would simply give tax breaks or rebates to people to encourage immediate household consumption, we found that 22 percent of that spending would leave the economy immediately in purchasing imported goods, where, if you invest in infra-

structure, in capital projects that have been backlogged, that are ready to go, only 9 percent, 9 cents on the dollar, would leave the economy; fully 91 cents would stay within local communities and create jobs.

We also compared that package to what it would mean to invest the same amount of money in oil in a traditional energy economy, and we found that investing in these green projects that create efficiency and encourage renewable energy deployment, encourage new markets, new skilled labor—it takes dollars that would be spent on waste energy, and, instead, we put it into the skills of working people, new construction, and new manufacturing jobs, and you get four times the number of jobs from investing in green clean-energy projects than you would from investing in traditional energy, and three times the number of jobs earning above $16 an hour.

So, this is not only green stimulus, but it's good stimulus. It's fiscally sound, it's economically prudent, it's smart government. We need to be, not only getting our economy moving, but we need to be getting it moving in the right direction.

So, let me just very quickly touch on broad categories that I think are essential to have significant pots of spending on in the near term to stimulate growth. Energy efficiency and conversation programs, like the block grant, will drive critical investment into States and cities who are hurting right now and create spending on construction jobs. Programs like weatherization will save consumers money, and green school construction will put money into communities. Similarly, we can invest in manufacturing and create jobs, as well. So, infrastructure, construction, and manufacturing, and then investing in the training and skill-building provisions that will make that possible.

So, thank you very much. I look forward to answering specific questions as we move forward.

[The prepared statement of Mr. Hendricks follows:]

PREPARED STATEMENT OF BRACKEN HENDRICKS, SENIOR FELLOW, CENTER FOR AMERICAN PROGRESS

Chairman Bingaman, Senator Domenici, and Members of the Committee, thank you for the invitation to discuss how investments in clean and efficient energy and environmental improvements to our nation's infrastructure can create jobs and economic stimulus during this time of tremendous challenge for working families.

Today we urgently need immediate stimulus and near term recovery investments; yet we must also use our resources wisely, not only to get our economy moving but to get it moving in the right direction. A green recovery plan will create more jobs, and more good jobs at higher wages, and it will create new markets for American business while reducing the overall cost of addressing our climate and energy crises. This is smart public policy and good government, and I applaud your leadership in seeking this path forward for the nation.

I am Bracken Hendricks, Senior Fellow at the Center for American Progress Action Fund, a non-partisan multi-issue think tank focused on developing innovative policies that build a more broadly shared prosperity. At CAPAF, we have come to believe, through deep research on the matter, that smart strategic investments in climate solutions can help to rebuild the underpinnings of our economy and create significant numbers of good jobs.

Built on the foundation of efficient and low-carbon energy sources, this transition can be a source of increased business opportunity and competitiveness, stronger communities, improved national security, and increased prosperity. We call this approach "the Energy Opportunity," and we believe that it must be at the center of both America's energy policy and our economic policy as we confront the interrelated challenges of a sagging economy, rising energy prices, and a growing climate crisis.

In this testimony, the Center for American Progress Action Fund offers some thoughts on: 1) the current economic downturn and the urgent need for an aggressive stimulus package that extends well into the coming year; 2) why clean energy should be a major centerpiece of any such recovery plan, possibly constituting from one quarter to one third of a larger stimulus package; and 3) priority measures that will not only create jobs and growth in the short term, but help rebuild the foundation of the U.S. economy over the long term on the platform of renewable and efficient low-carbon energy.

THE NEED FOR STIMULUS AND RECOVERY

The U.S. economy is facing the most serious difficulty we have experienced at any time in a generation. Long-run problems of stagnant or falling wages and incomes are no longer hidden by artificially inflated asset values. The effects of the financial crisis have moved from Wall Street to the daily operations of business and the daily lives of families.

Consider that:

- The 0.5 percent decline in gross domestic product in the third quarter of 2008 was the biggest since the last recession in 2001.
- Total job losses in 2008 have hit over 1.9 million, including 530,000 in November alone.
- Median household income is lower than it was in 1999.
- The values of homes fell by 2.5 percent, or $351 billion, in the second quarter of 2008.
- One in 11 mortgages is delinquent or in foreclosure, and credit card defaults rose to 5.5 percent of all credit card debt by the second quarter of 2008.
- Credit-market borrowing financed 35.2 percent of fixed investment by non-financial corporate businesses in the second quarter of 2008, down from 80.1 percent a year earlier.

In this climate, there is an urgent need for federal policies designed to provide stabilization, stimulus, recovery, and growth to address these huge problems. Without action, there is too great a risk of further collapse and an ever-worsening spiral of job loss and economic decline. In addition to action aimed at stabilizing the extremely shaky auto industry and financial and housing markets, Congress should act quickly to pass measures to stimulate the broad economy and commence the road to recovery.

Stimulus policies should be designed to offer an immediate boost throughout the economy by spurring demand. Their purpose is to quickly stall a downward spiral in the economy and give confidence to businesses to invest and hire by restoring demand for their products. But the consequences of the current downturn are not likely to be reversed quickly by traditional, fast-moving stimulus measures. Also needed is a recovery program to accelerate the creation of a strong labor market and restore lost jobs over the next two years.

There is a growing consensus that stimulus and recovery spending should be on the order of 2 percent to 4 percent of GDP. Nobel Prize-winning economist Paul Krugman concludes that, "the stimulus package should be at least 4 percent of GDP, or $600 billion."[1] Goldman Sachs calls for a stimulus of $500 billion.[2] CAP Senior Fellow Gene Sperling, former director of President Bill Clinton's National Economic Council and Clinton's national economic advisor, says, "The breadth and potential depth of that demand crisis require us to undertake a bolder 'Powell Doctrine' on stimulus in which $300 billion to $400 billion—or at least 2 percent of GDP—should be the starting point with an understanding that more could be needed and that we will need to call for a coordinated global stimulus."[3]

Beyond the immediate challenges, the economy has long-standing fundamental problems that must be addressed by major changes in our nation's approach to energy, education, infrastructure, scientific research, innovation, and other areas as

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[1] Paul Krugman, "Stimulus math (wonkish)," "The Conscience of a Liberal," November 10, 2008, available at http://krugman.blogs.nytimes.com/2008/11/10/stimulus-math-wonkish/.

[2] Brian Faler, "Democrats Set to Take on Stimulus Bill as Price Rises," Bloomberg.com, November 4, 2008, available at http://www.bloomberg.com/apps/news?pid=20601103&sid=aXUnWNKW7P5I&refer=us.

[3] Gene B. Sperling, Testimony before the House Energy and Commerce Subcommittee on Health, November 13, 2008, available at: http://www.americanprogressaction.org/issues/2008/sperling__testimony.html.

described in the Center for American Progress report "Progressive Growth."[4] Stimulus and recovery measures aimed at the immediate crisis should be designed, as a matter of good governance, to serve double duty by providing a jumpstart in the investments needed for the country's long-term growth. A green recovery strategy can meet both of these objectives.

The Center for American Progress has outlined a plan to invest $350 billion (greater than 2 percent of GDP) in a one-year stimulus and recovery package that will jump start economic demand and stimulate job creation while making a significant down payment on meeting these broader public policy challenges, making efficient use of taxpayer funds. In broad categories, the $350 billion package includes approximately:

- $55 billion to spur demand and assist those most in need.
- $70 billion aid for state and localities.
- $175 billion for infrastructure investments in stimulus and recovery.
- $50 billion for tax cut stimulus.

Within the infrastructure section, this plan identifies over $100 billion of clean energy and environmentally beneficial projects and programs that could help direct new investment rapidly into deploying energy efficiency and low-carbon technology. This approach will drive new investment in construction and manufacturing jobs, create new markets for technology and skilled labor, and help cut consumer energy costs, all while leaving a legacy of productive infrastructure and investments.

### A GREEN RECOVERY MEANS MORE GOOD JOBS

Working in partnership with the University of Massachusetts' Political Economy Research Institute, the Center for American Progress recently released a report entitled, "Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy." The report outlines a program of investment that would rapidly inject $100 billion into the domestic economy through near-term spending on energy efficiency and renewable energy.

This analysis found that a strategy for economic recovery that invests in new energy alternatives and smart public infrastructure provides superior improvements in economic performance and job creation when compared to either rebates or comparable spending on traditional energy sources. A program of investment in deploying new clean energy technology and improving building efficiency is good short-term economic policy. It would drive immediate spending into some of the hardest hit sectors of the domestic economy in construction and manufacturing. Put simply, a green recovery package creates more jobs and more good jobs than any other strategy. It deserves strong consideration at this time.

There are many ways in which government spending can stimulate the economy and create jobs as part of a recovery program. Public spending directed toward a green recovery, however, would result in more jobs than spending in many other areas, including, for example, on rebates for increasing household consumption, which was the primary aim of the April 2008 $168 billion stimulus program. Near-term investments in energy efficiency and renewable energy also have the added benefit of moving the country toward the low-carbon future that is necessary to increase our international competitiveness and national security, and avoid the devastating social, economic, and environmental effects of global warming over the long term.

A green recovery program is more effective as an engine of job creation than spending the same amount of money within the oil industry or on household consumption. Increasing spending by $100 billion on household consumption along the lines of the April 2008 stimulus program would create about 1.7 million total jobs, or about 16 percent fewer jobs than the green recovery program. In addition to creating more jobs, targeting an economic stimulus program at increasing green investments also creates more good jobs at higher wages than either a conventional stimulus or comparable spending in the traditional energy sector. A green recovery strategy also offers longer-term benefits: reducing home energy bills to provide consumer savings; stabilizing the price of oil, natural gas, and other non-renewable energy sources through reduced demand and increased energy diversity; and, of course, building over time a low-carbon economy.

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[4] John Podesta, Sarah Rosen Wartell, and David Madland, "Progressive Growth: Transforming America's Economy through Clean Energy, Innovation, and Opportunity." Center for American Progress, November 2007. Available at: http://www.americanprogress.org/issues/2007/11/progressive__growth.html

While it is not proposed as an option for economic stimulus, spending on current fossil fuel-based energy offers a useful comparison to demonstrate the substantially increased economic benefits of investing in renewable energy and efficiency. Spending $100 billion within the domestic oil industry, for example, would create only about 542,000 jobs in the United States. A green infrastructure investment program would create 2 million jobs, or nearly four times more jobs than spending the same amount of money on expanding oil energy resources. And again, spending on oil offers no benefit in transitioning the U.S. economy toward a low-carbon future, and it perpetuates the economic and national security vulnerabilities of continuing to rely on oil for the lifeblood of our economy.

A green recovery strategy will help to improve the overall efficiency of the U.S. economy, which currently uses nearly twice the energy for every unit of GDP when compared to many of our European and Asian competitors.[5] If the Bush administration had pursued an aggressive package of energy-efficiency measures across the economy starting in 2001, with implementation beginning in 2002, the cumulative savings to the economy today would be a remarkable $206 billion in avoided energy costs.[6] These energy cost savings can increase the purchasing power of American families for more productive purposes. In addition, it will generate new markets for American manufactured goods and advanced technology. But for the purposes of a near-term economic stimulus package, two features of a green recovery are critical: it is relatively more labor intensive than other investments, and the jobs that it creates are more concentrated on domestic workers.

Green jobs are more labor intensive. Relative to spending within the oil industry, the green investment program utilizes far more of its overall $100 billion in spending on hiring people than it does on purchasing machines and supplies. Renewable energy and energy efficiency create more jobs per dollar invested than traditional fossil fuel-based generating technologies by putting money directly into advanced technology manufacturing, modern infrastructure expansion, and developing the skills of people. This is money that would have been previously spent on wasted energy and imported fuel. These investments substitute dollars spent on pollution and waste and redirect that investment into the skills of workers and the infrastructure of communities.

Green investments have more domestic content. A green investment program relies much more on goods and services made within the U.S. economy and less on imports when compared to spending either within the oil industry or on household consumption. In general, about 22 percent of total household expenditures flow toward imported goods. With the green recovery investment program, only about 9 percent purchases imports.[7] Another critical benefit of a green economic recovery program is that infrastructure upgrades, building efficiency retrofits, renewable energy installations, and other components of green investment all involve work that cannot easily be outsourced. Moreover, the diffuse nature of these programs ensures that spending on goods and services is spread widely across regions of the country and stays in the local economies where these services are rendered, as compared to large, centralized energy or infrastructure projects. The economic spillover and indirect job creation effects of this phenomenon help explain why green investments create more jobs and more good jobs than the alternatives.

Public investment is important to private markets. In considering the viability of spending on large-scale public investment projects, one of the major issues that is often raised is whether such expenditures absorb the limited amount of total investment funds in the economy, and thereby "crowd out" private sector investment activities. In fact, the weight of evidence examining the impact of public investment on the U.S. economy does not point to a crowding-out effect. It rather finds that, on balance, higher levels of public investment will promote private sector productivity and higher rates of return for business. As such, the evidence suggests that many kinds of public investments in the United States generally crowd in private investment by establishing the enabling conditions for sustained growth in private sector investment and business formation. As a result, the crowding-in benefits of public investments are also associated with higher rates of private sector employment and job creation. For this reason, it is important to recognize that while in

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[5] Center for American Progress and the Worldwatch Institute, "American Energy: The Renewable Path to Energy Security" (2006) available at http://www.americanprogress.org/issues/2006/09/american__energy.html/AmericanEnergy.pdf (last accessed October 2007).

[6] American Council for an Energy Efficient Economy, data supplied by Dr. John Laitner, September 2008.

[7] Robert Pollin, Heidi Garrett-Peltier, James Heintz, and Helen Scharber, "Green Recovery" (Washington: Center for American Progress, 2008), available at http://www.americanprogress.org/issues/2008/09/pdf/green__recovery.pdf

a green recovery strategy the public is priming the pump for new economic growth, new private sector activity is the real engine of jobs and growth.

A GREEN RECOVERY POLICY AGENDA

Green investments are especially effective job and growth creators because they stimulate new demand by moving the economy to advanced technology, modern infrastructure, and skilled labor.[8] Many of the green investment projects, such as building retrofits and weatherization, are labor intensive in construction and manufacturing where unemployment is high. CAP has recommended that one-quarter to one-third of a larger stimulus package be dedicated to the green components of a plan. "A Strategy for Green Recovery" from the Center for American Progress Action Fund describes in greater detail some of the proposals outlined below. The following energy-related investments can start stimulating the economy relatively rapidly, driving new investment directly into communities. Some near-term opportunities for driving new smart energy investments include:

- Transit fare reductions and service expansions: Provide $2 billion in assistance to transit agencies to reduce transit fares and expand services.
- The Weatherization Assistance Program: Fully fund the Weatherization Assistance Program at $900 million, the amount Congress is authorized to spend on the program in fiscal year 2009, and build toward a goal of weatherizing 1 million homes.
- The Federal Energy Management Program: $1.3 billion to fully fund energy-efficiency programs.
- Workforce investment in the Green Jobs Act: Appropriate $250 million for the Green Jobs Act, authorized in the Energy Independence and Security Act of 2007, to provide job training and workforce investment in energy efficiency and renewable-energy installations.
- Refundable residential energy efficiency tax credits: Increase funding for refundable residential energy efficiency tax credits to $5 billion and raise the maximum credit for household efficiency upgrades to $2,000.
- Solar roofs on federal buildings: Provide $3.5 billion to install 2,000 megawatts of solar power on federal rooftops, and amend federal electricity contracting to allow for 30-year power purchasing agreements.
- New Starts Transit project investments: $5 billion to partially bridge the anticipated shortfall in federal transit capital funding for fixed-guideway projects approved in the Federal Transit Administration New Starts pipeline.
- Smart grid federal matching funds: Fund the Smart Grid Title of the Energy Independence and Security Act of 2007 to support $1.3 billion for infrastructure investment and demonstration projects.
- Green jobs restoring the land. Expand existing programs by $800 million to restore parkland, forests, wetlands, wildlife refuges, and rural ecosystems.
- The Manufacturing Extension Partnership: Expand the capacity of domestic manufacturing modernization efforts by increasing MEP funding to $200 million.
- Greening affordable housing: As proposed by the Center on Budget and Policy Priorities, provide $5 billion for both public housing and federally subsidized, privately owned units. This could be distributed through public housing agencies and the HOME program, and used to increase energy efficiency, reduce energy operating costs, and bring empty homes back into use.
- Green school construction and renovation: Immediately support state and local school modernization, renovation, and repair at a cost of $7.25 billion.
- Water and wastewater infrastructure: $10 billion for cities to address issues with water and wastewater treatment.

In addition, some slightly less fast-acting, but still near-term, recovery proposals can drive new investment into our energy infrastructure within the next year to create needed jobs. A well-balanced recovery plan will include proposals that are concentrated in the first few months, as well as a range of structural investments that will create significant growth over the course of the coming year. Some of these proposals include:

- Building retrofits: New authorization and funding of $10 billion to provide the initial financing for a public revolving loan fund—tax exempt, with credit guar-

[8] Bracken Hendricks and Benjamin Goldstein, "A Strategy for Green Recovery: Stimulating the Economy Today by Rebuilding for Future Prosperity," Center for American Progress Action Fund, November 10, 2008, available at http://www.americanprogressaction.org/issues/2008/pdf/green__recovery__memo.pdf

anteed by the federal government, available for packaging with private capital—to spur the national building retrofit effort, with the principal to be repaid at the end of a five-year period.
- Energy efficiency and conservation block grants: Appropriate $5 billion to fund states, cities, and counties pursuing clean energy projects.
- "Cash for Clunkers" rebates for older cars: Initiate a $2.5 billion annual program to purchase and scrap older, more polluting cars, in exchange for an owner agreement to acquire a more efficient vehicle or use alternative transportation.
- Clean Renewable Energy Bonds: Increase CREB funding by $3 billion to finance renewable energy projects by electric cooperatives, government entities, Indian tribal governments, and others.
- Advanced coal technology to capture carbon: Invest $1.1 billion to deploy demonstration carbon capture-and-storage technology at a coal-fired power plant.
- Electric transmission grid: New authorization for a $10 billion outlay for a new Federal Trust Fund for transmission and smart-grid build out through direct spending and grants to states and municipalities.
- Manufacturing: $15 billion in grants to states to support manufacturing plant retooling to produce clean and energy-efficient technologies and advanced batteries for electric vehicles.
- Advanced technology vehicle manufacturing and retooling: $25 billion in additional loans for automobile manufacturers. The budget cost will be $7.5 billion.
- Replacing aging buses and acquire rail cars: $4 billion on a competitive bid basis for mass transit agencies to replace aging buses with efficient, low-emission vehicles, acquire new rail cars to meet the surging demand for transit services across the nation, and perform needed and backlogged maintenance.
- Local transit infrastructure: $8 billion to fund 559 "ready-to-go" public transportation capital projects that could begin within months of federal funding being made available. The funding would include the oldest and largest rail transit systems that face increasing maintenance and upkeep costs.
- Capital assistance to states: $10 billion to fund and dramatically expand the Intercity Passenger Rail Service Program for a federal-state partnership to promote intercity passenger rail development. This will include helping the states and Amtrak acquire new and rehabbed passenger rail rolling stock.
- Clean Energy Corps: $3 billion for a national CEC, a combined service, training, and job-creation effort to combat global warming, grow local and regional economies, and demonstrate the equity and employment promise of the clean energy economy. The funding could be distributed through the Corporation for National and Community Service and the Department of Labor to administer CEC-related programs.
- The Industrial Waste Recovery Program: $410 million to provide incentives for industrial facilities to generate electricity from recovered waste heat, as authorized by the Energy Independence and Security Act.

Together these investments can readily drive over $100 billion into near-term spending that not only provides benefits for our energy security, but promotes stimulus by providing assistance to states and cities, encouraging new investment in housing and the construction industry, increasing consumer savings, expanding opportunities for training and national service, providing direct relief to low-income Americans, and reinvesting in our manufacturing jobs base.

Investing in a green recovery is not a replacement for a more comprehensive climate strategy, nor does it obviate the need for other forms of fast acting stimulus that help consumers with health care, education, child care, unemployment insurance, or other pressing economic needs. Instead, a green recovery program is a powerful complement to a larger stimulus effort that is strategically targeted to steer the economy where we need to go over the long term. Such a plan represents an opportunity to make a significant down payment on the sort of economic activity that will be required to fundamentally transition our economy away from carbon-intensive and imported energy sources, and to begin the process in earnest of moving toward more efficient, domestic, and renewable energy as a solution to global warming.

In addition to the recent report on Green Recovery, the Center for American Progress has outlined a critical path for the long-term transition to an economy that seriously takes on the challenge of advancing climate solutions. The CAP report "Capturing the Energy Opportunity: Creating a Low-Carbon Economy"[9] identifies 10

[9] Report available at: http://www.americanprogress.org/issues/2007/11/energy__chapter.html

steps to a low-carbon economy that will be critical to moving our country toward reliance on low-carbon energy. This strategy involves a mix of direct investment, smart regulation, and administrative solutions. The near-term investments outlined in the Green Recovery program are wholly consistent with this longer-term vision for change.

Given the magnitude of coming challenges in building a vibrant, competitive, and low-carbon economy, it is essential that Congress, as the guardian of public trust resources, seeks to make any short-term investments in stimulus with an eye toward coming long-term public challenges. In addition, our research with the University of Massachusetts shows that as well as providing long-term benefits, a Green Recovery is good economic policy because it provides more jobs and more good jobs for the American people. As such, a green recovery represents good government by anticipating challenges and investing in healthier communities, a more robust economy, and a safer world.

Thank you for your leadership on these pressing issues facing the U.S. economy.

The CHAIRMAN. Thank you very much.

Mr. Book.

**STATEMENT OF KEVIN BOOK, SENIOR VICE PRESIDENT, ENERGY POLICY, OIL & ALTERNATIVE ENERGY, FRIEDMAN BILLINGS RAMSEY CAPITAL MARKETS CORPORATION, ARLINGTON, VA**

Mr. BOOK. Thank you, Chairman Bingaman, Ranking Member Domenici, and distinguished members of this committee, for the privilege of contributing to the discussion today.

The views I present today are my own and don't represent those, necessarily, of my employer.

As Bracken mentioned in his remarks, this is no ordinary time. Dramatic job losses, collapsing commodity prices, and a slowdown in the pace of clean energy investment are symptoms of an economic crisis that is neither typical nor trivial. We have the third-largest annual job losses since Labor Department records started, in 1939. Since 1950, there have only been three significant down years in U.S. electric power demand. 2008 appears poised to be the fourth.

Some power utilities tell me that demand will be lower next year, as well, in all likelihood. EIA says September oil consumption fell 2.6 million barrels per day, year on year, a contraction unseen since the early 1980s.

Master Card reported lower year-on-year gasoline demand for 32 consecutive weeks that ended last Friday. Approximately 40 States are draining their budget balancing funds due to lower receipts and higher costs. State regulators are balking at high-cost power projects, and private developers' wind projects around the country are posting delays and cancellations.

Our historically abundant and low-cost energy sources have been essential to past economic expansions. Investment in energy capacity and efficiency gains will support recovery and ongoing growth.

Clean energy is more expensive than conventional sources, and virtually all new energy infrastructure is more expensive than paid-for existing capital stock. It may seem hard to spend money on energy of any kind, when economic contraction requires less energy, especially when lean years leave less money for higher efficiency infrastructure. This could be a mistake. Low fossil energy prices will disappear with renewed economic growth. Under-investment today increases the odds that tomorrow's price spikes will be steeper, swifter, and more devastating.

After demand fundamentals, credit may be the biggest challenge facing clean energy. Even before the downturn, lenders and underwriters were cautious about backing projects that could cost as much, or more, as the market value of some of the companies sponsoring them. Tighter scrutiny of borrowers and greater regulatory capital requirements in the future could mean higher debt costs. High interest rates mean higher marginal costs for clean energy producers. Conversely, cheap credit improves the relative cost profile of clean energy, improving odds that a risky project will succeed. This heightens the importance of government loan guarantees as a mechanism for facilitating credit and lowering borrowing costs.

By itself, low-cost debt may not be sufficient to provoke clean energy infrastructure during periods of tangible energy demand contraction, but few projects are likely without it.

Then there's tax equity. Tax credits for clean energy, rather than blind subsidies, encourage investment in profitable, and therefore taxable, enterprises. But, not every project sponsor needs to offset taxable income. Especially this year.

Financing structures that shift project ownership to third-party investors until tax credits are exhausted work poorly when private firms have fewer taxable profits. Making credits tradable would allow project sponsors to monetize credits in small batches, rather than transferring the entire project. Making credits refundable would turn credits into above-the-line payments for sponsors without tax liability. Neither approach will have the impact of long-term declining payments for clean energy at a premium to market prices, an approach which has been very successful at providing clean energy investment in Europe. However, free money plans have many takers, and costs add up fast. Moreover, surplus payments do nothing to encourage clean energy technologies to aggressively compete for price parity with conventional sources. This can preserve entrenched disadvantages, especially if governments withdraw their payment streams, as has happened in Europe recently.

President-elect Obama has called for a transformation of our energy infrastructure through green jobs. At minimum, this could spark small and large business investment. At best, government-funded workers could build high-performance schools in low-loss smart electrical transmission grids.

But transformations have long lead times and many pitfalls. We should not crowd out opportunities for incremental gains. For example, plug-in hybrids are a transformation. Different cars using different fuels. First-general hybrids offer incremental gains by making every mile driven more economically and environmentally efficient. It may be possible to hybridize coal-fired generating capacity in a similar fashion, pairing it with wind and solar installations to incrementally improve greenhouse gas emissions on a combined per-megawatt-hour basis, while managing costs. Likewise, relatively low-cost, low-technology environment improvements, furnace upgrades, and electric appliance or lighting retrofits to homes and commercial buildings, policies this committee has already authorized, offer incremental and enduring efficiency gains. In the words if the President-elect, this work is shovel-ready, in that it can begin almost immediately, even as broader strategic plans develop.

Ultimately, the solution cannot start and end with government alone. Fiscal, monetary, and labor policy actions may require—may provide short-term relief, but complete economic recovery will require private investors to commit capital on a long-term basis to new, innovative, and productive use. These clean energy investments must ultimately prove economically viable. Technologies that cannot survive on a long-term basis without ongoing government support can lead to inefficiency and inefficient investment decisions, potentially saddling governments with high, rising, and inflexible cost burdens, and diminishing international competitiveness.

Mr. Chairman, this concludes my prepared testimony. I look forward to any questions, at the appropriate time.

[The prepared statement of Mr. Book follows:]

PREPARED STATEMENT OF KEVIN BOOK, SENIOR VICE PRESIDENT, ENERGY POLICY, OIL & ALTERNATIVE ENERGY, FRIEDMAN BILLINGS RAMSEY CAPITAL MARKETS CORPORATION, ARLINGTON, VA

Thank you, Chairman Bingaman, Ranking Member Domenici and distinguished members of this Committee, for the privilege of contributing to your discussion concerning clean energy investment and economic stimulus programs.

As a macro-level energy analyst for an investment bank, I interpret domestic and global economic and policy trends for institutional investors, including crude oil prices, alternative energy economics, climate mitigation costs and the energy policy decisions taken by governments. My testimony reflects lessons learned in this capacity as well as observations I have drawn from ongoing discussions with industry contacts and financial investors. The views I will present today, however, are my own, and do not necessarily represent those of my employer.

A GREEN RESPONSE TO A NATION IN THE RED

Dramatic job losses, collapsing commodity prices and a slowdown in the pace of clean energy investment are symptoms of an economic crisis that is neither typical nor trivial. This is the time for a well-considered policy response. Measures that restore economic vitality at the same time that they diminish energy-related environmental impacts could satisfy immediate cash flow needs while setting the stage for long-term strategic gains. After all, this nation's tremendous natural resource wealth and historically abundant and low-cost energy sources have been essential components of past economic expansions. Investment in energy production capacity and energy efficiency gains will support recovery and ongoing growth.

However, the solution cannot start and end with government alone. Fiscal, monetary and labor policy actions may provide short-term relief, but complete economic recovery will require private investors to commit capital on a long-term basis to new, innovative and productive uses. These clean energy investments must ultimately prove economically viable relative to competing sources. Technologies that cannot survive on a long-term basis without ongoing government support can lead to inefficient energy use and investment decisions, potentially saddling governments with high, rising and inflexible cost burdens and diminishing international competitiveness.

The summary figures presented on the next several pages frame these opportunities and challenges.

ECONOMIC GROWTH, ENERGY DEMAND AND ENVIRONMENTAL IMPACT

Figure 1* presents annualized changes in nonfarm payrolls since February 1939. 2008 is on pace to be the third-worst year from a job?loss perspective during this 70-year period. Only the 1982 recession and structural changes to the U.S. economy in 1945 at the end of World War II exceeded this year's likely declines in employment rolls. This is the most poignant, human element of the current economic crisis.

Figure 2 presents the annual change in U.S. electric power demand between 1950 and 2007. The U.S. economy today produces goods and services that differ markedly from economic output a half?century ago. In this context, it is striking that only three years within the survey period show significant (approximately 0.5% or more)

*Figures 1–5 have been retained in committee files.

annual decreases in electric power demand. This is a very flattering statistic: inexpensive, reliable and readily-available electricity enables widespread diffusion of laborsaving and productivity-enhancing technologies. By the same token, early data suggest that 2008 will probably bring the fourth significant contraction of electric power demand on record; in the absence of observed efficiency improvements, the implications for quality of life are nothing to celebrate.

Figure 3 presents the annual change in U.S. petroleum demand between 1950 and 2007. During the first two decades of the data set, demand increased each year with only one exception. During the decades following the 1973 Arab oil embargo, petroleum demand oscillated between annual increases and decreases. In my view, this illustrates how a combination of government-imposed efficiency standards and an economic "reality check" can change the nature of energy consumption. Although U.S. energy use patterns shifted markedly in the wake of the 1979 Iranian Revolution, I would suggest that the demand trough in 1981 reflects more than power generators switching away from oil-fired boilers or consumers adaptively responding to sustained high prices. A component of the demand retracement throughout the early 1980s resulted from U.S. drivers' rapid shifts out of old, large, low-efficiency cars and into new, small, higher-efficiency vehicles. Adaptive responses come and go, but changes in capital stock can enduringly shape energy use behaviors.

There is a strong positive correlation between economic security, energy security and environmental security. Generally speaking, energy demand increases with economic activity because growing economies require more fuels of all kinds, and virtually all industrial activities have environmental consequences. Prosperous economies use more energy, but they can also afford to invest in highefficiency capital stock. As a result, they tend to use energy more cleanly and efficiently on a marginal basis than less-developed nations. The opposite is also true. Slower economic growth, or economic contraction, demands less energy, but lower economic output during lean years leaves less money for higher-efficiency infrastructure. As a result, the poorest nations resort to the lowest-cost sources of electric power and transportation fuels. Put another way, efficient growth is cleaner and more valuable than inefficient growth, but it also tends to be more expensive.

Figure 4 contrasts the absolute and proportional levels of greenhouse gas (GHG) emissions from key sectors of the U.S. economy in 2006, the most recent year for which robust data are available, with 1990, the baseline year established by the Kyoto Protocol. Although energy intensity and emissions intensity of U.S. GDP declined between 1990 and 2006, and GHG emissions from industrial, agricultural, commercial and residential sources decreased on an absolute and proportional basis, emissions from electric power and transportation increased. In short, throughout the greatest period of wealth creation in U.S. history, Americans consumed more, drove more and manufactured less. It may be challenging for the nation to consume less, drive less and manufacture more during a severe downturn.

## UN-STICKING CLEAN ENERGY INVESTMENT

Three primary forces appear to be depressing clean energy investment today, all of them a function of the economic downturn. First and most obviously, low commodity prices tend to widen the spread between low-cost conventional sources and higher-cost alternatives, rendering many newer technologies uneconomic (or more uneconomic) on a relative basis. Second, limited access to, and higher costs of, credit can make it difficult for project sponsors to source funding for new initiatives. Third, unlike nations that provide explicit surplus payments to encourage clean energy investment, the U.S. structures its investment incentives as tax credits that can have little or no value to project sponsors who do not need to shield taxable income.

Low fossil energy prices.—The "problem" of low fossil energy prices is likely to disappear with renewed economic growth. Fundamental scarcity has not gone away, and likely underinvestment in energy infrastructure due to today's economic challenges increases the odds that tomorrow's price spikes will be steeper, swifter and more devastating than this year's peaks. Nor, by any objective measure, is new energy infrastructure cheap in any case. Although short-run price weakness may dampen recent land, labor and materials price inflation, the next barrel of oil and the next megawatt hour of power will still cost substantially more than the installed capacity, if only because incumbent producers have already paid for the existing infrastructure.

Limited access to credit.—The second problem may persist even after recovery begins. Credit challenges are unlikely to abate once seized-up credit markets resume operation because lending is not likely to resume until lenders can command higher interest rates. Higher interest rates mean higher marginal costs for clean energy producers. Even before the downturn, commercial lenders and debt underwriters

were unlikely to offer project sponsors low-cost debt without explicit guarantees from the federal government. If coming reforms include tighter scrutiny of borrowers' creditworthiness and greater regulatory capital requirements for lenders, debt costs for risky projects could be higher and approvals could be fewer and further between. It's easy to see why: with "overnight" capital costs of between $4,500 and $7,000 per kilowatt for some renewable sources and nuclear power technologies, a single 1,000 megawatt installation would cost between $4.5 and $7 billion—more than the market value of the common equity, and a significant portion of the enterprise value, of many investor-owned utilities.

For this reason, loan guarantees under Title XVII of the Energy Policy Act of 2005 provide a powerful mechanism for improving the financial return profile of clean energy projects at little or no cost to taxpayers, provided, of course, that commercial lenders and federal government guarantors sufficiently vet candidate projects for financial viability. It may be possible to improve upon the Title XVII program, which must be funded through Congressional appropriations, with legislative proposals for a perpetually-funded "Clean Energy Bank of the United States" chartered to provide project sponsors with low-cost debt. By itself, low-cost debt may not be sufficient to provoke clean energy infrastructure investment during periods of tangible energy demand contraction, but few projects are likely without it. Moreover, cheap credit improves the relative cost profile of clean energy, improving odds that a risky project will succeed.

Diminished appetite for "tax equity".—Giving companies tax credits for clean energy investment provides development incentives at minimum explicit cost to the federal government while simultaneously encouraging investment in profitable, and therefore taxable, enterprises. But not every investor who might sponsor projects needs to offset taxable income (especially not this year). This has led to complex financing structures that shift project ownership to third-party financial investors until the tax credits are exhausted, at which point ownership reverts back to the project's sponsor, developer or a designated third party. Fewer taxable profits within the U.S. economy mean fewer dollars theoretically available for clean energy investment in this fashion.

Legislative changes that make tax credits tradable (discrete, transferable units of value that project sponsors can sell on a per-unit basis to taxable entities, rather than transferring producing assets as a whole) or refundable (credits that become explicit payment streams for recipients without tax liabilities) might awaken some investor enthusiasm for clean energy, but only if low-cost financing is available. Long-term, declining surplus payments for clean energy that offer a premium to market prices on a per-unit basis (like European "feed-in-tariffs" for electric power) have successfully encouraged investment in high-cost, clean energy technologies by project sponsors eager to capture a guaranteed rate of return in excess of capital costs. However, this approach has two drawbacks. First, unless governments limit the amount they are willing to spend, a "free money plan" tends to have many takers, and costs add up fast. Second, surplus payments do nothing to encourage developers and providers of clean energy technologies to aggressively compete for price parity with conventional sources and this can potentially preserve entrenched disadvantages, particularly in the event that governments facing financial strictures withdraw all or part of these surplus payment streams.

## RECOMMENDATIONS

There are many ways to address energy infrastructure needs with programs explicitly directed at alleviating economic malaise. Stimulus spending can offer a band-aid by giving cash-strapped consumers and local governments necessary working capital. To extend the metaphor, policies that promote efficiency gains offer strong medicine for an intermediate-term cure, but the inevitable growth of energy demand above and beyond conservation-induced or recession-diminished levels means that this medicine can eventually lose its efficacy. Last, incentives to build economically viable new infrastructure are tantamount to transplant surgery, but surgeries can be last-resort, high-cost, highrisk interventions.

President-elect Barack Obama has called for a new works program to transform U.S. industrial and energy infrastructure. At minimum, a "green jobs" campaign may be a necessarily hopeful vision that inspires small and large businesses to renew their investments in the faltering economy. At best, a workforce of government-sponsored green jobs could implement a strategic roadmap to 21st century municipal infrastructure, including high-performance schools and low-loss, "smart" electrical transmission infrastructure capable of interconnecting with, and balancing, a growing number of renewable, intermittent power sources. But transformations can also have long lead times and many potential pitfalls. As a result,

it may be prudent to consider opportunities for incremental gains, particularly if these incremental changes can get dollars into the U.S. economy on a short-term basis.

Figure 5 compares theoretical ten-year discounted returns on plug-in hybrid electric vehicles (PHEV, via retrofit) with first-generation (unmodified) hybrids and typical, light-duty passenger vehicles (LDV) at two different long-term oil prices. At $115/bbl, the first-generation hybrid has a 4% rate of return relative to the LDV and the PHEV barely breaks even, and this assumes the driver never exceeds the 35-mile useful range of the on-board battery. At $80/bbl, the conventional hybrid does 2% worse than the conventional LDV—close enough to break even in another year's time—while the PHEV does 5% worse. In theory, a new car purchaser should be willing to buy a hybrid (the incremental change) with a government subsidy of as little as $400, but it would take as much as $3,000 to encourage the same buyer to consider a PHEV via retrofit (the transformational change). Notably, neither theoretical scenario counts the costs associated with generation, transmission and distribution capacity to support PHEVs. The outcome of this analysis would be different if ready-made PHEVs existed today at price points at, or below, the prices of first-generation hybrids and conventional LDVs but, today, dollars spent on incrementalism may go seven times further than dollars devoted to transformation.

In a similar fashion, it may be possible to encourage "hybrid" investments that pair new coal-fired generating capacity with wind or solar installations in order to incrementally improve GHG emissions on a combined, per-megawatt-hour basis while minimizing increases in blended average capital costs. This pairing could also potentially take advantage of the complementary relationship between coalfired base-load generation and the use of alternative power to satisfy peak demand.

Last, there are ample opportunities for incremental (and enduring) efficiency gains within homes and commercial buildings that can be obtained through relatively low-cost, low-technology envelope improvements, furnace upgrades and electric appliance or lighting retrofits. This work is, in the words of the President-elect, "shovel-ready" in that it can begin almost immediately, even as broader strategic plans are developed to address longer-dated infrastructure strategies. Mr. Chairman, this concludes my prepared testimony. I will look forward to any questions at the appropriate time.

The CHAIRMAN. Thank you very much.

Mr. Woolf, let me just correct the record here. As I understand it, you are the head of the Maryland State Energy Office, work for Governor O'Malley, in that position, instead of what I had said before. So, welcome. Go right ahead.

## STATEMENT OF MALCOLM D. WOOLF, DIRECTOR, MARYLAND ENERGY ADMINISTRATION, ANNAPOLIS, MD

Mr. WOOLF. Thank you, Mr. Chairman and members of the committee. My name is Malcolm Woolf, director of the Maryland Energy Administration. I'm appearing here today on behalf of the National Association of State Energy Officials. These are the folks who head the State energy offices and serve as Governors advisors on energy matters.

I'm pleased to have this opportunity to discuss, today, the immediate steps that Congress could take to accelerate energy solutions to promote affordable, reliable clean energy, and, at the same time, help address our immediate economic challenges.

It's hard to overestimate the promise of clean energy. Like roads and bridges, clean energy investments immediately create new jobs, ranging from attic insulators to solar installers. Such jobs cannot be outsourced overseas. These investments will continue to pay dividends in the years to come by reducing our monthly energy bills, increasing generation of clean renewable power, and accelerating our Nation's transition to a more sustainable and secure energy future. For these reasons, I agree that major new invest-

ments in clean energy should be part of any emerging economic recovery package.

To be successful, however, we need to leverage the Federal Government's resources with the ability of States to develop innovative new strategies and implement programs on the ground.

Currently, State energy offices and research institutions manage approximately $3 billion in program funding annually. As such, energy offices offer a ready-made 50-State delivery mechanism for rapid deployment of energy infrastructure investments. For example, under Governor O'Malley, Maryland, earlier this year, enacted one of the Nation's most ambitious energy efficiency goals, to reduce electricity consumption statewide, 15 percent by 2015. As part of our energy infrastructure investments, the Maryland Energy Administration, since 1991, has made 63 loans to overhaul State buildings, resulting in an estimated annual savings of $2.7 million, with total cumulative savings, thus far, exceeding $20 million. We also have hundreds of residents currently seeking State grants to partially offset their investments in solar, geothermal, and wind projects at their own homes. While every State has a slightly different set of tools, there's no other existing vehicle that can coordinate implementation of clean energy investments across all 50 States.

We recommend that the clean energy component of the economic recovery package include the following four elements, each of which utilizes existing delivery mechanisms to allow for immediate implementation.

First, we urge Congress to launch a major energy-efficiency building retrofit program. With 70 percent of electricity consumed in buildings, minimizing the amount of energy that literally goes out the window or through a leaking air duct is a great investment.

In addition, numerous studies have documented the significant number of jobs created by energy efficiency programs. For example, for every million dollars spent in energy performance contracting, 20 new green-collar jobs are created. The key, as this committee has already noted, is rapid implementation.

I've attached, to my written testimony, draft legislative language proposing $5 billion be disbursed to the States within 30 days of enactment, utilizing the existing State energy program formula.* A second $5 billion could be dispensed the following year, based on actual results, based on how well the States do in reducing kilowatts on the grid.

Secondly, we support efforts by the Conference of Mayors to fund the Energy Efficiency and Conversation Block Grant Program. The mayors have already identified a long list of projects that are ready to go. In Maryland, for example, the city of Annapolis is seeking funding for its Easy Annapolis Project to provide low-interest loans secured through a voluntary property lien to promote residential energy efficiency and renewable energy. This is a project that's ready to go, if only we had money to fund it. There's a lot of projects like that at both the State and local level. We caution, however, that DOE needs to streamline the block grant implementation process so funds can be disbursed quickly.

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*Document has been retained in committee files.

Third, Congress should expand funding for proven programs. A study—this includes, of course, State energy offices—a study conducted by—a few years ago, by the Oak Ridge National Laboratories concluded that, for every dollar invested, over $7 in direct energy savings is achieved, and almost $11 in non-Federal funds are directly contributed to energy programs and projects. We also urge additional funding to low-income weatherization to assist those most vulnerable to stay warm this winter, funding to better implement energy efficiency building codes, to make long-term improvements in the Nation's building stock, and EPA's ENERGY STAR Program, which has achieved remarkable success in promoting a wide array of energy efficiency projects—products.

Finally, one of the simplest steps Congress could take to promote long-term job creation and in—new energy investments is to increase the energy tax incentives. We have two specific suggestions. First, employers are more likely to hire new workers if they know that the tax incentives will last for more than 1 year. Second, to boost job creation in homeowner building retrofits, the energy efficiency tax credit should be increased to 50 percent for materials and labor, up to $2500. Contractors would take those incentives, market it directly. It would not need government implementation and could create real-world jobs without delay.

In sum, clean energy investments, such as incentives for attic insulation and solar panels, offer the ability to stimulate the economy and create green-collar jobs, while, ask the same time, reducing home—household energy bills, advancing the Nation's energy security, and addressing our climate challenges. States are uniquely positioned to jumpstart real-world programs in weeks, not seasons.

We urge Congress to leverage the Federal Government's resources with the States' ability to innovate and quickly implement energy projects on the ground.

Thank you, and I look forward to your questions.

[The prepared statement of Mr. Woolf follows:]

PREPARED STATEMENT OF MALCOLM D. WOOLF, DIRECTOR, MARYLAND ENERGY ADMINISTRATION, ANNAPOLIS, MD

Mr. Chairman and members of the Committee, my name is Malcolm Woolf and I am Director of the Maryland Energy Administration. I am appearing today on behalf of the National Association of State Energy Officials (NASEO). NASEO represents all of the state energy offices in Washington, D.C., and helps coordinate the work of the energy offices throughout the United States. We are pleased to have this opportunity to discuss immediate steps the federal government can take to accelerate energy solutions that will promote affordable, reliable and clean energy, and also help address our immediate fiscal challenges. Prior to joining the Maryland Energy Administration, I served as Staff Director of the Natural Resources Committee of the National Governors Association, counsel on the U.S. Senate Environment and Public Works Committee and in private legal practice.

SUMMARY

It is hard to overestimate the promise of clean energy to stimulate the economy, create green collar jobs, advance energy security and address our climate and environmental challenges. To be successful, however, we need to re-establish a true partnership between the states and the federal government on energy matters. We need to leverage the federal government's resources with the ability of states to experiment with innovative new strategies and implement programs on the ground. By building a more meaningful partnership, we can achieve our ambitious energy goals.

Major new investments in clean energy should be a critical part of the emerging economic recovery package. Like roads and bridges, such investments immediately create new green collar jobs, ranging from attic insulators to solar installers. Such jobs can't be outsourced overseas. And these investments will continue to pay dividends in the years to come by reducing our monthly energy bills, increasing generation of clean, renewable power, and accelerating our nation's transition to a more sustainable energy future.

For many years we have discussed the need to achieve significant increases in energy efficiency in order to strengthen our economy and reduce dependence on foreign imports. We are now facing an historic opportunity where Congress and the Administration are committed to this effort.

States are uniquely positioned to immediately implement major new energy investments. Currently, state energy offices and research institutions manage approximately $3 billion in program funding annually. As such, energy offices can provide a ready-made, 50-state delivery mechanism.

These proposals would strengthen the Federal, state and local partnerships and create the opportunity for significant success. Many states and local governments are already setting ambitious goals and the funds that we are requesting would help establish a real partnership, not just one based on platitudes.

For example, under Governor O'Malley, Maryland enacted earlier this year one of the nation's most ambitious energy efficiency goals to reduce consumption 15% by 2015. We already have a list of pre-approved energy performance contractors ready to overhaul state buildings, as well as programs for energy efficiency grants and low interest loans to local governments, non-profits, and private businesses, and workforce training to create qualified contractors that can improve home performance. While every state has a slightly different set of tools, there is no other existing vehicle that can coordinate local implementation in all 50 states.

For the proposed stimulus package, we recommend the following immediate actions, which utilize existing delivery mechanisms:

1) Provide $10 billion for an energy efficiency buildings retrofit program, utilizing existing delivery mechanisms (Draft Legislation and Appropriations Language attached as Appendix A);

2) Provide $6 billion for the Energy Efficiency and Conservation Block Grant (Authorized in the Energy Independence and Security Act of 2007 ["EISA"]);

3) Expand funding for proven programs, including:

(a) $125 million for the State Energy Program (Reauthorized in EISA);

(b) $1 billion for the Low-Income Weatherization Assistance Program (Reauthorized in EISA);

(c) $100 million for Energy Efficiency Building Codes (consistent with the authorization contained in the Energy Policy Act of 2005 ["EPACT 2005"]);

(d) $100 million for the EPA ENERGY STAR program (consistent with the authorization contained in EISA);

(e) $250 million for Green Jobs (Authorization contained in EISA);

(f) $250 million for the REAP program at USDA, authorized in the 2002 Farm Bill, and reauthorized in the 2008 Farm Bill, to provide energy efficiency and renewable energy funds for farmers, ranchers and rural small businesses; and

(g) $2.5 billion for the Low-Income Home Energy Assistance Program ("LIHEAP"), in addition to the $5.1 billion in FY'09 appropriation.

4) Provide 8 year extensions for the energy efficiency and renewable energy tax provisions (including e.g., Production Tax Credit ["PTC"], Investment Tax Credit ["ITC"], CREBS, energy efficiency commercial buildings deduction, etc.) to ensure long-term job creation, and expand the energy efficiency tax credits to create immediate incentives for home energy efficient makeovers.

DISCUSSION

*A) STIMULUS PACKAGE*

*1) Launch Energy Efficient Buildings Retrofit Program ("Direct Install")*

With seventy percent of electricity consumed in buildings, minimizing the amount of energy that literally goes out the window—or through a leaking air duct—is a great investment. In addition, numerous studies have documented the significant number of jobs created by energy efficiency programs. For example, for every $1 million in energy performance contracting, twenty green collar jobs are created. A massive new investment in energy efficiency building retrofits should therefore be a central part of an economic recovery package, as long as is implemented quickly.

Let me suggest four fundamental principles essential to success. First, we need aggressive standards in all types of buildings—residential, industrial, commercial, institutional, state and local government. This is important because, once a building is in place, it lasts decades. Second, we should focus on upgrading infrastructure as this will generate energy cost savings, help households as well as businesses, and produce sustainable high quality jobs. Third, rapid deployment of energy efficiency measures is important to reduce the costs of climate change mitigation measures to all consumers. Energy efficiency reduces regulated air pollutants and greenhouse gas emissions, and will be a critical step in any climate bill that is developed. Finally, and perhaps most importantly, speed requires a deployment mechanism utilizing existing deployment routes, i.e., states.

The recommended approach for this new program is quite simple, and we have attached the draft legislative language and associated appropriations language (Appendix A). This proposed $10 billion plan would have $5 billion disbursed to the states within 30 days of the date of enactment, utilizing the existing State Energy Program formula. The existing authorization for SEP is quite broad and the only modification necessary would probably be to increase the authorization level. The states would disburse the funds utilizing all deployment routes, including energy service companies, utilities, contractors, community action agencies, etc. The savings would have to be monitored and verified. Within three months of the date of enactment, DOE would be required to publish guidance on metrics for the remaining portion of the funds. Within ten months of the release of funds, the states would provide a report on implementation of the energy efficiency buildings retrofit measures, and within twelve months of the release of the initial funds, the remaining $5 billion would be disbursed in accordance with performance. This is a highly aggressive schedule. It will require speed from DOE, which has not generally been a hallmark of their efforts. Leadership from Congress and the new Administration will help.

A number of complimentary proposals have been suggested, including efforts in schools and creating a residential energy efficient buildings retrofit program. These suggestions from groups such as the Center for American Progress, the Energy Future Coalition, ACEEE and NRDC should be quickly and closely examined. We have worked with these other groups on these proposals A melding of these ideas is possible as well. From our perspective, the key element is speed, which can only be achieved utilizing a deployment mechanism which exists in all the states, territories and the District of Columbia.

*2) Appropriate Funds for Energy Efficiency and Conservation Block Grants*

Sections 541-548 of EISA established a new Energy Efficiency and Conservation Block Grant ("EECBG"). This is a strong priority of the U.S. Conference of Mayors, other local governments and the state governments. If implemented quickly, it could provide critical near-term investments in clean energy technologies.

We support the efforts of the U.S. Conference of Mayors and others to streamline this process, so that the funds can be disbursed to local governments quickly. If the EECBG funds wait for DOE to go through a normal rulemaking process, followed by a competition among the local governments, the funds could take years to distribute. That is absolutely contrary to the intent of the incoming President and, I expect, this Congress.

We recommend that the state portion of these funds be released within thirty days in accordance with the existing formula for the State Energy Program. NASEO recently wrote to Energy Secretary Bodman to implement these measures urging DOE to take certain administrative steps immediately to avoid delay in the distribution of funds early in the Obama Administration. There is sufficient statutory and legal authority to act in this manner. In short, the state energy offices are committed to sharing best practices with the local governments and ensuring regional coordination so that we actually can increase the leverage and the success of these programs.

*3) Expand Proven Energy Programs*

*a) State Energy Program*

The State Energy Program ("SEP") provides funds to the state energy offices through the Department of Energy to fund energy efficiency and renewable energy programs impacting every sector of the economy. A study conducted a few years ago by Oak Ridge National Laboratory concluded that for every federal dollar invested, over $7 in direct energy savings is achieved and almost $11 in non-federal funds are directly contributed to energy programs and projects. As noted, this study was conducted several years ago when energy prices were substantially lower, thus the projected savings today are even higher.

If Congress and the new Administration are serious about addressing energy efficiency and renewable energy, the state energy network will be crucial to achieving any of these goals quickly, if at all. This network is robust and the energy offices generally serve as the program implementers as well as energy policy advisors to the Governors. A comprehensive energy effort must be coordinated, both at the federal and state levels. There is no other existing vehicle that can do the coordination. This funding allows the states to improve the energy efficiency of homes, schools, hospitals, small businesses, local governments, and the agricultural sector and to help the poor, elderly and disabled. Funds are utilized to promote ENERGY STAR products and work with energy service companies, utilities, local governments and others on all types of energy projects. Aggressive implementation of alternative fuels programs, as well as hybrid and plug-in hybrid vehicle initiatives, is also part of this effort. States promote the use of energy service performance contracts and implement these projects, which reduces energy costs for all types of public and private facilities, while keeping capital costs lower. States utilize these funds to support new and innovative "Green Jobs", including training programs, workshops, etc. States utilize these funds to implement more aggressive building energy codes and conduct training for code officials, builders, local building inspectors, architects and contractors. States facilitate all types of energy financing programs for projects. States also utilize these funds to conduct energy emergency preparedness and to respond to energy emergencies.

The FY'07 Energy and Water Development Appropriations Bill provided $50 million for this program. The FY'08 Appropriations were $44 million, including $10 million for competitive programs ($4 million of these funds were siphoned off to other uses determined by the Department of Energy). The FY'09 Appropriations Bills would have provided $50 million, though the House bill would have provided one-half of these funds for a "competitive" program between the states and the Senate version would have provided $50 million for base funding—an approach we supported.

We recommend $125 million for the stimulus package for SEP and an additional $125 million for the FY'09 Energy and Water Development Appropriations Bill. If the energy portion of the stimulus package is going to succeed, Congress and the Administration will require a coordinating function at the state level as well as the federal level. Making this program "competitive" between the states fails to support the laboratories of innovation and the collaborative model of best practices. After all, many of the nation's most successful energy programs, including the precursor to the Federal Energy Management Program, the Renewable Portfolio Standard, the Renewable Fuel Standards, and performance contracting programs, were created through state innovations and would never have occurred in response to a DOE-issued "Request for Proposals."

*b) Weatherization Assistance Program*

The President-elect stated that he wanted to weatherize one million homes per year for ten years. The FY'09 Continuing Resolution ("CR") provided for $477 million for the DOE Weatherization Program, up from $227 million in FY'08. The stimulus package should provide at least $1 billion for Weatherization, in addition to the FY'09 CR. The FY'10 appropriations should be $1.4 billion, and the ramp-up should continue beyond that. While the ramp-up will be a challenge, especially in the training area, it can be achieved. To ensure success, we strongly urge that tens of millions of dollars from these funds be allocated to worker training to get the community action agencies, local contractors and local agencies qualified to perform high quality energy efficiency retrofits.

*c) Energy Efficient Building Code Program*

EPACT 2005 authorized an expanded program to promote energy efficient building codes, training and technical assistance. The states are working to upgrade energy efficient building codes, but more is needed. A massive new effort at training local building inspectors, code officials, contractors, builders, utility personnel and architects is needed to get these upgrades accomplished. We have worked with congressional staff to create a national model standard with minimum energy efficiency levels. We were greatly disappointed that the International Code Council ("ICC") process led to energy efficiency gains of less than twenty percent at the ICC meeting in September, when the higher codes were examined. This is insufficient and far too slow. Those who have opposed increased building energy efficiency codes have generally argued that it is never a good time to increase codes. This is a mistake. Congress should take two steps: a) increase funds from the pitiful $3.9 million presently provided for energy efficient building codes to $100 million for this effort; and b) move forward on legislation to upgrade the energy efficient building codes on a na-

tional level. This will require a commitment, not only this year, but for a number of years.

*d) EPA ENERGY STAR Program*

The EPA ENERGY STAR Program, within the Climate Protection Division of the Office of Air and Radiation, is an exemplary program. The FY'08 funding contained in the Interior and Environment Appropriations Bill should be doubled to $100 million in the stimulus package, and should increase in base FY'09 funding and thereafter. The program works with states, utilities and others to promote energy efficiency, saving billions and reducing both electricity demand and natural gas demand. This effort is absolutely a joint activity with the states and it needs to expand.

A specific set of ENERGY STAR program expansion measures (totaling $50 million) should be instituted as part of the stimulus package:

1) Energy efficient existing homes (+$12.5 million), including Home Performance with ENERGY STAR (which is a joint activity between the states, EPA and DOE). This promotes whole-home retrofits. We are working with contractors, utilities and others to bring the transaction costs down. We have instituted a pilot program in the Mid-Atlantic States. Additional training should be started promoting quality installation of heating and cooling equipment. For example, air conditioning units are frequently oversized and improperly installed, leading to more peak demand and inefficiencies.

2) Expanded energy performance ratings systems for the nation's buildings (+$7.5 million), should be instituted. Ten percent of U.S. building space has already utilized the EPA metrics (energy use/square foot). This performance rating could apply to 60 percent of U.S. commercial building space. Additional funding would allow the program to be expanded to the vast majority of the nation's buildings and would allow EPA to partner with states, local governments, builders and others.

3) Expanded small business programs would allow greater technical assistance to this sector (+$10 million), including small and medium-sized manufacturers and others. Again, the focus would be the proper installation of high efficiency services and products.

4) Expanded outreach (+$10 million) to states, utilities, local governments, elementary and secondary schools and other energy efficiency program sponsors in the implementation of energy efficiency programs. The ENERGY STAR "platform" can assist these emerging program sponsors in developing programs quickly, based on existing best practices for overall greater effectiveness.

5) Expanded outreach to state and local governments (+$10 million) could help these entities serve as a "force multiplier" in achieving stated goals and monitoring and verifying energy savings. This includes technical assistance, sharing of best practices and programs, alternative financing approaches and matching funds for innovative state programs. This could also serve as a vehicle for identifying efficiency measures in water and wastewater treatment facilities, though the direct funding for the infrastructure improvements could be provided through other elements of the stimulus package.

6) Exploring new technologies and practices (+$5 million) could help EPA and DOE work together in their efforts to partner with the states, and local governments and would also help establish the "feedback loop" with the federal agencies to ensure that federal laboratory and other spending is sufficiently connected to the real world and programs that might be used by the population.

*e) Green Jobs*

In addition to the additional training requirements noted in the Weatherization section and the building codes section, of this testimony EISA authorized a new "Green Jobs" program. While it is authorized at $125 million, the funding should be $250 million in the stimulus package, and it should be increased over time.

To successfully address the nation's energy challenges, a wide range of new workers will be needed, including insulation installers, air sealers, HVAC professionals, plumbers, renewable energy installers, energy auditors, etc. The unions have established extensive apprenticeship training efforts, which should be supported. Training is also needed for local code officials, contractors, building inspectors, and architects. In the industrial area, an expansion of the Industrial Assessment Centers should be an important priority, along with expanded coordination with the state energy and economic development officials. Community colleges, technical colleges, manufacturing extension services, cooperative extension activities (through USDA and state agricultural agencies), are also key elements of a training regime. This will require not only stimulus funds, but also persistent funding over a period of

years. Recent initiatives in Arizona, Maryland, Massachusetts and New York could be excellent models for other state and federal initiatives.

In addition, we recommend a new assistant secretary for "Green Jobs" or workforce development be established. This could be at DOE or DOL, or both. The key will be coordination.

*f) "REAP" Program*

While technically not jurisdictional to this Committee, we strongly urge Congress and the Administration to expand the renewable energy and energy efficiency program for farmers, ranchers and rural small businesses, which was authorized in the Energy Title of the 2002 Farm Bill, and reauthorized and expanded in the Energy Title of the 2008 Farm Bill. This program has been successful thus far, but could be a more important lynch pin of federal energy and agricultural policy. This program should be funded at a level of $250 million in the stimulus package and an additional $250 million in FY'09. There is an existing competitive program operated by USDA, with cooperation from the state agricultural agencies, the state energy agencies and the agricultural extension agents. Recent proposed changes by the present Administration is pushing more funds towards loans and less to grants. This is a mistake; especially in a faltering economy. The focus should be on grants, with reduced match requirements, as well as technical assistance programs. In addition to the stimulus package, we would recommend base program funding in FY'09 of $250 million, with increasing amounts in the future.

*g) Low-Income Home Energy Assistance Program (LIHEAP)*

In the FY'09 CR, Congress doubled the LIHEAP program to $5.1 billion. The funding is still inadequate to the task. Energy prices have dramatically increased in the past five years and low-income, elderly and disabled consumers are paying up to 20-30% of their net income for energy costs. This includes not only natural gas and electricity, but also heating oil and propane, which have experienced extreme price volatility. The state level energy organizations support a funding level of $7.6 billion, which would serve between one-third and one-half of the eligible population. As you know, even at these higher funding levels, LIHEAP funds provide only a share of energy costs. Recent surveys by the National Energy Assistance Directors Association ("NEADA") have shown that shut-offs of utility service have increased substantially in 2008. Recent oil price decreases have not saved poor consumers from these price increases. Again, a consistently higher funding level for LIHEAP is critical to serving the poor. The energy efficiency building retrofit program discussed elsewhere in this testimony would not duplicate either LIHEAP or Weatherization.

*4) Boost the Energy Tax Incentives*

One of the simplest steps Congress could take to promote long term job creation and new energy investments is to increase the energy tax incentives. Recent congressional action to extend a number of the energy efficiency and renewable energy tax provisions for a period ranging from one year to eight years was a positive step. We recommend that these provisions uniformly be extended to the eight years established for the solar investment tax credit to provide stability to this industry. This includes the PTC, ITC, CREBS, energy efficiency tax credit for new and existing homes, and the commercial buildings energy efficiency deduction (which should be expanded from $1.80/square foot to $3/square foot, in accordance with the proposal from the American Institute of Architects)

Several additional tax changes could also make a significant impact. First, in light of the credit crunch and the desire to deploy these technologies, a refundable tax credit should be instituted. These credits also should be transferable. In addition, state tax benefits should not be offset against the federal tax benefits for energy efficiency and renewable energy.

Second, to boost job creation in homeowner building retrofits, the energy efficiency tax credits should be increased from 10% of materials (up to $500 per home) to 50% for materials and labor (up to $2500 per home). Contractors would promote such an incentive directly, ensuring a real world impact without government implementation or delay.

Finally, the new tax credit for plug-in hybrid and electric vehicles should also be extended.

*B) ADMINISTRATIVE CHANGES*

*1) White House Energy Council*

We support creation of a White House National Energy Council. Coordination of DOE, EPA, USDA, DOI and other agencies should be a high priority of this new

position. In the 1990s, through 2001, the state energy agencies, the state utility commissions, the state air program administrators and the state environmental commissioners (with support from the federal government) met to coordinate policies, programs and initiatives. The state agencies have begun meeting again to reinvigorate this effort. The support of the new White House National Energy Council and the Council on Environmental Quality would be critical to this effort.

*2) Energy Efficiency and Renewable Energy Office*

Sadly, over the past few years, the Department of Energy has become largely irrelevant to the real energy challenges facing the nation. First, the procurement process for the Department of Energy's Energy Efficiency and Renewable Energy Office is not working. It has gotten slower and has become more distant from the states, local governments and other governmental and private initiatives.

Second, with the elimination of DOE's regional offices a few years ago, the substantive connection between the federal government and the states has been washed away. The state energy offices pledge support to new regional efforts and we have numerous suggestions on DOE reorganization.

Third, the "stovepipes" remain at DOE, where the technologies are not meshing. A bright spot has been the industrial energy efficiency program, with increased levels of cooperation between the federal government and the states. We are hopeful that with the recent new management in the state and local program office, and a new commitment from the incoming Administration, successful joint programs could be instituted.

We also recommend the creation of Senior Deployment Coordinators in each of the end-use offices at the Energy Efficiency and Renewable Energy Division. These individuals would help work with states, local governments, and the private sector to help get the work of the national laboratories and these offices into the marketplace. There is a fundamental lack of understanding at DOE about the connection between R&D and deployment. The deployment function is not seen as important and there is no institutionalized feedback mechanism between the states and DOE on what works and what does not work. R&D cannot be done in a vacuum. New efforts at commercialization have been a useful start.

We would also recommend expansion of the Technical Assistance Program ("TAP") coordinated by the National Renewable Energy Laboratory ("NREL"), which utilizes federal laboratory expertise and other DOE contractor resources to assist the states in implementing innovative policies, based upon best practices.

The Federal Energy Management Program ("FEMP") now has strong leadership. However, there is approximately $1.3 billion in Energy Service Performance contracting projects in the pipeline. Leadership from the White House is needed to order agencies, including DOD, to expedite these projects. A separate proposal being considered by the President-elect and Congress to add significant funding to FEMP projects would also expedite federal energy efficiency measures.

*3) Office of Electricity and Energy Reliability*

This office does an excellent job with very limited resources—but they need more resources. First, NASEO supports expanded efforts to make the transmission and distribution grid more robust and reliable and creating a "Smart Grid". Second, DOE must do more to help prepare the country for energy emergencies. Many in Washington, D.C. do not appreciate that DOE has significant responsibilities for energy emergency preparedness and response, and that these efforts are often done in conjunction with state governments. Funding has been cut for energy emergency preparedness and it has significantly impaired our nation's ability to respond to energy emergencies. For example, the National Infrastructure Protection Plan ("NIPP") needs to be upgraded and more regional energy emergency exercises need to be conducted. Finally, increased funding for the basic OE function should be provided, as should increased funding for the energy emergency function. Enhanced coordination with FERC, the state energy agencies, and the state utility commissions should be encouraged. Recent efforts to create Clean Renewable Energy Zones should be expanded.

*4) Energy Information Administration*

The Energy Information Administration ("EIA") needs more resources to do its job more effectively. While not necessarily part of a stimulus package, there are a number of items that are falling behind. Section 805 of EISA required EIA to develop a plan and identify additional measures. Just as the state programs have been cut, so has EIA. This agency has not had enough funds to make investments required to ensure its surveys accurately track rapidly changing markets. EIA data is relied upon and, of course, inaccurate data can distort energy-related decisions. For example, EIA's natural gas storage report, released in November 2005, erroneously

showed a substantially larger than expected withdrawal. As a result, December futures on the NYMEX immediately jumped sixty cents, costing consumers an additional (and unnecessary) $100 million—$1 billion. FERC's Office of Market Oversight concluded that this incident illustrates the need to make more supply and demand information available to the public. EIA's $97.8 million budget in FY'08 will not allow the agency to update needed data sets, provide critical data on carbon emissions to help the country address climate change, provide more state-level data information (and in a more timely manner), provide more data on ethanol and biodiesel use and penetration, update data on demand response, expand the heating oil, propane and natural gas program operated in coordination with the states and provide more accurate data on state-level programs (especially using comparable data from different states), etc.

*5) Office of Policy*

DOE's Office of Policy had previously been involved in more discussions among offices at DOE and with the states and other interested parties. This function has been substantially diminished in the past few years. We strongly urge DOE to aggressively enhance the involvement of this office in developing energy policy, working with the states and with the proposed White House National Energy Council.

*C) ENERGY LEGISLATION*

Beyond some of the stimulus measures and administrative changes discussed above, Congress and the new Administration will be considering important new policies including, but not limited to, a Renewable Portfolio Standard and an Energy Efficiency Resource Standard, expansion of authority to set multiple performance standards for appliances, building labeling models, energy efficient mortgages, expanded grants and programs for multi-family and manufactured housing, etc. One program that has not been widely discussed, but should be, is a national effort to provide rebates to the owners of the 2 million pre-1976 manufactured housing units in the country. These are terrible energy wasters for people who are generally very poor. This rebate program could be modeled after examples in Maine and New Hampshire and would encourage people to upgrade to ENERGY STAR homes.

CONCLUSION

Clean energy investments, such as incentives for attic insulation or solar panels, offer the ability to stimulate the economy and create green collar jobs, while at the same time reducing household energy bills, advancing the nation's energy security, and addressing our climate and environmental challenges. The states are uniquely positioned to jump start real world energy projects in weeks, not seasons. We urge Congress to leverage the federal government's resources with state's ability to innovate and quickly implement energy projects on the ground. We also hope to have the opportunity to work with DOE, EPA, USDA, DOI and the possible White House Energy Council, in addressing a set of coordinated policy measures.

The CHAIRMAN. Thank you very much.

Mr. Loper.

## STATEMENT OF JOE LOPER, SENIOR VICE PRESIDENT, POLICY AND RESEARCH, ALLIANCE TO SAVE ENERGY

Mr. LOPER. Good morning, Chairman Bingaman and Ranking Member Domenici. My name is Joe Loper. I'm senior vice president for the Alliance to Save Energy. Thank you and this committee for the opportunity to discuss how we can use energy efficiency to stimulate the economy while creating jobs, lowering energy costs to the consumers, making our country more energy secure, and start addressing a looming climate challenge.

Energy efficiency is the cleanest, easiest, and least expensive energy and carbon abatement resource, but fully tapping the potential of energy efficiency will require significant government leadership and a combination of public and private investment.

We all know the economy is in serious trouble. Over the last year, we lost 2 million jobs, and about $10 trillion worth of wealth in homes and stocks has evaporated. Economic news suggests we

are in for a longer and deeper slump than we have seen for at least a couple of—at least the last couple of decades. We need to do something, now and over time.

Given the sharply rising Federal deficit, we should make sure that stimulus spending yields long-term benefits, that we use the stimulus to invest in the Nation's future, not just invite immediate gratification. By using the stimulus as a downpayment on a new energy economy and to prepare for climate legislation, we can pass something besides debt on to our children. The value of a stimulus package in boosting short-term economic confidence can be enhanced if it is seen as a part of a larger and forward-thinking clean-energy strategy.

In anticipation of an economic stimulus bill, the Alliance has been working with a coalition of more than two dozen organizations and companies to develop recommendations that will simultaneously stimulate the economy and provide a downpayment on a cleaner and more secure energy future.

In developing the recommendations, we were guided by the following principles. The recommendations must be timely. We've been thinking in terms of a 2-year funding cycle for the recommendations, that I'll discuss in a minute. We've tried to rely, where possible, on existing programs or institutions and existing authorities, where they're available. We've emphasized training and infrastructure development, thinking that this is a short—this is a downpayment on the future. We've targeted the activities, where—tried to give a significant amount of it toward low-income and the unemployed, and providing direct assistance to reduce their energy bills, as well as training for future employment. We've tried to make sure that our recommendations will have lasting benefits, that the benefits to the economy and the environment, as well as short-term economic stimulus.

The Coalition's recommendations, I should be clear, are still a work in progress. We've tried to be responsive to what are now daily requests from the Hill for new ideas, and going back and forth with different people on the details of the various recommendations. We're meeting again this afternoon, and I suspect we'll be meeting for a couple of days, so the details will change, but today I can give you an overview of the various recommendations that we have.

The recommendations from the Coalition comprise about $18 billion in stimulus funding. These are increases over and above existing program funding. The $18 billion in stimulus funding would create about 150,000 jobs over the next 2 years, including construction and manufacturing in the industries that supply them. I want to emphasize that we have been very conservative with the job numbers, and not counted recycling through the economy over time. So, we're looking at what we think are the job impacts in the short term.

The different categories, I'll just quickly run through, for the—our recommendations include $8 billion for public buildings. That's improvements in Federal, State, and local government buildings, including schools. The potential for energy efficiency investments in the public sector is estimated at between 35 and 70 billion, many

of which are projects that are already lined up. So, this would go a long way toward kickstarting those projects.

We'd provide about $5 billion for energy efficiency in homes. That includes $2 billion to the weatherization assistance project, and another $3 billion for State-administered programs to help weatherize middle-income homes.

On commercial buildings, we have proposed $3 billion for a national program to encourage improvements in commercial buildings. We'd provide $2 billion to public transit, $100 million to the ENERGY STAR Program to expand the home performance with ENERGY STAR, which is a residential retrofit program. We would provide building—$100 million to DOE to support training of building-code officials at the State and—State and local building-code officials. We provide additional funding for the manufacturing assistance project at the Department of Energy.

The Alliance to Save Energy appreciates the opportunity to testify and the committee's and chairman's interests in using the stimulus package to provide bridge funding to a clean energy economy. We welcome future discussions on long-term reform of the economy and addressing the looming economic challenge. But, the recommendations that I've laid out here will meet the objectives of fiscal stimulus and start us down that road.

Thank you.

[The prepared statement of Mr. Loper follows:]

PREPARED STATEMENT OF JOE LOPER, SENIOR VICE PRESIDENT, POLICY AND RESEARCH, ALLIANCE TO SAVE ENERGY

Good Morning, Chairman Bingaman and Ranking Member Domenici. My name is Joe Loper and I am the Vice President for Policy and Research at the Alliance to Save Energy. As you are aware, the Alliance mission is to promote energy efficiency worldwide. The Alliance works closely with a broad and diverse group of stakeholders, including suppliers of energy efficient equipment and services, electric utilities, oil and gas suppliers, large and small energy consumers, environmental organizations and federal, state and local government agencies.

For 30 years, the Alliance has promoted federal policies to increase the nation's energy efficiency. There has never been a more important moment than now to initiate a serious and aggressive energy efficiency program for this nation. I want to thank you and the Committee for the opportunity to discuss the critical need to use energy efficiency as a means to stimulate the economy, while creating jobs, lowering energy costs to the consumer, and making our country more energy secure.

The economy is in serious trouble. We lost 2 million jobs lost last year, the worst since the oil crisis of 1974. More than $10 trillion worth of wealth in homes and stocks has evaporated since this time last year.[1] Economic news suggests we are in for a longer and deeper slump than we have seen for at least the last couple decades. We need to do something.

But given the sharply rising federal deficit, it is all the more important to make sure that any incremental spending seen as essential for economic recovery also yields long term value. The ability of the stimulus package to increase confidence of businesses and consumers and banks will be enhanced if it is perceived as being part of a grander strategy.[2] If the stimulus is used as a down payment on a new

[1] More than $8 trillion of stock valuation decline between Jan and October 2008 according to Wall Street Journal Oct. 11, 2008, p.1. Home prices in September had fallen by one-fifth from prior year to $162 thousand. See Standards & Poor's, "National Trend of Home Price Declines Continues Through the Third Quarter of 2008 According to the S&P/Case-Schiller Home Price Indices," Press release, November 25, 2008. There are roughly 75 million single-family homes in the US, thus 20% drop in value represents roughly 2.5 trillion in housing value.

[2] The best approach to stimulating the economy is a point of contention among economists. Some argue that stimulus should be "timely, temporary and targeted." The notion is that the economy just needs a "shot in the arm," and that care should be taken to ensure the stimulus occurs when the economy is in a downturn and not after it has already rebounded. Other economists argue that stimulus should be "permanent, pervasive and predictable," that people spend

energy economy or to prepare for climate legislation, our children will inherit something more than debt.

ENERGY EFFICIENCY: THE FRONT LINE OF THE CLEAN ENERGY ECONOMY

Energy efficiency is the cleanest, easiest and least expensive energy and carbon abatement resource. It is widely seen as the first response to climate change, energy security and other energy challenges. The US Chamber of Commerce, in a report released in September, said "the next best source of new energy is the energy we can save every day."[3] Energy efficiency is unique among energy resources. It is a low-cost resource. It has few carbon emissions. And there are no battleships are required. The energy we save is a domestic resource, a secure one that we control, and most importantly, one that produces jobs here in America.

Energy efficiency is already a big part of the nation's energy economy—a silent partner in meeting the nation's demand for energy services. If not for energy efficiency improvements made since 1973, America's energy bill and related carbon emissions would be 50 percent higher (150 quads instead of 100 quads).

Energy efficiency can contribute even more to the nation's energy economy—McKinsey estimates that base case demand in 2020 can be reduced by 21% of using technologies and practices available today.[4] But that doesn't mean it's free or always easy. Significant barriers to wider acceptance of EE must be overcome, including lack of consumer awareness and know-how, split incentives (e.g., where the landlord buys the appliances, but the renter pays the energy bill), and lack of up-front investment capital.

Fully exploiting the potential of energy efficiency will require significant government leadership and a combination of public and private investments. It's a familiar story—When the economy is good, there's no time, when the economy is bad, there's no money. The stimulus package offers a rare (perhaps unique) opportunity to overcome this "cycle of complacency."

FISCAL STIMULUS: A DOWN PAYMENT ON THE CLEAN ENERGY ECONOMY

Several years ago the Alliance brought together a coalition of two dozen organizations and businesses (see attached list) and businesses to advocate for robust energy efficiency appropriations. For the past five weeks the coalition has been working on developing a list of stimulus program activities. In developing these recommendations, the coalition was guided by the following five principles:

- Timely.—Recognizing that one of the major objectives of the fiscal stimulus is to move money into the economy, we selected activities suitable for a two-year funding cycle.
- Existing programs or institutions.—The coalition looked for existing programs and institutions that can effectively absorb and spend the funds in a short time. This will help to ensure that the rapid expansion of programs not be allowed to undermine the effectiveness of those programs.
- Emphasis on training and infrastructure development.—The energy efficiency deployment infrastructure can build up fast, especially in time of high unemployment, but it requires training and infrastructure development. This should be a major focus of a green stimulus package.
- Targeted.—The coalition has directed a significant amount of activity toward low-income and unemployed people, providing direct assistance to reduce their energy bills as well as training for future employment.
- Lasting benefits.—Finally, we focused our recommendations on activities that will provide real and lasting benefits to the economy and the environment, as well as short-term economic stimulus.

The coalition's recommendations are for funding increases over and above existing program funding and would create more than 100 thousand jobs over the next two

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based on their expected income over their lifetime and that the April 2008 stimulus had little or no effect on consumer spending. John B. Taylor, "The State of the Economy and Principles for Fiscal Stimulus, Testimony before the Committee on the Budget, United States Senate, November 19, 2008.

[3] U.S. Chamber of Commerce, Blueprint for Securing America's Energy Future, Institute for 21st Century Energy, September 30, 2008, p.6.

[4] McKinsey Global Institute, Wasted Energy: How the U.S. Can Reach Its Energy Productivity Potential, July 2007 <http://www.mckinsey.com/mgi/publications/wasted_energy/index.asp>

years, including construction and manufacturing and the industries that supply them.[5] The recommendations include:

- State and local government buildings.—$4 billion to Department of Energy (DOE) for grants for energy efficiency projects in state and local facilities. The potential for energy efficiency investments in the public sector is between $35 and $70 billion, and that fewer than 25 percent of all state buildings have had comprehensive energy-efficiency retrofits.[6] This recommendation would create roughly 24 thousand jobs.
- Schools.—$3 billion to the Department of Education for grants for the repair, renovation, and modernization of public schools, with the requirement that a percentage of funding be used for improvements that make use of specified energy efficiency and green building standards. This recommendation would create roughly 18 thousand jobs.
- Federal buildings and facilities.—$1.2 billion to DOE to fund existing requirements (under EPACT 2005 and EISA 2007) to conduct facility audits, install advanced metering and make energy efficiency improvements in federal buildings. An additional $1.3 billion of economic activity could be induced by freeing up the existing backlog of energy services performance contracts held up at the DOE General Counsel—this would require no additional federal spending. Combined, these two recommendations would create roughly 15 thousand jobs.
- Weatherization Assistance.—$1.9 billion over two years to the Weatherization Assistance Program. These funds would be used to increase the number of homes reached by the program and provide training and investment necessary to meet President-Elect Obama's goal of one million homes weatherized annually. Initial spending would involve significant on-the-job training for unemployed carpenters and trades people to weatherize homes with at least tacit understanding that this is an employment opportunity for the future. With twelve training centers and hundreds of agencies already in place, the program can expand rapidly. This recommendation would create roughly 11 thousand jobs.
- Home energy retrofits.—$2.8 billion to EPA for state-administered programs intended to weatherize 1.5 million homes over two years. The programs would provide rebates or low-interest loans for homes that achieve at least 10%, 20%, or 30% energy savings through combinations of measures with assumed energy savings, Home Performance with Energy Star, or comprehensive retrofits based on before and after energy audits. This recommendation would create roughly 22 thousand jobs based on federal funding alone.
- Public transit.—$2 billion to transit agencies to reduce fares and for expansion, rehabilitation and modernization of transit systems.
- Manufacturing Assistance.—$50 million to DOE Industrial Assessment Centers—An existing network of universities provide free energy audits for local small and medium sized manufacturers. Students actually conduct the audits with supervision from professors, thus offering both training and energy savings opportunities.
- Building Code Support.—$100 million to DOE to support training of builders and state and local building code officials.
- ENERGY STAR.—$100 million to EPA to allow the ENERGY STAR program to expand state and local programs, including Home Performance with ENERGY STAR, label new categories of efficient products, and increase public outreach.
- Federal Appliance credit.—Make the federal tax credit manufacturers of high-efficiency appliances refundable for 2 years. This will require a minor legislative change and will drive investment and employment in manufacture of appliances at the highest efficiency levels by providing cash-strapped manufacturers with funds to invest in improved efficiency. The score should be minimal as it mostly enables this year tax credits that were already scored when extended in September (most of the credit is capped for each manufacturer). This provision will benefit consumers by increasing production and decreasing cost of very high efficiency refrigerators, dishwashers, and clothes washers.

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[5] A "job" equals one job for one year. For example, ten thousand jobs could equal ten thousand jobs for one year, five thousand jobs for two years, or two thousand jobs for five years. Job numbers in include direct and indirect jobs, but not induced jobs (i.e., the "multiplier effect"). Job calculations based on multipliers developed by Karen Ehrhardt-Martinez and John A. "Skip" Laitner, The Size of the U.S. Energy Efficiency Market: Generating a More Complete Picture," American Council for an Energy Efficient Economy, Report Number EO83, May 2008, p.9.

[6] Personal correspondence, Don Gilligan, National Association of Energy Services Companies, December 2008.

Specific language is available for many of the recommendations.

SUSTAINING MOMENTUM

At least a few tens of billions of dollars could be effectively absorbed over the next two years to expand energy efficiency programs that already exist or that could be initiated quickly with immediate energy savings and job creation. This would be a major increase in public sector spending, which currently totals about $5 billion, and would represent a major share of total private and public spending on efficiency.[7]

The proposed stimulus package offers one source of funding to start the job—but additional action will be needed well beyond the next two years, both to sustain these programs and to create a price for carbon. The ability to use stimulus funds to address our energy and climate challenges is constrained by restrictions that they be spent within a very short window of time. Lack of consensus about best approach for fiscal stimulus argues for some diversity in the policy portfolio. A longer-term stimulus package presented as part of a broad and credible strategic vision for the energy economy could build greater confidence in the country's overall economic prospects.

The Alliance to Save Energy appreciates the opportunity to testify and the Committee's and Chairman's interest in using the stimulus package to provide bridge funding to a clean energy economy. The recommendations we have provided will meet the objectives of fiscal stimulus and start us down the road toward a cleaner, more secure and less volatile energy economy.

The CHAIRMAN. Thank you very much.

Mr. Hauser.

## STATEMENT OF STEVE G. HAUSER, VICE PRESIDENT, GRIDPOINT, INC., ARLINGTON, VA

Mr. HAUSER. Thank you, and good morning, Chairman Bingaman and Senator Domenici and distinguished members of the Senate's Energy Committee on Natural Resources.

On behalf of the rapidly growing smart-grid industry, I want to thank the Chairman and all of the members of the committee for your support in passing the Energy Independence Security Act of 2007, and, in particular, title 13 on Smart Grid. Together, your leadership on these issues has clearly had a positive impact on the country, and I applaud your continued vision and action.

I appreciate the opportunity to testify before you today on behalf of the rapidly increasing number of smart-grid professionals across the country. I'm specifically speaking, representing more than 80 member companies of the Gridwise Alliance and the Smart Grid Policy Center. I won't take time to name all the members of the Alliance that include many of America's leaders, both utilities and technology companies. I have provided your staff with brochures that summarizes our vision and purpose, and has a list of our members included.

I'm also pleased to represent the other managers and more than 100 staff members of GridPoint. GridPoint is a rapidly growing clean-tech company with offices in nearby Arlington, as well as in Seattle, Washington. We are proud to be a leader in the smart-grid industry, developing and deploying smart-grid solutions in several States, cities, and utilities around the country.

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[7] Public sector spending for efficiency includes federal, state and local government spending as well as required spending by electric and gas utilities. Estimates based on data from the Consortium for Energy Efficiency (2008). The Alliance estimates total current spending for energy efficiency is about $40 billion: 2007 EE Quads was 1.35 higher than 2006—50.05Q vs 48.7Q. Assuming 10-year average life of EE measures and $40/million Btu cost of conserved energy (consistent with 4 cents/kwh), the spending for that 1.35Q annual energy saving equals $40b.

Building a smart grid must be a national priority. The funding we've requested to be included in the stimulus package you're considering today is the necessary next step. It is critical to enabling the vision you have for a cleaner and more efficient energy system. While much of the technical and policy discussions focus on energy efficiency, renewable energy, storage, and electric vehicles, we have too often under-emphasized the critical need for a smarter grid, the infrastructure required to achieve both scale and true cost-effectiveness.

I don't have enough time in the next few minutes to tell you about all the exciting recent developments in our industry. Suffice it to say there are projects underway in many States—Washington, Colorado, California, Texas, Vermont, Illinois, and many other States. They're all exploring new and better ways of deploying smart-grid solutions, with huge benefits to consumers and utilities—improved efficiency, higher reliability, improved environmental benefits—and at a cost below that of traditional infrastructure.

I'd like to refer you to my written testimony for more details on the impact that a smart grid will have immediately on creating new jobs, and, over the longer term, by revitalizing this industry and the economy.

Smart grid may still be new to some of you, so, in the next few minutes, let me explain it this way. What would happen if we reduced the lighting in this room, right now, by 20 percent, or even 50 percent? Would it affect our ability to continue the meeting? I think not. What if we changed the temperature by 2 or 3 degrees for the next hour or two? Do you know what impact would—this would have on the energy use in this building? What if we had the ability to make these changes anytime, based on the availability of power from the grid. What would be the impact on the local substation operation, on PEPCO's operations here, on PGM's regional operations? What if every building and every consumer had the ability to automatically control their major loads, where the impact to their lifestyle and business needs is minimal, but the collective impact on the local utility in the region is positive and significant? What if we measured every kilowatt and every kilowatt hour, and could clearly show the benefit of the savings to our economy? How many power plants could we not build, and how much carbon could we save? What if our roofs had solar systems and our garage contained—garages contained plug-in electric vehicles? What if our basements contained an inexpensive battery storage system? What if these devices were networked together to optimize their value to both consumers and to the utilities' operation of the grid? How many additional power plants could we not build, and how much carbon could we save? What if Federal facilities across the country had this capability? What if every school could respond in this way? What if we built an infrastructure where it was easy for homes and businesses to better understand their energy use, reducing the unnecessary use of energy and optimizing the distributed production of clean energy, and, when networked together, they need much less energy to meet our needs and we need fewer power plants to produce the energy we need?

This is a smart grid, and more. It is more renewable energy. It's more efficient loads. It's more electric transportation. It's higher reliability, and at an affordable price. It truly is the backbone of our clean-energy future.

Let me summarize by saying that I believe, and the companies I represent believe, that creating a smart grid is one of the most important investments you can make to revitalize our economy and build for the future. These investments must start right now.

Europe and other countries are already moving ahead quickly on creating a smart grid. It is critical that we also move quickly. We are faced with challenging times in our country—challenges to our economy, challenges to our energy security, and challenges even to our continued leadership in the world. Making transformative changes, such as these, will not only get us through the current crisis, but will build toward a cleaner, more productive and secure future.

Thank you very much for your time and attention. I'll welcome questions.

[The prepared statement of Mr. Hauser follows:]

PREPARED STATEMENT OF STEVE G. HAUSER, VICE PRESIDENT, GRIDPOINT, INC., ARLINGTON, VA

Good morning Chairman Bingaman and distinguished members of the Committee on Energy and Natural Resources. I'd like to specifically thank Senator Bingaman, Senator Dorgan, Senator Cantwell, and Senator Salazar for the interest and support you have provided in recent years for policies supporting smart grids. I want to also thank all the members of the committee for your support in passing the Energy Independence and Security Act of 2007 and in particular Title XIII on Smart Grids. Together your leadership on these issues has clearly had a positive impact on the country and I applaud your continued vision and action.

I appreciate the opportunity to testify before you today on behalf of the growing number of smart grid professionals. I'm specifically representing more than 80 member companies of the GridWise Alliance and the Smart Grid Policy Center, most of whom are in Houston today for our annual members meeting. IBM, Sempra, Battelle, PJM, AREVA, and Rockport Capital founded this group with me five years ago with a vision to transform our electricity system based on innovative information and energy technologies. Our goal was and still is to substantially improve the efficiency, reliability and affordability of electricity in this country while reducing its environmental impact. I won't take time to name all the other members of this Alliance that include many of America's leaders; both utilities and technology companies. I have provided each of you a brochure that summarizes our vision and purpose with a list of members included.

I am also pleased to represent the other managers and more than 100 staff members of GridPoint. GridPoint is a rapidly growing cleantech company with offices in nearby Arlington as well as in Seattle, Washington. We are proud to be a leader in the smart grid industry; developing and deploying smart grid solutions in several states, cities and utilities around the country.

Senators Cantwell and Dorgan may remember the last time I testified before this committee. It was late in the summer of 2001 and strange things were happening in the electricity industry, especially on the West coast, where a field hearing was held to explore alternatives to traditional power systems and technologies. I explained then the growing interest and understanding of how information based technologies and tools could provide solutions to revolutionize the way we delivery electricity. Providing a system for measuring and communicating more detailed and accurate information on how electricity is produced and consumed would create the ability to optimize and control energy use with significant benefits. Sitting next to me that day was Steve Hikock from Bonneville Power who described Bonneville's concept for an Energy Web; a complex ecology of distributed resources, optimized to maximize their benefit to consumers and the economy. Together we offered a picture of a future utility infrastructure where every electricity generating device, big or small, and every energy consuming device could communicate; providing a system for integrating more renewable energy, enhancing the efficient consumption of en-

ergy, and enabling consumers to have the ability to actively contribute to reducing both their use of energy and their resulting carbon footprint.

Now, seven years later I'm pleased to say that we've made substantial progress toward reaching that vision. As you know, smart grids are being talked about across the industry as a critical part of the changes we need to make in our electricity industry. DOE's electricity advisory committee is about to release a report on their findings and recommendations that will include a major section on smart grids. The Federal Energy Regulatory Commission and the National Association of Regulatory Commissioners have established a smart grid task force committed to study policies to promote smart grid deployment. The Edison Electric Institute, the American Public Power Association and the National Rural Electric Cooperative Association all have newly active groups looking at smart grids to better understand how they apply across their utility members. Generally they all agree with a statement made recently by Steve Specker, the President of the Electric Power Research Institute that "Smart grids represent the biggest opportunity for the utility industry in the next decade".

Many of our member companies have testified before this committee in the past few years on the importance of smart grids and I encourage you and your staff to refer back to their previous comments. What we as Alliance members and these other stakeholders, I believe, want me to communicate to you today is that building a smarter grid must have top priority both in your energy policies and in your spending plans in 2009 and beyond. While I don't presume to speak for all of them explicitly, I do talk with them regularly and believe that I understand their views and concerns, and have sought to reflect their ideas into my comments today. Before I articulate some of the specific ideas I'm offering today, I'd like to quickly review the context, drivers, and issues facing our industry today.

For over a century we've systematically built a complex infrastructure of power plants, regionally connected with transmission lines to load centers where distribution lines crisscross roads and neighborhoods to provide power to every home and business. This power grid ensures not only our safety and security, but is vital to our continued growth in productivity and prosperity. This "public good", an infrastructure built and maintained on our behalf, is aging and overstressed. While it has served us remarkably well, it is now incumbent upon us to upgrade it to meet the changing demands of our 21st Century economy and society. We must build a cleaner, more efficient grid; one that meets the needs of a digital and highly interactive economy; and one that maintains affordability, reliability, safety and security for every consumer. Building a smart grid is the first critical step of many; bringing new tools, techniques and technologies in a network of devices aligned for supreme performance.

The benefits of this new approach, a smart grid, are myriad and enduring. At its core is a sophisticated information system that allows grid operators much greater visibility into the complex inner workings of this large machine. With greater visibility comes the ability to quickly make decisions to optimize performance, reduce emissions, and improve reliability. A smart grid provides the capability of integrating an increasing amount of clean distributed energy resources accelerating the growth in these important technologies. While much of the technical and policy discussions focuses on energy efficiency, renewable energy, storage, and electric vehicles; we have too often underemphasized the critical need for a smarter grid to achieve both scale and true cost effectiveness.

A smart grid also provides the ability to measure and verify the energy savings realized as we accelerate our investments in these important technologies in federal facilities, schools and in homes and businesses around the country. By carefully measuring these savings, we better understand the value of our investments and proactively identify and even greater efficiency opportunities going forward.

This same smart grid information system provides customers with a window into their own energy use, giving them the tools to change their behavior according to their own values and needs. Many studies have shown that better information alone results in consumers reducing their energy use by 10-20%. A smart grid will provide all consumers with the option for not only reducing their energy use and their cost of energy, but also will allow them a new flexibility to add cleaner and more efficient appliances and equipment. Some of the exciting new developments in advanced vehicles and electricity storage devices offer huge potential to not only have a positive impact on the environment by reducing tailpipe emissions, but can also substantially improve the way we operate the grid. A smart grid is critical to ensuring that these new technologies are integrated safely and reliably to maximize their benefits. Together the power providers and the power users work to create the best possible "pubic good" at the least cost to the economy and the least impact on the environment; creating a new paradigm for involving every consumer in the solution.

GridWise Alliance member companies are actively deploying smart grids around the country already. One of the truly pioneering demonstration projects was completed earlier this year in Washington State. Known as the Olympic Peninsula project, this project proved many of expected benefits across more than 100 homes participating in the project. Reductions in both KW demand and KWh energy use were shown to range from 5% to more than 20%. But more importantly, the consumers were thrilled with their own participation in the project showing how well designed consumer information and control can have big impacts.

Another project was started earlier this year and is actively deploying new technologies and systems right now. Known as SmartGridCity, this project promises to push the edge of the possible with a smart grid, capturing more than 70 different unique benefits and ultimately deploying to several thousand homes and businesses in Boulder, Colorado. Last week, the City of Austin announced their new smart grid deployment called the Pecan Street Project, with the city pledging to create a virtual 300MW clean power plant with a combination of efficiency and clean power. Many other utilities around the country have launched similar efforts in the past year to explore the potential of a smart grid.

As we close out 2008 and head into 2009 we have the opportunity with new leadership in the White House and support from Congress to greatly accelerate the creation of a smart grid and become a global leader once again in providing clean, reliable and affordable electricity to our citizens. A substantial new federal investment in this smarter grid will accelerate and leverage planned investments by cities and utilities around the country resulting in rapid job growth, stronger and more reliable infrastructure, and more affordable electricity. Consumers of all types will benefit through greater information, tools to understand and manage energy use, and greater access to green power. Schools, for example, will not only benefit from greater visibility and control of their energy use, but will be able to use the equipment and information to educate and involve students in better energy decisions; embedding a greater understanding for generations.

Federal facilities can be an early success story if investments in clean energy and energy efficiency are supported by a smarter infrastructure that not only measures and verifies the impacts of these near term investments but actively monitors the ongoing benefits and identifies new opportunities for future investments.

An explosion of new technologies is emerging into the market that must be part of this new, smarter power system. For example, electric vehicles and electric transportation in general are about to revolutionize the way we travel and in doing so change the power system forever. The new high performance batteries in these vehicles will also revolutionize power delivery by enabling cost effective storage. However, a smart grid network is essential to manage these new technologies in a way that optimizes the overall performance and cost of the grid.

A smart grid is the cheapest option for meeting our growing need for electricity, expanding high-tech businesses and manufacturing, giving homeowners the tools to control their cost of power, and reducing the carbon intensity of our power infrastructure. Properly implemented a smart grid can substantially reduce the need for new traditional power plants and transmission and distribution infrastructure. A recent study by the Brattle Group on behalf of the Edison Electric Institute says that "energy efficiency and demand response as part of a smarter grid can significantly reduce the need for new generation capacity". In addition, nearly $100 Billion is lost by consumers every year due to power outages and poor power quality; and every time the power goes out our security and safety is at risk. It is an investment in today's economic health and tomorrow's productivity, safety and security.

Finally, on behalf of a rapidly growing smart grid industry, I would like to present the following specific recommendations to this committee today. This funding request totals $1.3B for 2009 representing the first year of several years of funding that we expect to increase in future years as the value of these solutions, technologies and systems are proven.

PRIORITY #1: FUND TITLE XIII—SMART GRID, ENERGY INDEPENDENCE AND SECURITY ACT OF 2007 (PL 110-140)

Research and Development of Information Technology, Section 1304 ($200 million).—Advanced technology research and modeling will be critical to deploying smart grid technology that works with our current utility grid. In addition, research training programs at universities, laboratories, utilities, and labor organizations are particularly important for providing well-trained employees for an industry where the average age is over 50. The authorization level under EISA was for "sums as are necessary" which we propose should be funded at $200 million annually starting in 2009 with the stimulus package.

Regional Demonstration Initiative, Section 1304 ($100 million).—Because of the diversity across the nation of our electric grid system, it is critical to fund a variety of regionally targeted demonstration projects focused on refining our national performance goals and best practices. The results of these projects can quantify costs and benefits, verify technology viability, and validate new business models at a scale that can then be replicated throughout the country. EISA authorized $100 annually for five years and we propose that this level of funds be provided as part of the stimulus package.

Federal Matching Fund for Smart Grid Investment Costs, Section 1306 ($1 billion).—This matching grant program would provide reimbursement of 20% of qualifying smart grid investments. At this rate, federal funding is leveraged into $5 billion of infrastructure investment in 2009. For $1 billion, more than one million houses and businesses could be integrated into a smart grid. These funds allow for economic investment and growth, including new jobs for employees in the electricity sector. Authorization level under EISA was for "sums as are necessary" rather than a specified amount. We believe that this is one of the most powerful economic tools in the title and should be funded at no less than $1 billion.

PRIORITY #2: EXTEND BONUS DEPRECIATION FOR SMART GRID TECHNOLOGIES
(PL 110-185)

The Economic Stimulus Act of 2007 (PL110-185) contained a provision to provide a 50% first year bonus depreciation for business assets contracted for in 2008 and placed in service in 2008. "Long lived assets" (defined in the Act as those with tax lives of 10-20 years) could be placed in service 2008-2009. An extension of one year in the contracted for and date and two years in the placed in service dates is needed to get these assets in production. This provision has not been taken advantage of because of the lead time for regulatory approval. As an accelerated deduction, this can provide substantial short term stimulus benefits without long term deficit impacts.

PRIORITY #3: EXPAND THE GREEN JOBS ACT OF 2007 TO INCLUDE SMART GRID JOBS
(PL 110-140)

The Green Jobs Act of 2007 authorizes $125 million each year to provide job training and workforce investment in the energy efficiency and renewable energy sectors. Since smart grid technologies enable increased energy efficiency and deployment of renewable energy technologies, these jobs should be added to the list of industries eligible to receive this funding. We recommend that the Act be fully funded and that language revisions be made.

Let me summarize by saying that I believe and the companies I represent believe that creating a smart grid is one of the most important investments you can make to revitalize our economy and build for the future; and the investments must start now. We are faced with challenging times in this country; challenges to our economy, to our energy security and to our continued leadership in the world. Making transformative changes such as these will not only get us through the current crisis, but will build toward a cleaner, more productive and secure future.

Thank you very much for your time and attention.

The CHAIRMAN. Thank you all very much for your testimony. We have lots of members here who want to ask questions. Let me start. We'll do a 5-minute round of questions first, and then see if members still need to ask additional questions after that.

On this smart-grid issue, obviously we agree with the point that Mr. Hauser was making, that we need to move ahead with investments in developing a smart grid. We did put a provision in the legislation, that was passed last year, to accomplish that. We authorized $200 million per year for 3 years for grants for a smart-grid demonstration program. We also authorized a grant program for investments in smart manufacturing and installation. Are those the right numbers? I guess I'd ask you, Mr. Hauser. I mean, we used those numbers, of course, long before we knew we were going to be presented with the opportunity to make suggestions for a

stimulus package. Is $200 million right, or should it be something substantially larger?

Mr. HAUSER. Two hundred million dollars, I think, is the right number for doing demonstration programs, but we need to also move to deployment. The grants that you authorized last year are really focused on deployment, on rapid deployment. Those haven't been funded. Actually, none of it's been funded. But, there weren't specific funds authorized in the bill last year for the grants or the research and development. So, what we've proposed in our stimulus package is $1.3 billion. The $300 million would go toward research and development, as well as demonstration, to demonstrate best practices for a smart grid, and the billion dollars would go to the grant program, which would be highly leveraged with investments that the industry's making to rapidly deploy these systems.

The CHAIRMAN. Mr. Woolf, let me ask you. I think you sort of alluded to this. One of the realities is that, no matter how much taxpayer dollars we put into these kinds of activities and projects, in weatherization or whatever, it will pale in comparison to what ought to be invested by the private sector. We've adopted this Energy Saving Performance Contract, the mechanism, at the Federal level. You indicated that various States have different ways of trying to encourage private funds to be spent on these kinds of projects. What more could we do in a stimulus package that would result in more private funding coming into this—to do these projects, rather than just concentrating on what public funds can do?

Mr. WOOLF. Thank you for your question, Senator.

Energy performance contracts are a really powerful tool to achieve the goals we're talking about today, both new jobs and investing in our energy future. Basically, you get a loan to do an energy retrofit of a building—a new HVAC system, lighting upgrades, whatever it is. You pay for that loan with the energy savings. Your decreased energy bill, year after year, pays for that investment, so you end up having no capital expenditures. The problem—we've used it in Maryland. A number of other States have used it in both public buildings and private buildings. But, you need more up-front capital. We've got a long list of State buildings and private buildings that want to do energy performance contracting. They need a little bit of additional investment. They can then leverage that with private dollars and do the projects they need. For every million dollars we loan, we're doing a $50-million project with the University of Maryland system.

So, what Congress can do are essentially the recommendations from the panel today. If we can put more money either through the Energy Efficiency Building Retrofit Program that I suggest and/or the Energy Efficiency Community Block Grant Program, we could get more money out to the existing infrastructure of energy service companies—Johnson Controls, PEPCO Energy Services. They can do this right now.

The CHAIRMAN. Mr. Loper.

Mr. LOPER. Yes. I'd just add that energy service performance contracts are a great vehicle for financing projects, but they're a second-best solution in government. The reason that you have had such an emphasis on performance contracting over the last decade

is because there was insufficient appropriations for these projects. Performance contracts, while they're great, they're not free. There's a transaction cost with negotiating the contracts, as well as fees that you pay for those contracts. So, if we have an opportunity to make appropriations available for the projects, maybe we should do that.

The CHAIRMAN. All right.

Senator Domenici.

Senator DOMENICI. Thank you very much, Mr. Chairman.

I'm hoping that I will just stay on one subject, even though I had a few others.

Mr. Book, I want to speak with you, because you mentioned, in your testimony, loan guarantees. I happen to think that loan guarantees, which we adopted in the Policy Act, have been slow to implement because we've had an administration that was bickering, between the OMB and the DOE, for long periods of time. But now, my understanding is that, as far as nuclear is concerned, the argument's over with and the process is on its way.

You're aware that we have a very large number of applications for nuclear power plants pending before the Nuclear Regulatory Commission—something like 31 units. That means that we went from zero—none—before we passed this Policy Act, to 31 units of 100,000 megawatts or more that have applications at various stages, with three or four of them moving rather rapidly. From what I understand, they will move more rapidly and get some of them started and turn the shovel if, in fact, the first two or three participate in the $1 and a half billion that is currently authorized for these loan guarantees.

As I understand it, the loan guarantee program that we have adopted ends up not costing the taxpayer, because it is really a guarantee, not a loan. Right? The government's money gets put into a pot by the borrowers, who pay off the top, and then that reserve is used in the case of default or the like. That's the scheme. It appears to be rather well received.

From what I understand, there is a major study now. An Oxford economic study says that if the nuclear power plants that are pending before the Nuclear Regulatory Commission—now, this is a very big "if"—but if they were all put into operation and we started constructing them, that that would create 150,000 of the highest-paid jobs we've seen in modern times. That would give 150,000 jobs to American ironworkers, steelworkers, and the like. Does that sound reasonable to you?

Mr. BOOK. Senator, there's a 38,800 megawatts of discussed nuclear capacity pending in—at least in the numbers NEI has released—which is actually quite a lot, when you compare it to what else is pending in the power plant queue. There is neither the appropriations for loan guarantees for all of those plants, nor the work force currently capable of delivering them, were they all appropriated. So——

Senator DOMENICI. Oh, of course. That would——

Mr. BOOK. You have——

Senator DOMENICI. [continuing]. Take time.

Mr. BOOK. [continuing]. To get started somewhere. I think that those numbers sound absolutely right. You should be able to create

a whole value chain from the start. Anytime you move something that big, with that kind of duration, through the system, whether or not it's 150,000 right away or over time, I wouldn't be able to say.

Senator DOMENICI. Before I leave the Senate—it's my last day, again—I want to use this opportunity, first, to congratulate you for working in the area of loan guarantees, because I think they're very important and can be used in this recession period if we make them available to ourselves. But, I also want to say, to the President-elect, that if you want to see something that will produce high-paying jobs, just push the program which we currently have. Don't let it stall, don't let it be delayed. Get three or four of these nuclear power plants started—or two—and you will see each one employing 2,300 to 2,500 full-time workers as they build this plant, and then the people that have to maintain it. It probably takes a little longer than you would like—in terms of the first three or four, it would be 2 years longer than you would want for an interim program—to stimulate the economy. But, if you had them going, you would send such a signal, in terms of what's coming up—you could start training people, couldn't you, with these jobs? In fact, you would have to. They would be very high-paying, from what I understand. The unions would be partners in training them, if it's done the way it is now. I just wanted to make that statement, using you as my front man, and make sure that it's in the record, and that my friend Senator Bingaman hears it and my fellow Senators on this committee; in particular, the one who's going to take my place. She's from Alaska, but she says she likes nuclear power plants also.

[Laughter.]

Senator MURKOWSKI. I do, absolutely.

Senator DOMENICI. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

Senator Salazar.

Senator SALAZAR. Thank you very much, Senator Bingaman.

Let me ask the panel just to respond in terms of the size of the energy component of the stimulus package. It seems to me we're all assuming there is going to be a stimulus package, and the question is, How much of that stimulus package really should go into this new energy frontier?

In my mind, when you look at the energy challenges that we face, I think we look at electricity—and many of you have talked about the smart-grid system, for example—and you can also look at transportation, which is interconnected in what we do with hybrid plug-ins. So, if we were, as part of our efforts to take the moon shot, if you will, to energy independence, take an opportunity, with whatever economic recovery package we put together with respect to electricity and with respect to transportation, how big should that package be? Mr. Hendricks, you've testified one-third of, I think, $650 or $700 billion, so probably about $200 billion. So, give me just—I want you to come up a figure. You know, think transportation, think electricity, which also, I think, deals with some of the efficiency issues that you've been talking about for commercial buildings, government buildings, homes, weatherization. So if you were just to say—what should that gross number be, as we try to

deal with this energy package? I want a number from each of you as we go through.

Mr. Hendricks.

Mr. HENDRICKS. Sure, let me just start.

I did mention a benchmark of a quarter to a third of the entire stimulus package being toward these energy-related projects. I think that's a reasonable number. The Center for American Progress has put forward $350-billion package for year 1, of an immediate program. I think it's important to look at the balance of how the money is spent, and then to recognize that energy is really a sector of the economy that can crosscut——

Senator SALAZAR. I got your number, $350 billion——

Mr. HENDRICKS. Excellent.

Senator SALAZAR. [continuing]. Over 2 years. So, you'd——

Mr. HENDRICKS. Three hundred fifty billion dollars is the—is—would—is the stimulus package that we put forward, $100 billion. But, then it's actually about $122 billion, because it also represents spending for infrastructure and cities. I mean, it appears in many places.

Senator SALAZAR. I want a simple answer here.

Mr. HENDRICKS. A third of the budget, $120 billion.

Senator SALAZAR. $120 billion, OK.

Mr. Book.

Mr. BOOK. I won't presume to name the size of the budget, but I think $75 to $100 billion is a reasonable number, if it incorporates additional funding for something like the title 17 program. You probably can spend——

Senator SALAZAR. OK, so——

Mr. BOOK. [continuing]. Thirty or $40 billion on infrastructure buildings, retrofits, right away.

Senator SALAZAR. OK.

Mr. Woolf.

Mr. WOOLF. I can't comment on the transportation side, but we could spent $15 billion or more on energy efficiency retrofits for schools and all of our buildings.

Senator SALAZAR. OK.

Mr. Loper.

Mr. LOPER. I'll go one up and say that—we're at $18 billion with our package that we think are reasonable—and that we could probably, from talking to people, get another 10 on the energy efficiency component alone.

Senator SALAZAR. OK.

Mr. Hauser.

Mr. HAUSER. I'll defer to Bracken. I think the number is in the $100- to 50-billion range. But, I will add that it's important to think long term, as well, that that's the first year of what will be a many-year investment.

Senator SALAZAR. OK. So, we have somewhere between—I mean, just energy efficiency, $15 billion, up to $100, $150 billion.

Let me ask you this question, getting down to a specific question here. Part of what I think we're going to be looking at is renewable energies, with a huge investment in that. Part of what comes with that—the incentives, you've talked about already, but part what comes with that is also transmission. It doesn't do any good to

produce a lot of electrons out in the Arizona desert if you can't get them to where they're going to be used, in Denver or San Diego or L.A. So, if you were to invest in the transmission system of our electricity grid, and if you were to bring in the smart-grid systems that are now being piloted, in a demonstration way, in places like Boulder, Colorado, how much would we need for those transmission and smart-grid capacities? I don't know which one of you is most qualified to answer that, but, whoever is, can you give us the answer?

Mr. HENDRICKS. Let me just speak, just immediately, to the question of transmission. There's two components to the transmission grid that both deserve very urgent near-term attention. One is interstate transmission lines, high-tension lines. We've called for $10 billion not flow in that direction. That is on the outerbound of the longer-term timeframe that we look at in our package. But, there are opportunities to move money in two places in that area. One would be to public entities, like WAPA, entities that could actually move money to spend on moving particular interstate transmission projects, building renewable corridors, specifically. Then, another place would be adding information technology, to create a smart grid that moves from the home all the way back up to the point of generation.

Senator SALAZAR. Could we do both of those things with $10 billion?

Mr. HENDRICKS. You could do both of those things. In addition, we have another line item that we——

Senator SALAZAR. How long——

Mr. HENDRICKS. [continuing]. Call for, $1.3 trillion——

Senator SALAZAR. [continuing]. Would it take to do it with $10 billion?

Mr. HENDRICKS. I think that that would be on the outerbound, but we would try and get projects moving within that first year. Then, the money would start to flow at the——

Senator SALAZAR. Any other——

Mr. HENDRICKS. [continuing]. Outer end.

Senator SALAZAR. [continuing]. Quick responses?

Mr. WOOLF. Yes, we've got three or four transmission projects currently going through regulatory review—proposed, sited, the whole bit. It would cost several billion dollars just for the Mid-Atlantic region alone.

Senator SALAZAR. Thank you, Chairman Bingaman.

The CHAIRMAN. Thank you very much.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. I appreciate the opportunity to have this hearing this morning and talking about what's the potential for this economic stimulus package that we're looking at.

I think it's important that, as we talk about the projects, we make sure that we're really looking to the cost benefit of the various projects. I don't think any of us want this to be kind of a glorified supplemental bill that is just kind of that one term—one-time shot in the arm. We're looking for that longer-term investment. We want it to be the gift that keeps on giving. So, it is important that we're talking about real investments that will make a difference.

I appreciate the focus that you gentlemen have placed on the efficiency side of the equation, a little discussion about weatherization. I was telling the chairman, in Alaska we've made a great effort to put more money into the weatherization projects that we had, and realized that we didn't have the trained energy auditors to conduct it, so we had money sitting there that we couldn't put into place because we hadn't done the groundwork in advance. A couple of you have mentioned the training that needs to occur.

In terms of the renewable projects that are out there, in my State we've got about 60 different projects that would be shovel-ready—whether it's geothermal or wind or hydro, smaller projects. But, I'll tell you, we're looking at them now, and with the price of oil dropping down to where it is, all of a sudden they don't look as enticing as they did, this summer.

I guess the question to you all, as we try to advance these longer-term projects that will make the difference, not only in the jobs and the stimulus now, but in really moving this country forward to greater energy independence, are these types of projects, these smaller initiatives—and Mr. Woolf, you've talked about the State energy programs—are these where we should be looking to invest, when it comes to the economic stimulus package? Should it be the bigger vision of the transmission? I really appreciate the question from Senator Salazar. We can do all the renewable energy projects, but we can't move it, what good have we really done, in terms of our energy policies? So, if you can kind of speak to—is it big, or is it little, or is it a combination of both? What needs to be in this package?

Mr. Hendricks.

Mr. HENDRICKS. Sure. I think you've touched on exactly the right questions. We need a balanced portfolio. We need to be investing in the infrastructure, and we need to be investing in market transformation. The infrastructure enables private-sector activity. So, these are smart investments now; they get people working, using public funds, but they enable new private enterprise to come online, new businesses to be created. I think Director Woolf's number, of $10 billion going toward energy efficiency, is very, very important. We need a large pot of funds that will start to help contractors develop the skilled work force, exactly what you were talking about. We need the energy auditors. We need people in the construction trades who have the skills to do green-building. This investment can do double duty. We need it to do immediate investments to stimulate the economy, jumpstart projects, but we always need to have an eye on the long term, because we are heading into a period of fiscal constraint. If we don't spend the stimulus money wisely now, it will tie our hands, down the road. But, if we spend it in a smart way—and that's why the green and energy efficiency projects are so important—if you we spend it in a smart way, we can save consumers money, create new businesses, and enable cities to be more competitive by investing in their infrastructure.

Senator MURKOWSKI. The obvious—I think, Senator Domenici pointed to nuclear, which is a great way to advance many, many jobs. I appreciate the training challenges that we have, in terms of getting a skilled workforce. In Alaska, we're looking to bring our natural gas down to the Lower 48. A major construction project,

but one that would yield a long-term benefit, in terms of access to energy and those job creations. Can you speak a little bit to the bigger projects? To nuclear? To something like a natural-gas pipeline coming down from Alaska?

Mr. Book.

Mr. BOOK. Senator, I think perhaps the biggest question here is, yes, you can't do everything all at once.

Senator MURKOWSKI. Right.

Mr. BOOK. You are going to have a problem with efficiency when it starts to undermine the value of a 10-year project that you undertook at a different price expectation.

It's inevitable that demand will grow. Our society will become bigger and want more. But, if you start predicating your expectations, like many economies in the world did, on high commodity prices, and then you undermine those prices with efficiency, you might be going in the wrong order. In many ways, it's efficiencies which you can start with, it might be the cheapest way to not end up spending too much money too soon.

The long run, though, you have to build an expectation of strategy, because you're going to need more power, more fuel, and more infrastructure. The central station model for power is still what powers industry. The distributed generation model for power, and the smart grid that enables it, is going to be what moves a lot of the consumer and the business side—the small-business side—potentially into the next register of GDP growth.

So, I think you can do both. We just want to go in the right order.

Senator MURKOWSKI. My time's up, Mr. Chairman. Thank you.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you, Mr. Chairman.

Federal policy consistently favors consumption over investment. You saw that in the stimulus last year, in the spring, when I and others tried to put the focus on infrastructure. In effect, the decision was made just to send out the rebate checks, and clearly the country didn't get the maximum value out of that. That is also true in the energy area; consumption is favored rather than conservation. You know, for example, because the country doesn't invest in weatherization, we've got to then play catchup ball with the Low-Income Home Energy Assistance Program to keep people from freezing in their homes.

So, what I hope will come about in this second stimulus is a dramatic departure from the old way of doing business and putting a focus on smart investments. It seems to me, listening to all of you, it ought to start with weatherization and these investments in improvements for businesses and others, efficient lighting systems, and that kind of thing.

Now, here's my question. Virtually all of these programs are means-tested. I think that's sensible, because it is a way to show taxpayers we aren't going to waste their money and people aren't going to walk away and say, "This is some green pork drill, where billions of dollars is being wasted."

But, the problem today is, a lot more people are needier than they were a year and a half ago. So, how would you, in effect, keep the idea of targeting the dollars in areas like weatherization and

conservation and still make sure that you address the need? Because the need is clearly greater today than it was 18 months ago.

So, I think what I'd like to do is start with you, Mr. Book, and then you, Mr. Hendricks. Direct investment, weatherization, conservation, sensible areas for homes and businesses, but still allow us to keep a means-tested kind of focus, so that taxpayer money, which is scarce, isn't wasted.

For you, Mr. Book.

Mr. BOOK. Senator Wyden, I think that's an important thing to look at, because you have working-capital-constrained poor families who would love to make efficiency changes, and can't. So, if you can get them over that hump, you've solved that problem. But, then the question is, What do you do about the—sort of, the middle ground, where someone would do it if they just had a few extra dollars? You don't have to buy the whole thing, you can just give them a little. Graduate the benefits. Prorate them by income. Make them phaseout progressively. I think you have a sensible policy.

Your key question is identifying where you can make the biggest bang for your buck. I think it is, again, in sort of the building envelope improvements and the least infrastructure we already have. But, by finding those folks who are most likely to make the change in the next tranche, the ones who are—the refrigerator is 9 years old, and you're about to buy a new one—find those guys, and you'll make a big change right away.

Senator WYDEN. Mr. Hendricks.

Mr. HENDRICKS. I think you're asking exactly the right question. We need to be investing in structural change.

In the short term, there are a number of very important opportunities. You know, the statistics that we were laying out at the beginning are critically important to understand, how badly the American people are hurting right now. There are opportunities to put money in the hands of people who need it and who will spend it, through unemployment insurance, through COBRA payments, through just basic investments. In the energy sector, we do have the LIHEAP program, and it's critically important to put money there, and to recognize that, as we're entering a heating season, there will be increased demands, especially, you know, in cold parts of the country, that have very substantial equity payments. But, there's another point that we have to understand, which is that energy costs, in any form, are some of the more regressive costs. They hurt low-income people the most. So, investing in energy efficiency and in energy diversity to reduce the spikes in energy prices over time is very targeted at those folks.

Senator WYDEN. Are you in favor of Mr. Book's idea of, in effect, graduating the payments? Because that strikes me as an attractive way to ensure you target dollars, but you also address the fact more people are needy today. Are you in favor of that, Mr. Hendricks?

Mr. HENDRICKS. I would be speaking off the top of my head. I think the notion of having some means-testing, but having something that's broadly shared, is a good strategy. I do think that there is a very incredibly broadbased need for energy efficiency across the economy. We should be focusing on it in every sector.

One other point I want to make is the role that public funds can take in priming the pump for a broader market transformation. The sorts of investments that we make in green schools, in weatherizing public buildings, are actually helping to build the skilled work force and changing the market for construction practices on the ground. They're critically important for building the sorts of——

Senator WYDEN. Thank you, Mr. Chairman.

Mr. HENDRICKS. [continuing]. Energy efficiency——

The CHAIRMAN. Senator Bunning.

Senator BUNNING. Thank you, Mr. Chairman.

It's my understanding that the purpose of this hearing is to look at energy-efficient initiatives that can stimulate growth while also reducing dependency on foreign oil. As many of you know, I am a supporter of coal-to-liquid fuels technology. Through the use of clean coal initiatives and the Department of Energy loan guarantee program, we have the opportunity to create American jobs, cut our dependency on Middle Eastern oil, and substantially reduce emissions.

Just yesterday, thank God, a New York electric power-plant developer announced plans to build, not with Federal money, but private capital, a $3 billion coal-to-liquids plant capable of refining an estimated 6.5 million barrels of gasoline annually in West Virginia. Thank God it's close to Kentucky. In fact, it's 10 miles up the road from two of my counties. The plant is expected to employ 200 people and create 3,000 jobs during construction.

Mr. Book, in your opinion, would it not be wiser to spend money on funding grant programs that could provide for similar facilities, as opposed to subsidizing government programs that have proven to be inefficient?

Mr. BOOK. I think that the big infrastructure spending that you're talking about here—the size of the project you just described is $3 billion——

Senator BUNNING. Yes.

Mr. BOOK. [continuing]. A lot of the companies who would like to build them have market values of $3 billion, or sometimes less. Without the sort of loan guarantee that gives a commercial lender comfort, you can't do those projects.

Senator BUNNING. This company is doing one.

Mr. BOOK. This one, you can. Of course. You can do it without loan guarantees. But, the point is that I think, not only should you encourage it, you should encourage it more broadly, because there are technologies that are—coal-to-liquid is 80 years old. It's been improved a lot over 80 years. The carbon-capture-and-sequestration technologies will probably be pioneered in smaller size before they're expanded to large size for power plants. So, coal-to-liquids is an excellent test bed to take us to the next stage in clean coal power. I think it's a very sensible way to spend the money.

Senator BUNNING. Other than spending it on unproven or inefficient programs that we now have in operation.

Mr. BOOK. The programs that get big things built are the future. The things that get us efficiency gains now are there right now. You have to——

Senator BUNNING. We have to look at this thing like—you know, $44 a barrel, presently, this morning on the mercantile exchange, compared to $148-plus a barrel just—as recently as last spring. We have to do things now to prevent the $150 or $180 a barrel that might be coming down the street.

The American people spoke better than our Federal Government by saying, "No, we're not going to drive our cars at $4 a gallon. We are not going to do it. We are going to consume less." So, I am for programs that will stimulate the ability of us to continue to supply, not only our American people, but for our military, for diesel and for aviation fuel, which we know coal-to-liquids can do. Carbon capture is now guaranteed up to about 75 percent. This one plant that they're talking about, they've guaranteed 90 percent, but that's a little different; they've got a lot of beds to bury the carbon. We're talking about a 10-percent use of carbon. I think we can bottle it and sell the 10-percent carbon that is still left that we need to capture. In other words 100 percent of capture, which is something that we all shoot for. If there's anybody on this panel that is against clean coal with 100–percent carbon capture, speak up.

Mr. HENDRICKS. I'm not. I would like to speak briefly, though, to clean—to carbon——

Senator BUNNING. I want you to speak up if you're—what I—answer my question.

[No response.]

Senator BUNNING. There is not. So, we are for clean coal initiatives if we can capture the carbon.

Mr. WOOLF. We need to get there, Senator, yes.

Senator BUNNING. OK, thank you.

Mr. HENDRICKS. I'd like to make one distinction between coal-to-liquids, where carbon is released when it's combusted, and integrated gasification and combined-cycle IGCC clean-coal technology, where you're producing electricity. For mineworkers in this country, I think the IGCC electrical technology is a very compelling technology, because you can combine that with electrification of the car, which allows you to pursue strategies like the plug-in hybrid electric vehicle, which also introduces another strategic technology, which is the lithium ion battery, advanced battery technology. Currently, all of those—all of those batteries are being imported. This is probably one of the most critically important strategic resources that we need to develop now for storage onsite, for distributed generation, but also for mobile sources, so we can get off oil and liquid fuels altogether.

Senator BUNNING. I gave up my time. May I just respond to——

The CHAIRMAN. Go right ahead.

Senator BUNNING. Thank you.

For one of the major auto manufacturers to say that one of the salvations they have is a car that will run for 50 miles without using gasoline, on a battery, and that be the centerpiece of this so-called infusion of money into the big-three autos, and that being the centerpiece of their sales, is there any American person in this country willing to pay $30- to $40,000 to plug in an automobile for—overnight—40-mile-driving the next day? I doubt it.

Senator SANDERS. Mr. Chairman, if I could just respond to my friend and say, I've driven in an electric car which has a range of 200 miles today. Two hundred miles.

The CHAIRMAN. Senator Tester.

Senator TESTER. Thank you, Mr. Chairman. I was beginning to wonder if I was going to get aced out there for a second, so I appreciate it.

[Laughter.]

Senator TESTER. From my perspective, at least, investment in clean technologies, clean renewable energy, we've been lagging at long before this recent economic turndown. I was curious to know, from your perspective—and I'll address this to Mr. Book and Mr. Hendricks; either one of you can answer it—why has this country been unable to sustain a clean-energy economy, even before the economic turndown? Is it because of cheap fossil fuels? Is it because we have failed at the Federal level? What's your perspective on that?

Mr. BOOK. Senator, my perspective is that there has been, historically, private actors charged with carrying out economic decisions, and they've said, "Well, things are cheaper if I do it another way."

There's two things that happen when you have too much money. The first is that you spend it on the wrong things, and the second is that you don't actually innovate, because you don't have to. Necessity provoked a lot of soul-searching this summer. I have a feeling that the next investment cycle, whether it's vehicles or electric power, is going to show a greater attention to clean energy.

What I think is also, though, is, we have to look at the real economics. Because when you startup—Germany just discovered, Spain just discovered—when you start out paying for something that's not economic, and you make it economic, people use it, and they use it like crazy. Eventually, you keep paying for it.

Senator TESTER. OK

Mr. BOOK. But, we have to do both.

Senator TESTER. Mr. Hendricks.

Mr. HENDRICKS. Sure, I would echo that we have failed to create a sustained program of investment and policy that will help transform the market to bring these technologies online.

Senator TESTER. So, at the Federal level, we haven't done what we've needed to do to push forth progressive agendas in that.

Mr. HENDRICKS. There's both a regulatory policy failure and an investment failure.

Senator TESTER. Thank you.

Mr. Woolf.

Mr. WOOLF. I'd agree. Energy efficiency can be produced for about 2 to 3 cents per kilowatt, best practices around the country, but families don't have that 2 to 3 cents to pay for it, so they don't make the investments that would reduce their monthly bills, and, instead, they pay 10, 15 cents for new generation a few years down the line. It's a——

Senator TESTER. OK.

Mr. WOOLF. [continuing]. Time problem.

Senator TESTER. Mr. Loper.

Mr. LOPER. The stimulus can send signals that the Federal Government supports certain activities and technologies, but it doesn't provide lasting market reforms that will provide investment certainty. I'm surprised, frankly, that the coal-to-liquid plant is going on right now——

Senator TESTER. Yes.

Mr. LOPER. [continuing]. Given oil prices are so low and there's no—and there's no certainty about what kind of carbon price you're going to have, going——

Senator TESTER. That's right.

Mr. LOPER. [continuing]. Forward. So——

Senator TESTER. I mean, and it was pointed out to me that the—that, after the first energy crisis, it was also followed by a recession. So, I mean, there are—to help make the economy somewhat recession-proof, it makes sense to do this.

I've got two other questions, and I hope I've got time to get to them. It appears to me that you've got electrical countries that generate electricity and want to sell it. The same thing can go for transportation fuels. We're trying to grab the low-hanging fruit, with grabbing all the conservation methods we can. Do you see that as a conflict? Do you see that as a conflict that can be resolved? Or is this just something that somebody's got to get run over? Bad choice of terms, but——

Mr. WOOLF. In Maryland, we actually decoupled, for most of our utilities, so that utilities can make money, regardless of how many kilowatts they're selling.

Senator TESTER. How did you do that?

Mr. WOOLF. There's a process whereby, basically, they're paid to serve the load, and if the load goes down, they still make money.

Senator TESTER. Who pays them?

Mr. WOOLF. It gets rolled into rates.

Senator TESTER. OK. So, the ratepayer still pays it.

Mr. WOOLF. The ratepayers pay, but the ratepayers will be paying—there's no disincentive for the utilities—the utilities aren't penalized if they achieve energy——

Senator TESTER. I understand that. I appreciate that. But, if you're trying to—OK, I see. So——

Mr. WOOLF. That's——

Senator TESTER. [continuing]. The greater good is saving the electrons.

Mr. WOOLF. It removes an obstacle. It doesn't encourage energy efficiency.

Senator TESTER. OK.

Mr. WOOLF. We need to do more.

Senator TESTER. I believe it was Mr. Book spoke about the impacts that WAPA, Tennessee Valley Authority, BPA—are you the one that spoke on that?—could have on transmission—or was it Mr. Hendricks?

Mr. HENDRICKS. I mentioned it, in——

Senator TESTER. Sorry. But, could you just kind of explain what your vision would be, what we would need to do at this level to help—because they're a huge player in the Northwest, and I know they're a huge player around the country, depending on which one you're dealing with—what we would need to do to make them a

part of the equation, so that we could get the transmission in a reasonable way?

Mr. HENDRICKS. I think the first point is that, moving into the next Congress, it's critical that there be a broadbased strategic policy for transforming the electrical sector, and it has to have a very serious commitment to interstate transmission, and the commitment that is linked to renewable energy generation.

In the near term, in the stimulus, I think that that is one place where public investment can move toward particular transmission projects, toward improved planning, toward accelerating the process of doing the siting, doing the integrated planning, and to move specific projects forward. I think, on the smart-grid component, there is also the opportunity to invest in advanced technology, basically turning the transmission grid into a information technology infrastructure that's going to share information, and those investments can also be facilitated.

Senator TESTER. OK. Thank you, Mr. Chairman. I want to thank all the participants here. I appreciate your perspective on this important issue.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman.

I'd actually like to continue this discussion about transmission, because I certainly plan to push, with the rest of the Northwest delegation, for more borrowing authority for BPA so that we can get transmission capacity moving there. I think there's—as much as 4700 megawatts of renewable resources could come online in the next couple of years if we could just get the transmission capacity going.

So, Mr. Hauser, thank you, first of all, for your work on the Alliance in support of the smart meter language and grid language in the last energy bill. It really was helpful.

Mr. HAUSER. You're very welcome.

Senator CANTWELL. How can the additional access to capital there, both at BPA and across the country, help on this renewable resource demand and actually making that a reality? Should we go back and look at the—you know, we gave a 10-year—we went from 10—down from 20 to 10 on a accelerated depreciation. Shouldn't we look at going to 5, if we were——

Mr. HAUSER. Sure.

Senator CANTWELL. [continuing]. Looking at trying to get this technology deployed in a more rapid fashion?

Mr. HAUSER. Sure. There's a couple of questions there. One is, you know, if you look at the grid, you've got the transmission-level grid, the distribution-level grid. Both of them need to be smarter, and we need investments in both of them. You have renewable generation that can be local, and you have renewable generation that's more centralized. The more centralized generation certainly needs more attention paid to transmission capacity. The more focus we pay toward central renewables, the more focus we need to have on transmission in order to get those electrons, those clean electrons, to the loads where they need to be.

Senator CANTWELL. I should have just mentioned, when I'm saying "renewables," I mean distributed generation, in general.

Mr. HAUSER. Yes.

Senator CANTWELL. I don't mean just—the notion that renewables are giving us the——

Mr. HAUSER. Sure.

Senator CANTWELL. [continuing]. Ability to do distributed generation.

Mr. HAUSER. One of the advantages with doing local distributed generation, as opposed to more centralized renewable energy, is that you don't have deal with the transmission; you deal with it at a distribution level. One of the real benefits of making the grid smarter at the distribution level is to be able to integrate those renewable resources, deal with the intermittency issues, and what I say—what I call operationalize those assets, so that a utility can really plan and count on those assets to be available. The smarter grid allows you to do that. It really becomes kind of a no-regrets strategy to do that, if you have the capability to integrate those renewables, really take advantage of those. Then, if you want to, you know, do renewables that are more centralized—like, wind farms is a good example—then you certainly need to do transmission to get access to those, and you can do transmission operations smartly, as well, and make sure that you've minimized the amount of capital infrastructure build that you have to have in order to get the access to that clean energy.

Senator CANTWELL. As I listened to all the panelists—thank you, Mr. Hauser—I listened to all the panelists about this, and your testimony, and I look at, Mr. Book, some of the things you said about tradable tax credits—I mean, you know, good news, since we finally get the tax credits extended in some areas for a robust period of time, and then obviously the economic situation. So, I think we do have to look at issues like transferrable or traded on credits. But, I also am very concerned, too, just about the amount, the lack of capital in the marketplace and the—I don't know how—what's the appropriate word to say this—but, the, I guess, lack of speed at which the loan guarantee program has functioned to date. So, should we be looking at more creative solutions to getting capital into the market in a more rapid fashion?

Mr. BOOK. Yes, in a word. I think you have a strong couple of precedents out there right now—the Export-Import Bank, the Overseas Private Insurance Corporation. You also could even look at things that are more creative than that, like the Universal Service Fund, aggregating a pot into a separate corporation and disbursing it for high-cost projects.

The competency of the Department of Energy is its unparalleled commitment to research science. They have been extraordinary. They are not the place I would go to get a mortgage, however, or a commercial loan. I think that's probably true of most of our Cabinet agencies. So, perhaps it's time to explore a new financing vehicle that has the speed, as you say, to get this done.

Senator CANTWELL. Anybody else want to comment on that?

Mr. HENDRICKS. Yes, let me just add one point on that, which is, you know, it was a very hard-won fight to get the extension of the production tax credit, which is so important in driving new private-sector financing for these large-scale wind projects. It happened just at the moment—with the collapse of the financial industry, the loss of firms like Lehman Brothers. These are the folks who actu-

ally can make use of those tax credits. There are some fixes to the tax credit, in addition to extending it for a longer time period, that will enable more capital to flow into those markets, making it refundable, and then also extending the time period. It may seem counterintuitive that adding a couple of outer years would be stimulative in the near term for the renewables industry, but if there was certainty that you could create financeable projects for the next 2, 3, 4 years within the wind industry, I think you would see a very immediate increase in capital flowing into large-scale wind and large-scale solar projects.

Senator CANTWELL. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Lincoln.

Senator LINCOLN. Thank you, Mr. Chairman. Thanks for jumpstarting our efforts here and making sure that we're working hard on something that's going to be critically important in stimulating the economy, but also, I think, near and dear to the hearts of many Americans, that we move forward in a new energy economy.

We appreciate all of you all and your great ideas. We hope that you're going to stick around and make sure that, as we continue this debate in the stimulus package—but, beyond that, I think, to Mr. Hendricks' last comments, there's got to be certainty in this marketplace. It's not just a stimulus package, it's not just to create immediate jobs, but it's a long-term, dedicated project that we have in this country to move ourselves to a renewable energy source and to a new energy economy.

So, I hope that there'll not only be the immediate impacts of a stimulus package, but we'll also see a long-term dedication. Certainly, serving with several of the other Senators on this panel, or in this committee, on the Finance Committee, we understand that certainty is a critical part of whether that capital's going to be there and whether it's going to stay.

I've got three windmill-blade factories in Little Rock, and to be sure that keeping those jobs is—it's essential that those companies know that they're going to have the capital they need. It's a great thing.

Just a couple of things. Mr. Loper, you mentioned, as a part of your weatherization assistance and home-energy recommendations, one of the things I have concerns about is the deployment of technologies. We know that conservation is—probably makes the most immediate impact, in terms of our energy economy and our ability to do better in that. Do you plan on implementing any kind of an education program? Just from having lived through the consolidation of the part D prescription drugs into Medicare, educating people is a critical part of what we have to do. Somebody mentioned LIHEAP a minute ago. LIHEAP's a great program. I support it wholeheartedly. But, it only reaches about 17 percent of the people that are eligible for it. Is there any——

Mr. LOPER. Yes. Education and training is a critical component, pretty much, of every one of the recommendations they gave. Weatherization assistance, the amount of money that we're recommending would basically double, this year, what the weatherization assistance funding is, and then double it again next year. It would

have to be doubled again just to get on track to meet the—President-elect Obama's 1-million-homes-weatherized-a-year schedule or target. But, we've got—from—in fact, I have the numbers here, and we can send them to you, if you'd like—the number of employees that would be needed in offices and the number of auditors, and the number of installers that would be required. From talking back and forth with the Association for the Community Action Programs field, that there's——

Senator LINCOLN. What about the education of the consumer? I mean, I know that, just with the rebate check, I had a tremendous number of Social Security recipients that didn't get the rebate check, because they didn't—I did unbelievable PSAs about getting them out there, making sure they filed an income—a tax return, in order to get that rebate check. I mean——

Mr. LOPER. That's a challenge with all—and that's what I say, I think that that's an—if you're talking consumer awareness, generally, that could be part of any of these, with—for tax incentives, for example, there was—had to be a major initiative of the advocacy groups to go out and let people know that these—those tax incentives were available, because people weren't using them. The uptake was slow. So, the same thing goes for any of these programs. I hope I'm addressing——

Senator LINCOLN. A little bit. I mean, when you talk about training, I assume you're talking about training both——

Mr. LOPER. No——

Senator LINCOLN. [continuing]. Technicians and a whole host of other things. But, there's got to be a lot more training, in terms of reaching out to individuals. Because going into my next question, which is, you know—I think Mr. Hendricks, in his testimony, suggested that green recovery strategy will generate all these new markets for American manufactured goods, advanced technologies. These are green investment programs intended to spread across regions and benefit local economies. As a Senator from a tremendously rural State, tremendously low-income population that are, in some instances, undereducated, you know, what strategies are you—would you all recommend for implementing these green programs, particularly in rural communities that I represent? I mean, you've got to have education, you've got to have deployment, you've got to have—and there's—it's a whole different ball of wax, deploying that stuff to rural America than it is to, you know, making a couple of government buildings in an urban area green.

Mr. LOPER. Can I try to respond again?

Senator LINCOLN. Sure.

Mr. LOPER. Because, I mean, I didn't want to dismiss awareness as being a big part of it. I'm saying it's part of all of these things. But, I mean, you've got to—first, you've got to let people know that there's an opportunity, and then you've got to show them how to take advantage of that opportunity, and then you—they have to have incentive in the marketplace, and then they have to have resources so that they can be responsive to the incentives. So, there's a lot of ingredients that go into getting people to take action on this issue.

I'd just—there's a cycle in—on the energy efficiency side, there's the cycle of complacency that's existed, you know, all 20 years I've

been in Washington working on this issue, and that is that when things are good, when the economy is good and prices are—and prices are low, people are too busy and—to deal with it; and when the economy is bad, they can't afford it—and when prices are high. So, all of these policies are—the intent is to try to break that cycle of complacency.

Senator LINCOLN. Thank you, Mr. Chairman. Appreciate it.

The CHAIRMAN. Thank you.

Senator Sanders.

Senator SANDERS. Thank you, Mr. Chairman.

I think there's widespread agreement that, as a Nation, we have not done particularly well in terms of energy efficiency, and that is what we call the low-hanging fruit. I gather that we're all in agreement that we need to massively increase weatherization in this country. Let me also ask, in terms of job creation, are we producing, in the United States of America, the kind of appliances that are energy efficient? How close are we to major breakthroughs, say, in LED light bulbs, that will also consume perhaps 10 percent of the electricity than an incandescent light bulb? Are we manufacturing those in the United States? When we talk about job creation, we prefer it to be in the United States, not in China. I'm assuming we're in agreement on massive increases of weatherization. What about appliances? Can we be creating jobs making energy efficient appliances, light bulbs, et cetera?

Mr. Hendricks, you want to start off on that one?

Mr. HENDRICKS. Sure. First of all, let me thank you for your leadership on the Green Jobs Act. I think that's a critically important piece of legislation that should be included her, and expanded. Clearly, we have an aging work force in the energy sector, and we need to invest in it. We also need to invest in a whole set of programs that can help support American manufacturing, broadly. We can both retool plants, we can retrain workers, but we can also position American factories to succeed in these growing markets, as they are beginning to grow.

Senator SANDERS. My question is——

Mr. HENDRICKS. Yes.

Senator SANDERS. [continuing]. In the United States today, if I wanted to buy an energy-efficient washing machine, dryer, or other type of appliance, are we manufacturing them in the United States?

Mr. HENDRICKS. We are in danger of losing our manufacturing sector, broadly. We've lost 4 million jobs.

Senator SANDERS. Right.

Mr. HENDRICKS. This is a critical opportunity to recognize the importance of this sector, to reinvest in plants and in workers, and to do it as we are positioning the economy, overall, to serve these markets.

Senator SANDERS. I——

Mr. HENDRICKS. We need to retain washing machine manufacturers. Also, the smart grid creates a potential place to plug in those appliances.

Senator SANDERS. Right.

Mr. Loper.

Mr. LOPER. Yes. Certainly not all appliances or light bulbs are manufactured in the United States, but a significant amount are. One of the—Whirlpool is a part of our coalition looking for these recommendations, and they're very concerned about this coming year and their ability to—one, to—that there's going to—whether there's going to be a market for energy efficient products, and whether they can take advantage of it. That's where I go—they're—the refund—making the tax incentives for appliances to manufacturers be refundable is a big deal for the appliance manufacturers.

Senator SANDERS. It would seem to me to be an extraordinary positive thing to create jobs in rebuilding our manufacturing sector by making energy-efficient products that we desperately need. I have heard some discussion this morning on nuclear energy and clean coal, but I have not heard a lot of discussion—I apologize, Mr. Chairman, for coming in late—on a technology that I think has extraordinary potential, and that is solar thermal plants, and utilizing the southwestern part of our country, which some people regard as the Saudi Arabia of solar energy. I've been out in Arizona and Nevada, New Mexico. Everybody there seems to think there's huge potential. There is virtually no greenhouse gas emissions. Why are we not hearing a whole lot of discussion on solar thermal plants?

Mr. Book.

Mr. BOOK. I mean, Senator, part of the problem is that you have to transmit that power from the solar farms——

Senator SANDERS. Right.

Mr. BOOK. [continuing]. Low-density areas to high-density——

Senator SANDERS. Right.

Mr. BOOK. [continuing]. Population density areas. The virtue of the distributed-generation model is that you're comparing an apple to an orange. If your power customer is paying 16 cents for delivered electricity, then you don't have to talk about generation costs, you just talk about what it costs on the roof. If you talk about a solar farm, that solar farm has to compete with fossil energy farms. So, if solar thermal is about 12 cents, 11 and a half cents per kilowatt hour generation cost right now, coal is 4. So, if you're putting a solar panel on the roof, you'll be closer to parity than you will if you try to make the solar farm as the——

Senator SANDERS. As somebody who has introduced legislation for 10 million solar rooftops in America, I'm not unsympathetic to that proposal. But, I don't think it's a question of photovoltaics versus solar thermal. The beauty of—we've talked to people at Pacific Gas & Electric who now have plans on—who are drawing up plans right now for a 25-year contract—you know, the price of solar, unless Exxon buys the sun, probably is not going to go up too much. So, having long-term solar thermal that could produce, in one plant, almost as much electricity as a small nuclear power plant seems to be a technology that (a) can create a whole lot of construction jobs, that—but, who wants to say a word on that?

Yes, please, Mr. Hauser.

Mr. HAUSER. I'm a huge fan of solar thermal. The one thing you have to be real careful of is, it requires a lot of water. So, there are limitations, in terms—especially in the Southwest. Chairman Bingaman may know this better than I do. But, you know, the—

you have to be careful where the plant's located, because of, not only the solar access, but—and the transmission access—but the water availability.

Senator SANDERS. Right.

Yes, sir.

Mr. WOOLF. As part of our effort to, not only create immediate jobs, but sustainable jobs, I think we need that balance. So, a lot of the conversation today has been things that we can deploy in the next 6 months to create jobs now. When we talk about solar thermal, which is an exciting technology, or new nuclear plans or new transmission, I think that's part of our long-term plan and should be part of the balance, but it's not—these projects aren't shovel-ready in the next—you know, in the next months.

Senator SANDERS. All right. My last question. We heard a little bit about the electric car. Some of us have seen the movie, "Who Killed the Electric Car?" General Motors and others. Why have—I did drive in a car, which has a 200-mile range, which could solve—serve the needs of, just—a whole lot of people in this country. Why have we been so slow in producing those cars and getting them on market? Or is the technology simply not there?

Mr. BOOK. Senator, the price point for the marginal driver is a problem. When you created hybrids rebate in the Energy Policy Act you gave a rich-man's rebate, because most of those cars were outside the price range of the people who are price sensitive to gasoline. So, you need—you have, essentially, a market problem here, where the cars have to either get cheaper or——

Senator SANDERS. Right.

Mr. BOOK. [continuing]. The people have to feel pain——

Senator SANDERS. But, is there any technical reason right now why we can't produce an electric car and put it on the market for $25—$30,000?

Mr. Hendricks.

Mr. HENDRICKS. I just want to say, I have tremendous faith in the innovation—the innovative power of American industry, of American workers. I think we've had misaligned incentives for many years. There is a regulatory failure, as well as an investment failure. We've had a structure that encouraged wasteful use of polluting energy over the long-term, and it didn't position American communities, American workers, or American business well to succeed in the future. We have not had the policies to invest in strategic areas of new technology, whether it's batteries, whether it's advanced solar, whether it's, you know, the state-of-the-art wind technology. We have a long tradition of inventing those technologies here. Some of the most advanced battery technology is coming out of places like MIT. But, the commercialization of the technology—it's not happening in the Third World because of low wage or low environmental standards, it's happening in other industrialized nations that have a strategic energy policy, where they're investing in these longer-term technologies as a way of stabilizing costs, stabilizing community impacts, and really managing for greater prosperity over time.

So, I think you're asking the right question. We need to own those industries.

Senator SANDERS. Mr. Chairman, thank you.

The CHAIRMAN. Thank you.

Senator Barrasso.

Senator BARRASSO. Thank you very much, Mr. Chairman.

Following up with Senator Sanders' comments on the cars and the electric cars, Thomas Friedman, I think, today had an editorial about the bailout of the automobile companies, but along the lines of what's coming down the line, what's going to be the new innovation there, and kind of compared where we are with automobiles now to the coming electric car to where we are with bailing out a typewriter company at the time of the advent of the personal computer. So, the innovations are coming, as Senator Sanders said.

I want to follow up also what he had to say about the solar thermal, the wind. You talk about being in the Southeast—the Southwest United States. In Wyoming, we are—clearly have world-class wind. But, our problem is transmission lines, just as it with the solar, as Mr. Book was talking about. I think T. Boone Pickens sat in the same chair that you're in, Mr. Book, not that many—not that many weeks ago, and said his biggest concern is the transmission lines. He knows what it's going to cost to put up the wind turbine and then—and move things. Even yesterday, in The Hill, "Renewable energy expansion could hinge on Federal role in transmission." So, even if the money is there, what do we need to do to make sure that the transmission capacity is there? All of you can address, if you'd like.

Mr. BOOK. Part of the problem is structural, Senator. You have—section 7 of the Natural Gas Act is about 70 years old, and it was written in a different time. You could have stronger Federal controls, maybe. You're going to need to wrestle with the 10th amendment and—sort of a constitutional crisis here, because a lot of this is controlled by local regulators. You can match the funds, you can encourage things, you can promote standards, but ultimately, they have to want to spend the money and agree.

Senator BARRASSO. Anyone else want to comment on that? Because you talk—and this—articles talk specifically about local folks, "Industry represents say the authority that State and local officials have to block transmission products, serve as a disincentive to investors. So——

Mr. WOOLF. Senator, I'd suggest that that problem may have already been fixed by Congress. You created a backstop authority, whereby FERC can override State and local decisions, if that's blocking transmission, if the local folks haven't acted. Since that authority was enacted, in 2005, it's never been invoked. I think that authority—speaking at least for Maryland, we take it seriously. We're acting promptly on all the transmission lines that are proposed. I think we need to give it some time to see if that law works before deciding that the system is still broken.

Senator BARRASSO. Yes.

Mr. HAUSER. It's certainly not just a Federal issue. I mean, if you look at Texas itself, that's not a Federal issue, where the wind's in the west and the loads are in the east, they don't have the transmission to get from one place to the other. But, it's also—you have to remember, it's not just transmission. I'm not as familiar with the Wyoming wind, but in West Texas——

Senator BARRASSO. It's a great wind.

Mr. HAUSER. In West Texas, the wind blows at night, when you don't need the electricity as much. So, you have a double problem of the diurnal nature of the wind, plus the lack of transmission access.

Senator BARRASSO. Mr. Hendricks, you had talked about, kind of, the V of an economic downtown, as opposed to the flatter shape, and how you have to continue with incentives and investments. I mean, that's the concern, is, how do you, you know, carry that forward? Because it sounds like you're trying to get started sooner rather than later, and I'm concerned with some of these delays.

Mr. HENDRICKS. Absolutely. I think that grid investment—infrastructure investments around a clean energy infrastructure coming online—is a very smart place to look immediately beyond the horizon of the short-term stimulus. Let me just say that, particularly in the case of renewable energy, there are some misaligned incentives, where there's actually a positive benefit that's external to the decision to bring that power online. So, to the extent that transmission is managed and regulated at a smaller regional level, but the benefits accrue, in terms of climate, you know, managing the costs of responding to climate, bringing new clean technology that improves our national security online, those are benefits that accrue to the country as a whole. So, I think we need to think about where that situation is present, particularly in renewable energy and renew—generation and transmission, we do need to think about planning, siting, financing, a number of these issues, and just really take a close look at how the incentives are aligned to make sure that we have a national strategy.

Senator BARRASSO. Looking at——

Yes, Mr. Loper.

Mr. LOPER. It seems to me that in a stimulus package, that we should diversify our portfolio, also, that there's—that some people—that maybe this is going to be a short-term economic crisis, maybe this is going to be a very long-lived one. I think, increasingly, the thinking is going toward the latter. So, the two thought—lines of thought on stimulus are that you do lasting, permanent things. That's what some—John Taylor was here earlier this year, arguing for that. Some would say you do temporary, fast things so that you're timing it, you know, so that you're not doing the stimulus after the recession is over. But, I think, given that we really don't—that we're in very uncertain territory here, that it's an argument for thinking more long term.

We've come to the table with very short-term stuff. But, frankly, for—at least for me, it's not a total comfortable position, because I'm afraid, you know, we're just going to, you know, throw a whole lot of money out there, then there's not going to be money available in the future, and then that could be damaging, as well. So, I like to think of a diversified portfolio in this context.

Senator BARRASSO. Thank you.

Thank you, Mr. Chairman, my time's expired.

The CHAIRMAN. All right. Why don't I thank this panel, at this point. I think this has been useful testimony, got a lot of good ideas out here. We'll take the ideas in your written testimony, as well, and do all we can to urge that they be considered. So, thank you very much for being here.

Why don't we call forward the second panel. I'll introduce the second panel as they come to the table. On this second panel, which is to deal with our public lands and the opportunity we have to make investments to benefit our public lands as part of this stimulus package, we have Dr. Cassandra Moseley, who's director Ecosystem Workforce Program at the Institute for a Sustainable Environment at the University of Oregon. Thank you for being here. We have Mr. Denis Galvin, who is the—a board member with the National Parks Conservation Association and former deputy director of the National Park Service. We have Mr. Mark Limbaugh, who is the former Assistant Secretary of Water and Science in the Department of the Interior.

So, thank you all very much for being here. Why don't we just start with you, Dr. Moseley, and then you, Mr. Limbaugh, and you, Mr. Galvin. If each of you could take about 5 minutes and summarize your testimony for us, then I'm sure we'll have some questions.

Senator WYDEN. Mr. Chairman.

The CHAIRMAN. Yes, Senator Wyden.

Senator WYDEN. Mr. Chairman, I won't take but 30 seconds.

I just wanted to welcome Dr. Moseley. She has been doing good work in these vineyards for a long, long time, and we're very pleased to have her, and appreciate all of her leadership.

Thank you, Mr. Chairman, for scheduling her to be part of this panel.

The CHAIRMAN. No, thank you for suggesting it.

Dr. Moseley, why don't you go right ahead.

**STATEMENT OF CASSANDRA MOSELEY, ECOSYSTEM WORKFORCE PROGRAM, INSTITUTE FOR A SUSTAINABLE ENVIRONMENT, UNIVERSITY OF OREGON, EUGENE, OR**

Ms. MOSELEY. Thank you. Mr. Chairman and distinguished members of the committee, thank you for this opportunity to speak before you today.

As the Chairman said, my name is Cassandra Moseley, and I direct the Ecosystem Workforce Program at the University of Oregon. So far this morning we've heard a lot about one key set of green jobs, those related to energy conservation and renewable energy development. What I want to do today is talk about another key dimension of the green economy: the restoration and stewardship of our Nation's forests, grasslands, and watersheds.

As with investments in energy, the restoration and maintenance of our public lands offer significant opportunities to stimulate the economy in the short term, and, by making these investments today, we can create the foundation for a sustainable economy in which our public lands and rural communities play a vital role in providing our Nation with carbon sequestration, clean air, clean water, resilient ecosystems, and renewable energy.

With $8.5 billion, the Forest Service and BLM estimate that they, together, could create something like 127,000 jobs over the next 1 to 3 years, undertaking land stewardship, wood-based energy development, and the greening of their buildings.

In the area of land stewardship, there's a huge array of activities that could create jobs in the short term: fire hazard reduction, restorations of watersheds and wetlands, road decommissioning and

maintenance, wildlife habitat, urban tree planting. The list could go on and on.

But, in addition to these immediate job benefits, the investments in land stewardship would help maintain the business capacity to care for our Nation's forests and grasslands through these difficult economic times.

There are other long-term benefits, as well. Fire hazard reduction in places that are at most risk to wildfire could create significant cost savings to the Government and reduce greenhouse gas emissions. Road and river restoration can increase commercial and tribal fisheries and reduce risks to drinking water supplies.

In addition to restoration, we also need—just as some of the panelists were talking about earlier, we need to develop businesses and markets that can use the byproducts of fire hazard reduction to create heat, electricity, and value-added wood products. These investments can help lower the costs of fuels treatments, reduce our dependence on fossil fuels, and create substantial cost savings for hospitals, schools, and other public buildings, particularly in rural communities.

So, is this Forest Service/BLM job estimate of 127,000 jobs—is this accurate? I think it's really easy to get caught up in the details of predicting how many jobs which particular initiative will provide. I think, more important than the exact number of jobs, what is essential in a stimulus package is that we provide well-paying jobs for working families, we provide these jobs to the hard-hit regions and sectors of our economy, particularly rural public-lands communities, and that these investments will have long-term benefits to the economy and taxpayers so that when our children pay the bill, the investment will have been worthwhile.

So, regardless of the exact costs of the job, public-land stewardship, the greening of public-lands facilities, and woodbased energy development fit the bill. They will employ large numbers of people working in activities that will have lasting effects: the building of the foundation of a green economy, the addressing of climate change, and reducing of government expenses.

So, one might ask, So can we get this done? Can the agencies do this work quickly? I think the building blocks are there.

First, they can do all this work with existing authorities and programs. In addition, I think the agencies can, and will need to, move quickly to work without delay to transfer the spending authority down to the field level, where they can actually get shovels in the ground quickly. I think they'll need to prioritize projects with their environmental analysis complete or projects where there is limited environmental analysis needed. Finally, I think that they'll need to spend the bulk of the funds using contracts and agreements which they can award relatively quickly.

So, just to conclude, I would recommend that Congress include in this larger stimulus package a public-lands—public-land management agencies for the Forest Service and the BLM, something like $2 to $3 and a half billion per agency in ways that prioritize restoration and stewardship activities that provide green jobs immediately and long-term improvements in ecosystem services, sustainable economic development, and reduced cost to the government, that the stimulus package prioritize actions that will benefit

those who are going to be most hardest hit, and those are going to be the people, many of them, who are dependent on public lands, and who live in communities near public lands, who are not likely to benefit directly from the larger stimulus package. Finally, this package should prioritize activities that will reduce greenhouse gas emissions, increase carbon sequestration, and increase the ecological resilience in the face of climate change.

Thank you, and I look forward to your questions.

[The prepared statement of Ms. Moseley follows:]

PREPARED STATEMENT OF CASSANDRA MOSELEY, ECOSYSTEM WORKFORCE PROGRAM, INSTITUTE FOR A SUSTAINABLE ENVIRONMENT, UNIVERSITY OF OREGON, EUGENE, OR

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to speak before you today about the critical issue of how the public land management agencies can use green job development to stimulate the economy today and create the foundation for a strong, sustainable economy in the long term.

I am on the faculty of the University of Oregon, where I direct the Ecosystem Workforce Program in the Institute for a Sustainable Environment. The Ecosystem Workforce Program (EWP) was founded in 1994 to help retrain displaced forest workers and build a green economy in the Pacific Northwest. Today, EWP seeks to build ecological health, economic vitality, and democratic governance in rural natural resource communities in the American West. It is a partner in the Rural Voices for Conservation Coalition, which promotes balanced conservation-based approaches to the ecological and economic problems facing the West.

Today, I want to argue that the restoration and maintenance of our nation's forests and grasslands, acceleration of wood-based energy development, and the greening of federal facilities offer significant opportunities to stimulate the economy in the short term by providing jobs in regions and sectors that are likely to be hit particularly hard by this deep recession. With $8.5 billion, the Forest Service and Bureau of Land Management (BLM) estimate that, together, they could create approximately 127,000 direct jobs over the next one to three years.[1]

In addition, by making these investments today, we can create the foundation for a sustainable economy, in which our public lands and rural communities play a vital role in providing our nation with a wide array of ecosystem services ranging from carbon sequestration, clean air and clean water to wood products and renewable energy.

ECONOMIC AND ENVIRONMENTAL CHALLENGES

It is clear that we are in a severe recession, which economist Nouriel Roubini predicted in October would last at least two years, with some risk of it lasting a decade.[2] We need a large infusion of government spending to stimulate the economy to dampen the effects of the rapidly contracting economy on families, businesses, and communities and to prevent a prolonged (e.g. decade-long) recession. It is critical that Congress act now by focusing on spending that can employ workers quickly.

Despite the constant barrage of news stories about the economy, there has been much less news about how the economic crisis is impacting rural America. Even before this current economic crisis, rural America faced significant economic challenges. Over 90% of the nation's 200 poorest counties are rural. Now, in the rural West, conditions are deteriorating rapidly. For example, sfrom October 2006 to 2008, Oregon lost 17 percent of its wood products manufacturing jobs and logging jobs,

[1] "Green Jobs: Economic Stimulus through Training and Land Restoration, United States Forest Service", Memorandum from Doug Crandall, USDA Forest Service to Scott Miller, U.W. Senate Energy and Natural Resources, December 2, 2008; "BLM—Potential Economic Stimulus Projects within a 2.5 year timeframe", December 8, 2008.

[2] Nuriel Roubini, Written Testimony, Hearing on Faltering Economic Growth and the Need for Economic Stimulus, the Joint Economic Committee, U.S. congress, October 30, 2008.

most of them in the last 12 months.[3] Unemployment rates in many Western and Southern rural counties are above 9 percent.[4]

In addition to the rapidly worsening economic situation, we are facing a longer-term decline in the conditions of our public lands. For more than a decade, the budgets of the land management agencies have been flat or declining while fire suppression costs have increased dramatically.[5] This budget squeeze has meant that the land management agencies have fallen farther and farther behind in addressing problems such as fire hazard, the spread of noxious weeds, degraded wetlands and wildlife habitat, and decaying roads, trails, and recreation sites. Today, we face expensive wildfires, growing risk of road failure, and reduced capacity to provide a wide variety of ecosystem services. If we are to create green jobs today and build the foundation of a sustainable economy long into the future, we must address the conditions of our nation's forests and grasslands.

Moreover, the United States needs to rapidly reduce greenhouse gas emissions and increase carbon sequestration. The federal land management agencies, as the managers of vast amount of carbon, must play a central role in reducing emissions, increasing sequestration, and restoring and maintaining ecological resilience in the face of climate change.

GREEN JOBS TODAY, LONG-TERM BENEFITS

There are three strategies that the Forest Service and BLM could use to create significant number of jobs immediately while investing in the long-term economic future of America. These strategies are: restoration and stewardship of our nation's forests, grasslands, and rivers; sustainable wood-based energy development; and the greening of federal facilities.

Land stewardship.—There are broad-reaching and diverse activities that the land management agencies could pursue to create jobs in the short term, including fire hazard reduction, restoration of watersheds and wetlands, road decommissioning and maintenance, wood bridge repair and construction, wildlife habit improvements, control of noxious weeds and invasive species, range restoration, remediation of orphaned wells, abandoned mine reclamation, trail and recreation site maintenance, wildlife surveys, and the planting and maintaining of riparian and urban trees.

Several billion dollars per agency is a major commitment, and yet it would only begin to address the ecological and infrastructure needs of the public land management agencies. One 2002 Forest Service and Department of Interior team estimated, for example, that the agencies may need at least $1.4 billion in additional funds annually to make significant inroads into reducing ecological and community risks to wildfire.[6] Similarly, the Forest Service alone has close to an $8 billion road maintenance backlog.[7]

In addition to the immediate jobs benefits, investments in land stewardship would help maintain the business capacity to care for our nation's forests and grasslands in the long term. Moreover, significant investments in fire hazard reduction in places that are at most risk to wildfire could create significant cost savings to the government and reduce greenhouse gas emissions. Two recent studies in the Southwest find net benefits from fuels reduction in the range of $240 to $1,400 per acre in reduced suppression costs and avoided losses.[8] Similarly, a recent study estimates that fire hazard reduction can reduce net carbon emissions from forests by as much as 98 percent.[9] Other kinds of restoration can also create considerable long-

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[3] Oregon Employment Department, Current Employment Statistics, http//www.qualityinfo.org/olmisj/CES, accessed 12-3-2008.

[4] Bureau of Labor Statistics, Local Area Unemployment Statistics, Unemployment Rates by County, Ocotber 2007-September 2008, http://www.bls.gov/lau/maps/twmcort.pdf, accessed 12-7-08. http://www.qualityinfo.org/olmisj/AllRates, accessed 12-7-08.

[5] USDA Forest Service, Agency Transition Document, November 5, 2008.

[6] GAO, Wildland Management: Important Progress Has Been Made, but Challenges Remain to Completing a Cohesive Strategy, GAO-05-147, January 2005.

[7] USDA, Forest Service, Fiscal Year 2005 Forest Service Budget Justification, sec. 10, p.33, 2004.

[8] C. Larry Mason, et al., "Investments in Fuel Removal to Avoid Forest Fires Result in Substantial Benefits." Journal of Forestry, 104(1):27-31,2006. See also, Gary Snider, P.J. Daughtery, and D. Wood, "The Irrationality of Continued fire Suppression: And Avoided Cost Analysis of Fire Hazard Reduction Treatments Versus No Treatment," Journal of Forestry, 104(8):431-7,2006.

[9] Matthew D. Hurteau, George W. Koch, and Bruce A. Hungate, "Carbon Protection and Fire Risk Reduction: Toward a Full Accounting of Forest Carbon Offsets," Frontiers in Ecology and the Environment, 6(9):493-498, 2008; Matthew D. Hurteau and Malcolm North, "Fuel treatment

Continued

term economic benefits; river and road restoration, for example, increase commercial and tribal fisheries and reduce risks to drinking water supplies.

Wood-based energy development.—In addition to conducting fire hazard reduction, we need to develop businesses and markets that can use the woody material that is the byproducts of these treatments to create heat, electricity, and value-added wood products. By expanding the existing Forest Service woody biomass grants program, we could create jobs in the short term conducting feasibility studies and constructing wood heat and co-generation facilities. More significantly, these investments can help lower the costs of fuels reduction treatments over time. They would also reduce our dependence on fossil fuels and increase our use of renewable energy. In addition, conversion to wood heat can create substantial cost savings for schools, hospitals and other public buildings, thereby saving public dollars. For example, a small high school in Enterprise, Oregon, recently-installed a wood heat boiler that is expected generate annual savings equivalent to maintaining 4-8 percent of their teaching staff.[10]

Greening facilities.—Land management agencies could invest significant funds in greening their facilities. They have a stock of aging buildings that could be upgraded to reduce their carbon footprint through weatherization, conversion of heating, cooling, and electrical systems to wood or other renewable energy sources, and installation of energy-efficient lighting. In addition to providing jobs via contracting and job training programs, this strategy would have critical long-term benefits including reduced greenhouse gas emissions reduction and costs to the taxpayers.

JOBS ESTIMATES

The Forest Service estimates that it could spend $5.5 billion over the next one to three years on land stewardship, wood-based energy development, and the greening of its facilities and could create as many as 90,000 jobs.[11] Similarly, the BLM estimates that it could spend roughly $3.0 billion over the next two and a half years, creating over 37,000 direct jobs and nearly 22,600 indirect and induced jobs performing a wide variety of landscape restoration and stewardship activities.[12]

There is little empirical research or analysis about the costs of creating one full time equivalent restoration or stewardship job. Part of the challenge of creating accurate jobs estimates is the huge diversity of activities involved in restoration and stewardship. However, assuming Service Contract Act wage rates, it seems reasonable to assume that restoration-based green jobs costs between $60,000 and $150,000 per direct full time equivalent job, depending on the type of work.

It is easy to get caught up in the numbers game of predicting how many jobs a particular initiative would provide. It is tempting to assume that more jobs are necessarily better. However, it is important to keep the issue of job quality[13] in mind. More jobs per billion dollars often means that these jobs are lower paid. Although low wage jobs may be appropriate for youth entering the workforce for the first time, these sorts of jobs will not help keep children and families fed, clothed, and in their homes. More important than the exact number of jobs that will be created, what is essential, is that this stimulus package provide jobs for working people and families who will spend the money they earn on essentials, creating a significant multiplier effect.[14]

Regardless of the exact cost per job, public lands steward, greening of public lands facilities, and wood-based energy development all fit the bill. While extremely varied in types of activities, they will all employ large numbers of working people in activities that will have lasting effects by building the foundation of a green economy and reducing government expenses in the future.

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Effects on Tree-Based Forest Carbon Storage and Emissions under Modeled Wildfire Scenarios, Frontiers in Ecology and the Environment, 7, 2009.

[10] Resource Innovations, Wood Heat Solutions: A Community Guild to Biomass Thermal Projects, 2008. Nils Christoffersen, Wallowa Resources and Enterprise School Board, Personal Communication, 12-8-08.

[11] "Green Jobs: Economic Stimulus through Training and Land Restoration, United States Forest Service", Memorandum from Doug Crandall, USDA Forest Service to Scott Miller, U.S. Senate Energy and Natural Resources, December 2, 2008.

[12] Bureau of Land Management, "BLM—Potential Economic Stimulus Prljects within a 2.5 year timeframe", December 8, 2008.

[13] The Ecosystem Workforce Program defines a quality job as one that provides family-supporting wages and compensation, a safe and health workplace, long duration employment, structured training, opportunity for advancement, and the ability to work close to home.

[14] Rubini, Written Testimony.

GETTING IT DONE

Clearly, one central consideration has to be whether the federal land management agencies can spend this money quickly—much of it in the next several months, and all of it in the next few years. There are a number of factors in place that suggest that they can do this.

First, all of the activities proposed here can be accomplished using existing authorities and programs. Although spending these funds effectively will require the focus and coordination at all levels, the agencies will not need to develop new rules, regulations, or programs.

Second, it will be critical for the Office of Management and Budget, the departments, and agencies budget staff to work without delay to transfer funds and spending authority to field units. While traditional allocation processes often take months, simply by prioritizing fast action on stimulus funds, the process could move much more quickly.

Third, the agencies will have to prioritize projects with complete environmental analysis or limited analysis requirements, at least initially. However, the agencies appear to have a reasonable shelf stock of restoration and stewardship projects for the first year. For example, the Forest Service estimates that it has 5 million acres of NEPA-ready fire hazard reduction projects.

Fourth, the land management agencies have a wide array of implementation tools that can get money to the businesses and workers quickly. The land management agencies should spend the bulk of the funds via service contracts, stewardship contracts, and cooperative agreements, which they can offer and award relatively quickly. To do so, however, they will probably need to increase contract and agreements staffing to write new and amend existing contracts and agreements.

In addition, the agencies have significant capacity to hire temporary and seasonal employees and use the Economic Action Program, AmeriCorps, Youth Conservation Corps, and Jobs Corps to combine job training with stewardship activities. Appropriately mixed with service and stewardship contracts and agreements, these programs can train young workers and get projects done quickly. The Forest Service estimates, for example, that they would create 5,000-7,000 jobs using these sorts of training programs. If this training done in partnership with local community organizations, as was done in the Jobs in the Woods and Hire the Fisher programs, the economic effects would be greatly enhanced.

SUMMARY RECOMMENDATIONS

1. Act immediately to provide economic stimulus in the range of $2.0 billion to $3.5 billion per agency for Forest Service and the BLM, to remain available until September 30, 2010. The focus of spending should be on building a rural green economy. Priority activities should include:

A. Restoration and stewardship activities that will provide green jobs immediately and long-term benefits of improved ecosystem services, sustainable economic development, and reduced costs to the government.

B. Actions that will benefit segments of society that are likely to be hardest hit by the recession and are most dependent on public lands, especially those workers and businesses that live and work in isolated, rural public lands communities who are not likely to benefit from the larger economic stimulus package.

C. Expansion of the Forest Service grants programs that support the development of woody biomass utilization, including for renewable heat and power.

D. Projects that have the potential to reduce green house gas emissions, sequester carbon, or increase ecological resilience to climate change. Land management activities could include, for example, fire hazard reduction, urban and riparian tree planting, and range restoration. Facilities improvements could include, for example weatherizing buildings and replacing aging heating and cooling systems with more efficient wood heat boilers, solar panel insulation, and energy efficient equipment and lighting.

E. A wide range of forest, watershed, wildlife and fisheries restoration projects that are NEPA-ready now or could be NEPA-ready within a year.

F. Land stewardship activities that require little or no NEPA analysis, such as plant, wildlife, cultural resource surveys, and boundary line delineation, and other technical activities.

G. A wide range of recreation, trails, and roads projects that would reduce risk of catastrophic road failures and reduce stream sedimentation, which are NEPA-ready now or could be NEPA-ready within a year.

H. Increasing the number of contracting officers and agreements coordinators to help award contracts and agreements more quickly.

I. Funding for the Department of Labor and the land management agencies to increase oversight of contractors to ensure that they comply with safety and labor laws, especially in the areas of thinning and reforestation.

2. Address basic needs.—Over the coming months, more families will struggle to meet basic needs such as food and heat. Ensure that communities surrounded by public lands have adequate access to fire wood and non-timber forest products for subsistence use. This may require temporarily increasing the staffing to set up designate sale areas, process permits, and ensure that resources are managed sustainably.

3. Prohibit guest workers from employment on contracts using economic stimulus funds.—Inviting guest workers into the country to perform these activities would likely reduce the stimulating effect, as wages may be spent abroad. If contractors cannot find domestic workers to perform particular activities, these activities should be included in job training programs.

4. Halt administrative actions that would worsen economic conditions in rural and other distressed areas.—The Forest Service has been selling buildings, consolidating units, and moving staff away from rural areas over the past 15 years. Continuing these activities is not appropriate in this economic climate. The Forest Service and DOI should, for example, place a moratorium on the sale of buildings so as to not further depress commercial building prices and forego the consolidation or relocation of units or staff that would lead to a net transfer of federal personnel out of rural or other economically distressed areas.

The CHAIRMAN. Thank you very much.

Mr. Limbaugh.

**STATEMENT OF MARK A. LIMBAUGH, FORMER ASSISTANT SECRETARY FOR WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR**

Mr. LIMBAUGH. Chairman Bingaman, members of the committee, thank you very much for having this hearing today, and thank you for the invitation to testify on the need for further Federal investment in water management and supply infrastructure as part of a proposed economic stimulus legislation.

My comments today are my own, and I'd appreciate it if my written testimony would be submitted for the record.

The CHAIRMAN. It will. Everyone's testimony will be included in the record.

Mr. LIMBAUGH. Thank you.

In many areas of the West in the Nation, there is a pent-up demand for new water management infrastructure. This infrastructure includes surface and groundwater storage, it also includes efficient—more efficient water-delivery management infrastructure.

Much of this infrastructure will have to be built soon, some with Federal financial assistance, in order to meet the future challenges and adapt to expected impacts of climate change and global warming, while allowing water managers to meet the growing and, many times, competing demands for limited water resources.

But, my testimony today is focused on five areas within the Bureau of Reclamation programs and authorities where I believe construction projects exists that are ready to be implemented through stimulus spending. Those five areas are aging Federal facilities, rural water development, water conservation recycling and reuse projects, environmental mitigation and restoration infrastructure, and water-related renewable energy sources.

I have identified, within these groups, projects ready to be constructed within the next 2 years, and where Reclamation can

quickly provide funding through Federal economic stimulus appropriations.

Looking at the broader picture, however, construction and reconstruction of water infrastructure projects, not only provide jobs in the related economic activities in the short term, these projects provide the basic foundation of a vibrant economy in the long term, a reliable source of clean, affordable water to communities, farms, businesses, and the environment. In my opinion, these investments are just as important, if not more important, to growing our economy as are roads, bridges, and other infrastructure. Not including funding for water infrastructure in a stimulus bill would be a regrettable oversight and a huge mistake, in my opinion.

Stimulus spending on water infrastructure should include a mix of direct appropriations and other innovative financing tools that could be used to leverage Federal funds to provide maximum impact to our economy, but minimizing the impacts to the Federal budget and mitigating for the recent credit crisis impacting our municipal bond markets.

In my testimony, I have outlined construction projects that are excellent candidates for economic stimulus spending, but have stalled due to lack of Federal funding and financing tools for some of the non-Federal shares that I'll talk about in a minute.

Shovel-ready construction projects within Reclamation include rehabilitation of existing federally owned water infrastructure that is aging and in need of major upgrades outside the scope of routine maintenance. If stimulus dollars are appropriated to these construction projects, congressional direction will be necessary for Reclamation to fund and finance the non-Federal share of construction costs, similar to the canal-safety language that currently is included in the Omnibus Public Land Management Act.

Reclamation Safety of Dams Program has planned, designed, and ready-to-construct projects that correct design deficiencies impacting the safety and security of federally owned dams. There are currently also about ten congressionally authorized rural water construction projects that Reclamation provides Federal funding for. Construction activities managed by local tribal and nontribal construction entities, with a total of about $1.3 billion in Federal shares, are still available for appropriation.

In addition of stimulus funds would help meet the optimal construction capacity to build these projects on an economical scale, and would provide additional construction jobs.

There are also many water management and conservation infrastructure projects in need of Federal matching funds that would help stretch existing water supplies to meet unmet needs. While I was at Interior, I worked to establish the Water 2025 Challenge Grant Program, and we always received tens of millions of dollars more in project requests and grant requests than we had funding to award.

Dedicating stimulus funding for Reclamation water conservation grants would accelerate the construction and implementation of these projects, creating jobs, while solving problems in the process.

There is a very large backlog of water reuse and recycling projects authorized under Title XVI program, with unfunded Fed-

eral share to the extent of almost $600 million. These projects are ready to begin construction, but yet, are awaiting Federal funding.

Collaborative environmental restoration programs have planned and designed green fish and wildlife projects, such as fish greens on diversions of water, and additional fish and wildlife habitat that are ready to construct with substantial local and State funding already committed, but are in need of the additional Federal dollars to make these things work.

Finally, there are many opportunities to develop new renewable energy sources on some western water projects, including hydroelectric, solar, geothermal, and wind. With enhanced Federal funding incentives and financing opportunities, developing these green energy sources would create jobs and new energy sources for water management activities in the future.

In conclusion, spending additional Federal dollars on shovel-ready water infrastructure in these five areas will, in my opinion, not only meet the short-term needs for jobs and economic growth, but will provide long-term returns on the Federal investment by rehabilitating and upgrading existing water supply infrastructure, increasing the availability of water in areas experiencing shortage, improving the environment for fish and wildlife, and providing green sources of water, energy, and jobs for the future. Such investments will be necessary sooner rather than later, and using a portion of the Federal economic stimulus spending is an ideal opportunity to provide the much-needed Federal funds for important projects.

Thank you, Mr. Chairman. I would be happy to answer questions the committee may have.

[The prepared statement of Mr. Limbaugh follows:]

PREPARED STATEMENT OF MARK A. LIMBAUGH, FORMER ASSISTANT SECRETARY FOR WATER AND SCIENCE, DEPARTMENT OF THE INTERIOR

INTRODUCTION

Good morning Chairman Bingaman, Ranking Member Domenici, and Committee Members. My name is Mark Limbaugh, and I have served as the Assistant Secretary of the Interior for Water and Science, Deputy Commissioner for the Bureau of Reclamation, state watermaster for the Payette River Basin in Idaho and fourth-generation Idaho family farmer. I am here at the request of this Committee to give my personal thoughts on the need for further federal investment in water management and supply infrastructure as part of any proposed economic stimulus legislation.

First, I must disclose that I currently work as a natural resource consultant and lobbyist, with clients who are involved in the management and delivery of water in many areas of the country. While these clients and their communities would benefit from additional federal spending on water infrastructure, I am not representing them here today. My remarks today are my own, and have been derived from my 28-plus years of experience as a water user, water manager, and public servant.

I am prepared to offer my opinion on the immediate need for and subsequent economic benefits from further public investment in water infrastructure through proposed federal spending legislation to stimulate the U.S. economy. There currently is a pent-up demand for new and rehabilitated water infrastructure across the Nation. This includes new surface and ground-water storage facilities and more efficient water delivery mechanisms, as well as water management and conservation improvements that include the requisite water management infrastructure needed to take advantage of conserved water savings. Such infrastructure must be built in the future to meet the challenges and uncertainties of climate change and the growing competing demands for limited water resources to meet unmet needs. In this testimony, however, I have chosen to narrowly focus on five areas within the Bureau of Reclamation (Reclamation) programs and responsibilities—aging federal water fa-

cilities, rural water development, water conservation, recycling and reuse, environmental mitigation and restoration infrastructure, and water-related renewable energy sources. This narrowed approach is due to the immediate nature of projects in these areas that are ready to be constructed within the next two years and the direct federal Reclamation nexus to providing support and funding for these projects through a federal economic stimulus spending package.

It appears obvious to me that the economy (both locally and on a national scale) benefits from increased investment in construction of projects by providing jobs and generating economic activity during the construction phase itself. A recent report by the Congressional Research Service estimates that each million dollars in new spending on infrastructure construction, direct and indirect employment is projected to increase by 8.1 to 12.6 jobs (depending on the model and assumptions used). However, looking at the broader picture, construction and reconstruction of water infrastructure provides not only the construction and related jobs and activities in the short term, these projects provide the basic component of any vibrant economy in the long term—a reliable source of clean, affordable water to communities, farms, and businesses. In my opinion, these investments are just as, if not more important to growing the economy in both the short and long terms as transportation and other public infrastructure projects, and not including such investments in water infrastructure in an economic stimulus package would be a regrettable oversight and a huge mistake.

Also, when these projects are built, they will be designed and constructed using the latest environmental engineering standards for water development and management—protecting important environmental values in water quality and conservation, fish and wildlife habitat, and providing many opportunities for new "green jobs" in the water sector of the economy.

Stimulus spending on water infrastructure should include a mix of direct appropriations, low-interest and no-interest loans, and other innovative financing tools that allow for limited federal funding to be leveraged for maximum impact on our economy. Loan guarantees and other federally-backed loan instruments, such as tax-credit bonds, are necessary to meet local requirements for workable public financing tools, mostly due to the current credit crisis which has all but dried up traditional municipal bond funding mechanisms. Attracting private capital to water project financing will continue to be a challenge and our economy will depend on these funds for financing public water infrastructure.

AGING FEDERAL INFRASTRUCTURE

Over the past 100 years, the Bureau of Reclamation has built important water management and delivery infrastructure still relied upon today for important water supplies and the economies built around those supplies. These federal water projects resulted in a massive migration to the West in the early 1900's (my relatives among them) and transformed the West by providing water for farms that now provide the nation with the multitude of fresh fruits, vegetables, nuts, dairy products, grains, and other staples too often taken for granted by consumers. Communities rose out of the sage, local economies were created and blossomed with the crops produced from these water sources. Today, these projects are more important than ever originally contemplated.

Water developed by Reclamation projects is now used to produce not only crops, but is also relied upon for recreation, for fish and wildlife, for hydroelectric power production, and for important municipal and industrial uses. Yet these important facilities are aging, and many are in need of rehabilitation to continue to reliably meet current and future demands for water and meet today's environmental standards. In most cases, Reclamation projects have been or are being repaid by project beneficiaries—the users of the water. Much like a mortgage on a house, repayment of the initial project construction costs were amortized over many years in order that these project users could afford to pay these costs back to the Federal government. These project beneficiaries also pay 100% of their allotted share of operation and maintenance costs, with the government paying the allotted federal share. As these projects continue to age, routine maintenance cannot possibly keep up with the demand for the major rehabilitation needed in order to extend their service life to meet the needs of present and future generations.

Reclamation has systematically planned such rehabilitation, and there are many large projects ready to be reconstructed, some requiring extensive construction activities to rebuild this large, complex water infrastructure. Reclamation's Safety of Dams program has continued to meet the construction needs to maintain the safety and security of large federal dams and infrastructure that fails to meet today's engineering standards. These projects are not rehabilitation, as only design flaws that

impact project safety and security are repaired under this program. There are many projects in this program that are in need of additional federal appropriations in order to begin construction, and would be excellent candidates as economic stimulus projects. However, construction of the other rehabilitation projects has stalled, with the non-federal share of the huge costs associated with such construction activities simply added to the project beneficiaries' annual operation and maintenance bills, creating a financing crisis for project beneficiaries by exponentially increasing their non-federal annual costs. As an example, I recall one Reclamation water district annually paid O&M costs in the neighborhood of $500,000, only to be confronted with a three year rehabilitation project (still not started) that increased the water district's annual O&M costs to over ten million dollars with no financing program to extend repayment over a reasonable period of years. Even if Reclamation were appropriated additional dollars through a stimulus spending bill to fund these improvements, with no financing program or direction from the Congress, the agency would still require repayment from the non-federal project users in the year the funds were expended. The Omnibus Public Land Management Act considered in this Congress contains legislation that would provide Reclamation with additional authority to extend repayment of such costs, with interest, over a more reasonable timeframe based on the life of the rehabilitation project.

In addition to proposed stimulus spending, innovative financing tools are needed to assist with the updating and rehabilitation of water infrastructure. The 109th Congress provided Reclamation with authority to develop a loan guarantee program. While this program has yet to be offered to Reclamation customers, I believe it will provide a cost-effective financing program for such projects. Besides direct loans and loan guarantees, another innovative federal financing tool currently being considered for authorization is the tax-credit bond, where federal income tax credits are offered in lieu of interest payments on private loans made to public agencies, financing their long-term water infrastructure needs interest-free and costing the federal government only a fraction of the total amount borrowed. Such financing instruments will be essential in leveraging limited federal funds to attract the private financial capital necessary to meet the needs of tomorrow's water infrastructure projects.

RURAL WATER

The need for a reliable source of clean, potable water is no more apparent than in many rural areas of this country. Many Tribes still deal with inadequate and unsafe water supplies on their reservations, and small communities across the Plains states and in the Southwest are in dire need of such infrastructure. There are currently about ten congressionally authorized rural water projects that Reclamation participates in providing federal funds for construction activities managed by local construction entities (both Tribal and non-Tribal entities). In my experience, there has not been adequate funding made available to the various local construction entities to meet the capacity to build these projects on an economical scale, with approximately $1.3 billion in funding needed to complete these projects. Additional funding provided in a stimulus spending bill to meet the construction capability of these entities would advance the construction phases of these authorized projects, providing additional construction jobs and vital economic activity in the process in both the short and long terms.

The Rural Water Supply Act of 2006, introduced by Senators Bingaman and Domenici, provided the authority for Reclamation to develop a rural water program that could ensure the best future rural water supply projects were advanced to Congress for authorization and construction funding. Reclamation recently released an interim rule to develop such a program and is currently seeking comments. Funding is authorized at $15 million annually to provide for appraisal and feasibility studies, as well as program administration. Such studies will be necessary to determine the viability of a project and provide recommendations to Congress for further authorization to construction. Funding provided in a stimulus package could help establish this program and provide additional projects that could be quickly ready to construct if authorized for federal funding. The Act also provided Reclamation with authority for a loan guarantee program to assist in financing a portion of construction costs for these projects, however the program has not been offered by Reclamation at this time. Congress may need to provide direction and guidance to Reclamation in developing a loan guarantee program to meet the financing needs of rural water and other water infrastructure projects in the future.

WATER CONSERVATION, RECYCLING AND REUSE

Water conservation and improved water management has been at the forefront of meeting unmet needs in the West. There are many opportunities for new water conservation activities that could help stretch existing water supplies, but many of these projects must wait for available funding so they can be moved forward for construction. While at Interior, I worked to establish the Water 2025 challenge grant program, and we always received millions of dollars more in requests for grants than we had funding to award. Integrated regional water management planning, automated water control structures, SCADA systems, improved water measurement devices, system optimization planning analyses, canal and ditch lining and piping, and other water conservation measures are needed today and are ready to be installed at many locales across the Reclamation states, but local funding alone has not been adequate to meet the demand for such infrastructure. Additional federal funding for water conservation matching grants through Reclamation in an economic stimulus spending bill would assist these local and state entities in accelerating the construction and implementation of these projects, creating jobs and associated economic activity in the process. This water management infrastructure continues to be vitally important to the advancement of voluntary state-sanctioned water banks and transfers that allow water to flow to meet unmet needs for people and the environment while protecting the state-based water rights so important to Western water users, and providing a cost-effective, collaborative process in providing for unmet water supply needs.

Title XVI of P.L.102-575 provided Reclamation with the authority to develop a demonstration and grant program for water reuse and recycling projects. Currently there is a very large backlog of projects, requiring almost $600 million in federal cost share, which are ready to begin construction but are waiting for the federal funding necessary to finance these projects. These projects would provide new water supplies to communities in dire need of additional water sources. Many of these authorized projects are in the Southern California region, but there are some in other areas of the Southwest and West. As this Committee is very aware, California is experiencing court-ordered restrictions and other extreme pressures on their water supply as legal issues surrounding competing uses for water in the state are sorted out, with endangered species, environmental requirements, growing populations, and mounting drought conditions all contributing to the current state of affairs. Millions of people in Southern California rely on imported water from the Colorado River and from the Central Valley, and both of these sources have been reduced in the past several years. The need to develop in-basin water supplies in these areas has never been greater, and water reuse and recycling projects would dramatically help in this effort. There are other projects, either congressionally authorized or waiting for such authorization that could help divert flood flows into groundwater basins and desalinate water from impaired groundwater or the sea, and these projects need to be moved forward to construction as well. Again, innovative federal financing tools are needed to attract private funding for the non-federal share of these projects, as the municipal bond market have been severely restricted in the current credit crisis. Such financing programs should also be considered in an economic stimulus package to spur investment in constructing these important public works projects.

ENVIRONMENTAL MITIGATION AND RESTORATION INFRASTRUCTURE

As water has been developed in the West over the last century, our nation's environmental standards have evolved into new laws and standards that drive the need to mitigate water-related impacts to the environment and restore habitat important to the survival of both endangered and threatened species, while preserving important fish and wildlife populations treasured by generations of Americans. The results of our successful water development and use in the West have also resulted in some negative impacts to our environment, and there are many infrastructure projects that have been designed to mitigate and restore natural systems while protecting the important use of water for people. Currently, there are many robust collaborative environmental restoration and protection programs that have infrastructure ready to construct, but are in need of additional federal dollars to implement these projects. Programs like the Upper Colorado River Recovery Implementation Program, the Platte River Recovery Program, the Middle Rio Grande Silvery Minnow Collaborative Program, the Lower Colorado River Multi-Species Conservation Program, the Columbia-Snake River Salmon Recovery Programs, the Grand Canyon Adaptive Management Program, and the fisheries restoration and passage improvement programs in Central Valley of California are all well established and would benefit from focused stimulus spending that would begin construction on shovel-

ready projects that are needed for environmental restoration and fisheries habitat improvement. Projects such as fish screens on existing water diversions, integrated regional water management and conjunctive groundwater/surface water management projects, selective withdrawal temperature control devices, habitat restoration and mitigation projects, wetland water treatment facilities and green stormwater infrastructure are but some of the many projects in need of immediate federal funds and/or financing to begin construction. Most of these projects have substantial local and state funding committed and are ready to move forward as federal dollars become available, making them ideal candidates for economic stimulus spending.

GREEN WATER-RELATED ENERGY SOURCES

Hydro-electric power sources do not produce greenhouse gases and are a reliable source of energy in the West. Yet there are many opportunities to improve existing or provide additional sources of hydropower across the West that are in need of immediate funding. Providing federal funding opportunities for new, smaller hydroelectric plants where local water delivery systems provide adequate conditions for operating these plants would increase the use of renewable sources of energy and take advantage of existing water infrastructure in developing these new sources of energy. Other renewable energy sources are available on some Western water projects include solar, geothermal and wind and with enhanced federal funding and financing opportunities, developing these "green" energy sources could be accelerated.

CONCLUSION

In conclusion, spending additional federal dollars on "shovel-ready" water infrastructure in these five areas will, in my opinion, not only meet the short term needs for jobs and economic growth, but will provide long-term returns on the federal investment by rehabilitating and upgrading existing water supply infrastructure, increasing the availability of water in areas experiencing shortages, improving the environment for wildlife and fishery habitat, and providing "green" sources of water and energy for the future. Such investments will be necessary sooner rather than later, and using a portion of a federal economic stimulus package is an ideal opportunity to provide much needed federal funds to these important projects. Thank you for allowing me to provide my personal views to the Committee, and I would be happy to answer any questions you may have.

The CHAIRMAN. Thank you very much.

Mr. Galvin, you're our final witness. Go right ahead.

## STATEMENT OF DENIS GALVIN, TRUSTEE, NATIONAL PARKS CONSERVATION ASSOCIATION

Mr. GALVIN. Senator Bingaman, thank you for holding this hearing, and thank the other members of the committee for their interest in national parks.

Today, I represent National Parks Conservation Association, a citizen advocacy group founded in 1919 in support of national parks, and today a group of more than 340,000 members. Previously, for almost 40 years, I was a career employee of the National Park Service, ending as deputy director, but also spending a fair amount of my career in planning, design, and construction.

The subject of today's hearing has deep roots in the history of the Nation. We think about the Civilian Conservation Corps and Mission 66 as major infusions of capital into the national park system. They were really the only historic infusions of capital into the national park system. Of course, Mission 66 ended nearly 50 years ago. So, the stimulus package can easily address a pent-up demand for rehabilitation and refurbishing our Nation's park facilities.

The program I come to you today with is not a program of new construction, but, rather, substantially a program of rehabilitation and refurbishment. Almost half is roads, over $400 million of roads that the Federal Highway Administration has certified as ready.

There are also opportunities in cultural resources. The Park Service has a great backlog in curatorial activities. More than half of its collection is uncatalogued and cannot be used by the public, as a result of that. This can be done through contract services, and can be done expeditiously.

There is an opportunity in Natural Resources—the Natural Resource Challenge, which has been funded to the level of $72 million by the Congress, was originally $100-million initiative. There is a need for more research in parks that would be done through a network of universities, called the Cooperative Ecological Studies Unit, over 200 universities around the country.

The Natural Resource Challenge established several teams of individuals who remove invasive species in national parks. That could easily—it's currently a $5-million program, could be expanded to $20 million.

Creating green energy projects in parks has the advantage—making parks carbon-neutral, in essence—has the added advantage of providing educational opportunities to the traveling public.

By the way, Mr. Chairman, I read a press release from the Park Service the other day that indicates that visitation to parks last—this year will only be down about one-half of 1 percent, which is rather remarkable, considering that most of the year featured $4-a-gallon gas prices. So, it's a remarkably resilient system.

We can and should expand on-the-ground work on parks through the creation of a national park service corps. This can be done under existing legislative authorities through the AmeriCorps authority, so that we would recommend putting thousands of Americans to work in the parks, under the AmeriCorps authority, but naming it the National Park Service Service Corps. This could include skilled and unskilled labor throughout the United States, many in rural areas.

By the way, almost all construction work done in parks is small business. The provisions of the small-business set-aside and the size of National Park Service projects virtually assure that all the contract work will be done by small businesses.

Finally, the proposed National Park Service Centennial Challenge, which we have discussed in the authorizing committees, has been well vetted by the National Park Service. It's a long list of projects that require matching funds from friends groups and other nonprofits, and that could easily be expanded, and would provide a multiplier of matching funds—50-percent Federal, 50-percent matching. I'm heartened, Mr. Chairman, that the program is—looks at an 1- to 2-month time sequence, because these programs, these—the execution of these programs are generally linear. You need design before you can do construction. It's important to recognize that the design money gets out there right away and employs United States-based engineers, architects, and landscape architects. Within a year, then you move into construction. So, this 1- to 2-month time period, I think, is very realistic.

The total of this program is about a billion dollars, Mr. Chairman, and we think it would create about 23,000 jobs.

Thank you very much. I appreciate the opportunity and am prepared to answer any questions the committee may have.

[The prepared statement of Mr. Galvin follows:]

PREPARED STATEMENT OF DENIS GALVIN, TRUSTEE, NATIONAL PARKS CONSERVATION ASSOCIATION

Good morning, Chairman Bingaman, Ranking Member Domenici, and Members of the Committee. I am Denis Galvin, Trustee of the National Parks Conservation Association. Prior to joining the Board of Trustees, I served as Acting Director and Deputy Director of the National Park Service and served a full and satisfying career managing the nation's parks within that agency. Thank you for inviting me to testify at today's hearing on the important issue of economic recovery.

Since 1919, the National Parks Conservation Association (NPCA) has been the leading voice of the American people on behalf of our national parks. Our mission is to protect and enhance America's National Park System for current and future generations. On behalf of our more than 340,000 members, we ask that you and your congressional colleagues seize this tremendous opportunity to foster economic recovery for our nation, in part, through investments in jobs that restore, renew and protect our national parks. The National Park Service has approximately $1 billion of projects that clearly are "ready to go", and are focused on restoring historic structures, repairing national park infrastructure, greening park facilities, and fixing trails. We estimate these projects would produce upwards of 22,000 jobs. There are also significant opportunities to provide jobs through science and service-related projects in an economic recovery plan. Through this stimulus effort, we have the opportunity to make employment-producing investments now in things that we must ultimately pay for anyway, in a way that protects our national treasures.

Mr. Chairman, our national parks are home to some of the nation's most iconic and sacred landscapes, monuments, and historic sites. They are among the most recognizable places in the world. The parks provide a mirror of the soul of America, and are the physical embodiment of the collective experience and spirit we value as Americans. The national parks provide a unique opportunity to help the nation toward economic recovery and stability. With 391 units in 49 states and 4 territories, national parks employ 20,000 workers in some of the most remote and economically hard-hit areas of the nation. In the areas directly adjacent to the parks and communities many miles distant, parks are the focus of tourism spending. With 275 million visitors in 2007, local economies benefited from nearly $12 billion in visitor investment in recreation, lodging and general consumer spending. Furthermore, economic studies have demonstrated that for every federal dollar, the parks generate $4 of benefit to local and regional economies. There are few other areas of the American economy that reach as far and generate benefits as deeply into communities in jobs and revenue as the national parks.

Historically, the national parks have demonstrated themselves as areas that create rippling economic benefits and add to the stability of the nation in times of economic crisis. This year marks the 75th anniversary of the Civilian Conservation Corps (CCC). Created by President Franklin Roosevelt through the Works Progress Administration, the CCC set an anchor to add stability to the American economy as the nation was buffeted during the Great Depression. The Roosevelt Administration invested $3 billion over the lifetime of the program ($47.5 billion in current dollars) to put 3 million men to work on projects in the national parks and elsewhere building bridges, trails and structures that stand today and in many areas define the look and feel of the national parks.

Seventy five years later, an equally significant opportunity presents itself: the National Park Service had nearly $1 billion in road and related infrastructure projects ready to go within the year, many of which could start within a matter of weeks or months. Investment in this area will immediately put to work hundreds of architects, landscape architects, design engineers and other contractors necessary to prepare the ground for construction projects. Virtually all of this work likely would be performed by small businesses on contract to NPS, distributed in communities large and small across the country. An infusion of this kind would provide support to highly skilled workers and the communities where they live and work very quickly.

But the opportunity provided for and by the national parks is broader than road and related construction projects. Dozens of natural and cultural, resource protection projects are similarly prepared and ready for productive work as soon as an investment is made—projects that have been carefully thought out as a part of the Natural Resource Challenge planning process and its cultural resource counterpart. Similarly, the parks have long provided an opportunity for meaningful investment in science. As with the planning and design work performed by architecture and engineering contractors for construction projects, resource and science projects are supported by a broad network of universities across the nation, the Cooperative Ecosystem Study Units, or CESUs. Investments here inject funding unto university contractors that in-turn support surrounding communities.

Two additional areas provide targeted opportunity for investments that will create ripple effects throughout local economies. Parks have long been observed for their potential as showcases for environmental (green) design. As the nation becomes more serious about climate change, the parks provide a prime opportunity to display design techniques, test-bed projects and carbon-saving green practices that will educate many of the 275 million visitors per year. The economic recovery plan that Congress and the hew administration produce would provide an opportunity to push toward a goal of making national park facilities carbon neutral by the 2016 centennial through retrofits to existing facilities, Finally, just as President Roosevelt launched the CCC to put men to work for the lasting benefit of the parks, a significant investment in national service in our national parks, including an investment in additional resources through the Corporation on National and Community Service to create a National Parks Service Corps, will engage young (and older) workers in gainful, productive employment renewing our national treasures at a time when they are likely to have difficulty finding jobs. Like the contributions of the CCC, they can produce the next generation of renewal in our national parks and produce lasting, modern-day contributions, following the precedent set in the 1930's through the CCC. These jobs and their associated training and education benefits can provide enormous opportunities to a diverse array of inner-city and rural youth, target those at risk of dropping out, and restore our national parks at the same time.

Below, I have broken down the areas that we see would benefit most from targeted investments through an Economic Recovery plan as it is developed by Congress. The project areas will not only set the parks on a better footing as they approach their 2nd Century, they will delivery much needed support into the gateway and regional economies, many of which are carrying the brunt of impact from the current economic downturn.

NATURAL RESOURCE OPPORTUNITIES

When designed in 1999, the Natural Resource Challenge was estimated to require $200 million per year in increased funding to fully accomplish its goals. Due to budget restrictions in the Department of the Interior, the funding goal was cut back by one half, to $100 million, of which the National Park Service was able to realize approximately $78 million in its highest year. Projects that were side-lined or truncated as due to funding concerns include the following:

- Exotic Plant Management Teams—funded at about $5 million currently, this program can easily be resized as a $20 million program, with funding delivered to partners outside of park boundaries to affect cross-boundary eradications/control efforts. This program would result in hiring locals, youth, etc. with positive economic impacts.
- Exotic Animal Management—a natural and highly necessary companion to exotic plant management efforts, this effort is well designed but unfunded and critical for the control of non-native pigs, rats, snakes, mongoose, etc. that cause significant damage to the parks.
- Forest Health—eastern deciduous forests are under attack from a host of woolly adelgids, ash borers, sudden oak death, Asian long horn beetle and other invasive exotics. NPS is positioned to become a leader in exotic control, forest restoration (and chestnut restoration), etc. Western forests are similarly under attack. Ready programs would easily support an investment of $20 million to 30 million with a significant, localized economic and employment benefits.
- Species restoration—NPS has a broad variety of key species missing in parks that it can restore to improve the health of federal lands and the national park experiences. This effort would support an investment of $10 million per year easily.
- Oceans—Vast areas under the care and management of NPS are virtually unknown, unmapped and uninventoried. Precious ocean resources are also underrepresented in the National Park System. Overfishing and inappropriate use that damages the resource base are significant problems that require strong action. Programs to zone fishing and monitor the recovery of highly impacted ocean national parks are already conceptualized. Funding these efforts at a level of $20 million to $30 million per year would enable recovery and sustainable fishing that is in everyone's interest.
- Migratory species—funding in migratory research would spur a rebirth of ecosystem thinking, shaping invasive control priorities, forestry priorities, grazing and mining in a cohesive strategic fashion—for long term genetic viability, movement, and replenishment of isolated populations of native plants and animals. Funding of research through CESUs and other cooperative grants would

'deliver significant improvement at a programmatic cost of approximately $15 million per year.

- Mitigation of Borderlands impacts—restoration of illegal immigration impacts in border protected areas in support for CONAMP's effort to build roadless protected areas on the Mexican side of border. Programmatic cost is estimated at $5 million per year.
- International Program leadership—for some years NPS has been hobbled in its ability to teach resource preservation abroad and learn emerging.and new techniques tested elsewhere in the world. NPS should be repositioned to provide international environmental leadership and to open itself to learning the lessons of others. We have much to offer in programs that are already designed (e.g., international short course, international training in general, outreach expertise, exchanges), but where the reach is severely truncated due to funding. Programmatic cost for correction is approximately $7 million per year.

CULTURAL RESOURCE OPPORTUNITIES

Less well known than the maintenance backlog, the Park Service is similarly burdened by an equally imposing museum collections backlog comprised of an estimated 56 million uncataloged items. These pieces, roughly 45 percent of the total NPS collection, lack the basic documentation and accountability means and measures to ensure their continued safe preservation, much less their retrieval.

Possibly incorporated as a part of the National Park Service Corps described below, the parks could well utilize a significant number of well-trained, highly-skilled professionals, whose sole mission would be to assist with the reduction or elimination of the current museum collections backlog. A report by the National Academy of Public Administrators (NAPA) entitled "Saving Our History: A Review of National Park Cultural Resource Programs," cited Yellowstone National Park as a poster child for the daunting scope of the museum collections backlog. Although recognized by the National Archives and Records Administration as an "affiliated archives," the park reportedly has 100,000 items in its history, biology, and paleontology collections that have not been cataloged. Yellowstone has been without an archivist since May 2007 and recently lost a museum technician position. The NAPA report tersely concludes that "as a result Yellowstone's important cultural collections are at risk."

In 1933, the Historic American Buildings Survey (HABS) program was established. HABS provided employment for draftsmen, architects, and historians, who were put to work documenting the design and condition of some of the most significant historic structure on the American landscape. Current plans to use our national parks as vehicles for job creation and economic stimulus should take a cue from the New Deal and ensure that job opportunities will be provided widest possible array of Americans in need of such relief.

PARK SCIENCE

As with other resource—related opportunities, investments in park science will carry benefits in job creation or preservation that ripple outward to local communities. A major setback to the future success of the NPS was the loss of the agency's self-directed research program in 1994 when much of the capacity to pursue hard science was shifted from the agency and placed in the hands of the new National Biological Service. While this was a good plan and resulted in additional efficiencies across several agencies, the plan has come at a cost. Over time, focus on parks has gradually slipped more and more. Site fidelity and long term focus on complex systems that have wide annual variability plus the veneer of changing climate are irreplaceable requirements for prudent decision making in parks and critical for strong progress in a broad variety of areas. Reestablishment of a science program based in NPS—but delivered through contracts with CESUs and other entities at a level that existed 15 years ago—$20 million per year—would reestablish this capacity and deliver additional security to communities across the United States.

Hand-in-hand with the reestablishment of NPS's own science capacity should be the rehabilitation of the Research Learning Center program (RLC). RLCs are usually adaptively-rehabbed historic structures (that would otherwise be unused but still require ongoing maintenance/repair). RLCs support researchers (with lab, bunk, meeting, seminar space) from academia and could be tweaked to provide constructive retraining for out placed workers on specific targeted projects. RLCs enhance the amounts of research done in parks (often for free) and provide forresearcher/visitor contact opportunities and educational events for park visitors and classrooms. Approximately $4 million would:finish the, system of 32 RLCs and provide a strong base for the decisive role parks could play in place-based education. Messages about

energy conservation, climate change and individual behavior, sustainability of biodiversity and quality of life messages, etc. would be positive outcomes linking the recovery efforts to other important goals.

TRANSPORTATION INFRASTRUCTURE

Although it is not their primary purpose, our national parks play a significant role in the economies of many communities. As much as $440 million worth of road projects in our national parks are ready to go to construction, and can rapidly produce as many as 7,000 jobs while also renewing our national heritage and helping to revitalize our national parks for our children and grandchildren. Another $500 million in transportation-related infrastructure investments could be similarly be ready within another year.

To enable visitors to experience these national treasures without unduly imposing adverse impacts on the natural, cultural, historical, and archeological resources inside the parks, the people of the United States have made very substantial investments in park infrastructure. Those investments have occurred over many years, but have been meager in recent years. Two times in our history, America made substantial investments in our national parks. Both were at times when our nation was investing in new infrastructure and jobs—one in a time of national economic crisis and the other during strong economic times.

It is more than half a century since the last of those significant investments were begun, and the lack of sufficient reinvestment since that time is evident from examining the condition of park roads today. The lack of investment, along with the popularity of the national parks, unfortunately has placed tremendous strains on national park infrastructure. For example, in Redwoods National Park one of the original segments of Highway 101 has not had its asphalt replaced since the 1960s. It is among the 53% of national park roads that are in poor condition. The road is in a constant state of disrepair, and is a safety hazard to vehicles and bicycles utilizing the road. The condition of the road is so poor that normal maintenance methods will no longer be effective without complete rehabilitation. The road parallels Richardson Creek which provides habitat for Coho salmon, a federally listed species, and is a tributary to the Klamath River, an important salmon fishery. Numerous deteriorated galvanized culverts that are well beyond their serviceable life span drain large runoff flows through very large road fill areas. Failure of these culverts would result in significant sedimentation of Richardson Creek and the Klamath River, and would likely have an adverse impact on the native salmon. Fortunately, the Park Service does have a project to rehabilitate the Redwoods road that is ready to go. The project has received environmental clearance and all it needs is funding. The project would not only benefit the park, but would provide jobs to the surrounding Del Norte County which is one of the poorest in California.

The poor condition of national park transportation infrastructure is in large part due to decades of insufficient funding. The National Park Service has documented a total transportation investment need of more than $5 billion, comprised of $4.7 billion for roads, $220 million for bridges, and $508 million for front country trails that connect transportation nodes. We now have an opportunity to begin reinvesting in critical park infrastructure in a way that puts Americans to work in unnerving economic times while meeting our stewardship responsibilities to our children.

NPCA understands that the National Park Service has more than $270 million in 18 transportation infrastructure improvement projects that are ready to go to construction. When ready-to-go road projects that do not receive FLHP funding are included, the system-wide estimate exceeds $440 million. All these projects have obtained environmental clearance and can be contracted out within 180 days.

Perhaps the most dramatic example of the desperate state of national park infrastructure and of the importance of park roads to local communities is the Going-to-the-Sun Road in Glacier Park, Montana. Ascending over the continental divide at Logan Pass, the Going-to-the-Sun Road is rated as one of the ten best scenic drives in America. As such it is a significant attraction generating over one and a half million visits per year making it an economic anchor for the tourism industry in the northwest portion of Montana. Yet, 75 years of rockslides and avalanches, severe weather, heavy traffic, and inadequate maintenance have left the road in urgent need of repair. Reconstruction began in 2007, but the funding has not kept pace with the project. More than $20 million in work is ready to begin if funding could be made available. There are many such examples of ongoing road work that could be accelerated for the benefit of both park visitors and the local economy.

In some instances, the project being proposed is not to replace deteriorating infrastructure, but instead to reduce infrastructure's impact upon irreplaceable natural resources and systems. For example, the Tamiami Trail project in Florida will raise

a key section of the roadway to allow more water to flow from Lake Okeechobee through Everglades National Park to Florida Bay to improve ecosystem function, reduce harmful discharges to northern estuaries and increase water flow to water-starved areas. Unemployment in South Florida has risen dramatically with this economic downturn in particular because of the reduction in construction jobs. For a modest investment, this two-to three year project could produce dividends that are truly immeasurable both for the local economy and the environment.

As already noted, investment in park transportation infrastructure will bring immediate benefits to local communities and the national economy. Transportation projects will first create high-paying construction jobs that support local families. Using a standard public lands construction impact assessment model, as many as 7,000 jobs could be created through these projects. The secondary effect of these jobs upon the communities surrounding the parks—many of them in rural areas—would increase the benefit many times over as the income of these families is pumped back into the local economy. NPCA recently commissioned a study that found that every federal dollar invested in our national parks generates at least four dollars in direct economic benefit to state and local economies, with significant additional indirect benefits. This study was conservative and the true benefit for these projects is probably closer to the construction industry standard of 6 to 1.

GREEN INFRASTRUCTURE

Two notable proposals are being made to the Transition Teams organizing for the Obama Administration. These include a proposal for $24 million being submitted to the DOI Transition Team directed specifically to NPS in support of clean energy projects over the next 24 months, and a $150 million to $200 million proposal for developing net zero energy consumption park visitor centers to be submitted to the DOE Transition Team. NPCA supports both of these proposals, as park construction projects of all kinds have proven themselves time and time again as job creators for local communities and sound investments that showcase issues for the millions of visitors that come to the national parks year after year.

INVESTING IN SERVICE OPPORTUNITIES AND VOLUNTEERISM

An additional opportunity exists that would significantly expand the capacity of the National Park Service in the short term, and provide cost-effective employment opportunities in a manner that helps reduce the national park system maintenance backlog and address other critical NPS needs. We believe that creation of a National Parks Service Corps, as a component of the expansion of national and community service, presents an opportunity to address the NPS operating deficit and construction/maintenance backlog, while engaging more Americans in productive work at a time of dislocation to preserve historic and cultural resources, maintain trails and common areas, help promote tourism and recreation at a time when our economy needs it most, and strengthen educational efforts to connect park history with'the next generation. Like 1933, when President Franklin Roosevelt married two foundering resources—jobless, young men and public lands that were subject to soil erosion and deforestation, the National Parks Service Corps can marry three foundering or idle resources—some of the 15 million young people at risk of reaching productive adulthood, the tens of millions of Baby Boomers who feel they are leaving the world in worse condition than they inherited it and want to serve, and our national parks that are in need of more full-time, part-time and traditional volunteers to meet urgent needs.

This proposal fits within existing proposals to expand Americorps through the Serve America Act, and can easily be implemented quickly through additional appropriations to the Corporation for Community and National Service. We propose placing 10,000 new paid volunteers in our national parks to dramatically increase the capacity of the parks to resolve backlogged construction and maintenance needs, while providing functionally useful training to a workforce in need.

Programmatic cost for this proposal is anticipated to be $200 million, allocated as follows:

- $60 million for 5,000 National Park Service Corps positions based on the Americorps National Civilian Community Corps model ($12,000 each),
- $50 million for 5,000 National Park Service Corps positions using the AmeriCorps Federal and State grant model the remaining 5,000 volunteers ($10,000 each),
- $50 million for a $5,000 educational award for all 10,000 volunteers,
- And $40 million for placement of full-time volunteer coordinators in the parks, and for administrative expenses.

Spending on this program can begin expeditiously, allowing for recruitment and initial training of both workforce and NPS management. Operationally, the National Park Service would administer the Corps and deploy new volunteer coordinators in national parks, and the new positions would be funded with living stipends and education awards through the Corporation for National and Community Service.

The new NPCC can build on two successful programs at the Corporation for National and Community Service. The Corporation's national service program called AmeriCorps currently operates in two ways. The AmeriCorps State and National program provides financial support through grants to public and nonprofit organizations that sponsor service programs around the country. AmeriCorps State and National members can volunteer part-time or full-time; many receive a modest living stipend based on the minimum wage; and most receive a "Segal education award" of $4,725 at the conclusion of their service.

The other AmeriCorps model is called the National Civilian Community Corps (NCCC). In contrast to the State and National grant program, NCCC is a full-time 10-month residential program. Members live on one of four regional campuses, receive intensive training, and are deployed as teams for projects that range from disaster response to environmental protection. As with the State and National program, NCCC members receive an education award at the end of their service. The creation of a new parks-focused program would provide both stimulus to the communities in which the work took place and job creation for young and outplaced talent that is perhaps faster than any other programmatic method.

CENTENNIAL CHALLENGE

Another opportunity for parks to help create jobs is the National Park Centennial Challenge. This program, the proposed authorization for which was included in the Senate's proposed economic recovery package, received a downpayment of funding from congressional appropriators this past fiscal year. Those projects generated approximately 350 jobs. If the Congress provides additional funding and a broader authorization for the Challenge, it would be quite easy for the National Park Service to issue a request for proposals that maximizes job creation opportunities of the next year to two years. Because many of the projects would be matched by private dollars, there would also be a doubling impact of any federal investment, thereby doubling its potential stimulative effect. I recommend that you seize the opportunity to get this important program launched.

Mr. Chairman, my intent in this testimony has been to demonstrate the variety of ways that investments in the national parks can deliver benefits in job creation and financial improvement to communities across the United States. Such investments would be long-lived, not ephemeral, as we see today with the lasting improvement the Roosevelt Administration provided with the CCC and the Eisenhower Administration provided with Mission 66. Americans love our national parks, and this kind of investment in them as part of an economic recovery package will have outsized benefits. By funding ready-to-go projects in America's favorite places, the Committee can both foster the creation of good, needed jobs, and renew the nation-al inheritance we have a collective responsibility to pass to our children in at least as good as condition as we received it. An investment in our national parks is both an investment in today and in our future.

This concludes my testimony and I will be happy to answer any questions you may have.

The CHAIRMAN. OK. Thank you all for your testimony.

Let me ask about this issue of regulatory requirements, NEPA compliance issues. We've talked about everything being shovel-ready. Is all of this NEPA-ready, in the sense that the projects we're talking about there—are there substantial additional requirements that have to be dealt with under NEPA that will delay all of this, or are we talking about projects that have already done the necessary NEPA analysis? Or are we talking about projects that don't require a NEPA analysis?

Mr. GALVIN. In the case of the National Park Service projects, many of them—as I said, more than half of them would be in the category of rehabilitation, refurbishment. So, the NEPA requirements are not major. These are not—they're not new sites, they're

not new construction. They would probably mostly be done on findings of no significant impact or with an environmental assessment.

The CHAIRMAN. What about the water projects?

Mr. Limbaugh.

Mr. LIMBAUGH. Mr. Chairman, thank you. There are some—the rehabilitation of existing infrastructure, as Mr. Galvin mentioned, are subject to NEPA, but they're subject to—not as an extensive analysis, because the facilities are already there; it's just a matter of the impacts of the construction. A lot of that, NEPA is done, or can be done very quickly, depending on what stage Reclamation is in, in their planning and design efforts on these. There are many that are in that stage.

As far as the other projects, the environmentally—enhancement projects, the water conservation projects—those are all—can be very—NEPA can be very quickly completed, or is completed on some of these projects, such as the Title XVI projects that are just simply awaiting funding or that are—or the rural water projects, that have been getting funding over the years, but not enough to economically move forward quickly to get those projects finished.

The CHAIRMAN. Dr. Moseley, do you have any comment on——

Ms. MOSELEY. Sure, let me add a couple of things. You know, obviously the Forest Service and BLM public-lands forest management often gets entangled up on NEPA. This committee and others have had huge amounts of debates about what level of NEPA is appropriate, do we—should we have categorical exclusions, that sort of thing. But, I think, in this case, it's sort of asking the wrong question. The question is really, What can the agency do, given what they would—you know, sort of, in this 2-year timeframe to help stimulate the economy? If I have my numbers right, the Forest Service estimates it has 1.5 million acres NEPA-ready to—for fire-hazard reduction, which would cost something like $850 million to implement. That's no small amount of acres, and it's no small amount of money. They also—I—as I understand it, estimate that would have another 5 million NEPA-ready in the short term, which suggests that they have a pretty substantial pipeline. Certainly, in addition, you know, the NEPA projects involving trees seem to be the things where we get hung most on the Forest Service, and BLM in the West. I think there are a whole bunch of other kinds of activities that require—are very noncontroversial, there is some pipeline in the place, or they don't require much in the way of analysis that can be used—you can use categorical exclusions. Then, there's a whole bunch of things that aren't—don't have environmental impact—wildlife surveys, boundary-line marking, those sorts of things—which are—can provide critical technical jobs with absolutely no NEPA analysis.

The CHAIRMAN. Mr. Galvin, let me ask you one other question. You talk about the recommendation of having a National Park Service Corps. We already have the Youth Conservation Corps in the Park Service, and sort of separate in other land management agencies, and I've been advocating increased funding for that over a long period. How do you see this National Park Service Corps relating to the existing Youth Conservation Corps programs?

Mr. GALVIN. It would simply expand it. That would be one of the authorities we would use, along with the AmeriCorps. Some of the

AmeriCorps authorities allow State grants that would in—then, in turn, the States would finance workers in the parks. But—it could easily use the Youth Conservation Corps—but, we're also thinking of more sophisticated, more professional kinds of work than traditionally has been done by the Youth Conservation Corps. For instance, I used the curatorial problem; we could use the National Park Service Corps, as an example, to hire curators on contract to—for instance, Yellowstone has 100,000 items in its collection that are uncatalogued; hence, unusable by the public. If we could get trained professional staff in there, either under contract or as part of the National Park Service Corps, we could probably wipe out that uncatalogued backlog in 2 years.

The CHAIRMAN. Thank you.

Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Mr. Galvin, you've mentioned, a couple of different times now, the possibility of contracting—in specific areas, whether—you just mentioned the curative aspect of it now or possibly in improving infrastructure, and reducing the invasive species. Are there any internal changes that would need to be made within the Park Service in order to implement these kinds of contracting services?

Mr. GALVIN. No. Almost all of planning, design, and construction work, both roads and infrastructure in the Park Service, are done through contracting out right now. In fact, the Park Service has—and I'm sure all the other agencies do, too—something called "indefinite-quantity contracts" in which private firms—private design firms and planning firms are already engaged. When you—they're engaged competitively, but they're onboard right now. So, when jobs come, either in their region or in their area of expertise, you simply write a work directive to them, and they can begin design.

Senator MURKOWSKI. OK.

Mr. GALVIN. So, at least with respect to the infrastructure side of this, I would say the contracting capacity is there.

Senator MURKOWSKI. Mr. Limbaugh, you spoke, in your comments, a lot about the financing side of what needs to be done with regards to the water infrastructure projects. As we talk about energy and how we're going to advance renewables, just about everything that we're talking about, maybe with the exception of, you know—no, I don't think there's exception—we need more water. We recognize that we can and should be doing more with some of our water projects that are very close to being ready. The loan guarantee program that exists currently within the Bureau of Reclamation, helping to facilitate existing water projects and to create new ones, how good of a job are we doing with implementation of the program? Are there possibly any fixes that we might want to include in a stimulus package, that could better to enhance the loan guarantee program? Then, you mentioned, a couple of different times, the terminology "innovative financing tools." Do you have any suggestions for us as to what they might be, in the context of water infrastructure projects?

Mr. LIMBAUGH. Sure, Senator. First of all, I'm very disappointed that the loan guarantee program is not moving forward under the current Administration. We worked very closely with this committee to get that through, and it would provide a very cost-effec-

tive way to leverage Federal dollars, you know, get private financing attracted to these projects, and have the project beneficiaries pay them over time, pay their share of these large rehabilitation costs over time, with interest. So, they make a lot of sense. The problem has been with—and how much support within the management of the executive branch. I would hope that we can move forward with this program very quickly in the new administration.

I think congressional direction may be necessary to get this program going, to solidify the basic concepts for a loan guarantee program within Reclamation. But, at this stage, there is no program. We have the authority, and there is no program.

Senator MURKOWSKI. OK.

Mr. LIMBAUGH. As far as other innovative financing tools, there are some that are being considered by the Congress now. One of them is tax credit bonds, that I've heard about, that basically—or, it's my understanding that the interest—the return on the investment is through tax credits that are provided by the government, with no interest being paid by the local entity—many times, a local government or a municipality. That would be a huge cost-saving to them, spur investment and not cost the Federal Government the—you know, 100 percent, but it would be more of a smaller percent, leveraging Federal dollars, again, to provide that working capital necessary to get some of these projects done.

Senator MURKOWSKI. Thank you.

Ms. Moseley, in your response to the Chairman on some of the projects that are NEPA-ready—it's my understanding that there's some discussion as to how much Forest Service land in the fire-hazard reduction projects is actually ready. We don't need to argue over whether there's 57,000 acres that are ready, or over a million. The numbers are what they are. You've mentioned that we need to prioritize, clearly, as we try to move projects forward in this 2-month period. If, in fact, the Forest Service and the Bureau of Land Management actually have a very few number of projects that are NEPA-ready, to move out tomorrow, do we not move forward because they're not ready? Do you have any suggestions for us as to how we might include them in the mix? Because I think it would be a significant stimulus for us and something that we should be looking to. Any suggestions there?

Ms. MOSELEY. I think that the strategy might be to—essentially for the agencies to make some strategic decisions about how they stagger their work plan, so that they think about doing—you know, putting into the pipeline—and, you know, sort of, make shovel-ready those things that are shovel-ready, and make—do, parallel to that, those things that are—could be ready in 12 months, could be ready in 18 months. In doing so, I think that creates opportunity to do some things that have been so far off, that have been so underbudgeted in the last decade, that they haven't even had the ability to do NEPA planning, because there's been no money to even do planning, much less implementation. So, it would be a shame I think, in this context, to leave those entirely off the table.

That may mean, given the, sort of, complicated budget line-item system of the Forest Service, some pretty close attention in the appropriations process to spread the money adequately across a bunch of line items or to do something that gives them some fairly

general opportunity to be flexible about where they spend their money.

Senator MURKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Salazar.

Senator SALAZAR. Thank you very much, Chairman Bingaman.

Let me start with you, Mr. Limbaugh. You describe what you say are shovel-ready projects in the five areas in your testimony about aging water facilities, rural water development, water conservation, recycling and reuse, environmental mitigation—and I think it's actually six, because you have water-related renewable-energy projects. Do you—part of what we will struggle with here, I think, in the next 2 months or so, or maybe even less than that, is what the quantum is that we're going to put into an economic recovery package. Frankly, I think one of the responsibilities that we have is not to be arbitrary with numbers. You know, I may look—I look back at the $700-billion economic recovery package, and I have the same question that a lot of people still have, you know, Where did that number come from? So, my question is going to be a question I'm going to ask all three of you, but I'm going to start with you, because I know Bureau of Reclamation facilities, I know rural development—water development projects in my State, many of which have been in front of this committee, I know—I know the project—I know the kinds of things that you talk about. If you were President for the day, what part of the—how much money would you put into this component related to Bureau of Reclamation in water projects? Give me a number.

Mr. LIMBAUGH. Mr. Senator, it's just an estimate that I've kind of tallied up on the back of an envelope, but I'll give you a range, so you don't nail me down on a number, here. I would say, on the low side, probably 500 to 600 million within a 2-year timeframe. It could be higher than a billion if projects were made available that are ready to go, but just simply in a pending authorization bill or something like that, from what I've seen.

Senator SALAZAR. You know, Mr. Limbaugh, with all due respect, it, frankly, seems to me that there's arbitrariness even in those numbers that you give to me, because, I mean, I know of one project which this committee has had a hearing on to do a pipeline that would take water from Pueblo Reservoir all the way down to the Kansas line in Colorado. It's been authorized since 1965, never has been funded. Legislation we have here is an 80–20 cost share, the kind of thing that, frankly, could get done very quickly, and it would provide jobs and deal with the real water problem for many rural communities in my State, which has been a challenge for a very long time. That project, by itself, if we're looking at that project, is somewhere around a $200-million project. So, when you come up with a number of $500 to $600 million to a billion dollars, and I know that it—there are lots of those kinds of projects all around the State—all around the States, the 50 States—you know, I look at the number of dams in my State, reservoirs which are on the dam safety restricted list because of spillways that don't have the capability in those spillways, and I know what the cost is of fixing each one of those—frankly, it seems to me that a billion-dollar figure is a little spit in the bucket. So, one of the things that I hope we're able to get from Reclamation and from Interior are

some real numbers on what the real needs are there, because I think, frankly, the number you're talking about isn't sufficient. I mean, I don't—do you want to respond to that?

Mr. LIMBAUGH. Senator, I agree totally. My parameters that I set to make that estimate were a 2-year timeframe and in the categories that I talked about. When you start talking about the needs out there of the larger projects, they're in the multiple tens of billions of dollars. I don't know that you could get all those spent in 2 years, so, you know, my thinking was, you know, if we're going to have a stimulus package that has parameters set——

Senator SALAZAR. Yes.

Mr. LIMBAUGH. [continuing]. We need to be realistic.

Senator SALAZAR. Let me just say, I mean, I think about the Rio Grande restoration efforts within Senator Bingaman's State, in New Mexico, and what's happening on the middle Rio Grande there, the huge dollars that are needed there, I look at the Abiquiu dams in the upper part of New Mexico. I mean, the numbers, I think, are staggering, in terms of what could go into these water projects that have been essentially delayed for such a long time, and where the needs have been building up. I mean, it's really no different than what's happened to the interstate transportation system. It's just that people don't see it as readily as they do transportation.

Mr. Galvin, and Dr. Moseley, too—I only have 30 seconds, so give me a quantum.

Mr. GALVIN. OK.

Senator SALAZAR. National parks and the different——

Mr. GALVIN. The——

Senator SALAZAR. [continuing]. Initiatives that you described——

Mr. GALVIN. I mentioned previously that up-front ready-to-go work is about a billion dollars and would create about 23,000 jobs. The other programs that I mentioned in my testimony—the expansion of the science program, the cultural resources components—are probably another $500 million, so about a billion and a half dollars over a 2-month period. By the way, that first billion dollars——

Senator SALAZAR. Does that include the centennial——

Mr. GALVIN. That would include the——

Senator SALAZAR. [continuing]. Project?

Mr. GALVIN. [continuing]. Centennial Challenge, yes.

Senator SALAZAR. Centennial Challenge.

Mr. GALVIN. Yes. Yes.

Senator SALAZAR. OK.

Dr. Moseley.

Ms. MOSELEY. I think, if you think about the Forest Service alone having something like a $10-billion road maintenance backlog and maybe needing $1 and a half billion more for fire hazard reduction—those are two things—the number—I mean, I couldn't even add up the number, but I think, though, also the question is——

Senator SALAZAR. Just between——

Ms. MOSELEY. [continuing]. Short term and long term. So——

Senator SALAZAR. [continuing]. Road and fire mitigation you're talking about 11.5 billion.

Ms. MOSELEY. Yes. I mean, the thing is, you can't do $10 billion worth of roadwork in 2 years, so you have to take small chunks. But, let's say you take small chunks and you spend a couple of billion a year or 18 months per agency, I think, is, you know, on the low end.

Senator SALAZAR. OK. Thank you very much.

Thank you, Mr. Chairman.

The CHAIRMAN. Senator Wyden.

Senator WYDEN. Thank you very much, Mr. Chairman.

Ms. Moseley, I knew you'd be good, but as far as I'm concerned, you've been one of the best witnesses we've had in a long time, and I've chaired this subcommittee—Forestry Subcommittee, for a while.

I think the key point you're making, that healthy forests equal a healthy economy, is the message that has got to come out of this stimulus program as it relates to forestry, because it's obvious that the rural communities feel like they've been hit by a wrecking ball. They also feel that there's a double standard, that there's $700 billion for Wall Street, and they're just kind of waving and trying to get somebody to pay attention.

I think we made a downpayment on the effort with the Secure Rural Schools bill that we passed last session—had a lot of help from the Chairman, Senator Murkowski, a whole host of people. But, there's obviously a lot more to do.

Let me ask you about two very specific questions. Senator Cantwell and I, every time we're home and have town meetings and the like, hear from frustrated folks in rural areas about the definition of "biomass" as it relates to these Federal lands. This was an area where this committee, in effect, in the middle of the energy bill, went back in that room for a substantial length of time, pulled together timber people and environmental people, and got a good definition of what would constitute biomass as related to Federal lands good for the environment, good for the timber sector. Then it went off to the other body. So be diplomatic, it just didn't survive.

We're going to try and get this changed. We're going to try and get it changed on every single vehicle—the stimulus package, Chairman Bingaman will have an energy bill. Obviously, we have to deal with appropriation jurisdiction issues for the stimulus package.

But, I'd like to have your thoughts, for the record, on how important it would be to get this definition of "biomass" right, because it seems to me it is a huge opportunity for clean energy, exactly what you're talk about: healthy forests for a healthy economy. Senator Cantwell and I are going to be doing everything we can on every vehicle to change that. But, your thoughts there first.

Ms. MOSELEY. Yes, I think that's—you've hit on a critical issue. I think it's important to keep in mind that when you are a community and you're surrounded—and your county is 70 percent public lands, and you can't get credit in—for material that comes from a public land, you're out of luck, basically, because there aren't other choices. So, I think what's critical is that we have definitions of biomass that are, you know, sensitive, environmentally, but also reflect the reality of western—many western communities that want

to be doing small-scale heat projects that, for example, transform their rural school from oil to woody biomass. But, if they can't take advantage of government assistance because of a definition that excludes their landscape, we have a real problem.

Senator WYDEN. I can only say, we need to turn you loose on the House, because under the leadership of Chairman Bingaman and Senator Domenici, back in that room, we found common ground, and then it disappeared. We're going to get it back. We're going to be calling on you to help us in that effort.

One other question, just very briefly. With respect to the hazardous fuels work—and you talked about the fact that there's close to a billion dollars worth of projects that have already, kind of, cleared the NEPA, kind of, process and the like—tell us a little bit about what you think is the best way to get the value out of that work. Are you for the stewardship contracting or—in terms of actually getting the work done, what are the kinds of approaches that you think get it done most quickly and get us the most value for the dollar?

Ms. MOSELEY. I think that we—it will probably—we'll probably need a whole basket of tools. I think that stewardship contracting has proven to be extremely effective for—in two different kinds of ways. One is that when you have fuels treatment that involves some material that can be removed and taken down the road to a mill, or—and you have some material that is low value, you don't really know what the market is—it's something that could be biomass at some point, maybe, and a whole bunch—and some material that's just—we've got to get piled—the stewardship contracting mechanisms allow us to efficiently, effectively get all that work done in one context. I think those are also proving to be the kinds of contracts that tend to be awarded locally to business—small businesses in public-lands communities. I think that creates another, sort of, dual jobs and efficiency opportunity. I think, you know, more broadly, we'll have to continue to use service contracts in large ways when the removal of materials doesn't make any sense. You know, there's some—there'll continue to be some need and opportunity to use in-house crews, as they do now, often sending their fire—their crews—or will be fighting fires, but aren't yet—to do those fuels reduction—all those things make a lot of sense.

Senator WYDEN. Thank you, Mr. Chairman.

Thank you for all the good work that you do, Dr. Moseley.

Ms. MOSELEY. Thank you.

The CHAIRMAN. Senator Cantwell.

Senator CANTWELL. Thank you, Mr. Chairman. Thank you for having both panels today, but particularly this panel, because of the, I think, importance—there are so many issues that each of you have already discussed in your testimony today that really are about resources and priorities that we wish we would have been able to fund in the past. So, now if we're talking about stimulus, we should obviously look here to these important areas, taking care of our natural resources and improving the ecosystem.

So, Dr. Moseley, I guess I'd start with you. I've been a big supporter of the roadless area rule. One of the reasons I was a big supporter of codifying that was because I wanted to spend more money

on the backlog of road maintenance that we already had instead of creating new roads. What are your thoughts about taking care of that backlog as part of a activity of stimulus and creating better—clean water systems, other things that are so important for our public lands?

Ms. MOSELEY. I think roadswork is really important, for at least two reasons, maybe three. One is, we had this—you know, the Forest Service—you know, we could go to the moon and back, basically, on their roads. A lot of those roads, we don't need anymore. In the West, as we—and Pacific Northwest, in particular—those roads mean—and they're unused roads—mean that we're putting sediment in our streams, we are endangering our clean water supplies. So, there's this enormous long-term opportunity.

The short-term opportunity, economic stimulus opportunity, is that roadswork, heavy equipment work, backhoe operators, excavators, all this kind of work, these are really good jobs, and these are really good jobs that go to local people, to people in rural communities who used to be making driveways, but we're not making driveways anymore; they can go help with streams and—stream restoration and road maintenance and decommissioning. I think it's an enormous opportunity.

Senator CANTWELL. Do you have a number?

Ms. MOSELEY. I think that, you know, in—the number I have heard turned around—you know, tossed around, is that the Forest Service has something like upwards of 150,000 miles of unneeded roads. Obviously, we can't even begin to look at that number in the next 2 years. I would defer to experts, that aren't me, to get the number of what we could do in the next 2 years. I don't know. But, I'd be happy to follow up with you, if that would be helpful.

Senator CANTWELL. Thank you.

Mr. Galvin, a similar question as it relates to the maintenance issues in our national parks. Obviously, we have had big challenges in the Pacific Northwest because of storm damage and everything else. You may have covered this in your testimony. But, aren't there specific opportunities in dealing with some of those? I don't think people realize the economic revenue just that Mount Rainier alone generates to the State. But, when you have park opening—park openings that have been impacted by storm damage, in effect, tourism and tourism activity, what about using the stimulus to improve those areas?

Mr. GALVIN. Actually, there's nothing in our proposal specifically related to storm damage. The proposal does essentially go to facilities that have not been invested in adequately over the last 50 years, but there's nothing specifically in here about storm damage.

I would say, since you mentioned the economic impact—again, that recent press release—parks generate about four times as they are appropriated, so that these jobs—these jobs, in the sense of projects, you know, include rehabilitation of things like the Paradise Lodge, which has—some work has been done in, but it's not complete, so that they—I think they—in the sense that they refurbish park infrastructure, they help with the economic arguments for parks.

I started my testimony by referring to the CCCs. There are many parks in the system that have had no investment since the CCC.

Senator Bingaman knows Bandolier. I would characterize Bandolier as a civilian conservation park. The roads were built during the Civilian Conservation Crew era, the buildings were all built. It's now a charming historical—historically protected landscape, but it needs reinvestment. I would say Skyline Drive, has—which is on the list here, is another thing, built, by the way, for $29,000 a mile during the Depression. You couldn't paint the center stripe down the road for $29,000 a mile now. But, what an asset. I mean, I think one of the—one of the great arguments for this kind of economic stimulus is, it's going to create something that our grandchildren are going to enjoy. I mean, if—you can just go down Constitution Avenue and look when those buildings were built. They're all—you know, the Federal Trade Commission, the Archives, all built during the Depression, when we were trying to stimulate the economy. So, it's not just stimulating the economy that has this long-term—we're creating assets for the Nation. I think it's a great argument for this program.

Senator CANTWELL. I would say that there are true capacity issues at some of our national parks, where they have continued to grow in their economic activity and tourism, but we are limited, because we haven't continued to make the upgrades that have been necessary.

So, I thank you for your——

Mr. GALVIN. Absolutely.

Senator CANTWELL. [continuing]. Testimony.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Murkowski, did you have additional questions?

Senator MURKOWSKI. I don't have anything.

The CHAIRMAN. Let me thank this panel very much. I think you've given us good testimony, and we will do our best to see that it is considered in whatever winds up being enacted.

Thank you very much. That concludes our hearing.

[Whereupon, at 12:10 p.m., the hearing was adjourned.]

# APPENDIXES

## APPENDIX I

## Responses to Additional Questions

### RESPONSES OF KEVIN BOOK TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* This year, Chairman Bingaman and I introduced separate pieces of legislation to create a federal bank for clean energy projects with the authority to make loans, issue loan guarantees, and offer other financial products. As we all know, it is very difficult for alternative energy projects to access low-cost, long-term debt financing because of the perceived risks associated with new technologies. These bills seek to address this hurdle and realize the positive energy security, economic competitiveness, and climate change benefits of a thriving domestic clean energy industry.

In the context of the global credit crisis, but also in light of the developments at Fannie Mae and Freddie Mac, do you believe that the creation of such an entity remains an appropriate federal undertaking at this time? In what ways would the difficulties encountered in the DOE loan guarantee program be remedied by the approach laid out in these Clean Energy Bank bills?

Answer. Senator Domenici, the notion of a Clean Energy Bank is very well-timed to address the very real problems energy companies, developers and financial sponsors encounter obtaining loans for new projects amid a dramatic slowdown in lending. In fact, loan guarantee program under Title XVII of the Energy Policy Act of 2005 was an appropriate undertaking even before the onset of the current economic crisis. Loan guarantees enable developers of new technologies to source capital on favorable terms despite short (or non-existent) operating histories and limited (or non-existent) cash flows. Cash for operations is necessary for innovative technologies to compete for market share with mature, incumbent technologies in capital-intensive sectors like high-capacity batteries, clean power and low-emissions liquid fuels.

Low-cost loans don't just provide an opportunity for new players—they also improve the prospects that new players will succeed. This is because debt service represents a significant portion of the "levelized" cost of energy production (the total financial cost, inclusive of interest, fuel and operating costs over the life of the asset, divided by the energy produced over the life of the asset).

In short, access credit gets new players in the game, and cheaper credit can make a difference between success and failure at the margin. With proper vetting of applicants, the federal government is in a position to create value through loan guarantees by lowering marginal costs at virtually no additional taxpayer cost beyond program administration, an actual "win-win" outcome.

As well conceived as the Title XVII program was, it is not altogether clear to me that the Department of Energy represents the best natural fit for a project finance mechanism, particularly given the exigencies of the moment. Not only do big loans require heightened scrutiny by qualified specialists during a downturn, but cash-strapped sponsors of clean coal, nuclear power and farm-scale renewable generation facilities are likely to be more vulnerable than ever to costs incurred through administrative delays.

*Question 2.* You testified that "technologies that cannot survive on a long-term basis without ongoing government support can lead to inefficient energy use and investment decisions." Are there any proposals that you've heard here today that fall into this category as an unwise use of federal dollars?

Answer. Clean energy has three challenges to overcome. First, transforming matter from one form to another—which is a big part of the fuels and power industries—is a messy business. Second, energy is a commodity business where small cost

differentials can add up to big competitive disadvantages at production scale over decades-long project lifetimes. Third, economic incentives cannot overcome physical realities, no matter how much some policymakers may wish it so, and it generally costs more to transform large volumes of matter from one form to another while emitting fewer pollutants. As a result, when governments subsidize inefficient energy technologies, they can end up making large and long-lived mistakes.

In general, it may be unwise to spend big on energy technologies that are too far ahead of their time. I would suggest that the federal government might prefer to direct research and development spending towards highest-cost technologies and direct explicit subsidies towards technologies that are closer to economic parity with incumbent sources. High-cost technologies often are high-cost because the related and supporting infrastructure may not be sufficiently developed. Or, feedstock, fuel or components may be in short supply because the industrial value chain is immature. This doesn't get much bang for each buck, and piling big demand on small supply tends to only drive prices up very quickly (consider recent demand-side price inflation associated with corn, polysilicon, wind gearboxes, etc.).

RESPONSE OF KEVIN BOOK TO QUESTION FROM SENATOR LINCOLN

*Question 1.* I represent a state with a large number of hard-working, low-to-middle-income families. It concerns me that green technology that allows customers to leave less impact on the environment, whether it's fuel efficient vehicles or energy saving appliances, is often more expensive. For the future stimulus package, in what ways can we make sure that low-income families are able to access these advanced technologies?

Answer. Senator Lincoln, one of the cruelest ironies of energy technology tends to be that energy users who are the most price sensitive tend to be the most vulnerable to price increases and have, as a consequence, the least capacity to pay a premium in the short term for enduring economic and environmental benefits, especially when fuel or power price spikes deplete their disposable income. I think it makes sense for the government to assist these families.

On the other hand, it's not obvious to me that advanced technologies are always the best choice in every case. I think it makes sense to try to target subsidies towards efficiency changes that correspond to energy use patterns.

Consider the amount of electric power and heating fuel that literally goes out the window in a poorly-insulated home. For a low-income family that is watching every penny and can't afford to spend on their home, even relatively modest weatherization retrofits (caulking windows, insulating walls, replacing furnace filters) can deliver enduring dividends. Moreover, these small savings matter more, at the margin, to lower-income households. Would expensive, high-efficiency lighting and appliances make a big difference in these homes? Perhaps, but I would suggest that most lower-income homes already tend to be keenly aware of the benefits associated with turning the lights off and turning the thermostat down—economic forces tend to provoke conservation behaviors because lower-income families can't afford to be wasteful.

Higher-income families tend to be bigger users of power and fuel because they are bigger buyers of appliances and cars and less likely to watch every kilowatt-hour and gallon. When was the last time you bought a new refrigerator? I suspect, if you're like me, you didn't buy one until the last one broke, or unless you moved into a new house. For middle-class families, appropriate policies might include subsidies that encourage early replacement of inefficient appliances—with a proviso that that the old appliances get scrapped. It doesn't help to buy a new fridge that's 50% more efficient than the old fridge if the old fridge goes into the garage as a beer fridge—that's a 50% increase, not a 50% savings. Likewise, programmable thermostats and high-efficiency lighting matter more in richer homes that can afford to run hotter and keep the lights on more.

I realize this is somewhat counterintuitive and I want to be clear here: I am not suggesting that we should pay more money to rich people than we should to poor people. Ultimately, subsidies should generally phase out progressively with income or they will just perpetuate blameless waste because the government picks up the tab. No, what I am suggesting instead is that policy address the problem that makes the biggest difference per dollar in energy use patterns, and the government shouldn't pay a dollar more than is necessary to spur the first investment that yields significant energy efficiency gains.

RESPONSES OF MARK A. LIMBAUGH TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* Based on your experience with rural water projects and the Bureau's rural water program, please describe the costs associated with operating and maintaining these systems. Have project beneficiaries been able to pay for their share of the O&M costs associated with these projects? Will targeted federal dollars for needed O&M work in rural communities result in new jobs—particularly since these areas often have limited economic opportunities?

Answer. Based on my previous experience with rural water projects constructed or funded by Reclamation, in general, the costs associated with O&M of typical rural water projects (municipal water supply) are paid by the project beneficiaries. An exception is for Tribal water systems, where the Federal government pays most if not all of the Tribal share of annual O&M costs for the system. These arrangements are typically established in the project authorizing legislation enacted by the Congress. It has been my experience that project beneficiaries have been able to pay their share of annual O&M costs of these rural water systems. For the most part, this is also true of the traditional Reclamation irrigation projects across the West. While it is my understanding that rural water systems currently under construction still require substantial federal construction dollars (as opposed to O&M dollars) to complete these projects, it is my opinion that the rural areas of the country served by these water projects would benefit from new jobs if additional federal dollars are targeted to fund either construction or major O&M activities associated with these projects. Funding sources for the construction or extraordinary maintenance of water projects (both municipal and irrigation) in rural areas are very limited, and the funds needed to accomplish this work, along with the jobs associated with such projects, are not likely to materialize without federal funding and the subsequent long-term financing of any required repayment of funds by non-federal entities.

*Question 2.* Please describe the impact the Title XVI program has had on developing water resources in water scarce regions. Are you aware of any studies that have addressed the impact of these projects in encouraging new economic development in these regions?

Answer. Title XVI projects that manage, reuse, and recycle water that would normally flow out of the basin (usually to the ocean or other terminal water body) and/or is not of usable quality have increased usable water supplies in areas of the West where conditions warrant such projects, such as where the cost of additional water supplies are extremely high or unavailable at any price. These projects have typically been developed in basins where water supplies can be completely exhausted without harming other water rights, such as in coastal areas like Southern California that are dependent on water supplies imported from other basins, but there are other Title XVI projects that better manage and treat impaired source waters, such as groundwater sources, to increase potable water supplies in areas of water scarcity. Most of these projects depend on the federal construction grant funding under the Title XVI program in order to make these new water supplies an affordable option.

I am aware of one study on the economic impact of funding Title XVI projects. The House Committee on Natural Resources Subcommittee on Water and Power recently requested such a study from the Congressional Research Service. On November 4, 2008, Linda Levine, Specialist in Labor Economics at the Domestic Social Policy Division of CRS transmitted a study entitled "The Number of Jobs that Might Be Created by Appropriating $300 Million for the Title XVI Water Reuse Program" to Subcommittee staff. The report establishes that jobs would be created if total spending increased for Title XVI water reuse projects; however, the levels of expected job creation differ depending on the model and assumptions used in the analysis. One shortfall in this study, in my opinion, is that it only focuses on the short-term economic impacts of an immediate influx of funding to construct these projects and does not mention or identify the long-term economic benefits of producing new water supplies through Title XVI projects in water short areas, such as creating the water supply certainty needed for future economic investment to occur, thereby creating a more stable economy in the longer term. I have taken the liberty of attaching this CRS report to these answers for your review.

*Question 3a.* Please describe the difference between the loan guarantee program offered through the Department of Agriculture and the recently authorized loan guarantee program within the Bureau of Reclamation. Should these two loan guarantee programs be implemented differently?

Answer. The Department of Agriculture loan guarantee program that I am familiar with is under the Rural Utilities Service (RUS), and it is my understanding that it has functioned successfully for many years. This program provides loan guarantees to banks loaning funds to eligible public works projects for rural communities

across the country. The calculated federal subsidy for these guarantees is equal to the estimated default rate on these loans, which is very small (1%-2% of the loan principal in most cases) and in the past has been funded through up-front fees paid by the borrowers at loan origination. These payments make the program "appropriation-neutral" to the Federal government. The problem is that the RUS program has only been available to rural municipal and industrial water supply systems, as well as water and wastewater treatment facilities in rural areas, and not to federal irrigation projects or to the non-federal project beneficiaries in need of additional financing tools. Congress recently authorized the Bureau of Reclamation to develop a loan guarantee program, and encouraged the agency to work with the USDA-RUS in administering the program in a similar fashion under an interagency agreement. These two programs should not function much differently from each other, in my opinion, yet the Office of Management and Budget (OMB) considers the Reclamation program to be different, mostly due to a misinterpretation of federal fiscal policy. OMB currently determines that if Reclamation guarantees a loan to a non-federal project beneficiary to finance the non-federal share of major rehabilitation of federally-owned water infrastructure, the federal subsidy is calculated at 100% of the guarantee and not the estimated default rate (typically calculated at 1%-2% of the loan). This is a misinterpretation of the policy, and is due to OMB considering this financing as "third-party financing" of an "inherently federal obligation". This interpretation is incorrect due to the nature of the "arms-length" contracts between Reclamation and non-federal project beneficiaries to pay for their non-federal share of any O&M and replacement costs associated with operating federally-owned water infrastructure. I believe the mischaracterization of "third-party financing" by OMB is now holding up Reclamation's rulemaking for the program, and delaying loan guarantees to finance even non-federal infrastructure eligible under the new authorities provided by Congress. Further Congressional action may be required to correct this problem and complete the development of the program.

*Question 3b.* Has the loan guarantee program, within the Department of Agriculture, increased economic development? If yes, what types of projects have been pursued using the program?

Answer. Yes, the USDA—Rural Utilities Service (RUS) loan guarantee program, in my opinion, has spurred economic development in many rural areas of the country. Typically, there are few sources of funding for the major construction of public works water infrastructure—projects that are absolutely necessary to produce economic development in rural communities—and today there are even fewer sources of public financing, in my opinion mostly due to the credit crisis and lack of liquidity in the municipal bond markets. RUS loan guarantees, along with the grants and direct loans also available under the program, have provided the critical funding and financing necessary to build these projects. The types of projects pursued in the past under the RUS loan guarantee program, as I recall, have included wastewater treatment plants, rural municipal and industrial (M&I) raw water treatment and supply projects, and other basic infrastructure projects deemed eligible for program funding and benefits. In the case of Reclamation projects, a Reclamation loan guarantee program would finance the non-federal share of the rehabilitation of aging water infrastructure either owned by the federal government or associated with a Reclamation project. They would also be available to finance non-federal share of rural water projects under the new Rural Water Program within Reclamation. Usually, rehabilitating aging federal facilities involves major construction activities that would provide additional jobs and economic activities that would help rural communities in this economic downturn, but also would provide much needed certainty for future water supplies that are necessary for continued economic recovery and growth within these communities.

*Question 4.* Within your testimony you indicate other innovative financing tools that may further investment in new water supplies. Please describe these financing tools, and how quickly they could be used to further investment.

Answer. There are several financing tools that could spur further investment in rehabilitating aging water infrastructure or create new water supplies through infrastructure construction, but are currently unavailable to either Reclamation project beneficiaries or other non-federal water providers.

The first is direct federal loans—Reclamation currently has authority to provide direct no-interest loans for rehabilitation and betterment of federal water facilities or to small water reclamation projects, but has mothballed these programs and does not provide funding for these loans as a matter of policy. If Reclamation were appropriated funds under an economic stimulus bill, the agency does not have the direction or authority to provide a simple repayment of reimbursable costs of project rehabilitation or extraordinary maintenance over a reasonable period of time with interest. Such direct financing would eliminate the federal subsidy by charging Treas-

ury interest rates and allow federally appropriated funds to be expended on priority rehabilitation projects without the need for the non-federal component to be repaid in the same year of expenditure, as is currently the case for these projects. Direct loans are the simplest financing instrument, but the funding must be fully appropriated in the year expended and new authority must be enacted to allow Reclamation to charge treasury-rate interest. For your information, this authority is provided in canal safety legislation in the Omnibus Public Lands bill currently before the Congress.

The second financing tool is a federal loan guarantee through a Reclamation loan guarantee program. As discussed in my answers above, this program would leverage federal appropriated dollars to provide guarantees to private lenders in financing the non-federal share of the cost to rehabilitate existing aging water supply infrastructure, or build new water supply infrastructure associated with a Reclamation project. Typically the private lending institutions filter out the bad credit risks, reducing the default rate on these loans. Only the federal subsidy is appropriated by the Congress, and is calculated through establishing the expected default rate on these types of loans and appropriating that amount into a fund to cover any possible defaults on the guaranteed portion of the loans—usually a small percentage (1-2%) of the total loan guaranteed.

Another tool could include the combination of a loan guarantee and a municipal tax-exempt bond. Currently, the Federal government provides no guarantee on municipal bonds, nor do they have authority to guarantee such tax-exempt bonds. A Federal guarantee would attract private investors by offering a federally guaranteed tax-exempt municipal bond, an approach that would, in my opinion, substantially reduce the interest rate, reduce risk, and leverage a small federal investment in attracting additional private capital to finance water infrastructure improvement projects. This approach would require appropriations for only the subsidy rate of the guarantee, and directed spending to fund the income tax credit of the municipal bond, possibly requiring an increase in municipal bonding authority limits. In addition, new legislative authority would have to be provided by the Congress for this tool to be developed.

Finally, another financing tool would be a tax-credit bond. This financing tool is currently used to fund and finance renewable energy projects, but has yet to be made available to finance water infrastructure. This financing tool works as a no-interest loan to the borrower, but the investor receives federal income tax credits as interest on the funds invested. The federal subsidy is the tax credits offered to the investor, which is usually a small percentage of the total funding provided, depending on the rate of return on the private investment, and would not require an appropriation, but could be determined to be directed spending and subject to PAYGO rules. New legislative authority would need to be provided by the Congress for this tool to be developed, although I believe pertinent legislation was introduced in the 110th Congress to create such an instrument.

In summary, direct loans would be the simplest and quickest way to fund and finance water infrastructure improvements, but would require a 100% appropriation of the dollars to fund the loan as well as enacting new authority to allow Reclamation to charge interest on the loan. The last three innovative financing tools leverage federal dollars to attract private capital to fund and finance water infrastructure, requiring federal appropriations or directed spending equal to only a fraction of the total investment financed. But, these tools are not currently available, either as a matter of policy or lack of Congressional authorizations, and it could be several months to several years before these financing tools could be offered to water providers in the future.

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RESPONSES OF CASSANDRA MOSELEY TO QUESTIONS FROM SENATOR DOMENICI

As I look at a crash program to provide economic stimulus in a timely manner, and read your testimony, I am wondering how it can be accomplished if all the federal land management environmental laws and procedures, as well as the labor and worker safety laws, are strictly adhered to.

*Question 1.* Given the past history of enforcement by the federal land management agencies of these labor and worker protection laws, and the time it takes them to make changes, is there any work that could actually produce pay checks to a large number of employees within the two year time-frame suggested by President-elect Obama?

Answer. The enforcement of worker protections laws has certainly been a long-standing problem on public lands, particularly for workers performing labor-intensive activities such as tree planting, hand thinning, brushing, and the like. The con-

ditions of these workers need on-going attention by Congress, the land management agencies, and the Department of Labor. At the same time, workers performing other types of restoration activities, especially those involving technical or equipment-intensive activities (e.g. road maintenance and decommissioning, culvert replacement, facilities improvements, engineering, biological survey) do not seem to have faced the same sorts of abuses.

Although there is much work to still be done to improve the conditions of workers performing labor-intensive activities, the Department of Labor and the Forest Service have increased coordination, inspections, and enforcement actions over the past couple of years. To ensure that all workers performing restoration and maintenance are treated fairly and have safe healthy work environments, the Department of Labor and the land management agencies will need resources and oversight to increase inspection and enforcement. For the Forest Service and Department of Labor, this is matter of expanding existing efforts. The Bureau of Land Management and other Interior agencies, which have not increased inspections with Department of Labor, will need to coordinate with the Department of Labor and adopt procedures similar to the Forest Service.

Given the groundwork that the Forest Service and Department of Labor have laid over the past few years as well as the large number of restoration activities where workers abuse does not seem to be a major problem, an economic stimulus package that includes a wide variety of activities as well as resources for labor law enforcement can create quality jobs in the short term.

The agencies could further improve job quality by using more effective evaluation criteria for awarding best value contracts, so as to reward contractors that perform high quality work, have a track record of treating their workers well, and provide local jobs in particularly distressed rural communities. Congress could assist by providing explicit authority to consider benefit to local and economically distressed communities in the evaluation and award of economic stimulus contracts, much as it has with the National Fire Plan and other restoration-related appropriations over the last several years.

*Question 2.* A number of environmental groups have submitted a document to President-elect Obama's transition team calling for the undoing of the forest planning and Categorical Exclusion regulations, many of the Healthy Forest Restoration Act regulations, and for ending all road-building on federal lands. The Forest Service tells us that 30% of the million to 1.5 million acres of projects they can quickly have NEPA-ready would rely on categorical exclusions and that they really only have 57,500 acres of projects that already have signed EA's completed.

If they prevail in their request, how might it complicate getting some of the work you are calling for in your testimony accomplished in the next year or two?

If the next Administration is convinced by the requests of the environmental groups to rescind the Categorical Exclusion regulations I think you would agree it would complicate getting much of the work you are calling for in your testimony accomplished in the next year or two.

Should or should not Congress address this potential problem when it writes the economic stimulus bill? And if so, how should it address this potential problem?

Answer. As you suggest, the Forest Service has made use of NEPA's categorical exclusions and the Health Forest Restoration Act authorities to prepare fire hazard reduction projects. In the short term, eliminating these strategies could present a challenge for the Forest Service in its efforts to implement fire hazard reduction quickly.

I would not recommend, however, that Congress address this potential problem by waiving part or all of NEPA. Doing so would create conflict and reduce trust in the land management agencies which would only serve to slow implementation. The keys to getting projects done expeditiously are: collaboration with locals and stakeholders, trust, and transparency in agency decision-making. Consequently, I would recommend that the stimulus package support land management units that have engaged in collaborative processes that have built trust and reached agreement on restoration activities. In addition, some of the stimulus funds could be allocated to the Resource Advisory Committees authorized as part of the Secure Rural Schools and Community Self-Determination Act. Many of these committees have found themselves with far more NEPA-ready restoration projects than they can fund on public and adjacent private lands.

Instead of attempting to address the conflicts and challenges associated with NEPA in the stimulus package, I would recommend that Congress, the new Administration, and wide range of stakeholders engage in a larger-scale consideration about environmental analysis, NEPA, and its implementation. NEPA was created in an era when we believed that: we could fully understand environmental impacts prior to taking action; and our actions would degrade, rather than improve, the en-

vironment. When we are trying to restore ecosystems function, we need a system of environmental analysis that acknowledges environmental benefits and the environmental and social costs of inaction, discloses known impacts, incorporates learning and experimentation, and gets better value for money than the current processes.

*Question 3.* Many of the types of projects you suggested could be included in the natural resource section of the economic stimulus legislation are little more than traditional woods-jobs that have existed for decades in the land management and timber management programs. Could you explain why a landline surveying job would be a "Green" job under the economic stimulus, while it once was just considered part of the forestry profession?

As you suggest, many of the types of jobs associated with sustainable forest and watershed restoration and maintenance have existed for decades. However, these jobs need to be reinvented to support a sustainable economy, just as in other sectors of the economy. There have long been manufacturing jobs; a green economy will still have manufacturing jobs, but those jobs will manufacture different kinds of products in different ways. Similarly, forest and watershed management jobs are still needed; however, they need to be directed at a different range of activities and performed in different ways.

This economic stimulus package presents an opportunity to help create natural resource management for the 21st century and stem the loss of resource management capacity in rural communities. By focusing part of the economic stimulus on forest and watershed restoration, we can build on existing skills of forest workers and technicians, loggers, and heavy equipment operators and allows them to focus these skills on natural resource restoration and maintenance. With the long decline of the timber industry in the American West and the under funding of the land management agencies over the last decade, we have lost and are continuing to lose the business and workforce capacity to manage our lands. If we are going to take care of our forests, grasslands, and watersheds long term, it is critical that we not lose more of this capacity.

While boundary surveying may appears mundane, it is crucial at this time when fire and other ecological processes knows no bounds, but land management activities do. When ownership boundaries are unknown, agencies do not know where to put their treatments and when to expect the landowners to pay for treatments. There are a number of other technical jobs such as engineering, wildlife, plant, and archeological surveying and monitoring that are also of critical importance to the restoration and maintenance of our public lands.

*Question 4.* Could you provide the Committee with a good working definition of what a "Green Job" is?

Answer. Green jobs are high quality jobs that improve environmental quality by restoring ecosystem function, reducing carbon emissions, or otherwise reduce our impact on the environment while increasing social equity. In the context of natural resource management and energy conservation and development, these jobs are wide ranging, and include all sorts of ecosystem restoration and sustainable natural resource management as well as those involved in energy conservation, alternative energy development, and carbon emissions reductions. A high quality job provides family supporting wages, long duration employment, training and a career path, safe and healthy workplace, and the opportunity to work near where one lives.

### Response of Cassandra Moseley to Question From Senator Lincoln

*Question 1.* In your testimony, I agree with your assessment that we haven't seen much in the news about how the economic crisis is impacting rural America. What role do you see rural America playing in a shift to a green energy economy that could help boost our economy?

Answer. Rural America must play a central role in building a green economy because rural communities are the stewards of our natural resources, farms, rangelands, and energy sources. Urban and suburban America has a major role to play in reducing consumption and creating systems that make efficient use of goods and services. But, our nation's ecological, social, and economic sustainability depends on healthy rural communities, businesses, and workers. Rural communities must be central to managing landscapes and watersheds in ways that increase ecological resilience while offering a sustainable supply of natural resources, energy, and food.

Distressed rural communities are limited in their ability to contribute productively to our nation's economy and their economic desperation strains forests, soils, and rivers. We need to redefine our economic systems so that rural communities can have increased capacity to steward our nation's natural resources. Doing so requires

that we retain and develop green rural businesses that enable workers to support their families and communities.

In the area of green energy more specifically, with support, rural America can: (1) come to produce food and natural resources in ways that use less energy; (2) increase the use of renewable energy in the production of food and natural resources; and (3) contribute to the nation's supply of renewable energy. It is easy to neglect energy efficiency in rural America because of the dispersed nature of rural populations. But, it is no less critical in rural areas. This would not only contribute to reducing the nation's overall energy consumption, but also create much-needed cost savings for struggling rural families and businesses. Because rural America is so diverse, the strategies to reduce energy consumption and increase renewable energy production will need to vary considerably. In some places, for example, local energy needs can be met with wind turbines or solar panels while in other places, microhydro, woody biomass, or other strategies will make better sense.

Thank you for the opportunity to answer these questions. Please feel free to contact me if you would like additional information.

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RESPONSES OF STEVE G. HAUSER TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* You testified that there are a number of Smart Grid projects already in development. How will investment in the Smart Grid by the federal government lead to more jobs in the near term? What types of jobs are associated with Smart Grid technology and deployment? Are you able to find skilled workers or must we look at job-training?

Answer. Indeed, various utilities around the country are developing and beginning to implement smart grid projects. A substantial amount of Federal funding in 2009 will create jobs by incentivizing more rapid deployment of smart grid systems. Attached is a report recently released by The GridWise Alliance describing the potential impact of federal smart grid investments. It outlines both the number and types jobs that will be created.

*Question 2.* In the 2007 energy bill, we directed the federal agencies to develop a Smart Grid interoperability framework that includes protocols and model standards. Interoperability standards will allow different devices from different vendors to exchange information. These standards are still under development.

Given that we do not yet have this interoperability framework in place, how do we know that any Smart Grid funding won't result in obsolete equipment in a few years? Do you have any specific ideas or approaches that would help to support the integration of new equipment in the short-term?

Answer. Standards and protocols for interoperability continuously evolve as necessitated by market development, innovation and technology changes. Standards typically follow markets and don't drive them. Both utilities and vendors are very careful not to select technologies and approaches that can rapidly become obsolete; demanding the market to create standards as appropriate to ensure long term value. The federal government should provide additional funding for DOE and NIST to accelerate their efforts to monitor these needs, identify gaps and facilitate quicker refinements and adoption of any framework and standards required.

*Question 3.* Decisions about Smart Grid investments, like most decisions regarding electricity infrastructure, are overseen by state electricity regulators—which can be a time consuming process. What assurances do we have that any Smart Grid investments in the stimulus package will actually occur in the near-term, meaning in the next 12 to 24 months?

Answer. While state regulatory processes by nature are public processes requiring time for deliberation, regulators can also move quickly when needed on single issues. Many states have already authorized smart grid projects of varying scope and others are actively reviewing and considering similar investments. Both utilities and regulators in many states are highly engaged and motivated to respond appropriately if federal investments are made in the near term.

*Question 4.* Has any utility made the business case for Smart Grid investment? If so, under what conditions and what technologies were included?

Answer. Yes, dozens of utilities have developed very specific business cases for implementing various smart grid strategies. These are typically internal documents, not publically available. The types of technologies included vary widely based on local factors such as marginal capacity price, energy rates, age of existing equipment, etc. The most compelling business cases include a comprehensive suite of software and hardware technologies addressing multiple benefits for both utilities and consumers. The Edison Electric Institute is currently preparing a report on the busi-

ness case for smart grid investments that will be publically available in a few weeks.

*Question 5.* Regional demonstrations were an important aspect of the 2007 EISA legislation. Can you describe your vision for how these demonstration projects would take shape, and the resources necessary to bring them to fruition? Would these demonstration projects focus on renewables such as wind? HEV integration? What would you identify, in order of priority, as the critical technology aspects that would need to be demonstrated?

Answer. These demonstration projects should be large enough in size to address and answer some of the lingering questions about scale. The projects should also be broad enough in scope to understand the potential benefits and impacts of the synergies among multiple smart grid technologies including demand response, energy efficiency, distributed storage, distributed renewable projects, electrified transportation, etc. The primary goal of these regional demonstration projects is to analyze and quantify performance metrics and best practices that can be generalized to the rest of the country. While every project will have unique conditions, constraints, and solutions, the Department of Energy must structure the projects in a way that the results can be clearly understood and used in creating a shared set of goals and metrics for successful smart grid deployment. Ideally, all proven technologies would be implemented in hundreds and thousands of end points at a scope and scale to build a foundation of data and information for future implementations.

### RESPONSE OF STEVE G. HAUSER TO QUESTION FROM SENATOR LINCOLN

*Question 1.* I represent a state with a large number of hard-working, low-to-middle-income families. It concerns me that green technology that allows customers to leave less impact on the environment, whether it's fuel efficient vehicles or energy saving appliances, is often more expensive. For the future stimulus package, in what ways can we make sure that low-income families are able to access these advanced technologies?

Answer. In a free market economy, the price and cost to consumers often is determined by a variety of both rational and irrational factors. Green technologies are often more expensive because they are produced in smaller quantities. As markets expand the cost/price can and often does come down. Solar PV is an example of a technology that is now being produced in large enough quantities that cost/prices are coming down. As more and more fuel efficient vehicles are produced, the cost/price is likely to come down as well. Deploying a smart grid gives us the opportunity to give all consumers the appropriate tools for understanding their energy needs and managing them more effectively; resulting in both less energy used and less cost to the consumer. Specifically for low income families, one could consider offering both low-cost, long term financing and "free" electricity to those consumers who have a qualified smart grid system in their home and a qualified electric vehicle. The federal government should also actively educate these consumers and provide simple tools for them to make better energy decisions.

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### RESPONSES OF DENIS GALVIN TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* During the past 6-8 years, we've been told repeatedly that the National Park Service faces a major maintenance backlog. A lot has been done during that time, but what are the highest priorities that remain for major projects in national parks that can be completed in the next 24 months if funds are made available? Will these projects face legal challenges on environmental issues?

Answer. The projects put forth as part of the stimulus initiative are drawn from an information system that monitors the condition of the infrastructure of the national park system. The Facilities Management Software System (FMSS) covers all the assets in the system, providing them with a Facility Condition Index (FCI). It is that system that produces the backlog figure you refer to.

From that total inventory the service develops priority lists for maintenance and construction programs that cover anticipated programs for the near future, approximately a five year period.

The projects presented for the stimulus package have passed an additional test; it includes only those projects achievable in a two year period and free from a reasonable expectation that they could be challenged on any grounds, environmental or otherwise.

*Question 2.* Looking beyond bricks and mortar, what conservation programs would you recommend to enhance our national parks for future generations?

Answer. There are many highly deserving conservation programs that have been sitting on the shelf, awaiting the time that funds will come available. Top among

them is the continuation of the Natural Resource Challenge that elevated the capacity of the agency to analyze, track and manage natural resource conditions in the parks. The work is not complete and must be viewed as a very high priority if the agency is to continue to build its capacity to do its fundamental work of conserving the parks for future generations, and interpreting that mission to the visiting public. No less important is the imperative to launch a complimentary Cultural Resource Challenge. On a different scale, additional vital conservation activities include exotic animal and plant management, and a renewed investment in agency-centralized basic science.

RESPONSES OF DENIS GALVIN TO QUESTIONS FROM SENATOR AKAKA

Hawaii has several National Parks located on the coastline. These parks contain many structures and artifacts with much ancestral heritage and cultural significance.

*Question 1.* I am concerned about global warming, and the impact of rising sea levels on Parks adjacent to coasts. National Parks in other states may have different impacts because of climate change. Does the Park Service have a program that looks at the impact of climate change on its natural resources? Will protecting Park resources from the future impacts of global warming be a priority for restoration and repair projects?

Answer. According to the National Park Service, building the capacity to respond to climate change involves identifying, prioritizing, and implementing a range of short and long term objectives. The initial approach is to define the overarching goals of the program and to create a series of Working Groups designed to explore and articulate specific needs and issues.

*Climate Change Response Program Goals*

- Develop and implement a coordinated strategy for understanding, communicating, and coping with the effects of climate change to park natural and cultural resources, resource values, and infrastructure
- Collaborate with partners in other agencies and entities, and across NPS programs, to build understanding and coordinate landscape-scale adaptation and mitigation actions

*Climate Change Response Working Groups*

Six Working Groups have been created to foster communication, explore the needs and issues of parks, and begin to define both servicewide and park level strategies for moving forward on this critical issue. The six groups are: 1) Law & Policy, 2) Planning, 3) Science, 4) Resource Stewardship, 5) Greenhouse Gas Mitigation & Sustainable Operations, and 6) Communication.

Representatives from parks, regions and national programs are participating in the Working Groups, which are outlined in more detail in the documents attached to this response. Climate change will impact all operations in the NPS and the interdisciplinary structure of the Working Groups is meant to encourage collaboration and leadership at all levels of the organization. The ideas that emerge from this process will be brought together to form a Climate Change Response Strategy, the implementation of which will be guided by an intra-agency Steering Committee.

Background papers describing NPS's climate change response are attached.*

*Question 2.* I am pleased that you cited the "museum collections backlog" that exists at many of our parks, of which you estimate 56 million items remain to be catalogued. Because they have not been appropriately accounted for, these irreplaceable artifacts are in danger of being misplaced and forgotten forever.

I am also concerned by the challenges that Parks have in preserving and maintaining these pieces of historical significance. Restoring cultural and historical items, structures, and artifacts must be done properly and accurately by skilled conservators. The meticulous work is performed carefully and often slowly to ensure accuracy. The materials used must be appropriate for the timepiece that is being restored and withstand environmental factors to last many more years. These factors make restoration and repair very expensive and unaffordable for many of the Parks. As a result, repairs are either deferred indefinitely, or done piecemeal using substandard material. In your opinion, can we continue to defer restoring these artifacts and historical structures? Shouldn't preserving these legacies for future generations be a priority?

Answer. The preservation of our cultural legacy is not simply a priority, but a mandate established by Congress that the Park Service must fulfill. Unfortunately,

* Documents have been retained in committee files.

the quality of cultural resource preservation in our national parks has suffered for decades from acute staffing and funding shortfalls, which have burdened the Park Service with both a burgeoning museum collections backlog and a growing list of deferred cultural resource preservation needs. Both of these combine to create a very real and present danger to the long term well being of the artifacts that constitute the very fabric our national heritage. Deferring the restoration of these artifacts and historic structures is not a viable option if we intend to support the Park Service's mission, as expressed in the Organic Act of 1916, to "conserve the scenery and the natural and historic objects . . . by such means as will leave them unimpaired for future generations."

According to a report released in October 2008 by the National Academy of Public Administration (NAPA), 2,811 historic structures in the National Park System are listed as being in "poor" condition. A structure is regarded as being in poor condition when significant features no longer perform their intended purpose, are altogether missing, or when the structure shows signs of imminent failure or has significant damage or deterioration over 25 percent (or more) of its surface, fabric, or framework. The total price tag for the deferred maintenance backlog on historic structures in national parks exceeds $1.9 billion.[1] This is approximately 22 percent of the overall $8.7 billion maintenance backlog for national parks.

Included in the backlog are small structures such as the Sweeney Prizery at Appomattox Courthouse in Virginia. A one story loft built in the 1790s the Prizery served as both a residence and storage place for tobacco, and therefore, should have a role to play in assisting the Park Service in recreating the look and feel of the 19th century village that served as the surrender site for the Army of Northern Virginia in April 1865. Instead, the structure has been stabilized and "mothballed" since 1975.

We might count ourselves and our parks lucky if the maintenance backlog for historic structures was comprised only of tobacco barns. Unfortunately, the list includes more iconic structures such as Independence Hall Tower in Philadelphia. The current tower, constructed in 1828 (to replace an earlier version built in the 1750s) is a prime example of a significant historic structure "at risk." Independence Hall Tower suffers from a host of preservation related maladies including fungal infestation, cracking of the clock face, and moisture infiltration, all of which combine to create a significant loss of structural integrity.

NAPA estimates that Independence Hall Tower requires major cyclical maintenance once every ten years, but concludes that the last full restoration effort took place in 1993. The Park Service has determined that the total cost of rehabilitating the tower is $3.7 million. The agency has budgeted $2.5 million towards that project for FY 2011, and initiated a survey to determine the extent of the damage, but time has never been an ally in the fight to preserve historic structures.

The longer it takes to begin stabilizing and restoration work on Independence Hall Tower, the greater the likelihood that more of the historic fabric will be lost. This will, turn, drive up the cost of preserving the tower, and lead to more projects being placed on the deferred maintenance backlog. In the meantime, NAPA reports that pieces of decorative wooden trim have already begun peeling off from the structure and plummeting down into Independence Square.

For its part, the Park Service is addressing the troubling state of historic structures through goals and performance measures. At the end of FY 2007, 53.4 percent of NPS structures were in "good" condition. The NPS Government Performance & Results Act (GPRA) goal for FY 2012 would raise that number to 56 percent. The Park Service also intends to raise the percentage of historic and prehistoric structures on the List of Classified Structures (LCS) from 80 to 100 percent by FY 2012.[2]

What's telling, however, is that the Park Service goal for the physical condition of all its historic buildings, an average measured by the Facilities Condition Index (FCI), will remain the same, at 0.21 in FY 2012, as it is today. According to NAPA, FCI ratings of less than .10 signify a structure in "good" condition, while a rating of .11-.14 equals "fair" condition, and anything in the in the range between .15 and .49 is regarded as being in "poor" condition. Essentially, the Park Service, mindful of its limited resources, has determined that it can make no substantial improvement to the overall physical condition of the historic buildings in the National Park System over the course of the next five years.

When park managers hedge performance and accountability measures in this fashion, they do so because their vision of the future for cultural resource preservation remains bleak. No one, in any profession, likes setting themselves up for fail-

[1] National Academy of Public Administrators: "Saving Our History: A Review of National Park Cultural Resource Programs" (October 2008) p. 45

[2] Saving Our History p.31

ure. Inadequate budgets may make this decision practical, but we should never regard it as acceptable.

The preservation of our cultural legacy also depends upon the ability of the Park Service to reduce its museum collections backlog. Simply put, the job of cultural resource preservation is made much more difficult (if not impossible) when parks cannot accurately determine what artifacts are in their collections. The 56 million uncatalogued items that make up the NPS backlog have not been documented and cannot be retrieved. And when artifacts and papers go unprocessed or remain inaccessible, they become useless.

Such is the case at the Thomas Edison National Historic Site in New Jersey's, where the inventor's personal files from the 1920s until his death in 1931, have not yet been processed. Although Edison remains a widely recognized icon of American history, little is known of the last ten years of his life. The files containing his correspondence, in-house memos, and letters from the public during his last decade, could provide meaningful insights to scholars about Edison's creative process and further define his place in American history. But not if they remain sequestered in cabinets or storage boxes.

Over the past six years, researchers from NPCA's Center for State of the Parks (CSOTP) have examined the condition of cultural resources at a variety of national parks. Their findings confirm those of the National Academy of Public Administration and highlight the role of the museum collections backlog as a key component in the poor state of cultural resource preservation in our national parks. CSOTP research has found the following:

- At Grand Canyon National Park, of the 859,473 items in the collection, 42 percent have not yet been catalogued. The park's curator left in 2000 and the position remains lapsed. The park is challenged by a lack of adequate storage space and has no museum management plan.
- At Glacier Bay National Park, 87 percent of the museum and archival collections has yet to be catalogued. Storage space is lacking and although the park does have a full time museum technician and collections manager, the size of the park's collection, as well as additional job responsibilities, have prevented these employees from keeping up with the massive backlog.
- At Hawai'i Volcanoes National Park, 56 percent of its museum and archival collections have not yet been processed. Because of the large backlog, collections are largely inaccessible and finding aids are inaccurate. The park's storage facilities are also inadequate and, as a result, the collections of kappa (fragile, traditional bark clothing) are generally stored in an inappropriate manner that may contribute to their destruction.

According to NAPA, a number of NPS employees engaged in museum management described the collections backlog as problem "greater than recognized." NAPA has also concluded, after conducting interviews with NPS staff, that the policies, procedures, and standards for museum management put in place by the Park Service are "sound." The fundamental challenge is that inadequate staffing levels have impeded the ability of museum managers to keep pace with their growing collections.

The solution to the museum collections backlog is multi-faceted. Park superintendents must be held accountable for the condition of their facilities and for meeting basic, service-wide preservation and protection attainment standards. And the Washington Administrative Support Office (WASO) goal of cataloging 5 percent of the backlog each year should be far more ambitious. Yet, without adequate funding and staffing, the ability of NPS to take control of its museum collections backlog will remain elusive, and the uncataloged cultural resources in our National Park System will remain this country's best kept secret.

In conclusion, it is worth reiterating that time has never been an ally of historic preservation. The longer we wait to provide the resources the Park Service needs to reduce or eliminate the cultural resource preservation backlog, the greater the risk of losing irreplaceable parts of our shared heritage and national legacy, while adding new, more pressing needs to the deferred maintenance list. The successful preservation of these resources unimpaired for future generations depends upon the steps we take today. The job of ensuring the preservation of cultural resources in our national parks must begin now.

RESPONSE OF DENIS GALVIN TO QUESTION FROM SENATOR LINCOLN

*Question 1.* In your testimony, you state that an economic recovery plan in this next administration could provide an opportunity for national park facilities to be carbon neutral by 2016 through efforts to retrofit existing facilities. I believe that

our national park system could set a great example in reducing our nation's carbon footprint. What do you see as the greatest challenges in achieving this goal?

Answer. National Parks want to raise awareness of global warming and showcase sustainable solutions like energy conservation, renewable power, and clean vehicles. With their ability to engage millions of visitors, national parks could play a major role in building support for solutions to climate change. NPS has responded by initiating a "Climate Friendly Parks" program which seeks to make parks national leaders in the deployment and promotion of clean energy technologies and other sustainable practices that can help us combat global warming. See www.nps.gov/climatefriendlyparks.

Unfortunately, due to chronic underfunding, most parks can't afford solar panels, energy efficiency upgrades, hybrid vehicles, and new visitor outreach programs. If Parks can't lead by example, they'll be less effective at influencing public behavior.

There are a number of proposals for stimulus spending that could speed up clean energy investments in the parks, including:

1. EnergySmartPARKS, a collaboration between U.S. DOE and NPS to bring clean energy technologies to the parks. The program currently is funded on a pilot project basis at $1 million for FY09. NPCA has recommended $100 million in stimulus spending to give this program real impact. www.nps.gov/energy
2. Net-Zero Energy Visitor Centers, also a collaboration between U.S. DOE and NPS to upgrade over 600 NPS visitor centers with energy efficient and renewable energy technologies so they draw no power from the grid. NPS estimates this program will cost $173 million, and NPCA has also recommended this program as part of the stimulus package. (see attached NPS fact sheet)*

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RESPONSES OF JOE LOPER TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* In your testimony, you've proposed roughly $16 billion dollars for energy efficiency projects which you say will create more than 70,000 jobs over the next 2 years. Will your proposal also serve to displace existing jobs?

Answer. Our job creation estimates are based on a study conducted by the American Council for an Energy Efficient Economy (ACEEE) and reflect direct gross jobs created by investment in energy efficiency. Most studies conclude that investing in energy efficiency helps create more domestic jobs than investing in the energy supply sector does. The ACEEE study estimates that the job creation ratio of investments in energy efficiency to the supply sector is 3:1.[1] A Center for American Progress study, which takes into account direct, indirect and induced job creation impacts of investments, estimates that their clean energy recovery package would create four times as many jobs as investment in the oil industry would. [2]

Another important impact of the energy efficiency investments is the reduction in demand for energy which would likely result in decreased employment levels in the supply sector compared to business as usual. However, spending directed away from energy will likely be channeled into other sectors in the economy, creating and supporting further jobs.

Moreover, we expect that a substantial portion of these new jobs will be created in the construction sector which recently experienced considerable job losses. Coupled with tailored training programs, the new and expanded energy efficiency programs would provide employment opportunities for these experienced workers at a similar capacity to their former positions.

*Question 2.* You noted in your testimony that significant barriers to energy efficiency must still be overcome. How, then, do you penetrate the existing home market? In these troubled economic times, people are more interested in holding onto some cash, rather than having their windows replaced, increasing their attic insulation or replacing a 10 year old 80% efficiency furnace with a 90% one.

Answer. Many of the policies we propose and the programs that we support further funding for aim to overcome these barriers. Weatherization Assistance Program (WAP), for example, provides lower income families free or low-cost energy efficiency services, energy efficiency grants to public buildings and schools would help bear the cost of energy efficiency projects and making the federal tax credit for manufactur-

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* Document has been retained in committee files.

[1] American Council for an Energy Efficient Economy, Karen Ehrhardt-Martinez and John A. "Skip" Laitner, The Size of the U.S. Energy Efficiency Market: Generating a More Complete Picture, May 2008http://aceee.org/pubs/e083.pdf?CFID=3104128&CFTOKEN=65477160

[2] Center for American Progress, University of Massachusetts-Amherst, Robert Pollin et al., Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy, September 2008 http://www.americanprogress.org/issues/2008/09/pdf/green__recovery.pdf

ers of high-efficiency appliances refundable for 2 years would help decrease the cost of highly efficient appliances. Increased government spending on energy efficiency RD&D would also help decrease the cost of new, efficient technologies.

*Question 3.* In creating a large-scale economic stimulus with "energy as a cornerstone," what programs have the potential to substantially shift the economy?

Answer. In my testimony, I have presented a set of recommendations which we believe have a high potential for shifting the economy. The Alliance, along with other organizations (NRDC, EEI and EFC) has prepared further and more detailed recommendations.

*Question 4.* How can we lower the cost-volume curve—also known as "the valley of death"—for emerging technologies?

Answer. Due to various reasons, private investment in energy efficiency RD&D is below the optimum level. Therefore, government investment in RD&D is important to help push the emerging technologies into the market and lower their cost for the consumers. The Alliance encourages the government to put more emphasis on energy RD&D by increasing the current funding and creating new agencies to coordinate and support such efforts.

The role of the federal government is substantial in commercialization of advanced energy-saving technologies. Federal government, the single largest consumer of energy and energy consuming products, has a large market influence, which can be used to create an entry market for promising new technologies. The government can also help measure and document the performance of these new technologies and encourage broader market acceptance. An Alliance report examining the role of new technologies in increasing energy savings in the federal government recommends establishing agency-level teams to lead technology validation and implementation as well as an interagency coordinating team to provide consistency to federal efforts.[3]

*Question 5.* There has been great discussion of creating a "Clean Energy Corps" to train young people for jobs in the renewable and efficiency sectors. Additionally, existing jobs are being transformed as industries transition to a clean energy economy. How do we best invest in creating new training programs and retool existing training programs to meet the demand?

Answer. The Alliance recommends expansion of effective training programs such as DOE's Industrial Assessment Centers (IAC), an existing network of universities that provides free energy audits for local small- and medium-sized manufacturers. This program offers both training and energy savings opportunities. A set of parallel institutions could be created, to be known as the Building Energy Analysis and Diagnostic Centers (BEADCs), also to be housed at universities. The BEADCs would be led by the Buildings Program and focus on commercial and multifamily buildings, including public and institutional buildings.

Department of Labor has several training programs that could be expanded and extended to incorporate or focus on energy efficiency. Youthbuild which trains disadvantaged youth in construction skills and Youth Corp are examples to such programs. Other existing programs include those coordinated by Northwest Environmental Education Council and Association of Energy Engineers. In addition, DOE, in partnership with the industry, could create and support internship programs for college students to be placed at companies which provide energy efficiency services or manufacture efficient appliances.

### Responses of Joe Loper to Questions From Senator Lincoln

*Question 1.* I represent a state with a large number of hard-working, low-to-middle-income families. It concerns me that green technology that allows customers to leave less impact on the environment, whether it's fuel efficient vehicles or energy saving appliances, is often more expensive. For the future stimulus package, in what ways can we make sure that low-income families are able to access these advanced technologies?

Answer. As mentioned above, many of our recommendations aim to overcome the initial-cost barrier to energy efficiency, especially for low and middle income consumers. Due to sustained under-pricing of energy and lack of information however, many families have invested in over-sized appliances and cars. It will be important to help educate the consumers about "right-sizing" which would both cost less initially and require less energy to operate.

*Question 2.* In your testimony, you indicate that additional action will be needed beyond this next stimulus package in order to sustain momentum and provide long-

[3] Alliance to Save Energy, Nils Petermann and Jeffrey Harris, Deploying New Technologies to Increase Energy Savings in the Federal Sector, April 2008 http://www.ase.org/content/article/detail/4789

term advances in green jobs and energy savings. You state that "lack of consensus about the best approach for fiscal stimulus argues for some diversity in the policy portfolio." Would you care to elaborate on your vision on green investments for the long-term?

Answer. Many experts suggest that we need increased and fast spending in order to revitalize the economy. It is important to recognize however, that the current downturn in the economy can be a long term problem which fast spending alone cannot effectively solve. Energy efficiency investments can help revitalize the economy by creating jobs as well as by bringing returns on the money spent today, for years to come.

However, in determining the amount that can be effectively spent on these projects, the capacity of the current energy efficiency infrastructure needs to be assessed carefully. Investments to increase this capacity are highly warranted, so is the need to sustain funding for these programs over the years in order to most effectively utilize this increased capacity in the future.

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NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS,
*Alexandria, VA, January 18, 2009.*

TO: Rosemarie Calabro

FROM: Jeff Genzer, NASEO Counsel

RE: Responses to Questions from 12/10/08 Hearing

These answers are being submitted on behalf of the National Association of State Energy Officials (NASEO) in response to questions presented to Malcolm Woolf, Director, Maryland Energy Administration, from the hearing on December 10, 2008.

RESPONSES OF MALCOLM D. WOOLF TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* You've provided the Committee with a long list of authorized programs that could receive funding in the upcoming Stimulus package. From that list, what programs would actually result in the creation of new jobs? What are your top three priorities?

Answer. The programs NASEO proposed at the hearing will all result in the creation of jobs. The top three priorities are the energy efficiency buildings retrofit programs (implemented through the State Energy Program), the Weatherization Assistance Program and the Energy Efficiency and Conservation Block Grant.

*Question 2.* What is the return on investment on the Weatherization Assistance Program in comparison to the R&D work being done to advance technologies to make homes more energy efficient?

Answer. According to numerous studies, including work by Oak Ridge National Laboratory, the Weatherization Program generally produces 20-25% of energy savings. As energy prices have increased in recent years the dollar value of these savings have increased. New technologies, developed through R&D, are first used (in many cases) in both the Weatherization Assistance Program and the State Energy Program (SEP). An Oak Ridge study also concluded that for every federal dollar invested in energy efficiency through SEP, over $7 is saved almost $11 is leveraged. NASEO sees great value in both energy deployment/demonstration programs and energy R&D programs. It is difficult to make comparisons. R&D without deployment of these technologies is of limited value.

*Question 3.* With the many authorized programs you listed for funding, I was surprised to see you advocate for the creation of a brand new program for energy efficiency retrofits in existing buildings. While this would require new authority, and doesn't appear to qualify for inclusion in the stimulus, what kinds of ″shovel-ready″ projects are out there that could result in the creation of jobs in the near term?

Answer. The energy efficiency buildings retrofit program discussed in the testimony can be accomplished through the State Energy Program, which is an authorized program. We look forward to working with the Committee to ensure all appropriate authorization language is satisfied. A number of examples* of state "shovel-ready" energy projects are attached to this email. We will be happy to provide more information as needed.

RESPONSE OF MALCOLM D. WOOLF TO QUESTION FROM SENATOR LINCOLN

*Question 1.* I represent a state with a large number of hard-working, low-to-middle-income families. It concerns me that green technology that allows customers to

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*Information has been retained in committee files.

leave less impact on the environment, whether it's fuel efficient vehicles or energy saving appliances, is often more expensive. For the future stimulus package, in what ways can we make sure that low-income families are able to access these advanced technologies?

Answer. We are also concerned that low-income and middle-income Americans benefit from "green technology" and a variety of energy programs. The states are committed to reducing the cost of energy as well as the environmental impacts. NASEO strongly supports funding for the Weatherization Assistance Program, which reduces energy costs for low-income Americans and has introduced the use of newer "green technologies", such as blower doors. The State Energy Program, and the state energy offices generally, is focused on introducing newer technologies into general use for homeowners. For example, the energy offices work very hard at promoting and facilitating the use of Energy Star products by all Americans, including low-income Americans. If enacted, many of the proposals contained in the draft version of the stimulus package, released by the House Appropriations Committee on January 15, 2009, will help reduce the costs of energy and energy technologies for all consumers, including low-income and middle-income Americans.

We would be happy to answer any follow-up questions.

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RESPONSES OF BRACKEN HENDRICKS TO QUESTIONS FROM SENATOR DOMENICI

*Question 1.* How many new jobs will your $100 billion clean energy proposal create? Will those new so-called "green collar" jobs displace existing jobs, such as jobs in the oil and gas industry? Is the Center for American Progress taking those job losses into account with its job creation estimates?

Answer. The $100 billion clean energy investment outlined in our Green Recovery report represents new spending in the context of an economic stimulus and recovery program, and therefore does not redirect existing investments away from oil and gas or other sectors of the economy. The use of new spending to stimulate demand in a slack economy is a fundamental principle of any such stimulus or recovery plan. It is entirely appropriate in an economic analysis of a stimulus driven proposal, such as the scenario discussed in the Green Recovery report, to look at jobs created as a result of the new spending without attempting to net out reductions of spending elsewhere in the economy. The Center for American Progress is also undertaking at this time, a broader study of our ten year plan for advancing energy independence. In this long-term study we are looking closely at net job impacts that will result from any substitution across technologies and sectors of the economy that will be involved in the transition to clean energy from our current energy mix. We would be glad to present this analysis to the committee as we complete that study.

In the Green Recovery report CAP finds that a $100 billion clean energy investment plan focused on renewable energy and energy efficiency will create nearly 2 million new jobs over two years. These jobs are the result of direct, indirect, and induced effects.

a. Direct Effect (935,000 jobs): Construction or manufacturing jobs resulting as a direct result of demand and stimulus plans such as housing retrofits

b. Indirect Effect (586,000 jobs): Jobs created to support the direct activities of workers in implementing the plan (lumber, steel, transportation, etc)

c. Induced Effect (496,000 jobs) Jobs in in the broader economy created as a result of the new economic activity that is generated by these investments

*Question 2.* In the Energy Policy Act of 2005, Congress authorized a loan guarantee program. Unlike outright loans, loan guarantees focus on reducing financing rates for the construction of new clean energy capacity, including nuclear and wind power, by providing government backing. Furthermore, the loan guarantee program is designed so that taxpayer support is not required even in the case of defaults. As we contemplate a massive stimulus package, shouldn't we also be discussing the expansion of this important loan guarantee program?

Answer. The Center for American Progress supports expanding loan guarantee programs to catalyze growth in clean energy. According to the Department of Energy, as of April 2008, our government has committed $10 billion in loan guarantees for energy efficiency and renewable energy. In our Green Recovery report, we recommend the federal government budgets an additional $4 billion to expand the loan guarantee program. We estimate that this investment would leverage $20 billion in private sector green infrastructure investments. In today's credit markets, where access to capital has been constrained, loan guarantees represent a useful complement to direct government spending to stimulate the economy and "crowd-in" private sector capital. Because loan guarantees shape private investment decisions and choices

made in the credit market, it is important in looking at job impacts, to assess carefully where new economic activity is being created rather than simply redirecting investments that would otherwise have been made. In our analysis, we have attempted to be very conservative in our assessment of the jobs impacts of loan guarantees. We believe that in the current climate where lending has been constrained, expanding access to capital through guarantees that reduce the risks and costs of borrowing, could be an effective tool for both economic recovery and clean energy transition.

*Question 3.* We're looking to stimulate the economy and create jobs within the next 12 to 24 months. Does the American workforce have the necessary training to step into government-subsidized green jobs? Also, does the country have the manufacturing ability to produce clean energy project components, such as solar panels and wind turbines?

Answer. The jobs created through a strategic investment in renewable energy and energy efficiency will be largely concentrated in the construction and manufacturing sectors, which have been hardest hit by the recession. Over the last two years we have lost over 800,000 construction jobs, on top of millions more manufacturing jobs lost within the last decade. Thus, there are many qualified individuals waiting for the opportunity to return to work, and a green recovery can drive new labor market demand. Building the market for green jobs will effectively stimulate demand for the skills of these familiar professions within the construction and manufacturing sectors. However, as we look to the future, constraints on the available labor force to do the work of building a low carbon economy is a significant concern to industry analysts. In the utility sector for example, in many parts of the country the average worker is nearing retirement age. Because of the graying workforce in the existing energy sector, coupled with dramatic predicted increases in demand for workers in these fields, job training and workforce issues could become a significant bottle neck in the growth of this area of the economy, without specific policy attention to our training and apprenticeship needs. In addition, because a goal of this recovery program is to reach those individuals who have been hardest to engage in the existing economy, additional supportive training and pre-apprenticeship services will be required to ensure that those who most need work can get jobs doing the work that most needs to be done. To prepare these workers for green jobs and to ensure rapid growth in the clean energy sector, CAP recommends doubling funding for the "Green Jobs Act," to at least $250 million a year. This Act provides grants to both public and private programs to train workers for skills in energy efficiency and renewable energy. More broadly, we support a systematic approach to workforce investment and training, backed by dedicated resources, as a component of all climate and energy policies moving forward. We also strongly support policies to build the capacity of manufacturing establishments to retool their production to produce strategic clean energy technology like advanced batteries, highly efficient building materials and appliances, and renewable energy technology.

RESPONSES OF BRACKEN HENDRICKS TO QUESTIONS FROM SENATOR LINCOLN

*Question 1.* In your testimony, you suggest that your green recovery strategy will generate new markets for American manufactured goods and advanced technology. These green investment programs are intended to spread across regions and stay and benefit local economies. As a Senator from a rural state, what strategies would you recommend for implementing these green programs particularly in rural communities, such as those in Arkansas?

Answer. Rural communities can benefit enormously from the production of renewable energy (from solar, wind, and biofuels) as well as from the modernization and expansion of our electricity grid and rail (freight and passenger) transit infrastructure. Rural electrification stands as one of the greatest rural economic development strategies that we have undertaken as a nation, and our rail infrastructure is essential for connecting farmers and rural communities to ports and urban markets. The transition to clean energy, including the reconstruction of our electrical grid to bring more renewable energy on line, can serve a similar function, as an engine of growth and opportunity in rural America.

Renewable energy policies can be structured to promote locally-owned, mid-sized production facilities for bio-fuels and wind energy that foster economic development by encouraging broadly distributed investment in new production facilities within rural economies. In our report, "Energizing Rural America," we outline numerous suggestions to enhance the structure of wind and biofuel incentives to best serve rural populations, including: a two-tiered, indexed production payment that favors local ownership; eliminating the high minimum production capacities required for a cellulosic ethanol facility to receive federal funding; and expanding the local cap-

ital pool available for financing wind turbines by allowing the tax credit to be taken against ordinary income rather than only against passive income. Within the current economic recovery package, there are numerous provisions to enhance the growth of the renewable energy industry, especially in wind and bio-fuels, and to restore our electrical and rail infrastructure, that will flow directly to farm communities and to rural manufacturing job opportunities. With expanded investment in infrastructure projects, contractual provisions that require a certain percentage of local hires ensuring that construction benefits flow to local communities, can also provide opportunities for enhanced economic development.

*Question 2.* I represent a state with a large number of hard-working, low-to-middle-income families. It concerns me that green technology that allows customers to leave less impact on the environment, whether it's fuel efficient vehicles or energy saving appliances, is often more expensive. For the future stimulus package, in what ways can we make sure that low-income families are able to access these advanced technologies?

Answer. A primary focus of the clean energy investment proposals outlined in Green Recovery is creating good jobs that expand earnings, while lowering energy costs for American families by increasing affordable transportation options, diversifying our energy supplies, and increasing the efficiency of our buildings. In no way are these proposals expected to raise energy costs or make goods or services more expensive. In fact, increasing the diversity of our energy supply through expanded use of renewable energy, and expanding the efficiency of our energy use, will reduce demand pressures in the market for existing energy sources like coal and natural gas, helping to lower energy prices and reduce price volatility. Moreover, increasing public investment and production of advanced clean energy technologies will lower their costs by achieving economies of scale, from solar panels to advanced vehicle technology, ultimately making them more accessible to the general public. And, because the stimulus money will be channeled towards programs that put working families back into good jobs, this clean energy transition will result in higher employment and more economic growth, even as it lowers the cost of energy. The Center for American Progress believes strongly that the shift to a low carbon economy must provide greater opportunity and mobility for all Americans. We believe that clean energy can be an engine for new jobs and lower costs for all Americans, and that these benefits will especially be felt by low and moderate income families.

RESPONSES OF BRACKEN HENDRICKS TO QUESTIONS FROM SENATOR SESSIONS

*Question 1.* You have made a number of recommendations for investments; however what can you tell us about any research that could demonstrate the economic viability on such proposals?

Answer. Our report, Green Recovery—A Program to Create Good Jobs and Start Building a Low-Carbon Economy, was conducted by leading economists from the Political Economy Research Institute at the University of Massachusetts, Amherst. This report revealed that investments in green infrastructure have higher net economic and social benefits than the alternatives, for several reasons which we outline below.

First, clean energy and energy efficiency are more labor-intensive than traditional fossil-fuel technologies. They create twice as many jobs per unit of energy and dollar invested by redirecting money previously spent on imported fuel, pollution, or wasted energy towards skilled labor and high-tech manufacturing.

Second, green investments have high domestic content. By their very nature, money spent on building retrofits, renewable energy infrastructure, and public transportation is heavily concentrated on spending that will stay within the U.S. economy, thereby boosting local economic growth and creating local jobs. Currently, about 22 percent of total household expenditures flows to the purchase of imported goods; however, with a green infrastructure investment program, only 9 percent of spending goes toward the purchase of imports, resulting in greater domestic economic benefits. By focusing investments primarily on improving and expanding domestic infrastructure, manufacturing, and construction, a green economic recovery program ensures that the impact on both local markets and the national economy will be greater in the long-run.

Because of the characteristics mentioned above, green jobs have a high multiplier effect. Jobs and investments that stay in local economies boost spending on a variety of goods and services, inducing job creation in the retail and service sectors. In addition, private sector investment in clean energy and green technology is very high, representing some of the fastest growing areas for new capital investment across the entire economy. Yet despite this growth, the failure to set clear and predictable energy policy has slowed the growth of these industries, relative to their potential.

With a strong commitment in public policy, backed by public investment in supporting infrastructure such as smart electrical grid enhancements, the potential for growth in clean technology is tremendous. Building America's capacity to compete in the markets is smart long term growth policy.

*Question 2.* In your testimony you state that if we spend $100 billion dollars in energy efficiency and renewable technology, it would create 2 million jobs. How did you arrive at that number? More specifically what analysis or studies have been conducted to support your conclusion?

Answer. In 2008, the Center for American Progress commissioned a report by the Political Economy Research Institute at the University of Massachusetts, Amherst (PERI), which demonstrated that a targeted $100 billion investment over the next two years would create two million jobs by investing in six green infrastructure investment areas: retrofitting buildings to improve energy efficiency, expanding mass transit and freight rail, constructing "smart" electrical grid transmission systems, wind power, solar power, and next generation biofuels.

The report, Green Recovery—A Program to Create Good Jobs and Start Building a Low-Carbon Economy, outlines the three sources of job creation associated with any expansion of spending—direct, indirect, and induced effects. To illustrate how a $100 billion investment would create 2 million jobs, consider these categories in terms of investments in building efficiency retrofits. The direct effects of an investment in home retrofitting would be those construction jobs created by making buildings more energy efficient; the indirect effects would be manufacturing and service jobs created in corresponding industries that supply the goods necessary to retrofit buildings, such as lumber and transportation; and the induced effects would be those retail and service sectors benefitted by the increased economic activity. Together, the indirect, direct, and induced job total for the entire $100 billion investment amounts to nearly 2 million

Total Job Creation through $100 Billion Green Stimulus Program

| | |
|---|---|
| Direct jobs | 935,200 |
| Indirect jobs | 586,000 |
| Induced job | 496,000 |
| Total job creation | 1,999,200 |

Source: U.S. Bureau of Economic Analysis and authors' calculations.

*Question 3.* In your testimony you mention that the "green recovery strategy" has several energy proposals that will stimulate the economy and over time will reduce our $CO_2$ emissions. However, when discussing clean energy and reducing $CO_2$ emissions you did not list nuclear power as possible source of energy. Why is that? And does the Center for American Progress Action Fund have a position on nuclear?

Answer. Due to the fact that nuclear is a low-carbon source of reliable power, it has received renewed interest as efforts increase to reduce greenhouse gas emissions. We believe that in the face of a mounting climate crisis it deserves serious consideration. However, the Center for American Progress Action Fund also recognizes that there are several structural concerns that are likely to limit the contribution that nuclear power can play in offering solutions to our current energy crisis. Senior Fellow, Joseph Romm, sheds light on the economic and physical barriers to large scale expansion of nuclear power in his June 2008 report, "The Self-Limiting Future of Nuclear Power". According to Romm, nuclear will not likely play a dominant role in the national or global effort to reduce carbon emissions for five main reasons: First, the cost of nuclear is prohibitively high, and escalating. Second, there are numerous production bottlenecks in key components needed to build the plants, which only adds to their already lengthy construction time. Third, there are significant concerns about uranium supplies and importation issues. Also unresolved are issues concerning the availability and security of waste storage. Fourth, nuclear plants are large-scale water users. Lastly, the cost of electricity from new nuclear plants is high compared to other generating sources, including renewable energy. The Center is supportive of continuing research to overcome these barriers, however in the near term, we believe that a strategy which focuses principally on dramatically increasing the deployment of energy efficiency and renewable energy will be America's first line of defense in the war on climate change. Further we believe that these green economic investment strategies represent significant opportunities for expanding growth and increasing our competitiveness.

*Question 4.* Does the CAPAF have any analysis or studies on how many and what jobs are going to be eliminated by the higher costs of energy spending with this green jobs initiative?

Answer. There is no reason to believe energy costs will rise with this new investment in green infrastructure; in fact, energy costs will likely decline as we increase energy efficiency and diversify our energy sources. Please see our response to question #1, posed by Senator Domenici.

*Question 5.* A key questions is how long will it take for these "investments" to pay for themselves, if ever? What energy price points does that assume? Have you calculated with specificity and provided calculations?

Answer. As stated in our Green Recovery report, green investments would pay for themselves relatively quickly through returns on energy efficiency in both the public and private sectors. For instance, better insulated schools would allow administrators to spend more on teachers, textbooks, and other learning materials, and companies could invest more in new production and services facilities, thereby raising productivity. Green investments such as building retrofits also have a relatively quick payoff period for homeowners. According to the Department of Energy, a $2,500 investment in home retrofitting can reduce average annual energy consumption by 30 percent. A 30 percent cutback on the average $3,000 household energy bill would amount to a substantial savings of $900 per year. Many of the green building and energy efficiency technologies we discuss, such as more efficient motors, lighting, or pumping equipment have a payback period of less than a year, others like solar panels or geothermal heat pumps may take several years for operational cost savings to pay for the capital investment, but in all cases the green investments we discuss here involve near term spending on quality construction and manufactured goods that reduce ongoing operations and maintenance costs enabling significant long term cost savings.

It is important to note that these monetary benefits are in addition to the larger economic and societal gains brought about by the 2 million jobs the green infrastructure investments would create over the next two years. Our green infrastructure program guarantees that the federal government will receive a long-term return on its investment through increased tax revenues from the jobs created, while also profiting from the social benefits of decreased unemployment and the environmental, public health, and national security benefits of reduced carbon emissions.

Furthermore, as we consider future energy policies, this investment of $100 billion could be repaid to the Treasury from revenues generated by the auction of allowances under a comprehensive greenhouse gas cap-and-trade system. Overall, investing now in the infrastructure and technology deployment that will be required to reduce our national carbon emissions, will be highly beneficial in helping American companies to compete in emerging clean energy markets, even as it lowers the long term cost of transitioning away from more carbon intensive sources of energy.

Thank you very much for the opportunity to testify and for your thoughtful questions. The Center for American Progress Action Fund looks forward to the opportunity to further engage with your committee in the future.

# APPENDIX II

## Additional Material Submitted for the Record

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STATEMENT OF BART RUTH, CHAIRMAN, POLICY COMMITTEE, NATIONAL 25X'25 RENEWABLE ENERGY ALLIANCE

Chairman Bingaman, Ranking Member Domenici and other distinguished members of the Senate Committee on Energy and Natural Resources, thank you for the invitation to present you with recommendations the National 25x'25 Alliance Steering Committee believes can best address our troubled economic times. As congressional leaders and the new, incoming administration look for ways to bolster a sagging economy, the 25x'25 Steering Committee believes that now is the best time to implement renewable-energy and energy-efficiency initiatives that can drive and maintain economic recovery. In support of those initiatives, the Steering Committee today offers Congress and the incoming administration a package of new recommendations that will bolster the U.S. economy, create new jobs and insure a clean energy future.

The 25x'25 Steering Committee, which provides leadership for a coalition of nearly 800 agricultural, forestry, energy, environmental, business, labor, civic and community groups that call for 25 percent of our national energy needs being met with renewable resources by 2025, believes that our recommendations are the backbone of a strategy that will address our troubled economic times. These recommendations underscore the longstanding 25x'25 position that a renewable-energy and energy-efficient future will not only boost our economy, putting hundreds of thousands of people back to work, but also enhance our national security and improve our environment.

These recommendations for economic recovery from the 25x'25 Steering Committee are underscored by a national study undertaken by the University of Tennessee Department of Agricultural Economics that shows that if America's farms, ranches and forestlands are empowered with the policies and incentives needed to meet 25 percent of the nation's energy needs with renewable resources—biofuels, biomass, wind energy, solar power, geothermal energy and hydropower—an estimated $700 billion in new, annual economic activity would be generated, and 4 million to 5 million new jobs would be created.

The University of Tennessee study, commissioned by 25x'25, presents just one scenario among many in meeting the 25x'25 vision. And while the analysis includes forest residue from hazard-reduction programs and mill residue, there are numerous resources that are not taken into account—woody biomass from managed forests, crop residue (other than corn and wheat) and urban wood waste—suggesting the economic benefits of a 25x'25 future could be even greater. Furthermore, while the analysis includes the production of dedicated energy crops, some varieties of feedstocks currently under research in laboratories and universities, including energy cane, Miscanthus and hybrid willow, may not have been fully evaluated in the analysis, indicating even greater economic returns.

Another strong indicator of renewable energy development's potential to strengthen the economy comes from the Department of Energy, which looked at just wind energy and concluded that it is capable of becoming a major contributor to America's electricity supply and economy over the next three decades.

The DOE says that achieving a 20-percent wind contribution to the U.S. electricity supply would increase annual revenues to local communities to more than $1.5 billion by 2030 and support roughly 500,000 jobs in the United States.

The 25x'25 economic recovery recommendations will lead to long-term, comprehensive energy development that will accelerate the production of all forms of renewable energy and create new renewable energy markets.

The recommendations developed by the National 25x'25 Steering Committee for a nationwide, clean energy economic recovery initiative include:

Increase funding for the Rural Energy for America Program (REAP).—The Rural Energy for America Program, authorized under Section 9007 of the Energy Title of the 2008 Farm Bill, provides grants or loan guarantees for renewable energy systems and energy efficiency improvements for agricultural producers and rural small businesses. The program is currently funded at $255 million over four years, with additional annual authorization of $25 million. The limit on the maximum amount of the combined loan and grant is 75 percent of the funded activity and the grant portion cannot exceed 25 percent of the cost of the activity. The program, in existence since 2002, is continuously oversubscribed and many valid projects are rejected because of limitations on USDA funding. Increasing funding for REAP will generate temporary construction jobs in rural America along with permanent jobs operating and maintaining renewable energy facilities. As an example, a 104 megawatt wind power project in Oregon, financed through REAP, generated over 30 permanent jobs in Gilliam County, Oregon.

*Proposed funding for REAP: $250 million annually, $500 million over two years*

Increase funding for the Repowering Assistance Program.—The Repowering Assistance Program, authorized under Section 9004 of the Energy Title of the 2008 Farm Bill provides loans and loan guarantees to help biofuel plants convert their heating and power fuel supply to biomass and reduce their dependence on fossil fuel-powered boilers. Payments would be made for installation of new systems that use renewable biomass or for new production of energy from renewable biomass. The program is currently funded at $300 million over four years, with additional $25 million in annual authorization. According to the Renewable Fuels Association 172 biorefineries are in operation today. Installation of renewable biomass boilers will generate construction and maintenance jobs and contribute to cleaner air and environment.

*Proposed funding for Repowering Assistance: $150 million annually, over two years*

Broaden the authority and increase funding for the Biorefinery Assistance Program.—The Biorefinery Assistance Program authorized under Section 9003 of the Energy Title of the 2008 Farm Bill provides loans and loan guarantees to construct commercial-scale advanced biofuel facilities. Loans may be up to 80 percent of the cost of the project not to exceed $250 million. It also provides grants for demonstration-scale advanced biofuels plants. Despite existing federal grants and loan guarantees, the collapse of the credit markets has stalled construction of the nation's first commercial-scale cellulosic biorefineries. Of six projects selected by the U.S. Department of Energy in 2007 to receive up to $385 million in federal support, only one has begun construction. It also has slowed the conversion of existing grain-based ethanol plants to dual feedstock biofuels production facilities. The economic recession may therefore delay progress toward meeting cellulosic and advanced biofuels targets in the Renewable Fuels Standard and slow progress toward curtailing greenhouse gas emissions.

Additional funding for the Biorefinery Assistance Program will reduce investor risk and provide construction and operations jobs in rural communities. Consideration should be given to broadening the authority to utilize direct federal grants to expedite the construction of first generation advanced biorefineries and to modify or retrofit existing grain-based ethanol plants to convert cellulosic biomass to biofuels. Knowledge gained and experience with these operations would rapidly drive down costs associated with second-generation cellulosic biofuel plants and result in private-sector investment in their construction.

*Proposal for Biorefinery Assistance Program: increase and fully fund mandatory and discretionary levels, at $500 million in year one and $1 billion in year two, and consider expanding the use of the grants to facilitate the construction of first generation cellulosic biofuel plants*

Fund the Bioenergy Crop Assistance (BCAP).—The Bioenergy Crop Assistance Program was authorized under the 2008 Farm Bill to support the establishment and production of eligible crops for conversion to bioenergy, and to assist agricultural and forest landowners with collection, harvest, storage, and transportation of these crops to conversion facilities. The rules for the program have not been developed, and no mandatory funding is provided in the authorizing legislation. Twenty-one cellulosic biorefineries are in the planning stage of construction, to begin operations by 2010, but without full and immediate funding of BCAP to provide incentives to farmers to grow dedicated energy crops, feedstocks may not be available, jeopardizing investments and threatening the commercial scale production of advanced biofuels.

*Proposed for Bioenergy Crop Assistance Program: implement BCAP in 2009; fund at $250 million annually, $500 million over two years*

Invest in Biofuel Infrastructure Projects.—A comprehensive federal initiative should be developed and funded to address biofuel infrastructure, distribution and delivery issues. A coordinated plan should be developed and significant federal funding provided for biofuel distribution infrastructure projects. Biofuel pipeline feasibility studies need to be completed. The federal government should help finance the construction of new pipelines, as well as address rail capacity for biofuels. Funding for E-85 Corridor programs should be expanded and funding should be made available to facilitate the manufacturing and deployment of blender pumps. The federal government should promote the use of flex-fuel vehicles, by creating a federal FFV fleet and increase funding for battery technology development. In addition, advanced biorefineries, most of which are in planning stages, often await permitting for long periods of time. The processing of these permit applications must be expedited.

*Proposal: Increase federal investments in biofuel distribution infrastructure, including financing to expand rail capacity, pipeline construction, and strong incentives for E85 and blender pumps, the number of which should grow as more flex -fuel vehicles are registered in a region. Provide strong incentives to speed up commercial use of flex fuel vehicles and their use by federal entities. Expedite permitting for advanced biorefineries*

Fund the Community Wood Energy Program.—The Community Wood Energy Program authorized under the Food, Conservation, and Security Act of 2008, provides grants to state and local governments and communities to develop wood energy plans and to acquire and upgrade community wood energy systems in communal facilities, such as schools, town halls, libraries. The program would use woody biomass as a primary fuel for such projects.

*Proposed funding for the Community Wood Energy Program: 20 million annually, for two years*

Increase funding for and extend Clean Renewable Energy Bonds (CREBs).—The Energy Policy Act of 2005 provides electric cooperatives and public power systems with the ability to issue Clean Renewable Energy Bonds (CREBs). The CREB is a renewable incentive for not-for-profit utilities, comparable to the Production Tax Credit (PTC) that is available to investor-owned utilities. Not-for-profit utilities that serve 25% of the nation can not access the PTC. CREBs support a wide variety of projects, including wind, biomass, geothermal, solar, municipal solid waste, small irrigation power, and hydropower. CREB funds would support both large-and small-scale projects, and would generate jobs both in installation of renewable energy technologies and in manufacturing of the required component parts. The program is already over-subscribed, at $800 million in current mandatory spending.

*Proposal for CREBs: extend the program through 2010 and provide additional bonding authority of $2.5 billion*

Restructure the Production Tax Credit and Investment Tax Credit for renewable energy electricity sources.—Currently, a PTC or an ITC is given in a form of a tax credit to be claimed against income for developers of and investors in renewable electricity projects utilizing biomass, solar, wind, hydro, marine, landfill gas, geothermal and other clean sources of energy. The credit is currently non-transferrable. Furthermore, in many cases other incentives reduce the amount of the Production Tax Credit or an Investment Tax Credit. For example, a biomass Production Tax Credit is reduced by half when a Combined Heat and Power (CHP) Investment Tax Credit is also used for the same project. State and government financing also reduces the PTC amount a renewable energy project can receive.

According to recent analysis by the American Wind Energy Association, the failure to restructure the PTC and provide a rapid long-term extension could result in the loss of 89,000 jobs and $16 billion in investment in the wind energy industry alone. Renewable energy development relies upon transactions with major financial industry players, because renewable electricity is a capital intensive industry. The current economic crisis has removed many major financial investors from tax equity markets, dramatically reducing the ability of many renewable power developers to realize the intended benefits of available tax incentives.

Thousands of megawatts of new renewable energy power capacity for 2009 could be cancelled or delayed as a result, unless the tax credit system is restruc-

tured, and PTCs are extended over five years. In addition, equity strapped industries may not be able to increase investments in geothermal, biomass, solar and hydropower projects. According to the National Renewable Energy Laboratory, if the PTC were transferable to lending institutions, or if it were applicable as prepayment on any loans, the wind, solar, biomass, geothermal, hydro and other renewable energy industries could fully utilize the PTC and the ITC. In a time of economic downturn, full use of the ITC and the PTC is essential for the renewable energy sector to continue attracting investment and prevent job loss

*Proposal: Restructure the federal Production Tax Credit and Investment Tax Credit for all sources of renewable electricity to allow for accelerated depreciation, refundable credits and transfers between persons/entities, and enable projects to utilize other financial incentives without a reduction in the amount of ITC and PTC that an entity can claim.*

Extend the Production Tax Credit and Investment Tax Credit for five years.—Production and investment tax credits serve as primary incentives for investors to develop wind, solar, geothermal, hydro, marine and other forms of electricity from renewable sources. Wind industry developers, for example, are eligible for a production tax credit of 2.1cents per kilowatt hour generated in the first 10 years of operation. Manufacturing of both wind turbines and solar panels is growing in the United States, bringing jobs to rural areas. More than 50 new or expanded wind industry manufacturing facilities have been announced or opened since January of 2007, creating tens of thousand of high paying jobs while providing clean and reliable energy. However, an unstable PTC/ITC policy serves as a disincentive to investors, particularly in this time of economic distress. The solar industry, for example, estimates that if PTC were not extended in 2008, the solar PV sector alone would have lost $8.1 billion in investment and a net 39,800 jobs in 2009.

*Proposal: Extend the Production Tax Credit and Investment Tax Credit for renewable electricity sources for five years*

Increase the Production Tax Credit for renewable electricity produced from biomass, hydro, green gas and other renewable sources of energy.—Currently producers of renewable electricity from wind and geothermal sources of energy receive a Production Tax Credit of 2.1 cents per kilowatt hour. Other producers of renewable electricity receive half this amount. Additional renewable electricity could be generated in the United States if developers who produce renewable electricity from biomass, hydro, renewable gases and other sources of energy received the same credit as is currently allowed for wind and geothermal electricity developers.

*Proposed funding: Create a level playing field for producers of renewable electricity by increasing the Production Tax Credit for biomass, marine, hydro, marine, green gas, waste and other renewable energy sources of electricity to a level equivalent to that received by wind and geothermal energy producers*

Improve tax incentives for Community Wind.—Community wind is a type of wind development that focuses on investment from local communities, rather from an outside investor. The National Renewable Energy Laboratory (NREL) estimates that smaller community wind projects contribute twice as many jobs and income to a local community than a larger wind plant financed by outsider investment. An average community wind plant of 20 MW can provide up to 41 jobs and $4 million in local income, as opposed to an outside-investment 40 MW plant's 18 jobs and $1.3 million in income for the community. However, community wind investors' income off the plant is often passive. Under current regulations passive income has to be quite large to fully use the credit. Regulations should be changed to allow for local wind investment projects to count against active income of the local investors. Such a change will generate more interest in, and investment by communities in local clean electricity sources.

*Proposed: Allow community wind developers to count tax incentives against active income*

Fund Smart Grid and improve electricity transmission.—The Federal government should appropriate funds for the Smart Grid Investment Matching Grant Program created under Energy Independence and Security Act of 2007. The program provides reimbursement for 20 percent of qualifying Smart Grid Investments. Within two years, the stimulus effect of this provision will become apparent, through significant new job creation in renewable energy electricity sector, as more electricity sources will be able to capitalize on a better grid system.

300GW of wind power are awaiting grid connection. In order for the wind industry to expand, 12,000 miles of new transmission lines are needed, as well as a smart grid management system. The Department of Energy reports that transmission is the number one barrier preventing rapid long-term expansion of wind energy use. Without adequate transmission capacity, the nation risks losing existing jobs in wind turbine manufacturing and installation. A more efficient, reliable transmission grid will also reduce electricity costs to consumers in states with high peak rates.

*Proposed funding for Smart Grid: $1.3 billion for smart grid investment*

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STATEMENT OF DONNA A. HARMAN, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN FOREST & PAPER ASSOCIATION

The nation's economic downturn has had a dramatic effect on the health and vitality of the forest products industry. The protracted downturn in the housing market and the ensuing financial crisis have resulted in lost markets for forest-based manufactured products such as wood building materials and pulp, paper, and packaging materials, forcing many manufacturing facilities to close. In addition, the financial crisis has led to lack of available credit and the loss of many jobs across the industry we represent.

AF&PA is the national trade association of the forest, pulp, paper, paperboard, and wood products industry. The industry employs more than a million people and ranks among the top 10 manufacturing employers in 48 states with an estimated payroll exceeding $50 billion. Forest product mills are often the economic hub of their communities, making the industry's health critical to the economic vitality of countless communities and every region of the country.

As the Congress and new Administration consider policy initiatives to help the national economy recover, we urge you to consider the following initiatives for inclusion in broader stimulus plans. Each of them fits with the priorities of the Congress and the new Administration to promote sustainable business and environmental practices and would help ensure that the economic recovery also extends to the forest-based sector of the manufacturing economy.

Expand Section 45 Credit for Electricity from Renewable Energy Sources to Self-Generated Biomass Power to Operate Manufacturing Facilities.—The Section 45 credit for biomass facilities should be strengthened by expanding the credit to on-site use of electricity produced from biomass. Credit for on-site usage would promote further expansion and use of biomass as a reliable, stable energy source.

Extend TREE Act Provisions.—Extending the TREE Act provisions included in the Food, Conservation, and Energy Act of 2008 (P.L. 110-234) will promote U.S. competitiveness and encourage growth in the forest products industry. The existing provision is set to expire in May, 2009 and should be made permanent.

Pension Plan Recommendations.—The drop in the value of pension plan assets combined with the credit crunch has placed defined benefit plan sponsors in a difficult position. Congress should enact the Worker, Retiree and Employer Recovery Act of 2008, which makes critical changes to the Pension Protection Act of 2006 to help companies address the current unprecedented financial crisis.

Housing Industry Provisions.—Congress should enact the following provisions that would provide immediate relief to the ailing housing industry: enhance the Home Buyer Tax Credit to stimulate purchases of new and existing homes, provide low-rate mortgages for future home purchases, and extend the net operating loss (NOL) carryback from two to five years.

Corporate AMT Reform.—Congress should enact provisions similar to those passed in the Job Creation and Worker Assistance Act of 2002, whereby the 90 percent limitation on the utilization of AMT NOLs would be temporarily suspended for losses generated or taken as carry forwards for tax years ending in 2008, 2009, and 2010. This would help alleviate the current financial burden on companies struggling from cash flow and tight credit problems.

We urge you to include these provisions in future economic stimulus legislation that Congress considers.

JOINT STATEMENT OF KEN BROWN, EXECUTIVE DIRECTOR, CLIMATE COMMUNITIES, AND MICHELLE WYMAN, EXECUTIVE DIRECTOR, ICLEI USA

Thank you for convening the December 10 hearing to address the inclusion of clean energy projects in upcoming economic recovery legislation. Our growing coalition represents more than 375 local elected officials in 39 states who are taking action in their communities to reduce energy use and greenhouse gas emissions. We are pleased to submit this statement for the record.

We commend you for holding this important hearing and we strongly encourage you to make investment in energy efficiency, clean energy, and green jobs a cornerstone of your strategy as the Congress begins to craft economic recovery legislation. Our coalition of local governments looks forward to playing our part in the "Green Economic Recovery" by working in partnership with the federal government to put people back to work through local building efficiency retrofit programs, installation of community-scale renewable energy projects, investments in local mass transit equipment and infrastructure, and local economic development strategies that reduce vehicle miles traveled.

Our message to you today is simple.

1. Cities and counties across America have thousands of ready-to-go projects that will help achieve three critical national objectives—create new jobs, decrease our dependence on foreign oil, and reduce the greenhouse gas emissions that cause climate change.
2. Local governments are uniquely suited to implement job creating programs and projects that will reduce energy consumption in commercial and residential buildings and in the transportation sector by improving transit and reducing vehicle miles traveled.
3. The federal government should invest $10 billion in the Energy Efficiency and Conservation Block Grant program and $18 billion to upgrade transit infrastructure and transit equipment as an efficient and effective way to create jobs and empower local climate action.

THOUSANDS OF READY-TO-GO LOCAL CLEAN ENERGY PROJECTS

As you know, about two million jobs have been lost in the United States in 2008 and more losses are forecast. Creating local green jobs that will last for years to come and cannot be outsourced will contribute significantly to the country's economic recovery. Across the nation, local governments have thousands of local government ready-to-go clean energy projects that could be implemented with federal economic recovery assistance. This week the U.S. Conference of Mayors released a nationwide survey of local governments, citing approximately 1,600 ready-to-go clean energy and transit projects that could create about 120,000 new jobs—in just 427 cities that participated in the survey. (See http://www.usmayors.org/mainstreetstimulus/) We have attached a list of dozens of local ready-to-go clean energy projects from some of our coalition. We want to emphasize that not only will these projects create new jobs and spur economic revitalization; additionally, these local projects will help set our nation on a course for energy independence and reduce greenhouse gas emissions. Examples include the following:

- With economic recovery assistance, Montgomery County, MD would establish a Home Retrofit Revolving Fund to provide energy audits and low interest loans for residential energy retrofits. This program would reduce consumer energy costs, increase home values, and produce significant new green jobs in the construction and building trades. In Montgomery County, a $35 million annual investment would result in $47 million in energy savings benefits to consumers. In addition, a 30 percent participation rate has the potential to reduce nearly 200,000 tons of CO2 emissions annually.
- With economic recovery assistance, the City of El Paso, TX would provide energy retrofits at 53 facilities and at more than 600 intersections. The retrofit project would create jobs, save more than 10,000 kilowatts per year, save an estimated $1.743 million annually in energy costs, and reduce annual emissions by 11,300 tons. It will cost an estimated $15 million. The energy retrofits include heating and cooling system replacements, installation of energy efficient lighting systems, and other projects.
- With federal assistance, the City of Gainesville, FL would launch a new Low income Energy Efficiency Program (LEEP) that will assist 336 low income customers in upgrading their homes with energy efficiency measures to reduce energy use, improve comfort, and save money. The proposed project will save 537,936 kWh per year and will eliminate 457 metric tons of CO2 annually. Job creation will include three full time employees and increased demand for hun-

dreds of contractors, i.e., HVAC installers, insulators, electricians, plumbers and general contractors. The project will cost $1 million annually.
- With federal assistance Westchester County, NY would install photovoltaic systems in four county office facilities and use the renewable energy generated to run each complex. The proposed project would cost $3.5 million, save 989,000 kwhr per year and $150,000 annually in energy costs, cut greenhouse gas emissions by 415 tons per year, and create 20 new construction jobs.
- With federal assistance, Loudoun County, VA would build the Brambleton Geothermal Fire Station. The new facility will incorporate the latest renewable energy design features such as a 30,000 gallon cistern on site to store rainwater, geothermal wells, ground source heat pumps, and many others at a cost of $7.2 million. It will save 1,179,806 gallons of water per year from rainwater collection, 86,400 gallons of water per year from water efficient fixtures, and will reduce energy consumption by 30 percent annually. The project will employ 20 full time employees when completed and require multiple construction personnel during construction.
- With federal recovery assistance, the City of Spokane, WA would implement SmartRoutes, an $11 million transportation plan to make road and trail improvements to facilitate bike and pedestrian travel. When completed, the project will reduce vehicle miles traveled by 91 million miles annually, reduce CO2 emissions by 58,000 tons a year, and create hundreds of new jobs.

LOCAL GOVERNMENTS ARE WELL-SUITED TO IMPLEMENT CLEAN ENERGY PROJECTS

Local governments are at the forefront of the movement to promote clean energy and address climate change in the United States. For years, local governments have served as laboratories for innovation, developing new approaches to reduce energy use and greenhouse gas emissions, including the conversion of municipal fleets to hybrid vehicles, the design and construction of energy-efficient buildings, the installation of renewable energy, and the development of communities that reduce vehicle miles traveled.

Local governments are especially well-suited to improve building efficiency and reduce energy used in the transportation sector. In addition, local governments are well-positioned to implement community-scale renewable energy projects that create jobs and reduce carbon emissions.

*Reducing Energy Consumed in Buildings*

According to the U.S. Energy Information Administration, commercial and residential buildings account for well over 40 percent of the energy consumed in the United States. Experts estimate that three-fourths of America's residential and commercial buildings will be replaced or renovated by 2038. EPA estimates that well-designed building codes implemented and enforced in conjunction with appliance standards can lock in cost-effective energy savings of 30 to 40 percent at the time of building construction compared to standard practices.

Local governments are best suited to improve and enforce building codes and create other programs to reduce energy use in commercial buildings and homes. Following are examples of local innovative energy-smart building approaches that could be supported and replicated with national leadership and resources.

- Nassau County, NY launched its "Green Levittown" initiative, a public-private partnership to help the 17,000 households of America's first suburb conduct home energy audits, replace old boilers, and make other home energy savings improvements. The project goal is to reduce carbon emissions by 10 percent. Thousands of households are participating and the changes being made are resulting in a significant reduction in greenhouse gas emissions.
- Santa Barbara, CA passed an ordinance in 2007 to become the nation's first city to reduce the fossil fuel standard for all new buildings in order to accomplish carbon neutrality by 2030 by enacting building regulations exceeding state standards for energy use among other measures.
- Montgomery County, MD recently passed legislation that promotes energy efficiency in new buildings. The bill requires most new commercial, multi-family residential and single family residential buildings to meet certain Energy Star standards, and requires a building owner to pay an Environmental Sustainability Fee if the building does not comply with the energy efficiency and environmental design standards. The legislation also requires the Director of the County Department of Public Works and Transportation to develop an energy baseline, energy unit savings plan, and energy cost savings plan for each County building.

*Reducing Energy Consumption From Transportation*

The U.S. transportation sector accounts for a third of all energy use and within this share, 60 percent comes from personal vehicle use. While cleaner vehicles and fuels standards are important, increases in vehicle fuel efficiency have not been and are not predicted to be sufficient to keep pace with increases in driving associated with more sprawling development patterns and lack of adequate public transit. Numerous studies show that given the option to live in a less automobile dependent location, people will indeed drive less. According to the recent book Growing Cooler: The Evidence on Urban Development and Climate Change, residents of more compact neighborhoods drive 20-40 percent less on average.

Reducing vehicle miles traveled (VMT) and increasing transit use are important ways to significantly reduce energy use and emissions from the transportation sector. Since local governments are responsible for land use and transportation planning, local leadership is essential to address this problem. In addition, local governments are playing an important role in purchasing low-emission vehicles and using alternative fuels. Examples of effective local transportation programs include the following:

- Sacramento County, CA and the Sacramento Area Council of Governments, CA have established a blueprint for the metropolitan region that links transportation investments to a vision of sustainable future growth and development served by public transit, walkability measures, and other approaches to reduce VMT in the region by 27 percent by 2050.
- Envision Utah is a collaboration of several public-private stakeholders in the Salt Lake City/ Greater Wasatch Area focused on protecting the environment and maintaining economic vitality and quality of life as they accommodate anticipated growth in the region. The collaboration focuses on several key strategies to reduce emissions, addressing VMT though creating more walkable communities; preserving critical lands and park space; developing a region-wide transit system; and fostering transit-oriented development.
- The City of Stamford, CT is undertaking a 20-year initiative to improve regional transportation and promote smart growth and economic development through multi-modal transportation investments and transit-oriented development. The initiative encompasses everything from expanding the hub of their transportation infrastructure (the Stamford Transportation Center), building a new multimodal center, and connecting these transportation centers to the new Stamford Urban Transitway, to construction of an urban light rail loop to connect key urban locations through public transit.
- In 2007, King County, WA committed to purchase 500 new hybrid buses manufactured by New Flyer and General Motors over a five year period. The buses will be added to a fleet that already has over 200 hybrid buses in service. Hybrid buses use considerably less fuel and reduce some exhaust emissions by up to 90 percent. There are currently over 2,000 hybrid buses in use nationwide.
- Since 2001, the City of Keene, NH has powered their municipal fleet of 68 vehicles and other city owned equipment with B-20 biodiesel. City operators have stated that the headaches they would get from operating equipment with 100 percent diesel have gone away while operating equipment with B-20.

LOCAL INITIATIVES TO INCREASE THE USE OF RENEWABLE ENERGY

Large, utility-scale renewable projects like wind farms and solar plants are critical to America's energy future, but community-scale renewables are vital as well. Solar photovoltaic panels on elementary schools, biomass generation at local landfills and sewer plants, wind turbines powering targeted neighborhoods, town halls heated and cooled with non-polluting geothermal energy and other projects help localities become self-reliant and better able to manage the risks of increasing energy costs, blackouts, and other challenges.

The following local government renewable energy projects demonstrate the kinds of innovation that could be spurred across the nation with federal assistance.

- Wyandotte Municipal Utilities, MI is installing the first-in-the-nation utility-scale wind power project on an urban brownfield. Wyandotte is also considering renewable energy projects including woody biomass generation, river hydrokinetic power systems, combined photovoltaic-concentrated solar technologies, hybrid public utility fleets, and green roofs infrastructure to reduce emissions in a community that has historically relied on petrochemical manufacturing and coal-fired power to fuel the local economy.
- The Department of Energy and the U.S. Environmental Protection Agency are now working with the City of Stamford, CT on an innovative wastewater-to-en-

ergy project that will convert dried sewage sludge into clean, renewable energy. This first-ever application of biomass gasification technology is free of air and carbon emissions and will use a renewable resource available in nearly every locality. If deployed nationally, this waste-to-energy technology could produce 100 times the electric energy needed to serve U.S. domestic demand, and could reduce 1.1 billion metric tons of greenhouse gases by 2030.

- In 1999, Story County, IA constructed Iowa's first county-owned building to use a geothermal heating and cooling system. The geothermal system reduces energy consumption by 40 percent, costs less to maintain, and cuts air-borne pollutants. The County is currently converting other buildings to geothermal energy.
- Sacramento County, CA plans to install 16 megawatts (MW) of solar community-wide each year for the next nine years so that two percent of the community's energy would come from solar by 2017. This residential incentive program would supplement existing federal tax credits and utility incentives in order to help transform the solar market and assist Sacramento County in achieving its goal. The project would save 80 million KWh and $8 million per year. GHG emissions would be cut by 25,000 metric tons per year. Meeting the state goal of adding 16 MW per year of solar in Sacramento County would create 600 direct permanent jobs and three to four times as many indirect jobs per the U.S. Department of Energy.

We are attaching two documents* that we request be included in the hearing record:

1. Empowering Local Government Climate Action: Blueprint for President Obama and 111th Congress and the list of 375 plus local elected officials who have endorsed the blueprint thus far.
2. A list of local Green Recovery projects that could be implemented with federal assistance.

Again, we urge the federal government to invest $10 billion in the Energy Efficiency and Conservation Block Grant Program and $18 billion in transit infrastructure and equipment as part of national economic recovery legislation. These critical investments will enable local governments across America to do what they do best—implement pragmatic community-based solutions that will reduce create jobs, revitalize the economy and preserve our planet.

Thank you very much for your consideration.

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STATEMENT OF EQUITECH INTERNATIONAL, LLC

We are most grate ful for this opportunity.

Our collective mission here is, as in life, to celebrate and implement the Buckminster Challenge:

> We are called to be the architects of the future, not its victims ... [Our challenge is to] make the world work for 100% of humanity in the shortest time possible through spontaneous cooperation without ecological offense or the disadvantage of anyone. —*R. Buckminster Fuller*

The first ever 300kW solar academic building, the first candidate for Solar Fuel Cell Regeneration (SFCR), at Georgetown University as an important element of the university's master advanced renewable energy systems (ARES) plan, was developed from 1982-1990. This plan was the first stand-alone sustainable ARES design developed as a National Exemplar Integrated Community Energy System (NE/CES) per U.S. Department of Energy federal program guidelines and funding. The solar PV building is still functioning very well after 20 years. It has paid back very well.

Importantly the words of the celebrated paleontologist Rev. Pierre Teilhard de Chardin SJ are inscribed on the galleria of the solar PV academic building:

> The Age of Nations is passed. What remains for us now, if we do not wish to perish, is to set aside the ancient prejudices, and build the earth.

CANDIDATE PARADIGM: ADVANCED RENEWABLE ENERGY SYSTEMS (ARES)

This consortium of scientists and design science architects proposes a Comprehensive National Energy Policy (CNEP) based on infinite renewable sources and provides proven solutions. The breakthrough is green hydrogen direct from waste (with

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*Documents have been retained in committee files.

no burning) that supports current thinking toward decentralization of power production and distribution. TRANSITION TO A DE-CENTRALIZATION STRATEGY IS REQUIRED because of the following reasons:

1. SECURITY: Millions of small self-sufficient sustainable distributed energy generation centers are superior over fewer large, dangerous, and vulnerable power production centers as easy access for terrorists. ARES military applications are endless.

2. EFFICIENCY—COST REDUCTIONS: It places energy generation at the source of its consumption, minimizing inefficient energy distribution services over long distances. ARES have very low operating costs.

3. ECONOMICS—ACCESS TO WASTE and INFINITE SUN:

- Waste on the land is continuously accumulating and always will, plus Nature continuously provides some of its own waste on land;
- Waste produced by Nature is in the seas as BIOMASS, and;
- Vast waste by humankind exists everywhere and can be recovered and utilized.

4. WEALTH PRODUCTION FOR ALL CITIZENS: The means of producing "Premium Power" with its valuable by-products enables:

- distributed ownership of ARES for reducing overall poverty
- tax revenue incomes to small and large cities
- support for stand-alone remote residential clusters
- ARES component manufacturing for export,
- distributed job creation, and
- the ability to reduce transportation problems.

5. SERVICE to EXISTING GRID: All distributed Premium Power E-Macro and E-Micro Systems can sell wholesale individually and collectively to the power companies mitigating the need for construction of new power plants.

Waste provided by nature and the contributions of pollution by humans, such as those contributing to global warming, form an unending source of METHANOL—by processing carbon dioxide and hydrocarbons with waste—to produce fuel for fuel cells forever. Methanol technology is proven and can be deployed immediately. ALL forms of waste, including industrial and toxic waste, and the sun—are the only energy sources needed!

*A comprehensive solution to providing clean energy for all needs*

The Advanced Renewable Energy System (ARES), based on Complex Waste to Total Energy Solar Methanol Hydrogen Fuel Cell Regeneration System, is a decentralized approach to producing clean and secure energy for all needs using sun and all types of waste available everywhere. A transition using the current power grid is understood, but power production would occur everywhere and not be dependent on the grid during collapses and will be able to serve all structures and vehicles independently when fully implemented.

*Investments to Date*

1. Two proofs of concept completed—the basis of the proposed E-Macrosystem, a 7.5 MW ARES power plant and manufacturing center—Solar Fuel Cell Regeneration (SFCR) and Waste Steam Reforming System, 1987-1995 . . . $55 million

2. First two 30 ft. heavy-duty fuel cell buses (designed at Georgetown, 1983-1995 www.equitechllc.com/projectgraphics/fuelcellbus.html) . . . $21 million

3. International Consortium by NASA/JPL at Edwards Air Force Base worked with Georgetown's National Exemplar of Integrated Campus Energy System (NEICES) to develop stand-alone power system (for lunar colony), 1982 . . . $30 million

4. Georgetown University NEICES built integrated solar building, 1982 . . . $23 million

5. Clean coal technology breakthrough, abandoned for emissions-Free ARES leaving coal to be developed for highest and best use as nanotechnology solution in complex Thermal Composite Materials (TCM) for solar structures, 1979 . . . $14 million

TOTAL: $143 MILLION

*Current Status of constructing the national exemplar E-Macrosystem*

1. Final Design (Program of Requirements & Design Build Engineering) . . . $ 4.3 million

2. Design-Build Construction . . . $60.0 million

TOTAL: $64.3 MILLION

It is proposed that a national exemplar green research project that is ready for final design engineering and construction be funded and built in an area of extreme poverty, to demonstrate the new technology, ARES component manufacturing, job creation, skill development, and broad ownership by using a new mechanism called Community Investment Corporations. Multiple by-products including premium power demanded by pharmaceuticals and the computer chip industry, pure water, medical oxygen and other products provide 2 to 3-year quick turnaround on the replications' debt-service.

The turnkey project is ready for final design and construction under the professional oversight of Equitech International LLC and Whiting Turner Construction Co on land provided by the City of East St. Louis and 10 surrounding communities through the for-profit Metro East Citizens Land Cooperative on behalf of all residents, the MECLC shareholders. East St. Louis has experienced a prolonged unemployment rate of 23% and overall the poverty rate is 31% in the 11 communities.

The Congress needs to fund the national exemplar E-Macrosystem manufacturing center and its breakthrough technology ($64.3 million) to make it available for public and private rapid deployment. The initial investment will provide proofs of concept for a second phase, E-Microsystem ($80 million), for smaller public and commercial building solutions including comprehensive residential development at affordable prices ($400 - $500 rents with all utilities included, including water, sewer, electric, and fuel for the fuel cell car).

*Job Creation from National Exemplar E-Macrosystem*

The initial green energy research project, the E-Macrosystem, will provide: . . . 2461 jobs

The jobs include construction, operation, and product development in work centers within the structure. Products that will spin out of the E-Macrosystem to develop a manufacturing center first in the Metro East area include: steam reforming systems, fuel cell manufacturing, electrolyzers, photovoltaics, E-Microsystems (SFCR components), composite systems manufacturing, and TCM (complex thermal composite materials made from coal to build light-weight, solar structures) manufacturing. *Each E-Macrosystem replication can expect to produce: . . . 800 jobs*

*Technology Comparisons*

Extensive land coverage is not required as in the wind energy approach. ARES are integrated into the buildings and vehicles they power and use the sun and all waste as fuel.

Extensive use of water needed for nuclear power is not necessary. ARES produces pure water. A comparison of investments showed that the $10 billion proposal at Calvert County, MD if spent on ARES instead, would provide power to 250 cities.

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STATEMENT OF BRUCE W. HEINE, DIRECTOR, GOVERNMENT AND MEDIA AFFAIRS, MAGELLAN, TULSA, OK

Magellan Midstream Partners, L.P. owns and operates the longest refined petroleum pipeline in the United States, which crosses thirteen states and over 8,500 miles of pipeline. We have partnered with Buckeye Partners, LP, which owns and operates nearly 5,400 miles of refined petroleum pipeline. Our collective goal is to develop the first ever "dedicated ethanol pipeline," which we call the "Independence Pipeline." The Independence project is a 1,700 mile, $3.5 billion renewable fuel pipeline project, which originates in Iowa and ends in New York Harbor. The project would create hundreds of construction jobs in the next few years and over 100 operating jobs over the life of the project, and would safely and efficiently deliver more than 10 million gallons of ethanol per day to millions of northeastern motorists.

This large-scale renewable fuel pipeline project is dependent on a federal financing option through a new loan guarantee program at the Department of Energy. We would encourage you to consider the inclusion of a renewable fuel pipeline loan guarantee program as you prepare new legislation designed to stimulate our economy. These important infrastructure jobs will peak in 2-3 years which wilt help sustain the economy as other parts of the stimulus package wind down.

This project meets the criteria for new investment that will help build a new clean energy economy and advance the next generation of biofuets and fuel infrastructure.

Congress has indicated renewable fuels will have an increasingly important role in our domestic energy policy and the growing national demand for renewable fuels will create potential opportunities to construct more efficient transportation infra-

structure across the United States. We believe the necessary long-term solution for efficient renewable fuel transportation is a large-scale pipeline system.

We urge you to include a new loan guarantee program for a dedicated ethanol pipeline system in the upcoming economic stimulus package. I look forward to discussing this issue with you and other Senators in greater detail.

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STATEMENT OF ALVIN PARKS, MAYOR AND PRESIDENT, METRO EAST CITIZENS LAND COOPERATIVE (MECLC), EAST ST. LOUIS, IL

On behalf of the citizens of the Metro East Communities we would like to introduce you to a new and exciting economic enhancer called the E-Macrosystem that we are working hard to deliver to our region. We are asking you to support our efforts as we work to build our communities, establishing hope and bringing real change to America from the grass roots.

First, thank you once again for your inspiring message of hope and change you delivered to the U.S. Conference of Mayors on Saturday, June 21st 2008. Your points of being a partner with American cities and making everyone understand that American cities are the solution and not the problem help us to know that you will do what it takes to strengthen our communities.

You have also discussed that green energy is an economic enhancer and builds hope for families. We are working with an exciting new economic enhancer for our communities that needs your support. Here are the key benefits that the E-Macrosystem brings to our regional communities:

1. Green Energy
2. Environmental clean up of medical, industrial, agricultural and municipal waste streams
3. Creation of 2,300 jobs per system
4. Citizen Ownership

The Mayors listed in the left hand column of this letter have been working together to form the Metro East Citizens Land Cooperative (MECLC). I presently serve as the President of MECLC with the support of the Mayors of Granite City, Cahokia, and Brooklyn serving as officers with me on the Executive Board.

MECLC 2008 BOARD OF DIRECTORS

Mayor Alvin Parks; *City of East St. Louis*; Mayor Ed Hagnauer, *City of Granite City*; Mayor Randy McCallum, *Village of Alorton*; Mayor Frank Bergman, *Village of Cahokia*; Mayor Nathaniel O'Bannon, *Village of Brooklyn*; Mayor Mark Jackson, *City of Centreville*; Mayor William Moore, *Village of Hartford*; Mayor Avery Ware, *City of Venice*; Mayor John Hamm, *City of Madison*; Mayor Alex Bregen, *Village of Fairmont City*; Mayor John Thornton, *Village of Washington Park;* Col. Michael Morrow, Ret., *Morrow Group USA, Inc.*

The MECLC has been working to develop a demonstration model of advanced renewable energy systems that will be owned by our community residents as citizen-owners. This exciting national demonstration of advanced renewable energy will generate 2,300 new jobs in our community that is currently experiencing 31 % poverty.

The renewable energy systems we are working with are called the E-Macrosystem. The E-Macrosystem is an integration of two proven technologies in Solar Fuel Cell Regeneration and Waste Steam Reform Systems combined to create a stand-alone, emissions-free 7.5 MW power plant and manufacturing center. The MECLC E-Macrosystem national exemplar can be replicated and exported for national and world-wide use, solving problems of waste clean-up (e.g. agricultural, industrial, medical and municipal waste streams), contributing emissions-free power to power grid systems or remote locations where electricity is not available, and fostering development of clean energy industry everywhere. Utilizing the E-Macrosystem's capacity for marine applications will be beneficial for military and domestic uses such as delivering green power to hospitals.

We are requesting your support for our project. We are excited about your vision for America's future; and we support you in your pledge to bring our nation's leaders together to join us in our efforts to effect real, meaningful change in our communities. I look forward to discussing how we can bring these innovations to fruition to serve the residents of Illinois and our nation.

STATEMENT OF JOHN HUBER, SECRETARY, NATIONAL ASSOCIATION FOR OILHEAT RESEARCH AND EDUCATION

Chairman Bingaman and Ranking Member Domenici, on behalf of the men and women who deliver heating oil to consumers throughout the country and our colleagues who continue to work to develop new more efficient furnaces and boilers, we appreciate the opportunity to share our views for clean energy and natural resources projects and programs that can create green jobs and to stimulate the economy. Unlike many of the suggestions you are likely to hear today, our recommendation can be accomplished without any federal money, but will continue to provide major benefits to consumers.

Next year, as part of a comprehensive energy bill, we urge this Committee and the Congress as a whole to include the provisions of S. 3442, a bill introduced by Senators Reed and Snowe to reauthorize the National Oilheat Research Alliance Act of 2008.

Congress enacted the National Oilheat Research Alliance Act of 2000 to authorize the heating oil industry to conduct a referendum to create the National Oilheat Research Alliance (NORA) and to permit a small fraction of the wholesale price of home heating oil to be set aside to fund important research and development, energy conservation, safety, training, and consumer education initiatives. Since its enactment in 2000, the Act has benefited millions of American consumers of home heating oil, at no cost to the federal government. Some examples:

Energy Eficiency Improvements.—Working with Peerless Boilers in Pennsylvania, NORA created the first American condensing boiler, which is rated at 93 Annual Fuel Utilization Efficiency (AFUE), seven points higher than the typical boilers found in American homes, which have a rating of 86 AFUE. In cooperation with Adams Manufacturing, NORA developed the Spartan condensing furnace, which has a rating of 95 AFUE. Typical American furnaces are rated at 84 AFUE.

Potential Annual Savings.—In cooperation with the New York State Energy Research and Development Authority, NORA developed a seasonal rating system for boilers. This system is designed to show typical operation over the season, instead of at peak operation. This research and the calculator developed from it shows that many homeowners could reduce their consumption substantially, saving between $20,000 and $40,000 over a twenty-year period.

Education and Safety.—No energy efficiency improvements can make it to the consumer without a strong push. To that end, NORA developed an energy efficiency certification, the Gold Certificate, that is designed to train technicians on how to provide comfort, a safe system, and improve the energy efficiency of the home. To date, over 1000 technicians that have been certified.

In addition, NORA has developed a simple test for evaluating the safety of tanks based on EPA's tests for commercial systems. With this simple inventory test, tanks can be inspected and evaluated for $80-100 versus the current norm of $400-500.

NORA conducted testing with Underwriters Laboratory to determine whether biofuels could be safely used in heating equipment. This study has encouraged manufacturers to extend warranty coverage to systems using biofuels, and will be used to redefine heating oil as containing biodiesel.

The Reed-Snowe bill would improve the operation of NORA and ensure that the heating oil industry and consumers can continue to reap the benefits of the check-off program. First, the proposed legislation would eliminate the sunset provision, which otherwise will require that the Act be reauthorized every five years. Eliminating the sunset provision will ensure continuity of contracts, and allow for long-term planning and initiatives, without the uncertainty caused by the need for frequent reauthorization measures. Second, the definition of oilheat would be expanded to include blendstocks used for home heating, including new cleaner biofuels. Third, the funding mechanism would be modified to bring it into conformity with the propane check-off program. Finally, the bill makes technical changes to address problems identified since 2000 (e.g, establishing a mechanism for additional States to join).

The Reed-Snowe bill would provide the best means for enabling the heating oil industry to finance R&D, training, safety, and consumer information without the use of federal tax dollars. We thus urge you to include the provisions of S. 3442 as part of a comprehensive energy bill next year.

## A National Proposal for a National Forest Watershed Restoration Corps

### INTRODUCTION

Congress once again is considering an economic stimulus package. As part of this package, Congress has the opportunity to put people back to work while accomplishing comprehensive restoration of our national forest watersheds. Public investment in restoration can sustain American families whose lives and work are tightly connected to our national forests; restore needed natural infrastructure and reclaim unneeded roads; make forests more resilient and adaptable to the unknown consequences of climate change; and assist the Forest Service and other federal natural resource stewards to meet basic environmental responsibilities, which has been increasingly difficult due to severe budget cuts over the last eight years. In sum, investing in forest watershed restoration will have tangible, long-term human and ecological benefits.

### THE PROPOSAL

Create a Forest Watershed Restoration Corps within the Forest Service funded at $500 million over the next two years to decommission forest roads, repair fish culverts and maintain forest roads used for recreation and administration. A Forest Watershed Restoration Corp can provide jobs in communities adjacent to national forests through contracts to local community members to complete restoration work and also create staffing opportunities within the Forest Service, such as term appointments that may be made permanent if the Forest Service's budget is restored in subsequent years.

The Forest Watershed Restoration Corps could be analogous to a small-scale Civilian Conservation Corps (CCC), the most popular program of the New Deal, also referred to as Roosevelt's "Tree Army." The economic situation today isn't as dire as it was in the thirties when the CCC employed a half million young men. Nevertheless, the creation of jobs in rural areas is urgently needed. Providing funds for rural businesses and workforce development over several years creates economic stability in an important but often overlooked part of America during an economic downturn that may to last for a decade or more.[1] A short-term, quick payout stimulus package does not necessarily provide the type of support that will bolster rural families and communities adjacent to our national forests during these difficult times.

### THREATS TO OUR NATIONAL FOREST WATERSHEDS

Healthy forests are essential to rural communities, biotic communities and our planet. Large intact and functioning forest ecosystems provide clean drinking water for more than 60 million Americans; habitat for fish and wildlife; recreational opportunities for the public; and a place of solace and inspiration to those who visit. Healthy, restored forest watersheds are better able to adapt and respond to climate change, ensuring clean water for the long term. Further, forests are critical for sequestering carbon and they aid in the moderation of temperature.

One of the most significant threats to forest watersheds and their biotic communities is failing forest roads. Deteriorating, unmaintained and poorly designed national forest roads harm fish through the chronic contribution of sediments into forest streams. Many of these fish are threatened and endangered under the Endangered Species Act. The same sediment fouls drinking water and increases the need for communities to build expensive water filtration systems. Unmaintained roads, especially in mountainous regions, are more likely to fail in severe storm events, contributing massive amounts of sediment to streams. In 2006 and 2007 alone severe storms in the Pacific Northwest led to massive road failures and road-triggered landslides, resulting in tens of millions of dollars of damage to public and private lands. Storms such as this are becoming more common because of climate change, even further bolstering the need for an investment in restoration now.

When undermaintained roads fail, outdoor enthusiasts and even citizens with private in-holdings lose access to the forest until those roads are repaired. It costs far more to fix the roads after they fail, and to clean up the damage (much of which is irreparable), than to address problems prior to road failures. Roads spread invasive pests, plants and pathogens, fragment important wildlife habitat and dramatically change hydrologic and aquatic conditions.

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[1] Phillips, Kevin. 2008. Bad Money: Reckless Finance, Failed Politics and the Global Crisis of American Capitalism.

Currently, at best, only 36%[2] of the twelve western states' national forest roads are maintained to "standard." These twelve states contain more than 85% of the entire National Forest road system. The Forest Service never planned for or assessed the impact of this extremely limited maintenance capacity on forest and water resources, and the impact becomes exponentially more significant each year. In 2001, the Forest Service estimated that it could remove nearly half of its entire road system[3] (up to 186,000 miles out of the total 380,000 mile system), while still meeting the resource and recreational needs of forest users. Many of these roads were built for obsolete logging systems and now are heavily overgrown and prone to landslides from heavy rains or snowmelt. This year the Forest Service determined that approximately 25,000 miles of existing Forest Service roads suitable for passenger vehicles are necessary to access developed recreation sites, key trailheads, visitor centers, and state or private land developments. There is ample opportunity to put people to work restoring watersheds and remediating road problems.

Removing unneeded, ecologically damaging roads is the first and most critical step towards watershed restoration. Repairing culverts to restore fish passage, in combination with performing critical maintenance, is imperative for those roads that we need to keep. We have an obligation to restore watersheds to provide the resiliency and adaptability necessary to respond to the impacts of climate change and the associated increase in storms and flooding.

THE ECONOMIC CONTEXT

The Forest Service estimates their road maintenance backlog at nearly $8 billion[4]—although when administrative and indirect costs are included the backlog actually totals closer to $10.3 billion.[5] Shrinking budgets have ensured that each year the Forest Service slips further behind in its responsibility to maintain its road system.

Over the last twenty years timber sales—which used to provide much of the revenue for road maintenance—have declined. But even when timber receipts were at their highest, the Forest Service was not able to fully maintain its road system. Road obliteration can be extremely costly, with medium-sized and major roads ranging from $40,000-$70,000 and $100,000-$250,000 per mile respectively.[6] Costs are even higher in the Pacific Northwest due to high rainfall and the steep grade of the land. That said, many forest roads are small-sized and numerous forests have been able to reclaim roads for approximately $10,000 per mile.

National forests were and are an important source of jobs in rural, resource-dependent communities but declining timber harvests cause challenges for rural economies. A recent report from the Western Wood Products Association predicts the decline in timber jobs will continue in the upcoming years as housing starts stall. The Association points out that over the last three years demand for lumber has declined by 20 billion board feet—the amount that all the western mills produced in 2005 alone. The current financial crisis will hit these communities very hard.

Investing in a comprehensive watershed restoration program can provide people in rural, resource dependent communities with the same high-wage, high-skill jobs derived in the past from building roads or extracting timber. Since these jobs require the very same heavy equipment needed to build roads, and since that machinery is expensive to transport, the jobs are most likely to go to local workers. Local workers will spend the bulk of their paychecks directly in their own communities. Furthermore, this work will encourage local contractors and workers to make long-term investments in equipment and training.

An infusion of $250 million a year can create 3500 direct jobs in the rural West, in addition to any other jobs that are sustained or created through multiplier effects. We believe such a program could be viable for decades to come as it will take decades, at minimum, to address the backlog of maintenance needs and road decommissioning projects to restore functioning, dynamic, resilient watershed conditions on our national forests.

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[2] United States Department of Agriculture, Forest Service. 2006. U.S. Forest Service Annual Road Assessment Reports.

[3] National Forest System Road Management Rule and Policy. May 2001.

[4] United States Department of Agriculture, Forest Service. 2004. Fiscal Year 2005 Forest Service Budget Justification. sec. 10, p.33.

[5] Taxpayers for Common Sense. March, 2004. Road Wrecked: Why the $10 billion Forest Service Road Maintenance Backlog is Bad for Taxpayers.

[6] United States Department of Agriculture, Forest Service. 2000. Forest Service Roadless Area Conservation: Final Environmental Impact Statement.

With the decline in the forest products industry, many of the skilled workers required to restore the forest have been or soon will be lost to emigration or attrition. In order to maintain an essential skilled workforce we suggest that all contracts require some portion of the workers to be enrolled in a state recognized apprenticeship program.

PROGRAM IMPLEMENTATION

The Forest Watershed Restoration Corps program would need to immediately hire staff to begin planning and implementing projects. While there are numerous remediation and reclamation projects that have already undergone environmental review under the National Environmental Policy Act (NEPA) and other applicable resource protection statutes, there is also a significant need to increase planning capacity to ensure a steady supply of NEPAready projects over the long-term. Lack of fully planned and reviewed projects is currently one of the main impediments to building a strong restoration program in the agency, while the second primary impediment is a lack of restoration funding. This proposal could directly address both of those challenges.

As part of the immediate job creation opportunity of this economic stimulus, we believe the Forest Service will need to staff up to implement a Forest Watershed Restoration Corps and that each of the approximately 150 national forests, proportional to their need, will need to hire at least one of each of the following:

- a trained contracting specialist
- an individual capable of overseeing NEPA project planning
- a geoengineering, hydrologist, geomorphologist or soils engineer for contract implementation oversight
- either a fish or wildlife biologist

Furthermore, we recommend that since these projects are entirely restorative in nature that the NEPA process can be facilitated for most projects by the appropriate use of categorical exclusions for project implementation.

The 600 Forest Service positions referenced above could be filled as temporary, professional appointments that could be converted to permanent if funds become available. Forest Service jobs would consume less than a fifth of the $250 million requested annually from an economic stimulus package and still provide an extensive infusion of funding for local contractors and rural workers.

While all forests can immediately take advantage of planning funds to hire new staff, implementation funds could be prioritized based on climate and elevation depending on when a stimulus package is adopted. Forests in the south, for example, will be able to engage in remediation and restoration projects in the winter, while more northern or high elevation forests will be required to wait until spring to begin implementation.

The program will provide real jobs to former road builders, primarily excavator and bulldozer operators and qualified on-the-ground inspectors. These types of workers have not only been displaced by the timber industry, but they are also feeling the pinch from the decline in housing starts, as many excavator operators also work in that arena. But even experienced heavy equipment operators will need some retraining in both the science and art of road reclamation, so there will also be opportunities to develop watershed restoration training and certification programs that can ensure that this work is done effectively and efficiently on the ground—guaranteeing that the results are beneficial for watersheds. Companion funding could also be provided to develop a systematic, comparative area monitoring program through the agency's research branch or through universities to ensure that new technologies are being tested and monitored for effectiveness. A timely infusion of funding through the stimulus program could help kick start new careers in watershed restoration while simultaneously bolstering the growing restoration economy.

BUILDING ON THE LEGACY ROADS AND TRAILS REMEDIATION INITIATIVE

The Interior portion of the Fiscal Year 2008 Consolidated Appropriations bill provided $40 million "for urgently needed road decommissioning, road and trail repair and maintenance and associated activities, and removal of fish passage barriers, especially in areas where Forest Service roads may be contributing to water quality problems in streams and water bodies which support threatened, endangered or sensitive species or community water sources and for urgently needed road repairs required due to recent storm events."

Legacy Roads funding was distributed nationally and as a result a new watershed restoration program began last year within the Forest Service. At that rate of funding it will take 100 years for the Legacy Roads program to work through the $10

billion road maintenance backlog. We need a new approach to restore our watershed and assist people in rural, resource dependent communities and the economic stimulus package could provide the impetus to solve these problems.

CONCLUSION

The Forest Watershed Restoration Corps provides both an economic and ecological solution to pressing problems in our forests and near-forest communities. As with the CCC, the Forest Watershed Restoration Corps has the potential to provide employment in nearly every state of the nation and as importantly, to enable people to feel good about the work they are doing and the positive difference they are making to forests and streams. The need to restore our national forests is critical at this time of global uncertainty, and people will be proud of the contribution they make to protect our drinking water, fish and wildlife, recreational opportunities and climate.

The undersigned* strongly urge you to provide $500 million over two years to create a Forest Watershed Restoration Corps to provide jobs in rural communities and improve the health of our forest watersheds. We request that this proposal is included in the final economic stimulus package developed in 2009. We appreciate your consideration of this proposal.

Sincerely,

JIM FURNISH,
*Retired Deputy Chief, USDA Forest Service, Maryland.*

JOHN HORNING,
*Executive Director, WildEarth Guardians, New Mexico.*

DAN MILLER,
*Executive Director, Bear River Watershed Council, Utah.*

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STATEMENT OF THE NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS

The National Conference is the association of the gubernatorially appointed State officials who carry out the National Historic Preservation Act (16 USC 470) for the Secretary of the Interior and the Advisory Council on Historic Preservation.

Historic preservation makes important contributions to energy efficiency by encouraging people to live and work in existing, historic buildings supporting an energy conserving life-style. Historic preservation is the stewardship of the built environment that uses historic buildings and communities to achieve environmental, economic and cultural sustainability. Historic preservation's tax credit stimulates the economy at a rate of $4 billion in private investment annually, development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

HISTORIC PRESERVATION = SUSTAINABILITY

Reusing and retrofitting historic buildings, and reinvesting in older and historic neighborhoods, offers a sustainable way to reduce waste and carbon emissions and bring back prosperity to once thriving neighborhoods. Research suggests that many historic and older buildings are actually more energy efficient than more recent buildings because of their site sensitivity, quality of construction and use of passive heating and cooling. While there is still room for improvement, recent historic rehabilitation projects are demonstrating that energy efficient retrofits can be done in ways that are sensitive to the historic nature of the building.

The historic preservation community is working with the U.S. Green Buildings Council to better recognize preservation and reuse in their Leadership in Energy and Environmental Design (LEED) rating system. The common mantra of "new is better" continues to be a challenge to overcome. However, the SmithGroup of Detroit decided to challenge that way of thinking when it renovated the Lansing, Michigan-based Christman building—the first building to earn dual LEED Platinum certification for both construction and for its interior. Built in 1928 and siting on a brownfield site, the former Mutual Building is listed on the National Register of Historic Sites. This stately historic building is now a "green" building suited for modern office use.

The National Conference has a two part agenda for historic preservation's role in a clean, green, stimulus.

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*Additional signatories have been retained in committee files.

IMMEDIATE AGENDA

Within four months of passage of an economic stimulus bill, generate 15,000 jobs and over $50 million in private investment for the rehabilitation of historic buildings in every State across America through a $50 million withdrawal from the unobligated balance of the Historic Preservation Fund. Amendment of Section 108 of the National Historic Preservation Act would allow direct funding.

It is well documented that building rehabilitation outperforms new construction in creating economic activity. For example, if a community is considering spending $1 million in new construction or $1 million for a building rehabilitation project, the rehabilitation choice would have several advantages:

- $120,000 more dollars will initially stay in the community;
- Five to nine more construction jobs will be created;
- 4.7 more new non-construction jobs will be created;
- Household incomes in the community will increase by $107 more than they would under the new construction project;
- Retail sales in the community will increase by $142,000 as a result of the $1 million rehabilitation expenditure—$34,000 more than they would under the new construction funds; and
- Real estate companies, lending institutions, personal service vendors, and eating and drinking establishments will all receive more monetary benefit from the rehabilitation than the new construction. (Rypkema, 1998)

State Historic Preservation Officers have a solid track record of quickly turning grant programs into construction projects. It took the SHPO three months from the date of the National Park Service notice to initiate Katrina recovery grants (grant announcement, ranking and review of applications, grant awards), a far quicker turn around than other federal agencies.

LONG TERM AGENDA

The historic preservation community including the NCSHPO, The National Trust for Historic Preservation, The National Association of Preservation Commissions and Preservation Action has identified a legislative agenda, combining sustainability and historic preservation principles, that will create green jobs, stimulate the economy and preserve our nation's heritage. The key policy principles include:

- Improve energy efficiency in buildings include historic preservation through a homeowner federal income tax credit for energy retrofits and through manufacturer's incentives for energy efficient product development.
- Maximize the contribution of a skilled historic preservation labor force historic preservation to the green economy through job training in historic rehabilitation crafts.
- Global climate change causes natural disasters that require in-place response mechanisms for historic community recovery including identification of where the historic sites in at-risk places are and an in-place mechanism for restoration recovery grants.
- Infrastructure rehabilitation is critical to the sustainability of our historic urban and rural communities.
- Expand resources for the National Historic Preservation Program. Increasing resources is critical to providing infrastructure support needed for the stewardship and sustainability of the built environment.

The NCSHPO looks forward to working with the committee to pass legislation based on the above listed sustainable preservation policies, which will benefit our nation's economy, environment, and historic heritage.

Thank you.

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STATEMENT OF FRED MONDRAGÓN, CABINET SECRETARY, NEW MEXICO ECONOMIC DEVELOPMENT DEPARTMENT, SANTE FE, NM

Thank you for your tireless leadership on behalf of New Mexico's citizens and our national energy needs. This letter provides input on a possible green jobs component of the economic stimulus package being formulated in Congress.

New Mexico has many assets in the areas of renewable energy. energy efficiency and the "green grid" that can be leveraged to create jobs. The New Mexico Economic Development Department is developing a Clean Energy Economic Development Strategy, and considers this sector to be a critical area for stimulus, as well as for long term economic growth for the state. As you know, New Mexico has:

- The second best developable solar resource in the country, 5th best inland wind resource, and significant geothermal potential located on abundant open land. As a small state, New Mexico has the potential to be a power exporter which will strengthen our national energy independence and generate jobs for our citizens:
- The New Mexico Renewable Energy Transmission Authority, which will help deliver our renewable electricity to market;
- An existing cluster of solar and other clean technology manufacturing firms,
- World-class renewable energy and "smart grid" research capabilities at our national labs and universities, an established venture capital conmmnity, and an emerging focus on commercialization that can generate new startup companies;
- The Southwest Biofuels Association and leading research capabilities on biofuels from feed stocks that can be grow on arid lands.
- A WIRED workforce grant, nationally recognized solar and wind training programs, and an emerging statewide, cross-sector Green Jobs Partnership that will coordinate green workforce development efforts;

Below are opportunities for investment in New Mexico's Clean Energy Economy that I encourage you to consider for inclusion in the stimulus bill and upcoming energy legislation.

FUNDING FOR RESEARCH AND DEMONSTRATION OF "GREEN GRID" SOLUTIONS

The State of New Mexico has organized a consortium of national laboratories, universities. utilities and companies involved in "green grid" solutions across the state. This consortium is preparing a proposal for state and federal funding to make New Mexico a national research and demonstration center for the technology and systems that modernize our grid, ensuring reliability, creating efficiencies and supporting the presence of significant renewable generation sources, both utility-scale and smaller distributed sources. Solutions developed in New Mexico can be deployed across the country and will generate high-wage jobs for our state.

INVESTING IN TRANSMISSION LINKING AREAS OF DIVERSE, HIGH-VALUE RENEWABLE ENERGY IN NEW MEXICO WITH LOAD CENTERS IN OTHER STATES

As a state with nation-leading renewable energy resources and a small population, New Mexico has the potential to be an exporter of electricity to other states. Exporting New Mexico's electricity is a win-win proposition: other states get the renewable energy they need, our nation becomes more energy independent, and New Mexico gets valuable jobs that can never be sent overseas. Across the region, we are working with the Western Governors' Association to identify Western Renewable Energy Zones that will identify high-value areas in need of new transmission capacity. Federal transmission investments are needed to connect these Renewable Energy Zones to load centers. I encourage Congress to consider investments in our transmission infrastructure to bring renewables to market. The federal government can also play an important role in removing regulatory impediments to the development of renewable resources and associated transmission lines.

ESTABLISHING A NATIONAL RENEWABLE PORTFOLIO STANDARD

New Mexico has already demonstrated leadership in promoting renewable energy by establishing to state-level Renewable Portfolio Standard. I encourage you to establish a national RPS. Such a standard would dramatically increase demand for renewable electricity and provide a greater market for New Mexico's clean energy resources.

FUNDING FOR ENERGY EFFICIENCY AND CLEAN ENERGY PROJECTS

State and tribal grants for energy efficiency and clean energy projects would be well spent in New Mexico. Energy efficiency and weatherization funding, particularly targeting low-income citizens, creates jobs and ensures our citizens are living in homes that are safe, comfortable and affordable in the face of rising energy prices. The U.S. Department of Energy estimates that 52 jobs are created for every $1 million spent on energy efficiency and weatherization.

Furthermore, funding should be included for clean energy projects including solar thermal and solar photovoltaic projects, wind projects, geothermal projects and Combined Heat and Power systems. The Renewable Energy Policy Project has calculated that both solar and wind power create 40% more jobs than coal power for an equivalent amount of power. Investing federal dollars will produce jobs, foster energy independence, and drive system costs down.

INCENTIVES FOR RENEWABLE ENERGY PRODUCTION AND SYSTEM COMPONENT MANUFACTURING

The Renewable Energy Production Tax Credit (PTC) and the Solar Investment Tax Credit (ITC) have been effective tools for supporting New Mexico's growing clean energy industry. In the solar industry alone, the Energy Industries Association has estimated that extending the ITC through 2016 would create 19,000 new jobs in New Mexico, This is the highest employment gain from an ITC extension in the nation as a percentage of state population.

New Mexico has a state Alternative Energy Product Manufacturer's Tax Credit has that has been instrumental in attracting world-class companies like Schott Solar to New Mexico. A similar federal credit would facilitate their expansion and create new high-wage jobs.

Very recently, we have heard from some utility-scale renewable energy developers active in New Mexico that the recession has reduced the appetite of companies for tax credits which has made financing these projects more challenging. Please take this into consideration when determining how best to incentivize additional renewable energy production.

INVESTING IN WORKFORCE TRAINING FOR THE GREEN JOBS THE FUTURE

A Green Jobs Partnership is forming in New Mexico to ensure that our state has the prepared workforce it needs for a low-carbon economy. Leveraging the investment and learning from the federal WIRED grant that the state received, this Partnership will expand this model and adopt it statewide. New Mexico plans to meet the needs of employers by providing a workforce with nationally recognized certifications like WorkKeys, MSSC-Certified Production Technicians, NABCEP certified solar installers and certified wind technicians. Our state colleges will also work to develop customized training programs for employers on a just-in-time basis.

In order for New Mexico to truly benefit from the jobs created by a federal stimulus package, a proportional federal investment in workforce training will be needed. Furthermore, the creation of a national Green Jobs Corps would help to expose our young people to these jobs of the future and provide them with needed skills and experience.

INVEST IN RENEWABLE ENERGY, BIOFUELS, AND LOW-CARBON RESEARCH & DEVELOPMENT

Congress should support a substantial long-term federal investment in basic and applied research and deployment of renewable energy, biofuels, and low-carbon technologies. New Mexico's labs and universities are well positioned to participate in this research.

New Mexico looks forward to working with you to ensure federal investments have a maximum positive impact on New Mexico's economy and our nation's energy independence. Thank you again for your leadership at this important time.

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STATEMENT OF PEABODY ENERGY

Thank you to Chairman Bingaman, Senator Domenici, and the Members of the committee for the opportunity to submit comments on how the buildout and continuing support of substitute natural gas ("SNG") production can also help stimulate the economy and provide environmental and national security benefits.

In comparison to oil and gas, coal is abundant both worldwide and in the United States, Worldwide coal reserves are 4 times greater than oil and gas reserves combined. Perhaps more importantly, although the U.S. has less than an estimated 3% of the world's oil and gas reserves, it has 27% of the world's coal reserves, revealing an obvious national security advantage for the domestic consumption of coal. The Energy Information Administration has estimated that the United States has a coal reserve that will hold out, even in the face of growing energy demands, for 250 years.

We now have the capability of transforming this vast domestic resource into SNG, a product that is fungible with our current natural gas supply, thus immediately ready to be put into pipelines and shipped to heat homes, warm our water, prepare our meals, create clean electricity, and serve any of the other purposes of natural gas. The process in which SNG is transformed from coal to this versatile gas also is capable of capturing more than 90% of the carbon dioxide that ultimately could be permanently stored or used for enhanced oil recovery, creating a superior environmental product. Notably, the technology used to capture the carbon dioxide in the SNG process is a tested and proven technology and does not carry risks some-

times associated with other generations of carbon capture technologies. And with natural gas demand expected to grow more than 10 percent over the next two decades, SNG production also has immeasurable national security benefits by providing a domestic source of energy which would likely otherwise be procured from abroad. It is projected that about 75% of the increase in demand over this time will be met with foreign sources of natural gas as the domestic production is at or near its peak. (See slides in first addendum for more information regarding the high cost of natural gas.)*

The economic benefits of incentives for SNG production are manifest. Generally speaking, although certain policies and significant startup costs have hampered SNG production, long term increases in high oil and natural gas prices, along with environmental concerns have made buildout of SNG production facilities a reality. Peabody Energy, along with ConocoPhillips, has just announced plans to build the world's premier SNG facility in Muhlenberg County, Kentucky. (See press release and project overview in second addendum.) This project will create 1200 construction and 500 long term jobs in the region. In addition, it will provide up to $100 million annually in local and state economic impact through wages, taxes and other benefits. Several other similar projects have been planned and, if given a stimulus-related benefit, could likely come to fruition relatively quickly. Fundamentally, SNG production is a boon to the economy as it takes low-value feedstocks and converts them into high value products.

So how does it work? During the gasification process, coal is ground into small particles and mixed with water. This mixture is injected into a pressurized vessel along with a controlled amount of pure oxygen. The heat inside the gasifier converts the coal, water and oxygen into synthesis gas comprised primarily of hydrogen and carbon monoxide. After removing any sulfur and carbon dioxide from the synthesis gas, the hydrogen and carbon monoxide react to create methane, or substitute natural gas. Specific environmental benefits include:

- The process captures over 90 percent of the feedstock carbon dioxide that ultimately could be permanently stored or used for enhanced oil recovery.
- The process can cost-effectively remove 90-95 percent of the mercury in coal.
- Over 99 percent of the sulfur from the process can be recovered and marketed for use in the fertilizer industry.
- The gasification process produces no ash and recycles byproduts into useful products including road construction materials.

In order to capitalize on the many benefits that SNG can bring to this country's energy portfolio, we recommend:

- Specifically including SNG production and investment in tax credits such as the section 45 production tax credit and the section 48B investment tax credit for advanced coal technologies.
- Additional tax credits for carbon capture and storage as well as credit for the use of captured carbon dioxide for enhanced oil recovery operations.
- Incentives for additional investment in carbon capture and storage infrastructure in order to allow such capture and transportation to storage.
- Timely creation of workable regulatory and legal schemes for carbon capture and storage as well as enhanced oil recovery.

Thank you very much for your attention to these critical issues and your willingness to consider how this revolutionary technology can create jobs, provide an environmentally sound energy resource, and increase our national security.

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## STATEMENT OF THE WATER RESOURCES COALITION

Mr. Chairman, Ranking Member Domenici, and members of the Committee, the Water Resources Coalition is submitting this statement for inclusion in the record of your December 10, 2008 hearing on how infrastructure investment will lead our economy down the road to recovery through the creation of green jobs.

The Water Resources Coalition was established in 2007 to promote the development, implementation and funding of a comprehensive national water resources policy. With member organizations representing state and local governments; conservation, engineering, and construction; ports, waterways, and transportation services, the Coalition works to ensure that a comprehensive, national water resources policy is developed, implemented, and funded to provide a sustainable, productive economy; healthy aquatic ecology; and public health and safety. Because of the breadth

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*Addenda 1–2 have been retained in committee files.

of the Coalition's membership, many of our members have extensive experience with various types of federal, State, and local water resources projects ranging from water supply to environmental restoration, to storm damage reduction and navigation. At the federal level, each of us works closely with both the Corps of Engineers and the Bureau of Reclamation.

NEED FOR SUSTAINABLE INFRASTRUCTURE

The Water Resources Coalition believes investment in water infrastructure projects is an investment in our economy and in the protection of our environment. The Coalition believes in comprehensive water solutions, rather than solutions that are aimed exclusively at protecting environment or water supply. Protecting one or the other exacerbates both as they are repeatedly in conflict with one another. Protecting only one aspect of our water system is not sustainable and threatens, rather than improves, our economy. Investments in sustainable infrastructure projects will not only immediately stimulate our economy through job creation in the construction sector, but will also provide reliable, long-term water supplies. Additionally, many projects are designed to reduce stressors on our natural resources and ecosystems, working to protect our environment from drought and protecting threatened species. The pending water crisis in California, which has set in opposition California water supply versus the endangered delta smelt, provides an example of how relying on outdated infrastructure sustains conflict and demonstrates the need for new, sustainable infrastructure for the protection of the environment and reliable water supply.

STATE OF THE ECONOMY

The recent financial crisis has hampered the ability of state and local governments and public agencies to borrow short term, delaying or eliminating various infrastructure improvement projects. At the state and local level, budgets have declined significantly because of the decline in home values, resulting in lower property tax collections. The recent financial crisis has also hampered the ability of state and local governments and public agencies to borrow short term, delaying or eliminating various infrastructure improvement projects. According to Municipal Market Advisors, a consulting firm that specializes in municipal bonds, $100 billion of new infrastructure projects have been delayed because of the constricted credit markets.

The impact of fewer contracts being bid is reflected in increasing nationwide unemployment numbers. Non-residential construction employment peaked in January 2007 and has steadily decreased over the past 24 months. There was more than a four percent decrease in these jobs over that period, which equates to 180,000 construction employees. It is estimated that an additional loss of 10 to 15 percent nationwide is possible if the economy does not turn around. That could add another 27,000 more lost jobs to the 180,000 lost over the last 24 months.

It is estimated that every $1 billion invested in infrastructure projects would create or sustain over 28,500 new direct and indirect jobs. Each billion invested would add about $3.4 billion to the Gross Domestic Product (GDP) as it ripples through the economy and about $1.1 billion to personal earnings.

BUREAU OF RECLAMATION

Within the Bureau of Reclamation, there continues to be an unmet need for federally funded projects to meet and maintain reliable water supply throughout the West. The Coalition suggests the Economic Recovery program include additional funding into Reclamation's drought and water conservation programs: the Title XVI Water Reclamation and Reuse Program; its authorized Rural Water Projects; and the Colorado River Salinity Control Program. We believe there should also be a greater emphasis to drought preparedness and the expected challenges from climate change with regard to the Reclamation program and the role of the existing projects constructed by Reclamation. Though not directly related to greater job generation at this time, we feel this Economic Recovery is an important opportunity to be forward thinking with regard to preparing for the future.

We see an unmet need for greater integrated resource planning and water resource planning in the West. The Bureau has played an important role in the development of the 17 western states over the past one-hundred years. We were greatly concerned with the almost $200 million reduction in the FY 2009 Reclamation program as proposed by the administration. When the Water and Related Resources (construction) account of the Bureau is examined, 51 percent of the funding is now for facility maintenance and rehabilitation. The Coalition recognizes the importance of such investment given the aging of the infrastructure and the harsh climatic conditions of the western United States and the ease of using Economic Recovery funds

to address maintenance. Nevertheless, that funding only leaves about $250 million for the construction work in the water and energy component of the program—a program with a significant backlog of authorized work that holds the potential for meeting critical water needs in the West.

*Title XVI*

The Coalition also supports the increased fusion of funds for the Bureau of Reclamation's Water Recycling and Reuse Program, known as Title XVI. This program funds recycling and reuse projects throughout the West. In the Western U.S., drought, population growth, increasing climate variability, and ecosystem needs make managing water supplies especially challenging. Water reuse projects provide a valuable source of water and help alleviate conflicts. These projects are a sound and critical investment in creating jobs, addressing drought concerns and helping local economies.

In California, water recycling projects throughout the state help to reduce dependence on imported water from both the Lower Colorado River and Sacramento/San Joaquin Delta. In the San Gabriel Basin and elsewhere, these projects are also designed to clean up contaminated groundwater. There are an estimated $500 million worth of projects throughout the State that could begin within 120 days of receiving funds. Nationally, the Bureau of Reclamation estimates a $655 million backlog in funding for 45 projects across nine western states. Estimates indicate these types of water construction projects generate between 30,000-40,000 jobs per billion invested.

*Rural Water*

There continues to be an unmet need for reliable water supply in rural areas across the United States, particularly in the Great Plains states and throughout the Southwest. The Coalition supports the Economic Recovery package providing funding for the existing authorized projects in the Bureau's construction program, especially those associated with meeting the needs of the Native American community.

*Colorado River Basin Salinity Control Program*

The Coalition would also request that additional funding for the Colorado River Basin Salinity Control Program be provided to further advance this important program for meeting water quality needs in the seven Basin states and Mexico. Salinity damages to municipal and agricultural water users of Colorado water are currently over $300 million per year. Municipal users in southern California are being particularly hard hit because salinity limits their ability to reuse wastewater to meet increasing demands on water supplies. The salinity program is designed to meet the Colorado River Basin Water Quality Standards. These standards include a plan of implementation to mitigate further degradation of water quality in southern California, Arizona, Nevada, and deliveries to Mexico. The goal of this program is to seek cost-effective, regional solutions to the program.

Thank you for this opportunity to comment. The Water Resources Coalition looks forward to working with the Committee on this critical issue.

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## Statement of the Interstate Mining Compact Commission and the National Association of Abandoned Mine Land Programs

This statement is submitted on behalf of the Interstate Mining Compact Commission (IMCC) and the National Association of Abandoned Mine Land Programs (NAAMLP) concerning the issues addressed by the Senate Energy and Natural Resources Committee at a hearing on December 10, 2008 regarding proposed investments in clean energy and natural resources projects and programs designed to create green jobs and stimulate the economy. The states and tribes represented by our organizations are prepared to work with Congress and the Administration to put moneys made available under an economic stimulus package to work on the ground to address the cleanup of abandoned mine lands, an investment that will not only create green jobs but will also significantly improve the environment, protect public health and safety, and stimulate local economies. We appreciate the opportunity to submit this statement.

The Interstate Mining Compact Commission (IMCC) and the National Association of Abandoned Mine Land Programs (NAAMLP) are multi-state governmental organizations that together represent some 30 mineral-producing states and Indian tribes, each of which implements programs that regulate the environmental impacts of both coal and hardrock mining. Many of these programs involve delegations of authority from the federal government pursuant to national environmental laws such as the Surface Mining Control and Reclamation Act, the Clean Water Act and

the Resource Conservation and Recovery Act. Under these statutes, the states exercise primary responsibility for the permitting and inspection of the affected mining operations, for the enforcement of applicable environmental performance standards, and for the protection of public health and safety.

The development of our Nation's mineral resources is a critical component of our national well-being and security. Our manufacturing activities, transportation systems and the comfort of our homes depend on the products of mining. At the same time, it is essential that an appropriate balance be struck between the need for minerals and the protection of the public health and safety and the environment. Over the past 40 years with the passage of sweeping national environmental laws, the states and Indian tribes have taken the lead in fashioning and then implementing effective programs for the regulation of mining and its impacts, including the cleanup of inactive and abandoned mine lands. As we face new challenges associated with homeland security, climate change and alternative energy sources, the importance of mineral development will be heightened, as will the role of state and tribal regulatory authorities.

Another significant opportunity in which the states and tribes can play a major role is the development of projects and programs to create green jobs and thereby stimulate the economy, which is the subject of the Committee's hearing. As we will explain in further detail below, the cleanup of inactive and abandoned hardrock mines across the country presents an opportunity to create jobs that will directly improve the environment in many ways. The states and tribes have a plethora of AML projects "on the shelf" that could benefit from immediate funding and that would generate jobs for America's work force. We believe that nationwide, upwards of $250 million could be spent over the next 18—24 months to address hardrock AML sites and thereby benefit the environment and stimulate the economy.

Nationally, abandoned mine lands continue to have potentially significant adverse effects on the environment. Some of the types of environmental impacts that occur at AML sites include subsidence, surface and ground water contamination, erosion, sedimentation, chemical release, and acid mine drainage. Safety hazards associated with abandoned mines account for deaths and/or injuries each year. Abandoned and inactive mines, resulting from mining activities that occurred over the past 150 years prior to the implementation of present day controls, are scattered throughout the United States. The sites are located on private, state and public lands.

Over the years, several studies have been undertaken in an attempt to quantify the hardrock AML cleanup effort. In 1991, IMCC and the Western Governors' Association completed a multi-volume study of inactive and abandoned mines that provided one of the first broad-based scoping efforts of the national problem. Neither this study, nor any subsequent nationwide study, provides a quality, completely reliable, and fully accurate on-the-ground inventory of the hardrock AML problem. Both the 1991 study and a recent IMCC compilation of data on hardrock AML sites were based on available data and professional judgment. The data is seldom comparable between states due to the wide variation in inventory criteria. Nevertheless, the data do demonstrate that nationally, there are large numbers of significant safety and environmental problems associated with inactive and abandoned hardrock mines and that cumulative remediation costs are very large.

Across the country, the number of abandoned hardrock mines with extremely hazardous mining-related features has been estimated at several hundred thousand. Many of the states report the extent of their respective AML problem using a variety of descriptions including mine sites, mine openings, mine features or structures, mine dumps, subsidence prone areas, miles of unreclaimed highwall, miles of polluted water, and acres of unreclaimed or disturbed land. Some of the types of numbers that IMCC has seen reported in our Noncoal Report and in response to information we have collected for GAO and others include the following gross estimated number of abandoned mine sites: Alaska—7,000; Arizona—80,000; California—47,000; Colorado—7,300; Montana—6,000; Nevada—16,000; Utah—17,000 to 20,000; New York—1,800; Virginia—3,000 Washington—3,800; Wyoming—1,700. Nevada reports over 200,000 mine openings; Minnesota reports over 100,000 acres of abandoned mine lands and South Carolina reports over 6,000 acres. While the above figures attempt to capture a universe of all abandoned mine sites by state, the actual number of sites that pose significant health, safety or serious environmental problems is likely far lower.

What becomes obvious in any attempt to characterize the hardrock AML problem is that it is pervasive and significant. And although inventory efforts are helpful in attempting to put numbers on the problem, in almost every case, the states are intimately familiar with the highest priority problems within their borders and know where limited reclamation dollars must immediately be spent to protect public health and safety or protect the environment from significant harm.

Estimating the costs of reclaiming hardrock abandoned mines is even more difficult than characterizing the number of mines. If one accepts the estimates of the number of AML sites, one can develop a very rough estimate for the costs of safeguarding mine hazards and reclaiming small surface disturbances. But the costs of remediating environmental problems such as ground water and surface water contamination, acid rock drainage or wind blown contaminants are extremely difficult to estimate. And many of these problems will not even be detected unless a thorough assessment and testing occurs at a site.

In an effort to quantify and forecast what states could spend as part of an economic stimulus package that focuses on the cleanup of abandoned hardrock AML sites over the next 18 to 24 months, IMCC received the following information from the states:

- South Dakota.—South Dakota has one major mining Superfund site waiting for remediation. The Gilt Edge Mine Superfund Site is located in the northern Black Hills, approximately four miles from the town of Deadwood. Mining activities began at the site in 1876 and continued intermittently for more than 100 years. The most recent owner of the site, Brohm Mining Company, operated a large-scale, open pit, heap-leach gold mining operation at the site from 1986 until 1999. Brohm affected 265 acres consisting of open pits, waste rock depositories, process facilities, and a heap leach pad. This mining activity caused significant acid rock drainage. In 1999 Brohm abandoned the site and in 2000 the EPA listed the mine as a Superfund Site. Work accomplished to date is the construction of a lime water treatment plant for treating acid water and the capping of a 65-acre acid generating waste rock facility. EPA recently issued a Record of Decision for the remediation of the rest of the site which includes three pits, waste rock depositories, a heap leach pad and process facilities. Remedial design is estimated to take one year with the selected remedy emphasizing site-wide consolidation and containment of mine waste. The estimated cost for the remaining reclamation work is $50 million and it will take five to seven years to complete depending on availability of funding.
- Montana.—Potential abandoned mine projects for funding total $31.7 million, with 202 persons projected to be employed. These projects are outside of the current AML planning window, but could be brought to construction within 18 months or less. Projects include a bond forfeiture and a recent environmental emergency, as follows:

  —Engineered portal plug for Evening Star/Big Dick mine blowout and discharge to Little Blackfoot River. (Powell County). $6.5 million, 20 employed.
  —Silver Creek Tailings removal and stream reconstruction project (Lewis and Clark County). $10 million, 40 employed.
  —Basin Creek Mine closure—bond forfeiture bankruptcy. Lewis and Clark and Jefferson Counties. $4.7 million. 50 employed.
  —Winston Area Multi-site Mine Waste Repository and Reclamation Project: East Pacific, Sunrise-January, Custer Millsite, and Chartam Mine Sites (Broadwater County). $3.4 million 40 employed.
  —Emery Mine Reclamation Project (Powell County). $5 million. 25 employed.
  —Frohner and Nellie Grant Mine (Jefferson County) $1.5 million, 15 employed.
  —Broken Hill Mine Reclamation Project (Saunders County). $.8 million. 12 employed.

- Colorado.—The following projects address serious mine hazards and environmental problems associated with abandoned or inactive mines. The state and local community-based watershed groups use the funding to develop and construct projects that safeguard dangerous mine sites and to remediate environmental problems associated with abandoned mines such as acid mine drainage, and erosion of mine and mill waste piles into streams and rivers. In addition these funds provide local economic benefits by creating hundreds of jobs in Colorado's construction industry. Every project dollar expended translates into jobs in the construction, labor, equipment, materials and service industries.

  What follows is a very general list of the types of upcoming projects. All are undergoing reviews related to NEPA, landownership, state purchasing and contracting but could quickly be on deck for final review and processing. Summary of all of the projects below: $5-7 million dollars spent in the construction and technical consulting industry. Translates roughly into 500 jobs. (Would not necessarily be new jobs but work for people already in the industry.)

  BLM and USFS Safeguarding and Environmental Remediation Projects—$2 million in 09. Colorado AML already partners with BLM, USFS and NPS to contract and manage these projects. Colorado AML is in a good position to as-

sist with funding that would be granted to these agencies for AML work in Colorado.

Safeguarding Hazardous Mine Openings Statewide in Colorado's Mineral Belt areas: $1 million in 09—Several hardrock safeguarding projects have been developed for this year. These projects could be out to bid in the summer season for completion in 2010.

Environmental Mine Site Reclamation—$2-$5 million. Projects in the following river watersheds: Colorado, Animas, Arkansas, Rio Grande, and South Platte—all related to remediation of environmental problems associated with abandoned mines such as acid mine drainage, and erosion of mine and mill waste piles into streams and rivers. This will include funding to partner with local watershed groups to expedite design and construction of projects. Many watershed groups have projects outlined but have never had significant funding to get them off the ground. Through our watershed agreements we are all in a position to manage and construct these types of projects.

Reclamation of Forfeited Mine Sites. $500,000—Projects statewide. This funding is used to reclaim forfeited mine sites. Not considered abandoned but inactive. There is not a solvent company to clean up such sites, and the responsibility to perform reclamation remains with the state.

- Utah.—the state could spend $9,471,033 on six projects in five rural counties for an estimated 93 new jobs if total reclamation (as opposed to just physical safety hazard abatement only) is allowed. Hazard abatement only would be about $525,000 with 53 jobs created.
- New Mexico.—the state has six projects with a total estimated construction cost of $1.95 million that could be undertaken within the 18—24 month time frame. There are two additional projects with a cost of $750,000 that could also likely meet the deadline. These costs are only for the construction contracts, and do not include any costs for investigation, evaluation, design or oversight. The projects all involve noncoal and are on federal lands.
- Wyoming.—In the next 18 months Wyoming can put $10 to $12 million worth of projects on the ground. The number of jobs that would be involved is harder to estimate but based on similar sized projects it would be around 75 people but less than 100.
- Arizona.—the state has Twenty-three (23) high-risk mine sites with 81 openings which can be identified for closure in the next 24 months. These areas typically have high use for backcountry touring and off highway vehicle activities, and recreational mineral collection by winter visitors, or are located near populated areas. Many of the 23 mine sites has several openings with depth's greater than 50 feet. These mine sites are hardrock AML projects. The number of jobs created by and through AML hardrock remediation is difficult to estimate because, in general, the abandoned mines that need to be addressed resulted from the efforts of small-time prospectors. We would estimate the number of jobs created to be 50-100. This number is subject to change once the momentum of closures increases throughout the 24 month timeline. The estimated costs are $810,000.
- Alaska.—As one of several Minimum Program States, Alaska has outstanding Abandoned Mine Land Inventory projects required to protect public health and safety that are large enough in size and cost to make accomplishment impractical without access to larger blocks of funds, such as those the economic stimulus package might provide. The projects that we can have on the street and working within the next 18 to 24 months (or less) would include the following for your consideration:

  —Healy Creek Washplant Demolition—AMLIS AK000043SGA—this was the site of a near fatal injury during the past summer and we want to make sure there is no repetition. Cost $670,000 with 10 jobs created and roughly 200 tons of steel provided for recycling. This site is near the entrance to Denali National Park.

  —Hydraulic Pit Highwall Mitigation—AMLIS AK000046SGA—this represents a safety hazard with 200 to 300 foot highwalls. Most of the exposure is actually during winter months when recreational snowmachiners are blasting around at 70 miles per hour in the nearly continuous darkness. AMLIS has this feature on the books at a projected cost of over $28 million. By utilizing different mitigation techniques (cast blasting) we can accomplish this project at a cost of $15 million which includes $10 million for highwall mitigation and $5 million to reduce sediment flow from the area into Healy Creek. This will create some 20 jobs and include highwall mitigation as well as reducing sediment load coming from the site entering Healy Creek near Denali National Park.

—North Jones Highwall Mitigation—AK000009SGA—this site has 200 foot highwalls in the Sutton area outside of Anchorage that actually are not accessible to vehicles or most foot travelers. What makes this site so extremely hazardous is the frequent public and school/college class use of the pit bottom to collect fossils. There is a continuous run of rocks falling from the highwall and rolling into the pit bottom that creates a very real threat of injury. Estimated cost would be $4.382 million and create 40 jobs plus contract helicopter work while providing for public safety.

—North Jones Mine 3 subsidence features—AMLIS AK000009SGA—Collapsing airshafts up to 1,500 feet deep that require mitigation for public safety. Cost estimated at $200,000 with employment of 10 people.

—North Jones Mine Upper Fire Area—AMLIS AK000009SGA—We plan on verifying extent of the problem this summer. Fire elimination from this heavily used recreational site is estimated at $5 million due to depths of material at over 300 feet in places. Jobs created would be 30 to 40.

—Center and Bill Pits Hazardous Impoundments and Highwalls—AMLIS AK000025SGA—This site is located in the Healy Valley. In order to drain the impoundment and reduce the highwall to safe levels the cost would be an estimated $5 million. Jobs created would be 20.

—East and West Coal Creek Pit Highwalls—Not yet in AMLIS—Located in the Healy Valley these two pits adjacent to Coal Creek would have the highwalls mitigated and the erosive contributions to Coal Creek and subsequently Healy Creek reduced. Cost is estimated at $3.2 million and jobs created would be 10 to 15.

—Inmate Training—With an additional $2.0 million we could initiate a program starting this spring to train 60 to 80 inmates to operate several types of equipment and develop other skill sets that would help them secure employment after they served their sentences. Examples of work done would be heavy equipment operation and maintenance (cat dozers, excavators, dump trucks and backhoes) and vegetation management (controlling pest vegetation species and harvesting/planting willows in the Matanuska Valley Moose Range). We would use leased equipment and contract for well qualified instructors to lead the effort on the ground to insure participants learned employable skills applicable to construction, highway, oil and gas and mineral extraction industries.

- California.—the state estimates that approximately 47,000 abandoned mines are distributed throughout California. Of these, approximately 5,200 sites (11% of 47,000) present environmental hazards, and more than 39,400 sites (84%) present physical safety hazards. Some of the highest priority AML sites (for example, Iron Mountain) are being addressed, but the majority have not been evaluated to determine the required cleanup actions to protect public health and safety and the environment. In addition, there are numerous areas throughout the Sierra, including tribal lands that are contaminated from historic mercury use associated with gold mining. Hundreds of millions of dollars will ultimately be necessary to remediate all the AML sites within the State. As you know, California does not currently receive federal AML funding as it is not a SMCRA state.

  In 2007, at the request of Senator Feinstein's office, California's state and federal agencies working on AML issues created lists of priority AML sites with environmental and physical hazards. The list is being updated, but a current version is available from the state or IMCC. This list provides a snapshot of the known environmental, human health, and safety problems posed by abandoned mines in California. It is important to note that many AML sites have not yet been inventoried or assessed for hazards. The prioritization process used for each list is briefly outlined in the document.

  Of the sites on the list, many can be considered at/near a "shovel-ready" stage (i.e., projects already advanced that can put out to bid/work begun within 18 months). Listed alphabetically below are six of the State's priorities identified by the Office of Mine Reclamation, State Water Resources Control Board, and Department of Toxic Substances Control.

| | |
|---|---|
| Argonaut Mine, Amador County (private land/low-income PRP) | $2.0M |
| La Joya Quicksilver Mine, Napa County (private land/low-income PRP) | $2.0M |
| New London Mine, San Luis Obispo County (California National Guard) | $3.0M |
| Oro de Amador, mine tailings in Amador County (city of Jackson) | $5.0M |
| Plumas Eureka Mine, Plumas County (State Parks) | $3.0M |
| 150-200 priority physical hazard features on federal and state lands | $1.5M |
| Total | $16.5 million |

Other priority sites would likely be provided by federal agencies such as the Bureau of Land Management, U.S. Forest Service, and National Park Service (an estimated 67% of California's AML sites lie on federal land). We would like to stress that any hardrock AML funds for California's priority AML sites should go directly to the State of California or that the federal agencies receiving funds funnel them to the State.

Please note, the above "short list" represents only a partial list. We would be happy to work with California Senators Boxer and Feinstein and the Senate Energy and Natural Resources Committee as a whole to provide a complete list that corresponds to our updated priorities. The above short list also does not address the many abandoned mine sites that would benefit from funding for assessment investigations prior to cleanup Should such funds be available, California could use an additional, initial $5,000,000 to conduct investigations at AML sites that pose immediate threats to human health and the environment to define cleanup construction projects. State and federal agencies would work together to conduct the investigations and select the highest priority cleanup actions. Sites and cleanup actions would be defined within less than a year of initiation of the investigation work and construction contracts could be awarded using contractors in place several months thereafter (thus, within 18 months from the notification of funding to award additional cleanup construction contracts).

In addition to the above forecasts provided by these states regarding economic and job enhancements, it should be noted that, in general, for every dollar spent by the states/tribes on local construction, this translates to $2.70 that is spent in the local economy for things such as supplies and materials, local equipment rentals and equipment operators, and employee support.

Today, state agencies are working on hardrock abandoned mine problems through a variety of limited state and federal funding sources. Various federal agencies, including the Environmental Protection Agency, the Bureau of Land Management, the National Park Service, the U.S. Forest Service, and the U.S. Army Corps of Engineers have provided some funding for hardrock mine remediation projects. These state/federal partnerships have been instrumental in assisting the states with our hardrock AML work and, as states take on a larger role for hardrock AML cleanups into the future, we will continue to coordinate with our federal partners. However, most of these existing federal grants are project specific and do not provide consistent funding. For states with coal mining, the most consistent source of AML funding has been the Title IV grants under the Surface Mining Control and Reclamation Act (SMCRA). Section 409 of SMCRA allows states to use these grants only at high priority non-coal AML sites. The funding is generally limited to safeguarding hazards to public safety (e.g., closing mine openings) at hardrock sites. It is worth noting that recent fatalities at abandoned hardrock mine sites have been in states without SCMRA-funded AML programs. The small amount of money that SMCRA states have been able to spend on physical safety hazards at hardrock sites appears to be making a difference.

As states work to address the remaining inventory of abandoned hardrock mine sites, the states are increasingly concerned about the escalating costs of addressing those problems that continue to go unreclaimed due to insufficient funding. Unaddressed sites worsen over time, thus increasing reclamation costs. Inflation exacerbates these costs. The longer the reclamation is postponed, the less reclamation will be accomplished. In addition, the states are finding new, higher priority prob-

lems each year, especially as many of our urban areas grow closer to what were formerly rural abandoned mine sites. New sites also continually appear, due to the effects of time and weather. This underscores the need for constant vigilance to protect our citizens.

In addition to the economic stimulus package that Congress will consider, the continued debate on reform of the General Mining Law provides yet another opportunity to establish a consistent, and robust, funding source for addressing hardrock AML problems. We would like to address a few needed components of any hardrock AML program that might be included in any new legislation—be it reform of the 1872 Mining Law or the economic stimulus package. First, any program to distribute funds for hardrock mine reclamation should allow for states and tribes to receive funding and conduct AML projects. Today, there are abandoned mine land programs in most states. These include the 28 programs established by states and tribes under SMCRA Title IV, along with states across the country that are not eligible for Title IV funding, including New York, South Carolina, North Carolina, Nevada, California, and Arizona. All of these states and tribes are experienced with administering federal grants and completing AML projects in a cost-effective manner, including projects on federal land.

It is essential that the states be provided an opportunity to assume primary responsibility for implementing any hardrock AML program given the unique differences among the states in terms of geology, climate, terrain and other physical and environmental conditions. Each state should also be provided the discretion to determine which among the many AML sites in its respective inventory of sites deserves the most immediate attention with input from the federal land management agencies on whose land the sites may be located. The states can also best decide the appropriate remediation required under the circumstances given available funding. This state-lead approach will assure the most critical AML problems are addressed first, since the states are closer to the problems and can make a better determination about priorities and actual remediation work.

In the West, several states, including New Mexico, Colorado, Utah, Wyoming and Montana, have used SMCRA Title IV funds to address a number of significant AML problems, both coal and hardrock. In addition, these AML programs have cooperative agreements with the Forest Service, BLM and the U.S. Army Corps of Engineers that allow those agencies to fund AML projects on their lands when money is available. It is simply more efficient for the federal land managers to use the already established state AML programs with their staff of experienced engineers, reclamation specialists and project managers to design and conduct cost-effective AML projects on federally-managed land within each state's boundaries. Given the importance of the states being able to access SMCRA Title IV funds for noncoal AML work, any new legislation should ensure that this practice can continue or increase. In this regard, it should be kept in mind that the states are generally in a better position to accomplish AML work. They have assembled professional staffs with thirty years of experience and an excellent local contracting knowledge base. States would require minimal staffing increases, thereby increasing on-the-ground results per program dollar.

Second, the legislation should recognize that most hardrock AML problems are on non-federal lands, even in the West. In most states, federal lands contain less than a quarter of all hardrock AML sites. In part, this is due to the patenting of mining claims in the nineteenth and early twentieth century that led to mining occurring on private land. And when there are abandoned mine problems on federal lands, they often spill over into adjacent non-federal lands or in-holdings. To be effective, a hardrock AML program needs to be able to spend funds on all classes of land.

A critical component of any reclamation program is prioritization of sites and identification of remediation options. Abandoned mine lands range from sites with features that require no remediation because of their minimal size or risk; to sites which require significant earthwork, topsoiling and revegetation for erosion and pollution control; to safeguarding shafts and adits that present public safety hazards; to remediating sites with significant toxic leachate causing contamination of ground and surface waters. In addition, there are hardrock mine sites with such a conglomeration of features, access problems, drainage problems, etc., that estimated reclamation/remediation costs exceed the entire annual AML budget of a state. Regardless of which inventory or listing of sites is used, a large portion of sites will require little if any reclamation. In other cases, the per unit cost of reclamation is relatively small. These sites will also rank low in priority because of the reduced threat to public health or the environment. On the other end of the spectrum, there will be a small number of sites that require a significant amount of funding to remediate and that constitute a chronic risk to public health or the environment. Under current law, these are the sites that are being or might be remediated under Superfund

(the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)). The AML priority sites should be those that constitute a physical threat to public safety, and sites with significant contamination, but that will likely never score high enough to be remediated under CERCLA.

Another aspect of any hardrock AML program is the process of quantifying the problem. A consistent and cost-effective inventory of AML problems may be needed. However, lessons need to be learned from the inventory of abandoned coal mines undertaken pursuant to the Surface Mining Control and Reclamation Act (SMCRA), which is estimated to have cost more than $25 million and is still fraught with controversy. Based on the SMCRA experience, any hardrock AML inventory needs to: have well thought out goals and instructions; maintain standardized inventory procedures; keep inventory crews small to minimize inconsistencies in reporting methods; minimize the influence on the inventory by those with vested interests in the results; require any federal agency inventory work to be coordinated with the states; utilize state-of-the-art GPS imagery; and be conducted with consideration for seasonal vegetation cover. In the end, there should also be a cap placed on the amount of money to be invested in any inventory effort so as not to divert money and energy from on-the-ground reclamation work.

There are many other components to an effective and efficient AML program. The states have significant experience in this area, based on our work under SMCRA and with AML programs in other non-SMCRA states. Among the other areas that should likely be addressed in fashioning a hardrock AML program are: reclamation program elements; reclamation standards; priorities for cleanup; set-aside accounts for special circumstances such as acid rock drainage; emergency situations; post-construction monitoring that evaluates the success of remediation activities as a learning tool; and funding distribution mechanisms. A new complication for state AML work that also needs to be addressed is the limited liability protection provided for noncoal AML work undertaken with SMCRA Title IV funds. A recent rulemaking by OSMRE removed this protection and it could have a significant chilling effect on the ability of the states and tribes to undertake some of their noncoal projects with SMCRA funds. This will likely need to be addressed with a perfecting amendment to SCMRA. We would welcome the opportunity to work with Congress and others to address all aspects of a hardrock AML program that is led by the states and coordinated with our federal partners.

We believe that the states and tribes could contribute to and benefit from an economic stimulus package that includes funding for enhanced hardrock AML cleanup. We assert that the work detailed above would maximize both job creation over the short term and return on investment over the long term, especially with regard to restoring the environment and protecting the public health and safety. We strongly support funding in the economic stimulus package for these programs and projects and welcome the opportunity to work with this Committee and others to put to this money to work in an expeditious fashion.

Should you have any questions or require additional information, please contact us. Thank you for the opportunity to submit this statement.

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STATEMENT OF LAURA FILBERT ZACHER, SMART FUTURE, ST. LOUIS, MO

I represent former leaders of NASA and other scientists in their company as well as the residents of eleven communities along the Mississippi River in southwestern Illinois. I have attached to this letter the communication that was sent in July to President-Elect Barack Obama by the eleven mayors of those communities.

Equitech International, LLC (EI) is a consortium of 23 sister companies holding all of the licenses and patents for an advanced renewable energy system (ARES). These former leaders of NASA/JPL have developed and proven two concepts that they propose to merge into one national exemplar of stand-alone, emissions-free power that can kickstart a new ARES industry of exportable replications worldwide. The two concepts have been previously proven at the cost of $55 million. Proofs of concept on Solar Fuel Cell Regeneration (SFCR) and Waste Steam Reform System (WSRS) are ready for design-build construction by a turnkey contractor, Whiting Turner. The WSRS component processes the worst waste elements in society (medicinal, industrial, and agricultural).

Equitech has partnered with the Metro East Citizens Land Cooperative (MECLC), a community investment corporation, to build the 7.5MW E-Macrosystem power plant and manufacturing center in East St. Louis where the surrounding communities would benefit from the 2,300 green jobs created by the demonstration alone. The exemplar is 105,000 s.f. with 90,000 s.f. available for EI/MECLC's first committed tenant, a solar energy products manufacturer. The exemplar will cost

$65,000,000 to construct. Due to the numerous profitable by-products of the E-Macrosystem, debt service on replications is short term. By products include premium power demanded by pharmaceuticals and computer chip industries, pure water, hospital-grade methanol, and more.

In addition to having national and international implications, the economic stimuli in the eleven impoverished communities of the MECLC include the dividends that will be paid directly to resident shareholders of the community investment corporation, income tax, and retail tax revenues. Please see the attached list of benefits for supporting the E-Macrosystem and consider inviting EI to speak on Wednesday. The CEO is located in Washington, DC, and would be available on short notice.

ATTACHMENT

E-MACROSYSTEM, 7.5 MW ADVANCED RENEWABLE ENERGY SYSTEM BY EQUITECH INTERNATIONAL, LLC WITH METRO EAST CITIZENS LAND COOPERATIVE

Equitech International LLC and Metro East Citizens Land Cooperative (MECLC) would like to stress the following point pertaining to the importance of funding the first project: the emissions-free E-Macrosystem power plant and shell building that will support manufacturing of advanced renewable energy system components for nationwide and worldwide export from the Metro East St. Louis, Illinois area:

*Opportunities*

1. Advanced Renewable Energy Systems (ARES) manufacturing is a new industry that will contribute to the ECONOMIC BASE of any community.
2. The E-Macrosystem will create 2300 new jobs that are considered "good jobs" that pay well and provide benefits.
3. The Waste-to-Energy component of the E-Macrosystem processes the worst toxic waste and provides a solution to industrial waste handling within the State and elsewhere.
4. The success of the E-Macrosystem holds the promise for the national, state local expansion opportunities through replication of the E-Macrosystem in new markets.
5. In addition to producing 7.5 MW of Premium Power, the E-Macrosystem generates other products to sell and additional revenue streams that contribute to economic feasibility.
6. MECLC's partners are prepared to expand manufacturing of advanced renewable energy systems components in the Metro East as soon as the national demonstration E-Macrosystem pilot is built.

The E-Macrosystem should qualify for support from various Federal agencies because it:

- Offers premium power capable of being independent of (or linked to) the utility grid and capable of supporting battery-powered "plug-in" vehicles.
- Supports needs in remote locations. (Solar fuel cell regeneration produces electric power, heat and water from recycling of all forms of organic waste, including biomass).
- Can be mobile, including marine capabilities when replicated on a ship. (When unique systems patent is commercialized, ships can be moved from port-to-port using the two technologies of the national demonstration / pilot project.)
- Can be applied to reduce the costs of penal systems by enabling prisoners to produce marketable components and profits for victim restitution, family support, prison operations and related enterprises in the communities in which they locate.
- Has been proven to have tunnel-safe transport implications through the use of its solar fuel cell regeneration power—no threat in tunnels, non-combustible.

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STATEMENT OF THE NATIONAL ASSOCIATION OF HOME BUILDERS

OVERVIEW

On behalf of the approximately 235,000 members of the National Association of Home Builders (NAHB), thank you for the opportunity to submit testimony for the hearing on investments in clean energy and natural resources projects and programs to create green jobs and stimulate the economy. We applaud the efforts of the Committee to seek ways to hasten the recovery of the nation's economy and to develop clean energy infrastructure, including investing in energy efficiency and green jobs, as a component of the broader recovery effort. Housing and home build-

ing, including energy efficient home construction and green building, must play a critical role in the overall recovery of the national economy, as well as the continued growth in sustainable building and building technology advancement.

NAHB believes that the housing crisis must be addressed aggressively and with priority if there is any hope for a speedy economic recovery. Furthermore, due to the housing crisis and the ever-increasing inventory of existing homes, the demand for and construction of new, more energy efficient and green homes is at a near standstill. Data from the U.S. Department of Energy's Energy Information Administration (EIA) and the U.S. Census Bureau confirms that older homes (built before 1991) consume 17.1% of U.S. total energy[1] and 74.1% of the 128 million dwelling units were built before 1990.[2] In addition, Census data shows that since July of 2005 sales of newly constructed homes have fallen from an annual rate of 1.389 million homes to a rate of 464,000—a 66.6% drop—representing the most dramatic decline since the Great Depression.

NAHB believes that replacing and improving existing buildings with more energy efficient or green new homes is a real opportunity that addresses both the housing downturn and need for better energy performance and sustainability in the built environment. However, without urgent action by Congress to jump start housing generally, i.e., giving consumers incentives to buy homes, the realization of this opportunity's benefits and the ability for our nation to address these two crises—energy and housing—will be dramatically diminished.

This statement is divided into three sections. First, it provides an update on the current state of the housing and mortgage markets. Second, it details the best approach for investing in energy performance improvements in the areas with the greatest need and where Congress can find the biggest returns in energy and resource savings. Finally, it provides information on stimulating growth in green jobs in the housing industry and how to establish an effective green jobs program that is appropriate for residential construction.

## CURRENT HOUSING MARKET AND ECONOMIC CONDITIONS

Housing is central to the economic crisis that now affects the global economy. The declines in home prices, the surge in foreclosures, and the reduction in home building activity are historic in scope and have generated the most severe recession in decades. Policies that aim to improve the current economic environment must address conditions in the housing market. Indeed, in testimony before the House Budget Committee on October 21, 2008, Federal Reserve Chairman Bernake highlighted the importance of stimulating housing demand:

> Finally, in the ideal case, a fiscal package would not only boost overall spending and economic activity but would also be aimed at redressing specific factors that have the potential to extend or deepen the economic slowdown. As I discussed earlier, the extraordinary tightening in credit conditions has played a central role in the slowdown thus far and could be an important factor delaying the recovery. If Congress proceeds with a fiscal package, it should consider including measures to help improve access to credit by consumers, homebuyers, businesses, and other borrowers. Such actions might be particularly effective at promoting economic growth and job creation.

A review of several key housing statistics reveals the historic nature of the downturn and its overall impact on the economy. For example, according to the Bureau of Economic Analysis, home building was responsible for 5.4 % of gross domestic profit (GDP), while housing in general contributed another 10.2 %, for a direct housing impact on GDP of 15.6 %. With additional consideration of related entities—e.g., furniture, housing wares, appliances, etc.—housing's total share of the economy was equal to 25% of the GDP in 2005. Furthermore, housing was responsible for 22.3 % of the growth of the GDP in 2005.

Facing the most severe housing downturn in history, all of the industries that rely on housing are feeling the effects. Not only are new homes not selling—and in many cases no longer being built—but data from the National Association of Realtors (NAR) shows that since September of 2005, sales of existing homes have declined 32.8 % to an annualized rate of 4.26 million. The historic rise in foreclosures has also added to rising inventories of both new and existing homes. According to Census data, newly-constructed home inventories have increased in the months-supply

[1] 2001 Annual Energy Review; 2001 Residential Energy Consumption Survey, U.S. Energy Information Administration, 2005.

[2] 2007 American Community Survey, U.S. Census Bureau.

ratio (the number of months required to sell all inventory at current sales rates) from 4.5 months-supply in August 2005 to 10.4 months-supply in September 2008. For reference, a healthy months-supply ratio is no more than 6. The NAR data also shows the same months-supply ratio of 10.4 for existing homes sales.

Lastly, the final statistic describing the dramatic downturn is the fall in home prices. The Case-Shiller Composite 20 house price series indicates a price decline of 20.3 % since June 2006, with some metropolitan areas seeing much more drastic declines. While some price adjustment is healthy for a housing market, an overshoot of prices on the downsizing due to weak demand not only hurts the real estate industry, but also hurts homebuyers and consumers as well. According to Federal Reserve data, housing wealth constitutes approximately one-half of the median U.S. household's net worth. Thus, declines in prices necessarily produce a negative wealth shock for American families, resulting in reduced consumption and investment, creating long-term negative impacts on economic growth. With respect to investments in the home, when existing homeowners feel that the property is devalued, it is significantly more challenging to encourage necessary energy efficiency improvements and sustainability upgrades (e.g., green remodeling) that can help save energy and resources for everyone.

During this critical time, facing the twin challenges of a severe economic downturn and a rapidly changing climate, NAHB believes that the housing industry has solutions for both problems. Fixing housing must be Congress' first priority by giving consumers the appropriate incentives to buy homes and to invest in efficiency improvements in existing homes, stabilizing home prices and reducing inventories, and generating job growth again in the myriad of industries linked to housing. Because newer homes are much more energy and resource efficient than older homes, these are investments that not only spur job growth in conservation and green innovation for the industry, but that also deliver sustainable homes for generations.

IMPROVING ENERGY PERFORMANCE IN RESIDENTIAL SECTOR

As stated, newer homes are dramatically more energy efficient than the 94 million homes built before 1990 (largely without energy codes or efficiency). Thus, as Congress searches for ways to invest limited resources in improving energy efficiency and performance in the residential sector, it must focus on ways to achieve the most savings per dollar. NAHB believes that this is accomplished not only with incentives for new homes that are truly pushing the innovation envelope in green and above-code performance, but also delivering meaningful incentives and subsidies to existing homeowners for improvements to older homes.

As the chart* below explains, most of the homes in the U.S. today were constructed prior to the implementation of modern energy codes. Therefore, these homes should be the primary focus of any policy approach aimed at saving energy in the residential sector. With only 3.3 percent of homes built since 2005, it is obvious that newer homes are not the biggest part of the energy consumption problem. As a participant in the code development process, NAHB consistently works to improve the energy efficiency codes that govern residential building in a manner that delivers the most cost-effective savings to consumers. In fact, the most recent code change cycle concluded with an improvement to the 2009 International Energy Conservation Code (IECC) of almost 20% over the 2006 edition. This 20% jump in efficiency in just three years for new homes is dramatic, almost unparalleled by other industries.

The problem is that fewer new, more energy efficient homes will be built unless something is done immediately to turn housing around. NAHB estimates that for 2009, housing starts will be approximately 778,000 units, dropping from a high of approximately 2 million in 2005. Furthermore, the rate at which new housing replaces older, less efficient homes is not nearly adequate enough to deliver meaningful savings without assisting residents occupying the oldest housing, i.e., primarily lower and moderate-income families that typically face higher price sensitivities or that cannot afford a newer, more efficient home. Although there has been exponential growth in the green building market, including commercial construction, over the last few years, the sheer impact of the housing downturn is likely to cast a pall over the enormous strides that have been made in sustainable building as a whole.

In addition to the energy performance of the structure itself, Congress must do something reduce the biggest source of energy loss in a home—consumer behavior. The EIA's 2008 Buildings Energy Data Book, issued in September, provides data on 2006 end-use consumption "splits" (or a breakdown) that details how energy is used

*Graphic has been retained in committee files.

by dwelling units in the U.S. Across all fuel types, the largest single component of energy consumption in a home is consumer behavior—e.g., lighting, refrigeration, laundering, cooking, electronics use, etc.—eating up 57% of the energy, while space heating and cooling (typically a builder responsibility) represents a mere 26%, with water heating, again largely dependent on consumer behavior, is about 9%.

Given the dire statistics that persist in media circles today about the energy consumed by homes and buildings (as high as 70% according to some), Congress must provide adequate resources—education, information, or direct subsidies—to consumers to help curb growing appetites for in-home energy. Large-screen plasma televisions, DVRs that are constantly plugged in, and other electronics consume vast amounts of energy over the long term that many consumers may not even realize. In fact, the Electric Power Research Institute (EPRI) estimates that by the year 2030, almost 30% of the residential energy load will be "plug-connected." EPRI also suggests that if every American household operated a digital photo frame for one year, it would be equivalent to powering five 250MW power plants.[3] This is extremely important because it confirms that improving energy performance simply does not materialize from ramping up code requirements for the already energy-efficient new homes as many advocates have recommended. If nothing is done to address consumer behavior inside a home, then the advances in building technology, green, and energy performance that come from envelope improvements may be completely displaced.

ESTABLISHING AN ADEQUATE GREEN JOBS PROGRAM

Without a doubt, the green revolution is a remarkable new media and policy force that has transformed the way millions of people think about seemingly everyday things. Yet, for home builders, green is not something new because NAHB members have been building green homes for decades, long before "green" became what it is today. These pioneers were building sustainable, energy, and resource-efficient homes as early as 1991 and continued to improve practices to incorporate more innovation over time. By the early 2000s, builders were expanding what would become green building programs and a push to develop a national guideline for residential green building emerged in the industry.

In 2005, NAHB, along with more than 60 stakeholders (architects, engineers, environmentalists, etc.) developed the Model Green Home Building Guidelines (The Guidelines). The Guidelines helped better define green home building and rapidly grew in popularity and demand, as well as in adoption by local and state Home Builder Associations (HBAs) around the country. Due to the success of The Guidelines, NAHB decided to proactively help develop the first-ever national standard for residential green building approved by the American National Standards Institute (ANSI), a non-affiliated Standards Developing Organization. With the advice and counsel of a Committee of more than 40 experts, builders, environmentalists, and federal, state, and local officials, the group develop a rigorous set of criteria covering all facets of green building—energy efficiency, water efficiency, resource efficiency, lot size and development, indoor environmental quality, global impact, and education and maintenance. The consensus process, including a thorough public vetting with over 3,000 comments, produced a document that was submitted to ANSI in April 2008 and is awaiting approval.

The tremendous strides in green building have begun to reshape the residential construction industry, the training and workforce development that support it, and even the choices of consumers buying green homes. In many instances, the talent already exists in the industry to build green homes, i.e., green roofers, insulators, designers and planners, etc. However, accessing additional training and expertise in the most advanced housing technologies is meaningful in order to further deliver energy performance and conserve precious natural resources. NAHB supports efforts to provide grants for training and workforce development in this area.

Unfortunately, the Green Jobs Act of 2007 (the Act), that was signed into law under PL110-140, limits eligibility for funding in this critical area to those entities who are partnered with labor unions. The Act established several new programs through the Department of Labor to set up grant and training programs in a number of green-related capacities. For example, the Act establishes National Energy Training Partnership Grants, which are directed to training programs for energy efficiency and renewable energy industries. The Act also creates a State Energy Training Partnership Program, similar to the National Energy Training Partnership, which provides State-level funding for administering similar efficiency and re-

[3] "Energy Efficiency Across the Electricity Value Chain." Presentation by Arshad Monsoor, Ph.D., Electric Power Research Institute, April 16, 2008.

newable energy programs. Finally, the Act utilizes the Energy Efficiency and Renewable Energy Worker Training Program to make grants to community-based nonprofit organizations in order to train low-income individuals in skilled trades related to energy efficiency enhancements. Each and every one of these new programs would be a meaningful for the residential construction industry. Yet, because 86% of the private-sector construction workforce is non-unionized, including nearly all of the residential construction industry, the majority of the housing industry would be precluded from participating.

NAHB believes that denying equal access to any training and development funding for green technology advancement through green jobs, particularly in housing, is terribly short-sighted and detracts from Congress' larger goal of significantly improving the energy performance and efficiency of our nation's environment. As in any industry, the housing industry needs qualified, trained, and knowledgeable experts to build the next generation of housing, once the recovery occurs and new homes again are being built. With so many advocates publicly decrying the ills of the building sector generally, it seems appropriate to provide equal access to all professionals performing green jobs, which should include the residential construction industry. Congress must act to fix this exclusion and provide equal access to training and workforce development that will aid energy efficiency and the use of renewable energy technologies in the millions of green and energy efficient homes yet to be built.

CONCLUSION

NAHB applauds the efforts of this Committee to seek stimulate clean energy investments and infrastructure through projects and programs that will truly have a positive impact on our national economy. As a sizeable component of that national economy, the housing industry must play a role in the recovery, as well as in the efficiency and building technology advancement capacity going forward. The current housing market conditions are the bleakest that our nation has seen since the Great Depression and unless something is done immediately to address the housing crisis and to get Americans buying homes again, there will be far fewer green and sustainable homes to replace our nation's aged and less efficient housing stock.

Improving the energy performance of our nation's housing stock is vitally important. In an environment with limited resources and major climate challenges, focusing investments in areas with the biggest returns will be critical in order to fully realize true energy savings. Upgrading existing homes and changing consumer consumption behaviors must be a part of any policy approach that Congress considers. Moreover, providing the most robust training and workforce development programs to further stimulate the growth of green jobs is essential and limiting these resources to affiliates of labor unions is extremely restrictive in light of the enormous need for conservation and energy efficiency facing the U.S.

Housing and home ownership play a fundamental role in our society, one with vast documented social and private benefits. Investing in housing, including the recovery as well as energy efficiency and green building, is extremely important for the national economy and for the environment. NAHB looks forward to working with Congress to ensure a speedy and effective near-term recovery, as well as a long-run success of these programs and the role that housing will play in the clean energy future of the U.S. as a whole.

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STATEMENT OF ROBERT BENDICK, DIRECTOR, US GOVERNMENT RELATIONS, THE NATURE CONSERVANCY

Mr. Chairman and members of the Committee, thank you for the opportunity to testify on how investing in natural resources projects will create green jobs and stimulate the economy. I am Robert Bendick, the Director of US Government Relations for The Nature Conservancy.

The Nature Conservancy is an international, nonprofit organization dedicated to the conservation of biological diversity. Our mission is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Our on-the-ground conservation work is carried out in all 50 states and in more than 30 countries and is supported by approximately one million individual members. The Nature Conservancy has protected more than 117 million acres of land and 5,000 miles of river around the world. Our work also includes more than 100 marine conservation projects in 21 countries and 22 U.S. states.

Mr. Chairman, we applaud you for holding this hearing today and for your leadership to craft a vision for how to stimulate the economy while protecting and restor-

ing natural resources. The Nature Conservancy agrees that investment in stimulating the nation's economy can and should have environmental benefits. My testimony suggests that this can be accomplished through two key actions:

1) spending stimulus funds on a suite of job-intensive "green infrastructure" projects such as wetland restoration, forest restoration, invasive species removal, and modification of roads and other infrastructure that impact habitat

2) minimizing the environmental impacts of traditional hard infrastructure projects by giving priority funding to those projects that utilize the most innovative design techniques

There are a variety of federal environmental programs able to implement "green infrastructure" projects that restore degraded ecosystems, grow the nation's green economy and create green jobs. From rebuilding coastal wetlands to restoring forest health, all of these restoration activities require extensive labor with significant job-creation benefits. In this testimony, we describe the rationale for investing in green infrastructure, and we have developed funding recommendations for existing Federal programs where investing in ecological restoration will lead to job creation.

While we argue for a significant green infrastructure component to any stimulus package, we also recognize that much of our nation's infrastructure is deteriorating, would greatly benefit from federal investment, and that this investment would result in thousands of much needed jobs. Roads, rails, pipelines, dams, levees and other hard infrastructure projects have negatively impacted ecosystems in the past, but there are design techniques that can help ensure any new or refurbished infrastructure is built in a way that is more compatible with the conservation of natural resources. Given both the desire to minimize the environmental impacts of a massive new investment in infrastructure and the need to allocate funding in a short timeframe, this testimony argues for setting funding priorities based on a project's use of innovative design techniques to reduce environmental impact.

Together, investing in "green infrastructure" and giving priority to hard infrastructure that employs "green techniques" will lead to economic recovery and rehabilitation of the nation's aging infrastructure while improving the condition of our natural resources. The testimony that follows lays out specific recommendation on why this approach is important and how this can be accomplished.

## INVESTING IN GREEN INFRASTRUCTURE AND CREATING GREEN JOBS

The nation's rivers, coasts, estuaries, forests and grasslands, including the millions of acres of public lands, are directly and indirectly linked to billions of dollars in economic productivity and provide important habitat and ecological services. Wetlands provide water quality improvements and flood protection, forests help filter water and improve water quality, and oyster reefs can provide self-renewing barriers to reduce erosion along shorelines. Moreover, healthy rivers, forests, and estuaries provide habitat for resource-based economies, such as tourism, fishing, and aquaculture.

Unfortunately, many of these critical ecosystems have been in decline for years. For example, a USGS report published in September of this year indicated that over 40% of freshwater fish in the US are under threat of extinction in the next 20 years. Approximately half of the Nation's wetland habitats have been lost, including in areas like coastal Louisiana where marshes provide important protection during hurricanes and other severe storm events. Millions of acres of forest lands have large fuel loads and are at great risk of catastrophic fire. Multiple federal agencies are currently involved in restoration, but current Federal investment in restoration falls well short of the national need. As is the case in traditional infrastructure projects, restoration projects create jobs and opportunities in the near-term while also creating the ecological and economic benefits that flow from healthy ecosystems over the long-term.

Ecological restoration has emerged as a high growth sector of our regional and national economy with additional investment in restoration offering the potential to provide significant job-creation benefits. This emergent industry, comprised of many applied sciences, employs a wide set of labor skills. These skills range from non-skilled laborers, to restoration design engineers, restoration ecologists, landscape architects, hydrologists and specialized botanists who work in nurseries that offer local seedlings and other specialized plants for restoration. Other sectors of the restoration labor force include specialized equipment operators of both light and heavy duty construction equipment, restoration monitoring specialists, construction crews and experts, soil experts, and many other diversified skilled laborers.

A recent example of job creation through restoration is the jobs being offered to watermen in the Maryland blue crab fishery, which was declared a Commercial

Fishery Failure earlier this fall. Federal and state disaster aid is being used to provide over 520 jobs to affected watermen, employing them to carry out oyster restoration work in the Chesapeake Bay. Similarly, a study by the North Coast Restoration Jobs Initiative showed that environmental restoration projects in Humboldt County, CA and surrounding areas employed 1057 worker-weeks over the course of 2002, mostly as a result of road decommissioning and culvert replacement projects. The Humboldt County study also indicated that most of the ecosystem restoration work using heavy equipment was contracted out to non-government entities, indicating private sector and small businesses benefit from the investment in restoration.

The examples above illustrate that investing in restoration will not only meet a critical national need by improving the ecological health of our nation's rivers, coasts, forests and grasslands but will also create green jobs to stimulate the economy. Given the significant national need for Federal investment in restoration and the demonstrated job-creation benefit of this investment, any stimulus package should dedicate significant funding to the restoration of ecosystems.

The following table lists funding recommendations by Federal agency and by restoration activity. We recognize that this list includes a number of agencies that are not under the jurisdiction of this committee, but we include them to give a broad vision for the potential for green infrastructure investment within an economic stimulus package. More detailed descriptions of the agency funding justifications follow. Lists of example projects that demonstrate the on-the-ground funding need are included in Appendix I.*

* Document has been retained in committee files.

SUMMARY FUNDING RECOMMENDATIONS

| Agency | ACTIVITY/PROGRAM | FUNDING RECOMMENDATION |
|---|---|---|
| U.S. Army Corps of Engineers | Large Scale Ecosystem Restoration | $1 billion. |
| | Individually authorized restoration and multi-purpose projects | $1 billion. |
| | Section 1135 and 206 Continuing Authority Programs | $500 million. |
| National Oceanic and Atmospheric Administration | Community Based Restoration and Open Rivers Initiative | $250 million. |
| Bureau of Reclamation | Water and Related Resources —environmental restoration | Priority funding and a minimum of ⅓ total Bureau stimulus funding. |
| Department of Transportation | State allocation—retrofits for stream connectivity | 2% of total DOT stimulus funding. |
| | Park, Forest and Refuge roads —retrofits for stream connectivity | $500 million. |
| | Stormwater runoff mitigation | 2% of total DOT stimulus funding. |
| Forest Service | Hazardous fuels reduction (includes Bureau of Land Management) | $1.5 billion. |
| | Forest Restoration Job Training | $50 million. |
| | Small business grants | $100 million. |
| | State and local fire assistance | $75 million. |
| | Land Management and Restoration | $343 million. |
| Environmental Protection Agency | Non-point source—Sec. 319 program | $300 million. |
| | Clean Water State Revolving Fund | $1 billion. |
| | Drinking Water State Revolving Fund | $1 billion. |
| Fish and Wildlife Service | Fish Passage Program | $14 million. |
| | Coastal Program | $21 million. |
| | Partners for Fish and Wildlife | $100 million. |
| | Refuge maintenance and restoration | $443 million. |
| Animal and Plant Health Inspection Service | Eradicate Asian longhorned beetle infestations | $100 million. |
| | Sudden Oak Death containment | $7 million. |
| Bureau of Land Manaement | Abandoned Mine Lands | $400 million. |

*Army Corps of Engineers*

Since Congress added ecosystem restoration as one of the Corps of Engineers' primary missions in 1986, the Corps has led some of the nation's largest and most ambitious ecosystem restoration projects (e.g., the Florida Everglades, Coastal Lou-

isiana, and Upper Mississippi River). The Corps has also become a leader in a myriad of smaller-scale projects. The Corps aquatic ecosystem restoration efforts include restoration of floodplain, wetland and coastal hydrology and vegetation, shellfish restoration, dam removal, fish passage, and levee modification, among others. Many of these large and small scale efforts require significant engineering and construction resources that would create a variety of jobs. There are also numerous projects that could quickly allocate funding.

We recommend that no less than a third of the Corps overall allocation in the economic stimulus package be dedicated to ecosystem restoration projects. There may be a tendency to focus stimulus funding solely on the largest restoration projects. However, to achieve geographic distribution of funding and to ensure that the stimulus funding meets multiple small and large scale restoration needs, we encourage distribution among the following restoration authorities:

- Large-scale programmatic restoration authorizations that have received construction authority (e.g. Upper Mississippi River, Everglades, Missouri River Recovery, Puget Sound and Louisiana Coastal Area). Many of these efforts have invested significant resources in pre-construction engineering and design and have projects that have received construction authorization but no funding to proceed with construction. Funding allocated through a stimulus package could be quickly obligated and provide significant economic and environmental benefits. The total funding recommendation provided for this line item is based on the FY 2009 spending capability for the five projects listed above.
- Individually authorized small to medium scale restoration projects or multi-purpose projects with a restoration component. There are a suite of projects that are individually authorized and have received regular investment for feasibility studies and design. Many of these received construction authority in the last Water Resources Development Act. Examples of such projects are provided in the list in appendix I. Funding should be allocated to those projects that have a clear environmental restoration benefit, are authorized for construction and could quickly obligate funding.
- Continuing authority programs (CAPs), which include Section 206, Aquatic Ecosystem Restoration, and Section 1135, Project Modifications for Improvement of the Environment. These continuing authority programs have been hamstrung by high demand, insufficient funding and a growing backlog of projects. As a result, the programs cannot implement new restoration projects and many existing projects have been languishing without funding. Many of the projects already in the program cue, some of which have received little or no funding in recent years, have completed large portions of the necessary design work and could quickly finalize design and award contracts for construction. Because of the small nature of projects within these programs (<$ 5 million total Federal cost), a significant investment via the stimulus package could clear the large backlog and quickly inject stimulus dollars into the economy.

*National Oceanic and Atmospheric Administration (NOAA)*

The nation's coastal areas are home to half of the US population and generate nearly 60% of our GDP. Restoring ecological health in these areas supports the long-term sustainability of coastal communities and coastal economies. Restored landscapes provide new opportunities for businesses such as river rafting or kayaking; they support recreational and commercial fishing industries; and improve tourism. Working with partners, the National Oceanic and Atmospheric Administration's (NOAA) Community-based Restoration Program and Open Rivers Initiative has the expertise to successfully implement a wide array of coastal restoration projects that both result in near-term job creation and result in long-term economic growth by supporting natural resource based economies. NOAA is well prepared to deliver stimulus funding by competitively selecting projects based on factors such as ecological benefit, feasibility, cost-effectiveness, and socio-economic benefits, including meeting job creation criteria.

Over 100 projects have been identified for NOAA with an estimated funding need of over $700 million. Some examples are included in Appendix I. This is not a comprehensive list but rather a sampling of projects to demonstrate scope and scale of the existing opportunity for this kind of work. Given the demonstrated need, job creation potential, and NOAA's capacity to implement projects, we recommend providing a minimum of $250 million in the economic recovery legislation for coastal and estuarine restoration and fish passage projects through NOAA.

*Bureau of Reclamation*

The Bureau of Reclamation is the largest water manager in the western United States, and as a result, has a significant impact on freshwater ecosystems in the

West. While the Bureau's mission is focused on water supply, the agency has supplemental authorities to address endangered species and other environmental concerns related to its projects. Bureau of Reclamation projects suffer from serious maintenance neglect with much of the water infrastructure managed by the agency in need of rehabilitation and repair. While we support investment in the Bureau's water supply projects, before investing funding in outdated infrastructure, it is important to seize the opportunity to evaluate whether existing infrastructure is meeting current needs and if not, to remove it. Furthermore, new investment in rehabilitation of water supply infrastructure affords an opportunity to identify modifications that both meet water supply needs and benefit the environment.

Given that there are a number of infrastructure removal, modification, repair and rehabilitation projects that can both improve water supply and provide environmental benefit, priority should be given to projects at Bureau of Reclamation facilities that provide environmental benefit with a minimum of 1/3 of the total funding received by the Bureau going to these projects. Examples of environmentally beneficial projects the Bureau could fund include improving the efficiency of water delivery systems to provide water for environmental purposes, modifications to facilities for fish passage, removal of unused or derelict facilities and consolidation of irrigation or other diversions to provide environmental benefit, and restoration of riparian habitats to meet endangered species or other environmental goals. A list of example projects for the Bureau of Reclamation is included in Appendix I.

*Department of Transportation*

Roads can have a significant impact on ecosystems by causing fragmentation of habitats, spreading invasive species, and degrading water quality. There are a number of restoration projects that involve the modification of roads. These projects require significant engineering and construction resources and as a result, will have a significant job creation effect. Suggested stimulus investments are outlined below:

- Modification of roads for fish passage.—In the past, most road-stream crossing design has been aimed at minimizing costs, protecting the road and minimizing traffic interruptions. Less attention has been given to protecting stream functions, such as sediment transport, fish and wildlife passage, and the movement of woody debris. Many bridges and culverts disrupt these processes causing ecological degradation. The last transportation bill provided authorization and funding for retrofitting culverts on Forest Service lands to improve habitat connectivity. High Priority Project funding was allocated to Alaska for similar work. This initial investment for bridge and culvert retrofits should be expanded in the economic stimulus package. First, $500 million should be provided through existing authorities for road modifications on Forest Service, Fish and Wildlife Service and Park Service land. Second, a new authority with dedicated funding should be created to allow state Departments of Transportation to construct projects to retrofit or replace stream-crossings for environmental benefit. We recommend 2% of the total allocation to transportation infrastructure be dedicated for this purpose.
- Projects to address water quality impairment related to roads.—Modification of hydrological conditions associated with roads as well as the polluted runoff from road surfaces seriously degrades water quality in many areas. According to the Environmental Protection Agency, stormwater runoff from roads, parking lots and other paved surfaces is the largest source of water pollution today. Furthermore, there is currently no dedicated funding for localities to address these concerns. In response to this need, the Senate version of the last transportation bill reauthorization included the Highway Stormwater Discharge Mitigation Program; unfortunately this new program was not included in the final conference agreement. To address the critical threat posed by water pollution from roads, the economic recovery package should authorize the Stormwater Discharge Mitigation program and dedicate 2% of the total investment in road infrastructure to these projects.

*Environmental Protection Agency*

The Environmental Protection Agency leads efforts to address the water quality of our nation's rivers, streams and wetlands. We have made great progress since the passage of the Clean Water Act in reducing the pollution contributed to our waterways, but work remains to be done. First, much of our water infrastructure, which has been largely responsible for improvement in water quality over the past 30 years, is aging and in need of re-investment and repair. This can be accomplished through investment in the Clean Water State Revolving Fund and Drinking Water State Revolving Fund.

While water and wastewater infrastructure and a strong point source control program have realized drastic water quality improvements, non point source pollution remains a significant threat to many of the nation's water bodies. Investment in activities to address non-point sources of pollution could go a long way towards improving water quality. Furthermore, many of the practices that would be employed involve infrastructure development and modification. For example, one practice with promise is the construction of two-stage ditches on agriculture land. These wider ditches slow the flow of water leaving agricultural landscapes, reducing the nutrient and sediment input to downstream water bodies. This type of work requires construction labor, materials, and equipment and thus would provide an economic stimulus. To address this non-point source water quality issue, we recommend a stimulus investment in the Section 319 non-point source pollution program with a focus on projects that require construction or other infrastructure modification.

*Forest Service*

More than 100 million acres of federal, state, and private lands are at high risk from damaging wildfire. Addressing the fire threat by removing overgrown brush and trees and restoring forest health at a national scale will stimulate local economies and put people to work in the wildland urban interface and in rural communities. It is also an effective technique to jump start restoration of degraded ecological systems and to enable fire to play its natural role even as climate change extends the fire season.

The National Fire Plan, with its sustained program of hazardous fuels reduction, has already spawned the beginning of a green industry to restore forest health and reduce wildfire threats. These existing industries range from community-based operations with chainsaws and trucks to large multi-state operations with mechanical harvesters and hundreds of employees. Under current programs, only 3 million acres of at-risk forests can be treated each year and the backlog is growing faster than the treatments can keep up. Accelerated fuels treatment will require sustained funding to the federal land management agencies and states and capacity building to get the workforce and business infrastructure in place.

The economic recovery package should address four aspects of this green jobs opportunity:

- Hazardous Fuels Reduction on Federal land.—Increase funding to the Forest Service and Department of Interior agencies in the Wildland Fire Management account, Hazardous Fuels Reduction line item, for agencies to prepare fuels treatment projects, gain NEPA clearance, and administer contracts.
- Forest restoration job training.—Provide job training programs to build the workforce and contractor capacity needed to restore forests, using USDA grants programs and authorities, such as Economic Action Program, Youth Conservation Corps, Job Corps Centers, and partnerships and agreements.
- Small business incentive grants.—Build infrastructure for efficient restoration of forests and utilization of small diameter wood from fuels treatments by providing small businesses and local governments with grants and technical assistance (under the Economic Action Program authorities) and low-interest loans and short-term lines of credit through the Small Business Administration.
- Hazardous fuels reduction on private lands.—Increase funding to the Forest Service, State Fire Assistance and Department of the Interior, State and Local Fire Assistance for fuels reduction on state and private lands and for job training and capacity building to employ local and volunteer firefighters in fuels reduction and controlled burning.

In addition to restoration of forest lands to reduce the risk of catastrophic fire, there are a variety of other activities needed to improve forest conditions. Activities for investment on both forest service land and private lands include reforestation, watershed restoration, restoration of insect-damaged sites, invasive species management, and maintenance and reconstruction of roads to reduce environmental impact. These habitat restoration activities will produce jobs in local communities while improving the health of the nation's forests.

*Animal and Plant Health Inspection Service*

The Asian longhorned beetle threatens hardwood forests reaching from New England to Minnesota and in parts of the West. Sudden Oak Death is an invasive nonnative forest pathogen that infects and kills oaks, hardwoods, and shrubs in the Pacific Coast states and across the East. Vulnerable forests support hardwood timber, maple syrup, and autumn foliage tourism industries, each of which represents a multi-million dollar contribution to the economy. Furthermore, these pests and blights threaten economic harm, job losses to the timber, agriculture, and nursery

industries, plus state, national, and international quarantines. Asian longhorned beetle, in particular, also puts urban trees in cities across the country at risk; these trees have a total value of more than $600 billion. The experience in Chicago shows that the beetle can be eradicated when sufficient resources are deployed.

The Animal and Plant Health Inspection Service has been working in partnerships with state agencies to eradicate these pests and blights, and the stimulus package presents an opportunity to ramp up eradication efforts. Stimulus funding would allow for efforts to eradicate the extensive Asian longhorned beetle outbreak detected in Massachusetts in summer 2008 as well as complete eradication of previously known infestations in New York and New Jersey. Funds would also be used to hire workers to target Sudden Oak Death outbreaks in Southern Oregon and Northern California with work concentrating on early detection, host removal, and eradication efforts. Funding would allow hiring and equipping of hundreds of workers who would remove the several thousand infested trees, apply proven chemical treatments to tens of thousands of trees exposed to the insect, and carry out intensified surveys to ensure that no beetles escape.

*Fish and Wildlife Service*

The US Fish and Wildlife Service operates a number of voluntary habitat restoration programs that provide grants to improve fish and wildlife habitat. All of these programs currently have a backlog of projects and could spend funding quickly on restoration projects such as dam removal and fish passage construction, fish habitat restoration, and wildlife habitat restoration. We recommend investment in the following programs:

- Fish habitat restoration: The Fish and Wildlife Service operates a fish passage program that provides grants for the removal or modification of barriers to fish passage as well as the National Fish Habitat Action Plan, which provides funding to partnerships for on-the-ground fish habitat restoration. Based on current backlogs, we recommend $14 million and $10 million, respectively, for each of these programs
- Coastal Restoration: The Fish and Wildlife Service's coastal program focuses on a variety of coastal restoration projects ranging from invasive species removal to coastal marsh and wetland restoration by cost-sharing restoration projects with coastal landowners. The program has an average annual funding level of $11 million and a project backlog of $10 million; thus, we recommend a stimulus investment of $21 million.
- Partners for Fish and Wildlife: The Partners Program provides funding to private landowners for projects in all habitat types that conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams. This program currently funds approximately $75 million in projects per year and has a backlog exceeding $35 million. We recommend $100 million in stimulus funding.

In addition, hundreds of thousands of acres of native habitat on national wildlife refuges is in need of restoration, which is critical to maintaining healthy populations of game and nongame species. Of particular note are the many national wildlife refuges that are being overtaken by invasive plants and animals that crowd out native vegetation and degrade the quality of wildlife habitat. Investment is needed hire teams of workers to cultivate and plant native trees and grasses and eradicate invasive species as well as contract local companies and workers to repair, construct and restore deteriorating water infrastructure that provides important wildlife benefits.

*Bureau of Land Management*

The Bureau of Land Management (BLM) Abandoned Mine Land (AML) program seeks to eliminate or reduce dangers to public health, safety and the environment as a result of impacts related to abandoned hard rock mines on public lands. There are over 12,000 abandoned mines. Of the 12,000 sites that have been evaluated and approximately 80% need remediation. In addition there are estimated to be a total of 100,000-500,000 abandoned sites yet to be fully characterized for remediation.

Environmental problems from abandoned mines include: contaminated/acidic surface and ground water; and stockpiled waste rock and mill tailing piles. In addition, surface runoff can carry AML-originated silt and debris down-stream, eventually leading to stream clogging. Sedimentation results in the blockage of the stream and can cause flooding of roads and/or residences and pose a danger to the public. Sedimentation may also cause adverse impacts on fish. The cost estimates to clean up abandoned hardrock mines range from $30—$70 billion. The BLM AML program

could quickly allocate a minimum of $400M, which could produce tens of thousands of jobs.

MINIMIZING ENVIRONMENTAL DAMAGE FROM HARD INFRASTRUCTURE PROJECTS

Design approaches and environmental standards have improved dramatically since much of our current infrastructure was built. If we are to avoid many of the harmful impacts of past infrastructure development, any new investment in infrastructure should seize on the opportunity to use the state of the art design and building standards that are already being applied in many places.

An important example of an improved design approach is the development of stream crossing standards for roads in New England. One study inventoried 3,600 crossing structures in New England and identified over 2,000 that act as severe barriers to aquatic organism passage and river processes, demonstrating that road crossings present one of the greatest threats to these aquatic ecosystems. In response, the New England District of the Army Corps of Engineers, working with state and NGO partners, developed standards for road-stream crossings that ensure new or rebuilt crossing structures maintain habitat connectivity by defining minimum criteria for parameters such as minimum bridge span width, culvert design, and substrate type. The standards apply to all new projects seeking regulatory approval under the programmatic general permit for each state in New England and offer a tested model to apply to road projects nation-wide.

Many infrastructure projects are being developed in coordination with regional conservation plans such as ecoregional assessments, regional Habitat Conservation Plans (HCPs), and watershed plans. Many organizations utilize ecoregional assessments to identify important conservation areas sufficient to ensure the long-term persistence of the ecoregion's biodiversity. The Nature Conservancy, Western Governor's Association and Bureau of Land Management are all investing in some form of ecoregional planning to guide decision-making. Similarly, California has employed regional HCPs for infrastructure siting, permitting and mitigation and has recognized the streamlining benefits of this approach. These planning tools ensure that necessary project permitting can go forward in a timely manner and result in mitigation that provides greater ecological benefit. Therefore, projects that utilize these tools should be given priority in allocation of stimulus funding.

In the realm of water resources infrastructure, numerous studies and decades of experience have demonstrated the economic and environmental benefit of combining non-structural approaches with structural projects to achieve flood risk reduction goals. The best example of this approach is the development of set-back levees that provide flood protection but do so in a way that maintains connection between the floodplain and the river and allows the floodplain to serve its natural function of attenuating floods. This design approach is a significant departure of the traditional practice of building levees directly on the river bank but should be employed where possible in any new investment.

Broad scale standards for bridge design, regional planning and flood risk reduction should be adopted in a stimulus package to steer the agencies' project selection toward those projects that employ best practices such as the ones described above. Funding should first be allocated to projects that have been designed using these techniques. While we understand the need to allocate funding quickly, there will be a number of projects that are not designed using the best design practices but that could easily be retrofitted to meet these standards. A second funding priority should go to those projects that can be retrofitted to reduce or reverse environmental damage. The third tier for funding should be any other project that has completed design and environmental review and is ready to be built but does not employ innovative design practices to minimize environmental damage.

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STATEMENT OF STACEY L. PINE, SENIOR DIRECTOR OF GOVERNMENT AFFAIRS, NATIONAL RECREATION AND PARK ASSOCIATION

Thank you Chairman Bingaman, Ranking Member Domenici, and other honorable members of the committee for this opportunity to submit written testimony on investment ideas for clean energy and natural resources projects and programs to create green jobs and to stimulate the economy.

The National Recreation and Park Association (NRPA) is a national, non-profit organization with a mission of advancing parks, recreation and environmental conservation efforts that enhance the quality of life for all people. There are more than 6,500 park and recreation agencies throughout the country, majority of which are members of NRPA. Through our network of more than 21,000 citizen and profes-

sional members we represent the local and state park and recreation departments across the country.

NRPA commends this committee and the entire Congress for seeking innovative ways to address our nation's economic challenges. As you know, roughly two million jobs have been lost in the United States in 2008 and more losses are forecasted. Thus, we are pleased that you are in the process of developing economic recovery legislation that will put people back to work by funding ready-to-go infrastructure projects that meet critical needs in communities across America. Undeniably, it is the economic hardships of individual communities that have merged to create a national recession. Therefore, to be truly effective, efforts to diminish this recession and boost the national economy must start with providing resources at the local level so communities such as Silver City, New Mexico or Ketchikan, Alaska can stimulate their own economies and create jobs for their citizens.

As the Congress works to craft economic recovery legislation, we request that you include funding for the construction and renovation of parks and recreation by providing $125 million for the Land and Water Conservation Fund state assistance program (LWCF) and $100 million for the Urban Park and Recreation Recovery Program (UPARR). These programs are ideally suited to achieving the goals of the proposed economic recovery package by creating jobs, stimulating economic activity, and putting people back to work.

LWCF stateside assistance provides 50% in federal funds to states and localities as matching grants for the purchase and development of parks and construction of recreation resources. As a result of LWCF stateside assistance funding, over 41,000 athletic and playing fields, hiking trails, campgrounds, ski areas, swimming pools and boating facilities have been created in local communities. Since its inception in 1965, the program has provided more than $4 billion in matching funds to states and local communities in 98% of American Counties.

Similarly, since 1978, UPARR has provided more than $270 million in matching grants to nearly 400 cities to rehabilitate and improve their parks and recreational facilities that have fallen in disrepair due to lack of investment. With UPARR grants serving as a catalyst, urban communities are able to make recreation centers and public parks safe, rebuild deteriorating infrastructure, and leverage existing resources to serve larger populations while also meeting new demands.

Our nation has a long history of investing in park restoration and construction as a way to create jobs and revitalize the economy. President Franklin Roosevelt created the Citizens Conservation Council (CCC) to build and fix up America's parks as a key component of his strategy to put people back to work during the Great Depression. Again in 1983, Congress recognized the important role park construction projects could play in immediately stimulating our nation's economy. The Emergency Job Appropriations Act of 1983 invested in LWCF and UPARR by providing $40 million to LWCF for development/redevelopment projects and $40 million to UPARR for rehabilitative grants and repairs. Under this Act, states were encouraged to rapidly fund construction projects that would create employment opportunities between September 1983 and September 1984. As a result of this funding, 572 LWCF development projects 126 urban park projects were funded in communities and major cities across the nation. Additionally, this Act increased employment by providing 35,000 jobs.

Unfortunately, in recent years, funding for LWCF stateside assistance and UPARR has significantly diminished leaving communities with lists of projects and needed repairs they are unable to complete because they do not have funding. Numerous communities throughout the country have capital construction and maintenance projects that are ready to commence pending matching federal funds. These projects such as new roofs for community centers, irrigation systems for sport fields, repairs to swimming pools, and electrical upgrades to park and recreation facilities would allow communities to preserve, rehabilitate and maintain already existing, and in some cases crumbling, infrastructure that provides numerous recreational opportunities for citizens. Many of these projects have designated local funding set aside, are poised to receive local approval or permits, and are suitable for small or minority businesses and contractors. LWCF stateside assistance and UPARR funding for these projects would allow construction to begin almost immediately, thereby putting local residents to work and helping communities ensure they are providing safe recreational facilities for children and adults alike.

In addition to contributing to local economies and repairing infrastructure, LWCF stateside assistance and UPARR projects serve to protect our environment and promote environmental stewardship while also creating green jobs. Grants provided by LWCF stateside assistance and UPARR have funded projects that contribute to reduced stormwater runoff, enhanced groundwater recharge, stormwater pollutant reductions, urban heat island mitigation, and reduced energy demands. These projects

conserve our environmental resources such as green space and water. Additionally, these projects serve to make communities and neighborhoods safer by protecting against environmental contamination. Businesses contracted to carry out these projects are in sectors that are part of the green economy. Through the services they provide jobs are created that conserve our natural environment and improve environmental quality.

However, park and recreation agencies also serve another important function: to improve the physical and mental health of citizens. By developing and restoring this local infrastructure, you are also investing in the health of local communities. Our nation currently faces an obesity epidemic and strengthening or improving local recreation infrastructure is necessary to combat this epidemic.

As you probably know, hundreds of parks and recreational facilities are in disrepair in communities across America due to budget cutbacks and the lack of federal funding during the past eight years. This seriously undermines local educational and athletic programs, the availability of indoor and outdoor recreational activities, and overall quality of life in communities. Therefore, NRPA also supports increased funding for programs such as Community Development Block Grants and the various transportation programs, such as the Recreational Trails Program, that would provide funding for local park and recreation agencies.

From the information I have presented to you, I believe it is obvious that LWCF and UPARR develop and restore local infrastructure in communities facing growing populations and demands. Investing in local communities and giving them the necessary resources to preserve, maintain and rehabilitate local infrastructure is especially important in times of an economic downturn, such as the one we are currently experiencing. For it is during such times that demand for local recreational programs and services significantly increases as citizens look for close to home recreation, entertainment and fitness opportunities. And for many citizens, local park and recreation agencies are where they turn for recreation, entertainment and fitness solutions.

In conclusion, NRPA believes that LWCF stateside assistance and UPARR are invaluable tools for Congress and the new Administration. We are confident that investing in LWCF and UPARR would immediately stimulate our economy through the creation of jobs, serve to protect our environment and provide much needed resources to communities to address local needs. Please include $125 million in funding for LWCF and $100 million in funding for UPARR in any economic stimulus legislation considered and passed by the 111th Congress.

Thank you for this opportunity to present testimony.

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STATEMENT OF MARK SINGLETON, EXECUTIVE DIRECTOR, AMERICAN WHITEWATER; CHAIRMAN, OUTDOOR ALLIANCE

Mr. Chairman and members of the Energy and Natural Resources Committee:

Outdoor Alliance is a coalition of six national, member-based organizations devoted to conservation and stewardship of our nation's public lands and waters through responsible human-powered outdoor recreation. The Outdoor Alliance includes: Access Fund, American Canoe Association, American Hiking Society American Whitewater, International Mountain Bicycling Association, and Winter Wildlands Alliance. Collectively, the Outdoor Alliance has members in all fifty states and a network of almost 1,400 local clubs and advocacy groups across the nation. Our coalition represents the millions of Americans who hike, paddle, climb, mountain bike, backcountry ski and snowshoe on our nation's public lands and waters.

Our staff and members spend much of their free time exploring public lands via the roads, trails, rivers, and at the campsites. Collectively, we witness firsthand the state of these resources and are among the many people impacted by an aging infrastructure that is mismatched with today's priorities for public land management. We recognize the need for active and immediate efforts to bring our public lands infrastructure and in some cases the lands themselves up to standards. Perhaps most importantly today, we believe that doing so would create an array of economic benefits across multiple sectors of the United States economy immediately and for decades to come.

Specifically, we suggest that the Committee prioritize the following activities in an economic stimulus package:

US Forest Service Road Decommissioning and Restoration: Unmanaged roads can wash out and erode, pollute water, damage wildlife habitat, impact recreation, and speed the spread of weeds. The current 380,000-mile US Forest Service (USFS) road network contains many redundant, obsolete or unnecessary

roads that are costly to maintain and do not serve the millions of people who visit national forests. Outdoor Alliance supports a common-sense policy, including retiring unnecessary roads to limit environmental damage and focusing scarce resources on maintaining the roads that best serve the public. Currently, deferred maintenance is over $8.4 billion nationwide and increases annually as allocated funds fall far short of annual maintenance needs. A number of national forests have already set sound road maintenance priorities, but lack the funds to reach those goals. An infusion of funding into road management would immediately put people to work and would avert risks to water supplies, wildlife habitats, recreational opportunities, and fire-sensitive communities.

USFS and BLM Recreation Infrastructure Improvements: Forest Service and Bureau of Land Management (BLM) lands often provide the closest and best mountain biking, backcountry skiing, hiking, snowshoeing, paddling, and climbing opportunities for millions of Americans. Investing now in the construction and maintenance of trails, river access areas, campsites, parking areas, sanitary facilities, and other visitor amenities—in the tradition of the Civilian Conservation Corps—would immediately create new jobs and benefit our citizens and gateway economies for decades to come.

Federal Agency Recreation Field Staff: The primary federal land management agencies (US Forest Service, Bureau of Land Management, National Park Service, and US Fish and Wildlife Service) each have a significant need for recreation field staff. The National Park Service has proposed 3,000 new rangers as part of their Centennial Initiative, and the other agencies certainly have a similar need. Hiring field staff to interact with the visiting public would directly create thousands of new jobs, encourage recreation-based tourism, reduce planning conflicts and errors, and create new opportunities for volunteerism. We envision these individuals as highly skilled recreationists that share experiences with the public, forming an invaluable personal connection between public land managers and the public.

Each of these priorities would result in both immediate and lasting economic and societal benefits for communities near public lands and the nation as a whole. In addition, each of these priorities is a wise and necessary investment that will protect at-risk public assets. We ask that you consider the following relevant points:

1. These priorities offer a wide range of jobs: From backcountry trail crews requiring physical stamina, to engineers requiring years of higher education, the priorities we are suggesting provide a full range of job opportunities. Thus, these projects offer work for a broad cross section of citizens.

2. These priorities offer construction related jobs: Many of the jobs relating to public lands infrastructure are within the hard-hit construction field. These jobs include heavy equipment operators, engineers, architects, surveyors, landscapers, and general contractors.

3. These priorities bolster the recreation economy: Outdoor recreation is a $730 billion industry in the US, and the vast majority of outdoor recreation occurs on public lands. These priorities will enhance recreation opportunities and in turn the recreation economy. The economic benefits of these actions are significant in both the manufacturing of outdoor equipment and products, and also in the nature-based tourism economies of countless and often rural communities. It is our belief that high quality infrastructure, landscapes, and management result in high quality recreational experiences and in turn increased participation in human-powered outdoor recreation.

4. These priorities avert economic and ecological risks: Many roads and other infrastructure elements require maintenance to prevent failure—and failure can have massive impacts requiring costly remediation. Getting to work on the sizable backlog of basic maintenance and in some cases decommissioning of public land infrastructure is a good and needed investment. Doing so will protect the landscapes, water, and recreation that define our public lands, and protect our nation from future, much larger management expenses. Taking these actions is analogous to putting a new roof on your house to avoid major water damage—and by all accounts there are already some leaks in the old roof.

5. These priorities can happen right away: There is certainly no shortage of work to be done, and it is our understanding that agencies have active lists of projects in need of implementation. Unlike some agency actions, infrastructure maintenance and enhancements are generally noncontroversial and in fact popular with the public. Therefore agencies should be able to complete the planning and implementation of such projects in short order. In the parlance of the day, what we have recommended is "shovel ready."

6. These priorities have additional societal value: Protection and enjoyment of our American landscapes are core values of our nation. In addition to their inherent and iconic value, public lands provide human-powered outdoor recreation opportunities that foster public health, childhood development, an invaluable connection with nature, and other quality of life benefits. We believe that investing in our public lands is money well spent.

In conclusion, we feel that offering federal land management agencies significant economic stimulus funds for the priorities that we have listed above will have an immediate and lasting positive impact to the United States economy. We feel that the funding levels suggested at today's hearing by the witnesses (Roughly $2-3.5 billion each for BLM and USFS per year, and roughly $1.5 billion for the NPS) represent reasonable balances between the agencies' needs and their capacities.

Thank you for considering this testimony.

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STATEMENT OF SCOTT JORGENSEN, PRESIDENT AND CEO, SOLARSA INC

Mr. Chairman, Ranking Member Domenici, and Members of the Committee, I am submitting this unsolicited testimony for your consideration as you work through an immediate economic stimulus package because I believe you can turn this crisis into an extraordinary opportunity to achieve far-reaching benefits for our country and the world. I wish my voice to be heard in strong support for you to combine rapidly S. 3233, the 21st Century Energy Technology Deployment Act, and S. 2730, the Clean Energy Investment Bank Act of 2008 and make the combined act a key component to the economic stimulus package with an initial funding of $10 billion dollars.

Please allow me to introduce myself. My name is Scott Jorgensen, I am President and CEO of SOLARSA INC., headquartered in Tampa, FL. I started the company in 2003 and have developed it into one of the leading providers of solar thermal and photovoltaic solutions in the country. Please visit our website at www.Solarsa.com to find out more about our company. In short, our main business is selling renewable, on-site energy and cogeneration systems (which we call our Energy Independence Systems®) directly to residential or small business end users or to third parties such as general contractors who install the systems for the end user. These systems are comprised of one or more of the following components, solar hot water, solar air conditioning, and solar electric. We sell Energy Independence Systems to residential, commercial and industrial clients and we franchise our business model.

The bills I referred to above, S. 3233 and S. 2730, create a federal funding entity whose purpose is to invest in renewable energy and energy efficiency technologies which can put people to work immediately—engineers, contractors, plumbers, electricians and solar installers to work in every community throughout America. Investments that can help ameliorate the financial crisis with real assets as collateral for the loans.

I encourage this Committee to specifically provide this $10 billion dollars for an economic stimulus package that focuses on existing, proven technologies that are not being fully exploited, such as energy efficiency enhancements and solar thermal installations for residential and small business.

Loan guarantees, energy-efficiency mortgages, and secondary market support for energy efficiency improvements, solar thermal applications and other similar technologies provide the greatest short and long-term societal benefit for our tax dollars. These 'unsexy' improvements and technologies can be made more attractive by encouraging the aggregation of such projects for resale to a government-sponsored secondary market. Don't throw money at a single solution, build sustainable financial markets that can eventually stand on their own and keep generations of Americans working.

Energy efficiency, solar thermal cooling/heating and solar hot water projects can make a meaningful contribution to our energy, environmental, economic or physical security but have difficulty accessing private sources of funding due to aggregation-related credit issues, unknown residual values, inadequate secondary markets for used equipment and/or certain regulatory risks.

Eventually, the federal funding entity needs to expand authority to fund energy supply solutions for new technologies under development that meet the goal of energy independence. Additionally, the federal funding entity requires the flexibility to invest in expansion and improvement of the transmission grid, which will provide benefits in job creation and energy security into the future.

States should participate in the federal funding entity through Intergovernmental Agreements with risks sharing for the deployment of energy efficiency and solar thermal technologies. I spoke at the second annual "Serve to Preserve Summit on

Global Climate Change" in Miami this year hosted by Florida's Governor Charlie Crist. During my session titled "Going Green Makes Economic Sense", I proposed a $1 billion dollar loan guarantee program to put solar thermal cooling, heating and hot water into Florida's government buildings. This $1 billion dollar initiative translates into 200 to 300 solar thermal cooling projects ranging from $1 million to $10 million dollars each throughout the State of Florida. A single billion dollar investment in "solar cooling" shifts $4 billion dollar in fossil fuels purchases to create jobs directly in our local communities. Annual energy for cooling and ventilating commercial buildings and homes consume over 50% of all electricity produced in Florida.

Dr. Hermann Scheer, a member of the German Parliament, President of EUROSOLAR, the European Association for Renewable Energy, and General Chairman of the World Council for Renewable Energy, met with me at the second annual "Serve to Preserve Summit" in Miami. Dr. Scheer, who has led Germany's rise to a solar and wind energy superpower, said that countries need to do three things to push renewable energy: guarantee payment (through loan guarantees), guarantee access to grid for any producer of renewable power, and to not cap contribution of renewable power.

Except for a short time working for Price Waterhouse in New York City, I have worked the majority of my life in small family businesses. I am your foot soldier in our "war against unsustainable living".

After 9/11 occurred, I felt directly responsible for that event due to my prior profligate use of energy. Now, as a responsible person who assumes full responsibility for my actions and inactions, I have been working diligently to see that my sons and daughters live in a better place. My existing businesses turned to recycling and saving energy immediately. And I started a new company focused on solar thermal energy for air conditioning. For the past 18 months, my solar company, Solarsa has spent $500,000 dollars engineering three of the largest on-site solar thermal (cooling, heating & hot water) systems in the world that make economic sense regardless of gas prices. Solarsa uses technology that has been tested, certified and is readily available. Thousands of similar systems are in Asia and Europe.

FINANCING REMAINS OUR BIGGEST HURDLE

Energy efficiency and solar thermal (hot water) projects can make a meaningful contribution to our energy, environmental, economic or physical security but have difficulty accessing private sources of funding due to aggregation-related credit issues, unknown residual values, inadequate secondary markets for used equipment and/or certain regulatory risks. A federal funding entity can smooth the way for valuing these risks and encouraging the private markets to accept certain risks.

With a back ground in accounting and finance, over 25 years of running my own businesses and five years in startup mode for my solar thermal energy company, I present to you:

*The Jorgensen Plan:*

- Ask the American people to work hard, even 'pay the price' for "Energy Independence". And we will. Pricing signals matter.
- Provide immediate emergency funding of $10 billion for a federal funding entity (as identified in S. 3233 and S. 2730) and $100 billion each year for the next nine years.
- Provide loan guarantees for large and small energy efficiency and solar thermal projects.
- Create a government-sponsored secondary market to aggregate residential and commercial scale energy efficiency and solar thermal projects so that Americans can invest in our homes, businesses and communities.

There are Americans that will never hold a rifle, but we Americans are ready to fight and work hard for our "Energy Independence". Give us not guns, but create financial markets so that we can invest in our homes and businesses. After 9/11, the country had an opportunity to call the American people to war against oil . . . not for oil.

We have had enough finger pointing; Americans are ready to take responsibility for 9/11, climate change, high or low gas prices and world unrest. We no longer accept Washington, Wall Street or Detroit blaming others for their demise.

Shift to long-term thinking. Consider the legacy we leave our children. Thirty years from today, what will our children remember of what we did today? What will the history books say about you, about me? Wall Street bailout. Detroit bridge-loan. Job losses . . . Not exciting things to be remembered by.

Call Americans to work! To work harder for our "Energy Independence"! We don't need handouts, but jobs. Jobs that are sustainable. We are willing to work hard, save and invest in our children's future. Our grandparents knew how to save and maybe we need to live a little more like they did.

From democrats to republicans, both parties have changed because of us, the voters. I call on Congress to immediately replace purchases of fossil fuels with manufacturing, finance, engineering, installation, maintenance and repair jobs through the enactment of a combined S. 3233, the 21st Century Energy Technology Deployment Act, and S. 2730, the Clean Energy Investment Bank Act of 2008 and a minimum funding of $1 trillion dollars over ten years.

Call on Americans to help, to innovate, to invest and to save. Make "Energy Independence", America's number one priority. Thirty years from now, I want my grandchildren to see those same solar panels still working that we installed during this first year of our "war against unsustainable living"!

Thank you for the opportunity to put my thoughts before this Committee. I would be happy to provide additional information or background on anything included in this testimony.

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## STATEMENT OF THE AMERICAN INSTITUTE OF ARCHITECTS

### INTRODUCTION

As the global financial crisis continues to threaten the livelihood of American businesses and workers, the American Institute of Architects (AIA) strongly urges Congress to support polices that will stimulate and restore confidence in the United States economy.

The economic crisis has tightened credit markets, putting financing for construction projects in jeopardy and forcing businesses to lay off workers. The slowdown in building could not come at a worse time—when America's infrastructure is deteriorating, with clogged highways stifling commerce, transit systems overwhelmed and underfunded, and energy prices on the rise.

The AIA's nearly 85,000 members have been particularly hard-hit by the recent economic downturn, and it appears that the fiscal climate will get worse before it gets better. The AIA's Architecture Billings Index, a leading economic indicator of the building industry, forecasts a significant reduction in activity for industries within the building sector over at least the next 12 months.[1] As the building sector is responsible for about one of every ten dollars of United States GDP, continued stagnation within the building industry will only further magnify the overall struggles of our economy.

### PRINCIPLES FOR ECONOMIC RECOVERY

America's architects believe that this economic crisis presents an opportunity not only to build, but to build better—greener buildings, vibrant communities, and a 21st century transportation network that is good for both the environment and the economy. To that end, the AIA believes that any funding for infrastructure projects that Congress appropriates should be prioritized with these principles in mind:

- Projects for which construction can commence within 24 months of enactment of the economic recovery legislation
- Projects that rebuild and improve safety of existing infrastructure
- Projects for new infrastructure that are more energy efficient, sustainable and help create healthier, livable communities than what existed before

The AIA believes that it is important to provide funding for projects across at least a 24-month timeline for several reasons. First, as indicated previously, the ABI suggests that the economic downturn in the building sector will last at least a year, if not longer, and previous recessions show that recovery tends to lag in the construction and real estate sectors; providing funding for projects across 24 months ensures a steady stream of funds for job creation over the likely life of the recession. Second, it will be difficult if not impossible to push significant sums of money as those proposed for the economic recovery through the "pipeline," without increasing the risk of funds being poorly spent and projects hastily planned and executed; allowing for longer planning and design time for certain projects will help ensure they are carried out in the most effective, cost-efficient manner. Third, allowing for planning and design work through the various stages of the process will ensure that the

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[1] http://www.aia.org/aiarchitect/thisweek08/1121/1121b__otb.cfm

economic recovery package creates jobs not only in the construction sector, but throughout the building industry.

A 2004 AIA survey of architecture firms determined that the average time between the award of a design contract and the award of a construction contract for that facility was about one year, but less than six months for 40 percent of the projects.[2] Therefore, providing funding for projects in the design phase will not prevent construction contracts from being awarded within the timeframe of the economic recovery package, and will allow for a broader and better designed set of projects.

To achieve the aforementioned goals, the AIA has developed a number of policy ideas that, if enacted now, would invigorate the design and construction industries, in turn providing an immediate stimulus to the economy.

These proposals would create approximately 1.6 million jobs, including 14,000 jobs for architects.[3]

*1. 21st Century schools*

Schools across the country are in desperate need of restoration. Too many of America's children attend school in overcrowded buildings with leaky roofs, faulty electrical systems, and outdated technology, all of which compromise their ability to achieve, succeed, and develop the educational skills necessary for the workforce of the 21st century.

a. The AIA supports an investment of $25 billion in helping school districts repair, modernize and green school buildings.

According to the National Education Association (NEA), it would take more than $268 billion to bring America's K-12 school facilities to a good condition. As the economic crisis has worsened, local education agencies are further delaying and canceling major capital projects to repair and modernize school buildings, meaning that the amount of money needed to repair schools grows every day.

Modernized, green schools promote healthy, high achieving students who will become future advocates for green living, as this generation learns the importance of building for a sustainable future

Currently the green schools cost premium is between 1.5—2.5 percent of the total cost of the project. Studies undertaken to demonstrate the efficacy of green schools peg the benefits to states at anywhere from 10 to 20 times the initial cost. School districts see direct benefits accrue at a level of around four times the cost due to energy savings and other cost control mechanisms implemented. In fact, according to Greening America's Schools by researcher Greg Kats, the energy and water savings from green schools would save schools enough money to hire an additional teacher.[4]

According to the State Education Data Center (SEDC) of the Council of Chief State School Officers, average spending by school districts on operations and maintenance is $900 per student, or $45 billion nationwide per year.[5] This means it costs school districts $45 billion just to maintain school buildings' current condition. Construction adds an additional $45 billion per year.

With the increased costs of energy and construction materials and tight budgets, school districts are currently contemplating laying off maintenance personnel, canceling or deferring modernization work and delaying purchases of new equipment. A funding level of $25 billion would ensure that funds go not only to maintaining what is currently there but realizing improvements to school facilities and student learning outcomes.

This proposal would create approximately 435,000 jobs, including 4,100 jobs for architects.[6]

b. The AIA supports an investment of $700 million to create a pilot program that would provide grants for up to 15 state or local education agencies to develop 21st century model school campuses in each region of the country, utilizing 21st century design and construction techniques that align to support 21st century teaching and learning.

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[2] http://www.aia.org/SiteObjects/files/Baker%20and%20Saltes%20Web.pdf

[3] Not including potential job creation from revenue provisions.

[4] http://www.cap-e.com/ewebeditpro/items/O59F12807.pdf

[5] http://www.schooldatadirect.org/app/data/q/stid=1036196/llid=162/stllid=676/locid=1036195/catid=1018/secid=4546/compid=-1/site=pes

[6] AIA analysis of U.S. Conference of Mayors MainStreet Economic Recovery Report (http://www.usmayors.org/mainstreeteconomicrecovery/)

Tests and studies repeatedly place U.S. education achievement behind those of other developed nations. Concurrently it is well known that the health of any economy is based on the quality of its educational system and the capabilities of our students entering the work force. For many years foundations, researchers and educational experts have been focusing on the reform of the American school system, particularly at the secondary level. That reform is critical to the future success of America's students and our economy.

To that end the AIA proposes that a network of "model schools" across the nation be established as exemplar examples from which public school districts can observe and learn as they reform their educational programs. These pilot projects would be created in partnership with local or state educational districts and supported by non profits and/or foundations that are focusing on the critical needs of America's secondary students. These projects would become incubators of and showcases for contemporary educational programs and models for educational transformation.

This proposal would create approximately 12,000 jobs, including 115 architect jobs created or saved.[7]

*2. Green commercial, residential and institutional buildings*

As nearly every segment of the design and construction industry is in a state of serious decline due to the economic downturn, Congress should pursue policy ideas that will incentivize new construction and major building renovations. A federal commitment to public, residential, commercial, and institutional building design, construction and renovation will put Americans back to work and generate economic activity nationwide.

Although any improvement in energy efficiency are desirable, federal funding should focus on those improvements that have the potential for the greatest energy savings by looking at all building systems (such as lighting, HVAC, and building shell) in an integrated process. Improving energy efficiency in the building shell through better insulation and glazing, for example, could then allow for the use of smaller, more efficient HVAC systems, which would lead to greater energy savings, at a lower cost, than from installing a more efficient HVAC system by itself.

a. The AIA supports providing $10 billion for federal building energy efficiency upgrades and modernization for projects where construction can commence within 24 months of enactment.

The federal government alone has jurisdiction over a significant portion of all buildings in the U.S. Requiring significant energy reduction targets in new and renovated federal buildings will demonstrate to the private sector that the federal government is leading by example. It would help spur the development of new materials, construction techniques, and technologies to make buildings more energy efficient. And it will help show that significant energy reductions are both practical and cost-effective.

The Energy Independence and Security Act of 2007 (P.L. 110-14) included several provisions to require increased energy efficiency and carbon reduction from federal buildings, including a provision that requires agencies reduce energy consumption by three percent per year through 2015 (Sec. 431) and a provision that requires that federal agencies reduce the fossil fuel consumption for new buildings and major renovations on a scale that reaches carbon neutrality by 2030 (Sec. 433).

It has been reported that the U.S. General Services Administration (GSA) and other agencies have a significant backlog of renovation, modernization and energy efficiency projects. A $10 billion appropriation will enable federal agencies to meet their statutory obligations, reduce energy costs for U.S. taxpayers and put thousands of design and construction professionals to work. This proposal would create approximately 280,000 jobs, including 2,750 jobs created or saved for architects.[8]

b. The AIA supports an appropriation of $10 billion to state energy offices for energy efficiency retrofits to public (state and local), residential, commercial, industrial and healthcare facilities where construction can commence within 24 months of enactment.

The economic recovery plan provides an excellent opportunity for improving the energy efficiency of buildings nationwide. Energy efficiency modernizations not only produce jobs and economic activity, but they help reduce energy consumption and create healthier, more sustainable places to live, work and play.

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[7] AIA analysis of U.S. Conference of Mayors MainStreet Economic Recovery Report (http://www.usmayors.org/mainstreeteconomicrecovery/)

[8] AIA analysis of Alliance to Save Energy estimates (www.ase.org)

The AIA believes that in order to ensure the greatest energy savings, funds should be prioritized towards projects that achieve specific energy saving targets, such as 30 percent below ASHRAE 90.1-2004.

This proposal would create approximately 150,000 jobs, including about 2,750 architect jobs created or saved.[9]

c. The AIA supports providing at least $20 billion in appropriations through the Community Development Block Grant program and $10 billion for the Energy Efficiency and Conservation Block Grant program, authorized in EISA, to promote infrastructure projects that promote energy efficiency, particularly energy efficiency affordable housing, on projects where construction can commence within 24 months of enactment.

According to the U.S. Conference of Mayors' MainStreet Economic Recovery Report, there are approximately $30 billion in projects that would promote improvements energy efficiency and community development, including for affordable and more energy efficient housing.

These proposals would create approximately 378,000 jobs, including 4000 architect jobs created or saved.[10]

d. The AIA supports enlarging the Energy Efficient Commercial Buildings Tax Deduction (Public Law 109-58, §1331) from $1.80 per square foot to at least $3.00 per square foot.

By increasing incentives for green building design and renovation, Congress has an opportunity to stimulate economic activity in an energy-conscious manner. As some energy efficient systems are more expensive to design, build, and install than their traditional counterparts, the initial increased capital costs often dissuade owners from installing these systems, especially given the current economic climate.

Increasing the commercial buildings tax deduction, which was extended until Dec. 31, 2013, as a part of the financial rescue package enacted into law earlier this fall, will provide the necessary incentives to spur the design and construction of more energy efficient buildings in the United States.

*3. Transit, mixed use development and complete streets projects*

America's infrastructure is crumbling. A lack of investment in our nation's highways, transit systems, and bridges has limited economic growth, lowered quality of life, and jeopardized safety for citizens in all 50 states. A new federal commitment to rebuilding infrastructure will not only begin to address these issues but will also create jobs in the sagging construction industry, in turn stimulating economic growth nationwide.

a. The AIA supports providing at least $12 billion in funding for transit facilities and operations, including for New Starts projects where construction can commence within 24 months of enactment.

Well planned transportation projects can greatly enhance the economic development, sustainability, safety, and livability of communities. In 2008, the AIA and the University of Minnesota released a study that measures how planning and design play a major role in infrastructure projects.[11] This study found that well-designed infrastructure projects can bring multiple enhancements to communities in terms of economic development, job creation, and increased productivity. As Congress prepares to debate legislation aimed to stimulate the economy, funding for well-designed infrastructure projects must be included.

The AIA believes that funding should focus on those types of projects which have the greatest impact on sustainability, economic development and safety, such as transit-oriented development (TOD) projects, which create compact, walkable communities that mix housing, retail, office space and other amenities centered around high quality train systems; and "Complete Streets" projects that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and bus riders.

This proposal would create approximately 375,000 jobs, including 450 jobs created or saved for architects.[12]

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[9] AIA analysis of Alliance to Save Energy estimates (www.ase.org)

[10] AIA analysis of U.S. Conference of Mayors MainStreet Economic Recovery Report (http://www.usmayors.org/mainstreeteconomicrecovery/)

[11] www.movingcommunitiesforward.org

[12] AIA analysis of U.S. Conference of Mayors MainStreet Economic Recovery Report (http://www.usmayors.org/mainstreeteconomicrecovery/)

*4. Historic preservation projects*

Directing funding to preservation projects already in the pipeline will immediately put architects, contractors, builders, and skilled tradepeople to work. These projects not only protect America's history, but they generate economic activity by restoring vitality to the surrounding communities.

a. Congress should provide at least $30 million in funding to the Save America's Treasures program and $100 million in grants through State Historic Preservation Officers and Tribal Historic Preservation Officers for non-federal public and nonprofit historic sites.

Save America's Treasures provides funding to bricks-and-mortar preservation projects. This program however, is underfunded and as a result there are thousands of shovel-ready preservation projects nationwide that have not been undertaken. In addition, restoring these historic buildings will create work for the building industry and generate positive economic returns in the communities surrounding them.

Funds for SHPOs and THPOs will help their communities develop site-specific business plans to sustain economic viability; rehabilitate, maintain, retrofit structures for energy efficiency; and fund projects associated with site investment, especially if those projects relate directly to the business plan. States have already identified key projects in need and await resources to get projects underway.

b. The AIA supports increasing the Historic Preservation Tax Credit from 20 percent to 40 percent for smaller projects in which the qualified rehabilitation expenditures do not exceed $2 million.

Studies have shown that every federal or state dollar invested in the historic tax credit leverages approximately five dollars in complimentary private investment. Enhancing the historic tax credit could encourage reinvestment in communities with projects that are ready to go but have been halted by the recession and existing tax credit limitations.

An increase from 20 to 40 percent for smaller projects would target the incentive to those "main street" type developments where tax credit costs are currently too prohibitive. Second, to maximize the creation of housing in historic and older buildings, the 10-percent portion of the historic tax credit should be available for housing in all eligible buildings 50 years old or older and specifically in HUD "Difficult to Develop Areas" and Census Bureau "Qualified Census Tracts" where investment is most difficult.

*5. Tax relief for businesses*

a. Congress should amend Section 199 to allow eligible sole practitioners to claim the deduction for qualified architectural and engineering firms.

In 2004 Congress created a new deduction, codified in section 199, which allows taxpayers engaged in certain businesses to deduct up to 9 percent of their qualified receipts (the percentage is phased in, through 2010). The deduction was established partially to enhance the ability of U.S. small businesses to maintain their position as the primary source of new jobs in this country. However, due to an unfair and inconsistent limitation within the code, some of the smallest design firms in the country are not allowed to claim this deduction.

Section 199 contains a limitation, providing that the amount deductible in a given year is limited to the amount of W-2 wages that the taxpayer paid in that year, which is the amount on which an employer withholds taxes. Some businesses that otherwise qualify for the deduction are organized as sole proprietorships or other types of businesses that do not pay W-2 wages. For example, an architect working as a sole proprietor with no employees will pay no W-2 wages (although he or she will pay estimated taxes, including self-employment taxes). As a result, these taxpayers will not be able to take a section 199 deduction or will be able to take only a very small portion of the deduction that otherwise would be available (e.g., if the architect has a part-time clerical assistant to whom he or she pays W-2 wages).

This result is unfair and is inconsistent with the purposes underlying section 199. Congress intended the section 199 deduction to apply to architects, and specifically amended section 199 to include them. However, the artificial limitation to W-2 wages denies the deduction solely because a business is small and is not organized in a particular form. This has the practical effect of denying the section 199 deduction to the thousands of architects who do business as sole practitioners.

Many sole practitioners and small design firms currently face the most ominous economic conditions in nearly two decades. Being denied the section 199 deduction simply because they do not file W-2s is an unfair and unintended situation that is

hurting the smallest design firms across the country do business and create jobs. Congress should amend Section 199 to allow these firms to claim this deduction.

b. The AIA supports accelerating the depreciation of energy-efficient heating, ventilation, air conditioning, or commercial refrigeration property installed in nonresidential real property or residential rental property

The AIA believes that this would not only provide help businesses of all sizes looking to improve their operations and reduce costs, and help equipment manufacturers, retailers and installers, but would also reduce energy consumption. Such a proposal is included in Rep. Melissa Bean's (D-IL) legislation, H.R. 4574.

c. The AIA strongly supports the repeal of Section 511 of P.L. 109-222, which requires federal, state and most local government agencies to levy a three-percent withholding on all government contracts, grants and other payments.

Although this provision is not slated to go into effect until 2011, many businesses are in the process of developing their plans for the next few years and are having to invest funds already in preparing accounting systems to handle the new withholding. In addition, the withholding would come into effect around the time that many economists believe that the economy will begin to recover. It makes no sense to provide economic relief to businesses on one hand and yet punish them for performing government work with the other.

CONCLUSION

The AIA looks forward to working with the members of the committee to advance bipartisan, common-sense proposals that will help invigorate America's economy.

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STATEMENT OF RICHARD MOE, PRESIDENT, THE NATIONAL TRUST FOR HISTORIC PRESERVATION

As Congress considers strategies to address this serious recession, the National Trust for Historic Preservation applauds the Committee's leadership in calling for investment in energy and natural resources that would create jobs, stimulate the economy, and help to revitalize America's public assets. The National Trust supports the principle that short-term stimulus proposals must have long-term benefits for our economy, environment, and society. We need to focus on using resources wisely and I see this economic crisis as an opportunity to place the nation on a better course toward a more sustainable future.

I am Richard Moe, President of the National Trust for Historic Preservation, the largest private, nonprofit membership organization dedicated to protecting the irreplaceable. Chartered by Congress in 1949 and recipient of the National Humanities Medal, the National Trust provides leadership, education, advocacy, and resources to save America's diverse historic places and revitalize communities. Our headquarters in Washington, six regional offices, and 28 historic sites work with our 270,000 members and thousands of local community groups in all 50 states.

Much of the national dialog surrounding relief for the country's ailing financial markets, businesses, lending institutions, and industries refers to the larger implications for "Main Street." Given the substantial role the National Trust and the preservation community play in supporting Main Street jobs, revitalization, and economic development, we have been encouraged by this critical emphasis on the country's historic core—its communities—including rural communities—and the people who make them work. So many of these places and their economic well-being are linked to public land, and the historic and cultural resources located in their midst.

Much of the land managed by the National Park Service (NPS), U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) is located in rural areas with communities that benefit from all of the economic activities associated with this country's diverse array of public places. These activities include services for visitors and meeting all the needs of historic buildings, infrastructure, trails, roads, archaeological sites, and museum collections that require stabilization, maintenance, conservation, surveys, and management. This provides jobs for contractors, architects, engineers, and cultural resource specialists. The National Trust proposes stimulus plans that will rebuild Main Street and rural communities through reinvestment in public land, and historic and cultural resources across America.

Our national assets on public land have been neglected for far too long. Significant reinvestment in the historic and cultural resources therein would generate jobs and support local businesses, often in parts of the country where the need is great, such as rural communities. And stewardship that emphasizes reusing and rehabili-

tating the existing buildings, infrastructure, communities, and places we already have is inherently more efficient and sustainable.

For example, the reuse of older and historic buildings on national public land alone is a powerful tool for job creation and employment retention. Rehabilitation generally uses about 20 percent more labor and, in turn, produces a greater number of jobs than new construction. As compared with new construction, every $1 million spent to rehabilitate a building results in:

- $120,000 more dollars initially remaining in the community;
- Five to nine more construction jobs created;
- An average of 4.7 more new permanent jobs created;
- Household incomes in the community increasing by $107 more than through new construction;
- Retail sales in the community increasing by $142,000—$34,000 more than through new construction; and
- Real estate companies, lending institutions, service vendors, and restaurants receiving more direct monetary benefits.

The Trust would like to see Congress create and fund a comprehensive program to unlock the economic potential of the nation's public land and cultural resources. Using the precedent set by the great corps network established in the 1930's, we propose establishing a new "National Public Land Service Corps" that would address maintenance and stewardship of historic structures and other cultural resources under the jurisdiction of the three principal land agencies of the federal government. A National Public Land Service Corps would help us manage, identify, and protect the places that must be preserved, and in so doing change our relationship to energy use, exploration, and extraction on public land. This investment would strengthen local economic development and provide new jobs through rehabilitating existing structures, documenting and caring for cultural resources, and expanding renewables and other energy sources. All of this could be accomplished while training a whole new generation in caring for the places and objects that help define our heritage. I have outlined the Trust's proposals by agency.

PUBLIC LAND INVESTMENTS FOR JOBS, ENERGY DELIVERY, AND REVITALIZATION

*1. Bureau of Land Management*

A significant portion of a National Public Land Service Corps funds would be used to conduct cultural resource surveys and consult with Tribes on BLM-managed land that is slated for energy development. While BLM, "manages the largest, most diverse and scientifically most important body of cultural resources of any federal land agency," only seven percent its 258,000,000 acres has been surveyed. Much of the land targeted for alternative energy development remains unsurveyed. This leads to difficulties with the agency's two-fold mission to provide energy and protect its cultural resources. The lack of information on the location and significance of historic and cultural sites results in costly delays and conflicts. Industry needs certainty while we strive to protect historic and cultural resources, and surveys can provide the comprehensive information we need. To accomplish this, the National Trust proposes a $40 million increase each year for two years in the BLM 1050 account to hire professionals for surveys, studies, and Tribal consultations, particularly in the Southwest where the demand for solar energy is greatest.

A portion of this funding should also be directed toward the protection of fragile archaeological ruins, trails, and historic buildings, many of which are located in the National Landscape Conservation System, the "crown jewels" of BLM land. Site stabilization is needed in places like the Canyons of the Ancients National Monument in southwest Colorado; historic mining camps in Grand Canyon Parashant National Monument in northwest Arizona; Chiles historic site on the Potomac Heritage National Scenic Trail in Maryland; and Piedras Blancas Historic Light Station Outstanding Natural Area in central California. Additionally, many significant artifacts in BLM museums lie neglected in boxes and drawers. These need to be cataloged, conserved, and interpreted appropriately.

Heritage tourism is one of the fastest growing segments of the travel industry and it can be one of the most beneficial to local economies. Visitors to historic and cultural sites stay longer in an area and spend more money than other tourists. Utah's San Juan County Economic Director recently told the National Trust that 72 percent of the area's tourism relies upon international visitors drawn to Cedar Mesa's ancient Native American ruins. Eighty percent of these visitors employ local tour operators that generate jobs in one of the state's poorest counties.

*2. National Park Service*

A National Public Land Service Corps could provide an historic infusion of capital into National Parks for planning, design, and construction. It has been nearly 50 years since the Parks have received a significant boost for construction and rehabilitation, and now there is an enormous backlog of projects in need of attention with an estimated $1 billion in projects that are ready and awaiting funding. These include the preservation of historic structures, making Park facilities more energy efficient, and restoring trails and open space. The National Park System already employs upwards of 20,000 workers and generates about $12 billion in consumer spending for the economy—about four times more than Congress appropriates for Parks annually. It is logical that any stimulus plan would focus on the National Park System with a valuable inventory of projects ready for easing this recession.

Stimulus funding should address deferred maintenance in the System. Of the $8.7 billion in overall Park maintenance needs, $1.9 billion is for the preservation and maintenance of 27,000 historic structures listed in or eligible for the National Register of Historic Places. The line item construction budget for projects ready to go includes $50 million for the rehabilitation of historic structures. This would generate jobs for architects, engineers, construction workers, and cultural resource specialists. More projects could be added in 12 months if they could get in the pipeline now.

- Historic Buildings and Structures.—According to the recently released report on Park cultural resources by the National Academy of Public Administration, 46 percent of structures in our National Parks are in fair or poor condition. Even Independence Hall, one of America's most historic buildings, needs $3.7 million in repairs.
- Transportation and Infrastructure.—There is an enormous amount of work to be done with about $1 billion in road repair and infrastructure projects ready and awaiting funding.
- Curatorial and Museum Collections.—There is a backlog in cataloging curatorial resources and museum collections in the National Parks. Nearly half of the Parks' collections is uncataloged—about 56 million items. These collections could be managed by contract services and brought on-line expeditiously. At present the continued use, accessibility, and preservation of valuable materials and information is threatened. Just the way the Historic American Buildings Survey was established to create jobs in documenting historic resources, a new Public Land Service Corps could accomplish similar goals and protect important cultural collections at risk.
- Facility Energy Retrofits.—In keeping with the NPS goal of making all the Park facilities carbon neutral in time for the 2016 centennial, Park facilities should undergo a comprehensive energy efficiency upgrade and retrofit program. This would not only produce jobs, but would also lead to more sustainable and cost-effective Park operations.

*3. US Forest Service*

The same type of resources targeted to the NPS under a National Public Land Service Corps should be available to the US Forest Service as well to survey, rehabilitate, and maintain historic structures and other cultural resources on USFS land. The Forest Service estimates that it lacks $38 million for deferred maintenance costs for historic resources. Addressing this need would create engineering, design, and construction jobs in rural areas of the country that have been deeply affected by the recession. This work could also focus on energy efficiency retrofits for historic buildings used for Forest Service operations—reducing long-term operating costs—and the rehabilitation of tourist facilities to foster rural heritage tourism.

Federal agencies receiving funding from the stimulus package should be allowed to retain a portion of the money for contract administration and oversight.

CONCLUSION

America's public land and the diverse array of historic and cultural resources that are part of them help define us as a nation. These national assets deserve the highest degree of preservation, maintenance, and stewardship independent of their potential to foster energy independence, stimulate the economy, and create jobs. From a practical standpoint, investing in the certainty that comes from early historic and cultural surveys on land slated for energy development avoids costly conflicts later and protects our heritage. The rehabilitation of historic buildings and structures on public land generates jobs and stimulates local economies hardest hit by the recession. Access and improvements to collections and museums will provide more oppor-

tunities for heritage tourism. Investing in our nation's public land patrimony is a long-term investment in preserving these places for generations to come.

History shows us how effective a public land component to a recovery plan has been in the Depression Era service corps network that relied—in part—on harnessing the potential of historic and cultural resources. It is time to look to the lessons of the past and create a new Public Land Service Corps to fund the long list of backlogged construction and maintenance projects in the leading federal land agencies. Embarking upon a new, comprehensive, program to fund the queue of projects ready to go in the BLM, NPS, and USFS would open up an array of opportunities for the American people in adjacent towns, Main Street neighborhoods, and especially rural communities. Surveys, assessments, restorations, rehabilitations, energy retrofits, infrastructure/transportation works, curatorial services, and all types of maintenance projects employ people, leverage federal dollars, and address an unmet need that will have an exponential return on the Treasury's initial outlay. Funding this initiative now will carry the nation through the present recession and put the country on a much more sustainable footing for the future.

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STATEMENT OF DAVID BRADLEY, EXECUTIVE DIRECTOR, NATIONAL COMMUNITY ACTION FOUNDATION

Mr. Chairman, Ranking Member Domenici, thank you for scheduling this inquiry into how energy programs can meet the challenge of creating many new jobs quickly. The National Community Action Foundation represents the local Community Action Agencies that deliver over 80% of the Weatherization Assistance Program (W.A.P.) services. We were delighted when the Chairman mentioned the role this time-tested program can play during last week's interviews, and we thank you for the vote of confidence.

We support, and our membership can deliver, a $2 billion two-year "Weatherization Stimulus" initiative that can sustain more than 47 000 annual homebuilding industry jobs over two years while giving very low-income consumers $ 350-500 in annual savings to use for other necessities. (CBO estimates avoided costs like food and energy savings for low-income consumers produce $1.73 of GDP for each dollar of cost reduction.)[1]

HOW IS A STIMULUS W.A.P. DIFFERENT FROM TODAY'S PROGRAM, THE "CORE" W.A.P.?

It can focus on:

- Direct employment and retention in agencies and private contractors
- Training thousands in specialized "green-collar" skills
- Total cost-effective energy savings per program
- Capital/equipment/durable goods purchases: e.g. vans, crew equipment, home heating systems, other major appliances

Instead of:

- Number of units weatherized
- Capped average cost-effective spending per-home, which means limited work, because of limits on average cost
- Minimal investment in furnace replacement and other major "capital investments"
- Gradual transfer of specialized green-collar skills and technology

And . . .

It can add a one-time quick-start, job-creating element: a major home repairs program, Weatherization-Fix, that will invest up to 25% of funds in:

- Replacing roofs
- Installing high-efficiency furnaces
- Repairing broken floors, window, or doors
- Bringing electrical systems to safety code standards

However, there are statutory constraints that would constrain and delay the new investments and the employment impact of the program unless they are changed, and we ask the Committee's support for the necessary changes. The unwieldy limitations include: the ceiling on the average investment levels per home, on the specialized training and on some elements of program operations Without added flexi-

[1] Mark Zandi, Testimony before the U.S. House Committee on Small Business, July 24, 2008

bility and expanded program purposes, as explained below, we believe that no more than $1 billion, or half, could be spent over two years.

Each key program element is discussed below with the statutory or policy changes it requires, if any. Some will prepare the program to meet the challenge of permanent expansion that meets the needs of a carbon-constrained nation; others are temporary to meet job-creation goals.

The proposed growth to $2 billion is rapid, but not exponential. The Weatherization network already has about $1 billion from all funding sources in the current fiscal year (with the $250 million in the CR). Its PY 2007 total funding was $779.5 million; its PY 2008 total was $772 million.[2] A 2009 W.A.P. program with an additional $750 million this year will be just over double (225%) of its size in 2008. States' percentages will vary considerably by region. Great need and opportunity for CO2 reductions lies with warm states' especially inefficient low-income housing stock, where the program penetration and funding has been extremely low.

THE ONE-TIME MAJOR REPAIR PROGRAM: "W.A.P.-FIX"

- We are suggesting authorizing the use of ¼ of the funds for a function that is not a major component of Weatherization today. Substantial work could be contracted VERY quickly—in some areas DAYS after funding begins if Weatherizers are allowed to make major repairs of four types:

  —Replacing roofs
  —Installing high-efficiency furnaces
  —Repairing broken floors, window, or doors
  —Bringing electrical systems to safety code standards

The skilled licensed contractors who will do that work are not required to know how to weatherize homes. Local agencies routinely contract for all those licensed trades' services including HVAC installers, electricians, and roofers in the few homes where they can raise funds to make those investments. The contractual relationships are in place.

Further, local Community Action Agencies have records of dozens or hundreds of homes where Weatherization was denied ("deferred") because the rotted roof would not protect the insulation or the wiring was unsafe. Many weatherized homes needed a replacement furnace which will be extremely cost effective, but both the program and the owner lacked the capital. Most heating systems used are U.S. made. In other word, there is an identified "market"—addresses and income eligibility already verified and a willing private workforce ready to go.

*Note: The four general types of major repairs are not rehabilitation of the entire house or all its systems. CAAs partner with others, typically CDBG—funded programs, which specialize in the slow, individualized process of designing, permitting and overseeing and true 'rehab'. Weatherizers see their role as assisting partner agencies with the efficiency upgrades, but managing only the repairs listed above.*

ISSUES AND CHANGES NEEDED

The statutory restriction on re-visiting homes that received previous limited W.A.P. investments must be waived for the stimulus period. As noted above, the agencies know the location of homes needing the major repairs because they have worked in them and done whatever minor work was possible, perhaps replacing the refrigerator or freezer. That makes the home ineligible for a new treatment.

"CORE" WEATHERIZATION AS A STIMULUS

*1. Employment*

*The Size of the Workforce*

There are no contemporary data from the field on the workforce size. BEA construction sector modeling suggests that the PY 2008 program, absent any stimulus, will generate at least 9,000 direct jobs, absent any stimulus, from all its funding sources combined. Those will lead to 2.9 times as many indirect jobs (suppliers, services, fiscal support, etc.) and induced jobs (those created by all workers and businesses spending their pay). W.A.P.'s network has the highest funding level (from all sources) in the program's history; because of the record LIHEAP funding that probably will add about $300 million more than last year to W.A.P. programs in 44 states.

[2] Economic Opportunity Studies, "How Many Workers Does the Weatherization Assistance Program Employ Now? What About the Future?" http://www.opportunitystudies.org/repository/File/weatherization/WAP__Workforce__Scenarios.pdf

*Employment Stimulus*

The $1 billion per year, two-year program would increase all employment by 75% to about 46,700 jobs (using the conservative BEA formula). The growth rate will vary dramatically by state.

Since we believe the current workforce is considerably larger and, because it is lower-paid than the wages assumed in the BEA models, the number of newly-employed could also be considerably more. Improving the retention rates for the newly trained skilled workers and contractors will require better wages as the economy recovers.

*Readiness*

Local Contractors and Community Agency Employees

At the last survey of local Weatherizers in 2002,[3] about half the workforce was private contractor labor. The practice varies by state. The local Community Action Agencies that use contractor labor must retain at least one technically skilled employee to train, manage, and inspect their work.

Many private contractors have the equipment needed for the W.A.P. and hundreds of their employees have some W.A.P. training; in fact, the increase in LIHEAP funding for W.A.P. is resulting in more contracting today. There remain underemployed trained Weatherizers can be put to work while new recruits are trained.

*Job Skills and Training*

The program requirements mean the workers who evaluate homes and install efficiency measures need specialized skills based on an understanding of building science, and state-of the-art tools that diagnose building energy loss sources, inefficient indoor air movement and safety hazards, as well as the investment/work order "audit" or decision tool. The local agency staff and private contractors need the programs' training to use them.

Appendix A defines the levels of "core competencies" that make up the workforce. The highest level, auditor, needs six to eight months of formal training, including supervised field work and classroom, and can then work independently if monitored in the field by a more experienced auditor. W.A.P. local agencies will need many more auditors with comparable advanced training.

ISSUES AND CHANGES NEEDED

*Weatherization Skills Training Expansion*

DOE training resources are limited to 10% of a state's grant. This has allowed only a small share of workers at any level to attend formal training. Contractors must pay for training and equipping the workers they assign to W.A.P.

Changes are needed to ensure hiring and the quality of the workforce. For the two year period:

- Allow 20% (not 10%) of FY '09 and '10 funds for state/local T+TA
- Directly subsidize contractor workers' training
- Develop federal and state standards and "best practices" for W.A.P. green-collar workforce development.

There are no data indicating how many in the W.A.P. workforce receive the formal training or credential each year. Ten training centers, regular regional meetings, and biennial national training sessions serve a minority; however, most workers rely on skills passed on by their supervisors or peers. Few have the resources in their program to maintain a program of studies through a certificate or other credentials. States received 8.5% of the program funds for "Training and Technical Assistance" or "T & TA", including for their staff and their technology transfer. The Department retained 1.5% for federal technical support, research and training events.

The rate at which training is offered to the current workforce is a barrier to ramping up. The barrier is highest for private contractors. The program requires

[3] Economic Opportunity Studies, "Weatherization PLUS Other Efficiency and Housing Investments Delivered by Local Weatherizers in PY 2000" http://www.opportunitystudies.org/repository/File/weatherization/Weatherization__Survey__Report.pdf

them to provide already-trained workers; they spend training costs in hope of winning jobs.

*2. Production*

The states reported more than 140,000 homes were fully weatherized using any funding source in 2007. Of these, 82,409 received DOE-funded investments. However, that total omits fully-weatherized "non-federal" units in California, Pennsylvania, and Washington's large utility programs among others. The true total of units weatherized by the local network was almost certainly over 175,000 in FY 2007.

ISSUES AND CHANGES NEEDED

The outdated statutory limit on average expenditures per home must be repealed or replaced by an average which allows for major improvements including heating system replacements when their Savings to Investment ratio is high, or when they are a hazard.

DOE Weatherization works effectively because matching funds are available to pay for essential services and materials that the DOE regulations or statute restrict primarily the statute's limit on statewide average expenditures, which is $2,966 in 2008.

While no national figures on all the funding "packaged" per home have been validated, the NASCSP surveys[4] allow us to estimate states' average expenditure of labor and materials per home. Other funding sources, especially LIHEAP, have more flexible conditions. For most, the figure is between $4,000 and $5,500 using all their sources of funds. This figure varies widely among states from $2,000 in Hawaii (no LIHEAP, no utility money, low usage) to well over $8,000 in Alaska (predominantly state funding with LIHEAP and W.A.P., high usage).

Matching funds will not grow at the speed of the "Core" W.A.P. That means new work will be more constrained by the statute than is currently the case; there will be a proportional reduction in purchases of cost-effective, but higher-cost, measures like efficient furnaces, appliances and repairs. Crews will have less equipment, older vehicles and low pay. (All those costs are allocated to the cost-per-home.) Even more homes will be rejected as candidates because they need repairs or safety upgrades before insulation and air sealing can occur. These dilapidated units are also the most inefficient.

If the cost-effectiveness test is not a satisfactory alternative to the outdated statutory limit on average expenditures, one option is a temporary ceiling of $7,000 to be reviewed in two years when the permanent program is designed. This overdue change will make the expanded program spend quickly while increasing its energy savings and $CO_2$ reductions, and retaining its qualified workers.

The OMB program "metric" is 'units produced'. This should be discarded; if the suggestion seems too radical, then the all goals of the program and the stimulus should have results that are weighted together, including energy bill savings, $CO_2$ reductions and, for the life of this statute, employment effects.

*3. Capital Equipment Acquisitions for the Workforce*

Agencies equip their employee crews with specialized equipment and agency vans. Contractors must own the same specialized equipment before bidding to work for the program. It costs between $55,000 and $70,000 to equip a crew of 3-4, including a van or truck that is set up with the insulation blower, generators, blower door, scanners and other testing equipment required for the job. (Nearly all the technology/tools for the crew are made in the US).

An early purchase strategy in summer of 2009 will create jobs and avoid any delays later as new personnel finish training.

ISSUES AND CHANGES NEEDED

Agencies should be encouraged to purchase all the new equipment and vehicles they will use for their ramped up workforce as soon as possible to jump start the stimulus impact. This requires waiving some federal accounting rules which require the vehicle cost be assigned to homes being served.

Further, DOE should adopt the policy that agencies own the sets of specialized equipment contractors will use and lease it back to them. This removes a major stumbling block to quickly bringing new small businesses into the program. Credit for $65,000 of purchases is harder to come by than ever, and the possible loss of

[4] www.waptac.org

the W.A.P. business before the equipment is amortized is a threat. No regulatory change is needed.

*4. Management*

ISSUES AND CHANGES NEEDED

DOE Capacity

The closing of the EERE regional offices and the decimation of the population of technically qualified Headquarters staff already means W.A.P. runs without vital federal supports. It is inexplicable that EERE's growth has brought travel restrictions on our federal monitors; they cannot attend training outside their base without forgoing their oversight responsibilities.

The Committees must require substantial increases in federal personnel with the appropriate experience and credentials and oversee the DOE management of the program until it recovers.

State Capacity

We are very concerned about the constraints on the staffing of our state leadership in an era of state hiring and travel freezes. Many offices are understaffed today and lack technical competence that training centers and peers can offer. Grants should include assurances these constraints will not fall on the federal program, which is providing half of the administrative allotment to the grantee.

Local Administrative Cost Restrictions

The 1990 amendments to the statute allowed a higher percentage of administrative funding for small local agencies; 10% instead of 5% so they could purchase the core administrative services required to operate with federal funds. (States typically keep half of the administrative funds—another 5%). Small agencies were considered to be those with grants under $350,000 in 1990. This increase will pull many of the hundreds of small agencies above the threshold—they would have to double in size to regain the lost administrative dollars-but by then they would be serving twice as many participants.

The statute must change. Our temporary suggestion for an adjustment is to double the 1990 ceiling to $700,000 and allow states to negotiate a declining rate, but not less than 5%, with agencies that are growing beyond the $700,000 threshold.

*5. Preparing for the Next-Generation W.A.P.*

Careful evaluation of the results of this job-oriented initiative compared to careful evaluation of the way the "core" W.A.P. can contribute to the national goals of reducing greenhouse gases, investing in a green-collar labor force, and making energy bills affordable for low-wage workers, retirees, and their families.

Whether the future program expands further or contracts, all its investments should guarantee lower $CO_2$ emissions and major energy efficiency results and persist. Report guidance is needed to ensure the Department uses the stimulus period to complete the national evaluation of core W.A.P. practices funded and then interrupted by the current DOE leadership. The state-of-the-art in any residential retrofit initiatives should be identified and used in the development of more advanced standards for program practices and, most importantly, its training. By FY 2011, a workforce training plan and operating strategy should be developed, together with partnerships with institutions that will deliver training leading to green-collar careers; the Department must create more linkages among federally funded initiatives that are supporting the residential retrofit sector's workforce and practices.

Federal technology support for the program should be appropriated for these purposes; these would be in addition to the training funds. The one-time, delayed major evaluation will require .005. There should be another 2% set aside for the two-year period that both underwrites, put bluntly, a technical catch-up period followed by the development of the nationwide training capacity that the program and the private sector will require for a low emissions economy.

With the Committee's support for such a framework, the weatherization delivery system will commit to strategic plan to get the job done, correct any bottlenecks and put American homebuilders back to work at lowering consumers' unaffordable energy bills and reducing our greenhouse gas emissions for a generation to come.

STATEMENT OF MARK HEESEN, PRESIDENT, NATIONAL VENTURE CAPITAL ASSOCIATION

Thank you, Chairman Bingaman, for the opportunity to provide testimony regarding investments in clean energy and natural resources projects and programs to create green jobs and to stimulate the economy. The philosophy of the National Venture Capital Association, as it relates to the structure of an economic recovery package, is guided by several key principles:

1. Clean Technology Means Job Creation.—Investments in clean technology will create a significant percentage of the new jobs in the U.S. in the near term and over the next five to ten years. Just as a point of reference, in 2008 the clean technology sector was the fastest growing sector for venture capital investment. Just as the venture capital industry created millions of high paying jobs within the biotechnology sector with the funding of pioneering companies such as Genentech, Amgen and others, so too will it fund similar entities in the alternative energy and sustainability space in the next several years. In total, venture backed companies have historically and consistently accounted for almost 10 percent of US jobs and 18 percent of U.S. GDP.

2. Public Investment in Clean Technology R & D is Inadequate.—When compared to the public investment in research and development in other sectors of the economy, the government's funding of R & D in clean technology is inadequate by any measure. While the energy sector of the economy is roughly the same size in GDP terms as the health care sector, annual NIH R & D expenditures are roughly $30 billion, completely dwarfing the $1.5 billion expended on clean technology research and development.

3. Clean Technology Needs Robust Markets in which to Grow.—To the extent possible, policy tools should be used to strengthen financial, commercial, and consumer market mechanisms so that clean technology companies get the benefit of nimble, fast-adapting, and market-signal-driven investors, suppliers, and customers. Where markets are not functioning properly and are failing clean technology companies—as is the case in the current credit crisis—policymakers should take steps to fill in the gaps until the markets are repaired.

4. Only Consistent and Long-Term Policies Encourage Growth in Clean Technology.—Public policy must encourage certain favorable market behaviors, including long term investment. Therefore, public policy provisions should both extend for a significant period of time and not be subject to significant modification or varying interpretations over those time periods. Market participants—including investors—require consistent signals to act for the longer-term. As one data point, the minimum time horizon venture investors set for their portfolio company investments is 10 years.

5. Diversity of Clean Technologies Will Strengthen Our Country's Position.—The diversity of clean technologies and cleantech company strategies is a desirable thing, and policy should encourage that diversity. To the extent possible, we should prefer market decisions to government decisions in selecting the winners from this diverse pool of technologies and companies. Where policymakers must make choices (e.g., in research and development programs), those decisions should be based on the best independent scientific and market advice available.

6. Amid Price Fluctuations in the Energy Market, Policy Should Encourage "Market Pull" for Clean Technologies.—Many factors contribute to the success of entrepreneurial, high-growth companies, but a truly critical determinant of the growth of clean technology companies will be the perceived value/cost proposition of their products and services (relative to high-carbon energy alternatives) in energy markets—some of which are highly regulated. Because the nation has an interest in energy independence, in solving the global warming problem, and in creating new high-paying jobs at home, policy should strive to remind markets of the long-term cost/value proposition of clean energy products and services and help them weather the vagaries of periodic price fluctuations of energy alternatives. Where appropriate, policy should encourage "market pull" forces to encourage the start-up and growth of new clean technology companies.

Based on the above principles, the NVCA would support the following provisions in an economic recovery package.

Accelerating the Work of DOE's Loan Guarantee Program. DOE's Loan Guarantee Program is an important and valuable facility for funding clean energy projects that needs to be strengthened. To date, the administration of DOE's Loan Guarantee has been slow; no applications have yet received approval or funding. Policymakers

should consider taking steps in the recovery bill to greatly accelerate the processing and awarding of loan guarantee applications.

Without significant new authorizing language, options to accomplish this acceleration are somewhat limited. One viable option would be to fund a significant infusion of human capital resources to process these applications. Bankers, lawyers, financial analysts and modelers are needed to do the job well, and that emergency infusion may require exemptions to personnel hiring rules or providing DOE with the authority to hire consultants to process more of these applications faster. With these new resources should also come some agreed-upon timelines for the processing of loan-guarantee applications. In the longer term, the Senate should consider shifting the loan guarantee program to another entity, perhaps one like the 21st Century Energy Deployment Corporation contemplated by Senator Bingaman's Senate Bill 3233.

Other issues have been raised about the workability of the program, two of which may be candidates for correction in the recovery bill: (1) reducing the application fees associated with the program so that more start-up companies can easily qualify, and (2) eliminating rigid application deadlines that seem to reduce the pool of applicants rather than to expedite the orderly and swift processing of applications.

Funding a Significant Increase in Cleantech RD & D funding.—The recovery package represents a golden opportunity to fund new research, development, and deployment across a diverse range of clean technologies. Fully funding RD&D levels authorized by various sections of the Energy Independence and Security Act will create a significant number of jobs. The hiring of researchers, research assistants, laboratory staff, and the purchase of laboratory and research equipment, and the support of our universities through these additional funds will have significant ripple effects in university communities across the country. The time is now to begin making the serious investments in RD&D that will lead the creation of millions of new American jobs in the mid-to longer term.

Making the Renewable Energy Tax Credits Refundable, Expanding the Tax Investor Pool to Individuals, and Making the Credits Transferable.—In order to increase the pool of tax equity available to fund renewable energy development, the Senate should consider—as part of an energy tax title in the recovery bill—making the investment tax credit refundable, opening up tax equity to individual investors, and making such tax credits transferable. As current renewable energy tax credit provisions now operate, only large financial institutions and companies typically provide tax equity. The repeal of passive loss and at-risk limitations—currently permitted for working interests in oil and gas property—would significantly expand the tax equity pool to include high net worth individuals and others. The ability to transfer these credits should further enhance the pool of investment in these projects. These changes would convert the newly-extended tax credits into immediate and powerful financing propellants for new energy projects around the country.

The Senate should also consider a temporary transformation of the tax credits for renewable energy projects to cash rebates to help fund these projects. With the drying up of capital sources in the wake of the current financial crisis, it is possible that entire renewable energy sectors may wither significantly. By making the tax credits fully refundable (with no requirement that they be matched against income) until capital flows again post-financial-crisis, the government could make available to project developers the funds absolutely required to launch and sustain new renewable energy development.

Allowing Bonus Depreciation.—The Senate might further consider allowing a temporary accelerated depreciation schedule for U.S. cleantech projects such as solar, wind, biomass, geothermal, etc. and to extend this accelerated depreciation treatment to any capital expense that can be demonstrated to improve energy efficiency by some appropriate standard (or by a certain percentage improvement over the existing equipment).

Eliminating Capital Gains Taxes for Investment in Small, Start-Up Businesses.—During the presidential campaign, the Obama-Biden team demonstrated their understanding of critical drivers of economic growth by including in their tax platform a provision for a zero capital gains tax rate for investments in start-up companies. Across industries venture investment has been linked to new job creation and innovation, and we expect this to be clearly manifest in the cleantech area where such a policy would attract both much-needed capital and experienced management teams necessary to build these companies.

Accelerating the "Greening" of Buildings.—The first step the Senate should consider is fully funding the authorized level of $2 billion annually for the Energy Efficiency and Conservation Block Grant Program under Title V, Sections 543-548 of the Energy Independence and Security Act of 2007. The purpose of this program is to help state and local governments to fund energy efficiency improvements in the

building sector and other sectors, and fully funding the program will provide the resources required for campaigns like the one launched by New Mexico Governor Bill Richardson and Albuquerque Mayor Martin Chavez to bring schools and other public buildings to LEED—Silver status.

The second step to consider is providing incentives for small businesses (under 500 employees) to "green" their facilities. The Senate could support proposals to increase the SBA loan guarantee from 50% to 75% for owner occupied buildings if the tenant improvements comply with an energy-efficiency standard (perhaps as simple as a percentage above what comparable buildings in the region consume). Both steps would create a significant number of new jobs in energy efficiency equipment manufacturers and energy retrofit contractors across the country.

Increasing Incentives for Energy Efficiency in the Transportation Sector.—These steps could provide extremely powerful "market pull" forces to drive new transportation technologies, which will drive new companies, new jobs, and the beginnings of recapturing a lasting American competitive advantage in the transportation sector.

The Senate should consider: (1) temporarily doubling federal tax credits for fuel-efficient cars; currently there are credits of up to $3,400 for a new hybrid, between $2,500 and $7,500 for a plug-in car under 10,000 pounds, and up to $15,000 for a plug-in vehicle over 26,000 pounds; (2) accelerating investments in upgrading its fleet to more efficient vehicles, achieving at least the 50% target set by President-elect Obama by 2012; (3) providing corporate tax credits for purchases and leases of high efficiency vehicles and providing grants for converting corporate fleet vehicles to plug-ins; and (4) providing grants to support efforts like the Advanced Energy non-profit corporation in North Carolina to help school districts purchase or lease hybrid school buses.

Providing for Standardized and Long-Term Federal Power Purchase Agreements (PPAs).—Several commentators have reviewed the history of hydro development projects in the United States and concluded that the longer terms of the standardized PPAs under which their power was purchased by the government was a key factor in the success of that effort. The Senate should consider establishing a standard PPA for federal government purchase of clean energy that does not have to be fully renegotiated for each agency and each project. Moreover, the term of the PPA agreement might extend well beyond the 10-year range, perhaps out to as many as 30 years.

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