

ENERGY EFFICIENT BUILDING RETROFITS

HEARING
BEFORE THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED TWELFTH CONGRESS
SECOND SESSION
TO
REVIEW INNOVATIVE NON-FEDERAL PROGRAMS FOR FINANCING
ENERGY EFFICIENT BUILDING RETROFITS

JUNE 28, 2012



Printed for the use of the
Committee on Energy and Natural Resources

U.S. GOVERNMENT PRINTING OFFICE

75-808 PDF

WASHINGTON : 2012

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512-1800; DC area (202) 512-1800
Fax: (202) 512-2104 Mail: Stop IDCC, Washington, DC 20402-0001

COMMITTEE ON ENERGY AND NATURAL RESOURCES

JEFF BINGAMAN, New Mexico, *Chairman*

RON WYDEN, Oregon	LISA MURKOWSKI, Alaska
TIM JOHNSON, South Dakota	JOHN BARRASSO, Wyoming
MARY L. LANDRIEU, Louisiana	JAMES E. RISCH, Idaho
MARIA CANTWELL, Washington	MIKE LEE, Utah
BERNARD SANDERS, Vermont	RAND PAUL, Kentucky
DEBBIE STABENOW, Michigan	DANIEL COATS, Indiana
MARK UDALL, Colorado	ROB PORTMAN, Ohio
JEANNE SHAHEEN, New Hampshire	JOHN HOEVEN, North Dakota
AL FRANKEN, Minnesota	DEAN HELLER, Nevada
JOE MANCHIN, III, West Virginia	BOB CORKER, Tennessee
CHRISTOPHER A. COONS, Delaware	

ROBERT M. SIMON, *Staff Director*

SAM E. FOWLER, *Chief Counsel*

MCKIE CAMPBELL, *Republican Staff Director*

KAREN K. BILLUPS, *Republican Chief Counsel*

CONTENTS

STATEMENTS

	Page
Bingaman, Hon. Jeff, U.S. Senator From New Mexico	1
Borrelli, Sheri, Senior Business Development Professional, The United Illuminating Company, Orange, CT	15
DeBoer, Jeffrey D., President and Chief Executive Officer, The Real Estate Roundtable	24
Franken, Hon. Al, U.S. Senator From Minnesota	1
Leeds, Susan, Chief Executive Officer, New York City Energy Efficiency Corporation, New York, NY	18
Rodgers, William A., Jr., President and Chief Executive Officer, GoodCents Holdings, Inc., Atlanta, GA	10
Smith, Derek, Chief Executive Officer, Clean Energy Works Oregon, Portland, OR	7
Sundstrom, David E., Auditor-Controller-Treasurer-Tax Collector, County of Sonoma, Santa Rosa, CA	3

APPENDIXES

APPENDIX I

Responses to additional questions	51
---	----

APPENDIX II

Additional material submitted for the record	71
--	----

ENERGY EFFICIENT BUILDING RETROFITS

THURSDAY, JUNE 28, 2012

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

The committee met, pursuant to notice, at 9:31 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. Good morning. Today we're going to have a panel of experts talk to us about a variety of programs used across the country to finance energy efficient building retrofits. This is particularly an important topic for commercial building owners, but also for residential building owners. That's according to a recent survey from the Institute for Building Efficiency at Johnson Controls. They did a sixth annual global survey and concluded that more commercial building owners are turning to energy efficiency. They continue to seek tax credits, incentives, and rebates to assist with those efficiency improvements.

More than half of the 3500 building owners and operators worldwide said that improving their public image and increasing the value of their buildings were important factors leading them to consider energy efficiency.

We have 6 witnesses today to describe their programs for building efficiency retrofits and to discuss best practices for financing these retrofits. We hope to learn how best to ensure that private capital is available to finance projects through a variety of financing mechanisms.

Before we start, Senator Franken has had a keen interest in this subject for some time and I know he wanted to make a statement. So let me defer to him.

STATEMENT OF HON. AL FRANKEN, U.S. SENATOR FROM MINNESOTA

Senator FRANKEN. Thank you, Mr. Chairman. Thank you for holding today's hearing on financing energy efficient buildings, and thank you all to all the witnesses for sharing your expertise.

There are so many reasons why energy efficiency in building retrofits makes sense. Retrofitting buildings can pay for itself by saving homeowners and businesses money on energy bills. Retrofits

create jobs in manufacturing and construction and engineering. They improve the work environment of the retrofitted building, attract and retain tenants, and can bring whole neighborhoods back to life. Of course, retrofits cut energy waste and carbon emissions. Basically, it's win-win-win.

That's why last October I started an initiative promoting energy efficiency retrofits called "Back to Work Minnesota." I've been partnering with leaders in my State, Governor Dayton, local chambers of commerce, businesses, utilities, and nonprofits. Together we've been spreading the word about the benefits of energy efficiency and connecting building owners to the resources that can help them retrofit their buildings.

Interest in energy efficiency is spreading across Minnesota. In November the city of Edina, Minnesota, set up the first commercial Property Assessed Clean Energy program, or PACE program, outside of California. In December I attended the ribbon-cutting ceremony of Edina's first PACE-funded solar panel installation project at the Edina Grandview Tire and Auto Shop.

Likewise, cities and towns across the State are retrofitting public and private buildings with local revolving loan programs and utility rebates. Just this month, the Iron Range Resources Board created a pilot business retrofit program in Hibbing, Minnesota, and by the fall the Minnesota Department of Commerce will finalize a new program to provide standardized and guaranteed energy-saving performance contracts with energy service companies, or ESCO's, like Johnson Controls, which the chair mentioned in his opening statement, making it easier for the State to retrofit its buildings, saving taxpayers money.

Despite all this movement in Minnesota, there are still financing barriers, as you all know. I don't think I'm telling the panel anything they don't know, what we've been doing in Minnesota. There are still financing barriers holding many building owners back from retrofitting. So I'm eager to hear what today's witnesses think we can do to further promote retrofits that both save money and create jobs.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you very much.

I'd just point out that there's a long tradition here in the Senate of inviting experts from around the country and then telling them what they already know. So we are good at that.

Senator FRANKEN. I really revere the traditions of the Senate.

[Laughter.]

The CHAIRMAN. We know you do. We appreciate your carrying them on.

Let me introduce our 6 panelists. Mr. David Sundstrom, CPA, is with SCEIP, the SCEIP program. Is that the right pronunciation?

Mr. SUNDSTROM. "SKIPE."

The CHAIRMAN. "SKIPE" Program Administrator, in the County of Sonoma in Santa Rosa, California.

Mr. Derek Smith is the CEO of the Clean Energy Works Oregon in Portland, Oregon. Thank you for being here.

Mr. William Rodgers is President and CEO of GoodCents in Atlanta, Georgia. Thank you for being here.

Ms. Sheri Borrelli, Senior Business Development Professional with The United Illuminating Company in Orange, Connecticut. Thank you for being here.

Ms. Susan Leeds is Chief Executive Officer with the New York City Efficiency Corporation in New York.

Mr. Jeffrey DeBoer is the President and CEO of the Real Estate Roundtable and has testified here several times before. So we appreciate all of you being here.

Why don't we just take you in that order, and we will include your full statements in the record, but if you would take about 5 minutes each and give us the main points you think we need to try to understand about this set of issues, we would be anxious to hear your thoughts.

Mr. SUNDSTROM.

STATEMENT OF DAVID E. SUNDSTROM, AUDITOR-CONTROLLER-TREASURER-TAX COLLECTOR, COUNTY OF SONOMA, SANTA ROSA, CA

Mr. SUNDSTROM. Honorable Chairman Bingaman, members of the committee: Thank you so much for this opportunity to be here to share with you our experience with our SCEIP program, also known as Sonoma County Energy Independence Program. It is a PACE program, which stands for "Public Assessed Clean Energy." It was the first in the Nation. I am pleased to have this opportunity to discuss our program, a model of multi-jurisdictional public-private partnership for financing energy efficient and renewable energy retrofits for the betterment of our communities.

PACE is a local government initiative that allows property owners to finance energy efficiency, water conservation, and renewable energy projects for their homes and commercial buildings. Qualifying property owners finance those improvements through a property tax assessment which is repaid over a course of up to 20 years. PACE financing spreads the cost of the improvement, such as insulation, energy efficient boilers, new windows, or solar installations, over the expected life of the improvement.

The method of financing is intended to allow the repayment obligation to ensure transfer—will automatically transfer to the next property owner when the property is sold. PACE programs have been authorized by the legislatures of the District of Columbia and 28 States, including many States represented by members of your committee.

Sonoma County, which has long been a progressive leader in the area of energy and environmental stewardship, immediately identified PACE as a tremendous strategic opportunity to help us reduce our greenhouse gases and promote energy economy improvements by local property owners, and to provide jobs, many jobs, in the local green construction industry.

Sonoma County and the Sonoma County Water Agency have jointly pledged \$60 million of local funds to launch the program, making it the largest PACE program in this Nation. SCEIP has proven itself to be very popular and effective. After 3 years of operation, SCEIP has received 2400 applications for financing. Those applications have seen more than \$89 million in local energy improvements, of which more than \$62 million have been approved

and nearly \$57 million of projects have been already completed. Approximately \$6.7 million of these assessments have been paid off, freeing up those funds for future projects. In addition, the \$62 million invested locally has energized the creation of an active energy efficiency community and has generated more than 145,000 man-hours of construction work within the job market.

SCEIP has coordinated with other State and local energy programs to provide our community with a one-stop approach for customers to come in and facilitate energy efficiency and renewable energy investments.

Despite the impediments imposed by the Federal Housing Finance Agency, albeit we're moving along, albeit at a much slower pace. We now have 1700 property owners participating in the program and in the last 3 years those property owners have completed more than 1600 energy retrofit projects and 1,000 solar installations. This has been producing about 7.7 megawatts of energy for these residents, making Sonoma County the highest kilowatt-hour per capita solar energy production in the country.

The proposed rule by FHFA does allow us for submittal of alternatives. One alternative for the program, adding acceptable underwriting criteria to the program. It was our belief that H.R. 2599 is predicated on the very criteria being called for by FHFA. Programs established under 2599 guidelines should mitigate FHFA guidelines. We continue to hope that FHFA will revise its proposed rule to allow us to continue with the SCEIP program. We certainly would appreciate any assistance your committee could give us in pursuing H.R. 2599.

In conclusion, through collaboration with government, business, and nonprofit partners, Sonoma County has been able to forge ahead with a financially sustainable program that furthers our community's strategic priorities of environmental sustainability and local economic vibrancy. In doing so, the program has become a shining example of government innovation and collaboration. We look forward to continuing to expand our efforts in the commercial sector and within underserved communities, and to reaching a resolution with FHFA so that property owners can continue with PACE financing retrofits without the threat of foreclosure.

Thank you.

[The prepared statement of Mr. Sundstrom follows:]

PREPARED STATEMENT OF DAVID E. SUNDSTROM, AUDITOR-CONTROLLER-TREASURER-TAX COLLECTOR, COUNTY OF SONOMA, SANTA ROSA, CA

Introduction

Honorable Chairman Bingaman, Ranking Member Murkowski, and Members of the Committee, thank you for this opportunity to appear before you today as you examine "Innovative non-federal programs for financing energy efficient building retrofits." My name is David Sundstrom, and I serve in the elected position of Auditor, Controller, Treasurer and Tax Collector of Sonoma County, California. I also serve as the administrator of the Sonoma County Energy Independence Program, known as SCEIP, which is the leading Property Assessed Clean Energy (PACE) program in the nation. I am pleased to have this opportunity to discuss the Sonoma County Energy Independence Program, a model of multi-jurisdictional and public-private partnership for financing energy efficient and renewable energy retrofits for the betterment of the community.

PACE Explained

PACE is a local government initiative that allows property owners to finance energy efficiency, water conservation and renewable energy projects for their homes and commercial buildings. Qualifying property owners finance improvements through a property tax assessment which is repaid over the course of up to 20 years. PACE financing spreads the cost of improvements, such as insulation, energy efficient boilers, new windows, or solar installations, over the expected life of the improvement. The method of financing is intended to allow the repayment obligation to transfer automatically to the next property owner when the property is sold. PACE Programs have been authorized by the legislators of the District of Columbia and twenty-eight states, including many states represented by members of this Committee.

Growth of the Sonoma County Energy Independence Program

Sonoma County, which has long been a progressive leader in the area of green energy and environmental stewardship, immediately identified PACE as a tremendous strategic opportunity to help us reach our greenhouse gas reduction goals, promote energy efficient improvements by local property owners, and provide jobs in the local "green" construction industry.

Sonoma County and the Sonoma County Water Agency jointly pledged \$60 million of local funds to launch the program, making it the largest PACE program in the nation. SCEIP has proven itself to be very popular and effective: after three years of operation, SCEIP has received 2,400 applications for financing. Those applications have been for more than \$89 million in local energy improvements, of which more than \$62 million have been approved, and nearly \$57 million have been disbursed to projects that are already completed. Approximately \$6.7 million of these assessments have been paid off, freeing those funds for additional projects. In addition, the \$62M invested locally has energized the creation of an active energy efficiency and renewable energy construction market and has generated more than 145,000 man-hours of construction work within the local job market.

SCEIP has coordinated with other local- and State-funded energy efficiency programs to provide our community with a one-stop-shop approach to pursue and facilitate energy efficiency and renewable energy investments.

Despite impediments imposed by the Federal Housing Finance Agency, property owners continue to join the Program, which now has over 1700 participating property owners. In the past three years, those property owners have completed more than 1600 energy efficiency projects and 1000 solar installations which total more than 7.7 megawatts of clean, renewable solar photovoltaic energy. This has given Sonoma County one of the highest kilowatt-hour per capita solar energy production rates in the country.

We continue to seek long-term financing through the bond market, securitization, and private placement, to enable SCEIP to grow, allowing the energy and water conservation improvements to continue as long as there is a demand. We have also attracted private capital for particular projects. In one such case, SCEIP facilitated funding for a \$1.6 million solar installation on a major commercial complex through private capital provided by CleanFund, which recently also assisted in the financing of a commercial PACE project in Senator Franken's home state of Minnesota.

Partnership for Success

The energy community continues to be an active partner in our efforts to promote sustainability. Energy audits help to ensure the best choice in technology and allow for measureable environmental results arising from the program. Currently, commercial properties are required to conduct an energy evaluation, and the program strongly encourages energy audits for residential participants as well - the cost of which can be included in the financing provided through the program. Our use of Department of Energy grants channeled through the California Energy Commission over the last year has allowed us to implement several major program improvements, all focused on making participation in SCEIP easier, faster and more valuable for the property owner.

Bringing PACE to Scale

The U.S. Green Building Council reports that the building sector accounts for almost half of the greenhouse gas emissions in the United States annually.¹ The United States Environmental Protection Agency reports that this is spread approxi-

¹ Announcement dated
PressReleaseDetails.aspx?ID=3124.

5/7/2007,

<http://www.usgbc.org/News/>

mately equally between residential buildings and commercial buildings.² The White House Recovery Through Retrofit report found that home energy retrofits have the potential of reducing home energy bills by \$21 billion annually, paying for the retrofits over time.³ A recent report by the Rockefeller Foundation estimated that \$279 billion could be invested annually across the residential, commercial, and institutional market segments, yielding more than \$1 trillion of energy savings over 10 years and creating more than 3.3 million cumulative job-years of employment.⁴ In short, energy retrofits have enormous potential. A concerted push toward sustainable energy investment will reduce greenhouse gas emissions, save energy, benefit American homeowners and businesses through cost savings, and create and sustain millions of jobs.

Obstacles to Residential PACE

The enthusiastic response we received from the community on the launch of our Program and the continued interest we receive from the community demonstrates the community's desire for a retrofit program that offers a low up-front cost, transferable on sale option. However, the Federal Housing Finance Agency has challenged PACE programs because it believes PACE programs, which create a lien comparable to property taxes and other assessment liens, create risk for Fannie Mae and Freddie Mac due to the financing's seniority over the property's first mortgage. FHFA has recently proposed a rule on PACE programs essentially directing Fannie Mae and Freddie Mac to ensure that their mortgage documents permit immediate foreclosure on any property where the owner agrees to a PACE funded retrofit—whether or not the property owner is current on their mortgage and has a sterling payment history.

Our own statistics demonstrate that the FHFA's fears are groundless. In fact, PACE participants are significantly less likely to default on their mortgage payments⁵ and more likely to make their tax payments than property owners as a whole. The FHFA indicates that there is insufficient evidence to validate this result, yet firmly blocks new programs and prevents gathering the very evidence that would satisfy its concerns. In the House, HR 2599, setting out parameters to ensure PACE programs address the FHFA's concerns, has been submitted by a bipartisan group of Congress Members, and we hope that your Committee would support a similar effort in the Senate.

The proposed rule issued by the FHFA also allows for the submittal of alternatives. One alternative cited was having programs with acceptable underwriting criteria. It is our belief that HR 2599 is predicated on the very criteria being called for by the FHFA. Programs established under HR 2599 guidelines should mitigate FHFA concerns. We continue to hope that the FHFA will revise the proposed rule if presented with a program that meets the underwriting criteria they believe are needed to protect property owner and mortgage holder investments. We would greatly appreciate any assistance that you could provide in reaching a compromise with FHFA, such as incorporating the underwriting criteria cited in HR 2599.

Conclusion

Through collaboration with government, business, and non-profit partners, Sonoma County has been able to forge ahead with a financially sustainable program that furthers our community's strategic priorities of environmental sustainability and local economic vibrancy. In doing so, the program has become a shining example of government innovation and collaboration. We look forward to continuing to expand our efforts in the commercial sector and within underserved communities, and to reaching a resolution with FHFA so that property owners can proceed with PACE funded retrofits without threat of foreclosure.

Thank you again for the opportunity to appear before you today and describe our successful, and replicable, Program. I am happy to answer any questions from members of the Committee.

The CHAIRMAN. Thank you very much.

² <http://www.epa.gov/ttnchie1/conference/ei17/session5/knowles.pdf>

³ http://www.whitehouse.gov/assets/documents/Every_Through_Retrofit_Final_Report.pdf

⁴ <http://www.rockefellerfoundation.org/uploads/files/791d15ac-90e1-4998-8932-5379bcd654c9-building.pdf>

⁵ There are only 16 reported mortgage defaults out of over 1600 properties in the County's PACE program—under one percent, significantly below the County average.

**STATEMENT OF DEREK SMITH, CHIEF EXECUTIVE OFFICER,
CLEAN ENERGY WORKS OREGON, PORTLAND, OR**

Mr. SMITH. Mr. Chairman, members of the committee: My name is Derek Smith. I am CEO of Clean Energy Works Oregon, based in Portland, Oregon. I'd first like to acknowledge Senator Wyden for his leadership on energy and other issues, and especially for his support, and in fact the whole Oregon delegation has been very supportive of us, including your other colleague, Senator Merkley.

I'd also like to acknowledge our board chair, Jeremy Hayes, who's in the audience with me here today.

Clean Energy Works Oregon is in the residential energy sector, which, as you know, represents about 20 percent of our Nation's energy consumption. Clean Energy Works is a private nonprofit organization that accelerates the delivery of home energy remodels. We bring citizens together with private contractors and private lenders to help them get their home upgraded for energy efficiency. We then bundle the energy savings for the utility sector and we report the economic development outcomes for our public sector investors.

Over the past 2 years, our results include: 1800 homes remodeled for energy efficiency; 800 workers receiving paychecks, including 180 direct construction new hires, in a sector that in Oregon recently suffered a greater than 50 percent decline in employment; average wages of \$21 an hour across multiple trades, from insulation installers to HVAC technicians to electricians to plumbers; market growth of 5X; 30 percent annual energy savings per home, generating over \$500,000 annually into the pockets of participating citizens; \$25 million in economic development; and 4 to one leverage on our Federal investment, primarily from private capital lenders. All of these numbers are rising on a daily basis.

We've been able to accomplish this because of the support from the U.S. Department of Energy, the State of Oregon, Energy Trust of Oregon, city of Portland, local governments, and the Rockefeller Foundation, and because of the entrepreneurial spirit of our 50 contractors and 4 lenders in rural and urban communities throughout Oregon.

We're proving a model where public sector investment delivered alongside private and utility capital into energy efficiency pays dividends toward important American values: energy independence from volatile fossil fuel markets, small business growth, revitalization of our housing market; and creation of local jobs that can't be outsourced and that can pay family supporting wages to historically disadvantaged populations, including women, minorities, and veterans.

Here's what we're learning and what we'd like to convey to you this morning. First, the utility sector, while a critical player, is in a limited position to value the full set of benefits that are derived from energy efficiency. For example, economic development. Therefore, current utility investment alone is not sufficient to get the gains we need. Restructuring of the sector and its business model should be explored.

Two, private capital is widely available and does not appear to need ongoing credit enhancement, at least for the residential sector. What's needed to unlock private capital is smart program de-

sign, good quality control, and robust data that can inform capital markets. As you know, many financial institutions are sitting on cash and getting pressure from shareholders to earn returns. The government does not need to be and shouldn't be the capital provider for this sector. Our experience is that local credit unions and regional banks are the pathway toward larger scale investment.

Third, the housing appraisal industry is beginning to recognize the value of energy efficiency improvements. We are making a dent in the turnaround of our housing economy.

Four, consumers respond to rebates. We believe rebates above utility incentive levels are extremely effective and needed to lift the industry and transform the market, at least until home valuations routinely recognize the value of energy efficiency improvements.

Last, private businesses are aiming their resources toward this growing market. What these businesses need to continue investing is the predictability of knowing that the market will be supported and sustained.

Looking forward, we expect this market to stabilize and reduce its dependence on public investment. We expect in Oregon that State-level investment will recognize the value of job creation by assuming the next position of key financial support for further market development. We have built a model that does not rely on Federal investment to survive.

So how can the Federal Government help? Given that utilities are regulated locally, the Federal Government can promote industry standards that cut across State lines, like the measurement of non-energy benefits.

The Federal Government can continue to engage the real estate community with development of tools like the Home Energy Score so there is transparency to consumers about energy costs of homes.

Finally, the Federal Government can promote the value of energy efficiency. Imagine a national advertising campaign that links energy efficiency to patriotism, like the Victory Gardens campaign from World War II.

In closing, I would like to thank you for your hard work in creating solutions for our energy challenges and for your support of energy efficiency as a key piece of the puzzle going forward. Thank you.

[The prepared statement of Mr. Smith follows:]

PREPARED STATEMENT OF DEREK SMITH, CEO, CLEAN ENERGY WORKS OREGON,
PORTLAND, OR

Thank you for the opportunity to present to the Committee on Energy and Natural Resources. I'd first like to acknowledge Senator Wyden for his leadership on energy and other issues, and especially for his support of Clean Energy Works Oregon. We are grateful for the support of the Oregon Delegation, including your other colleague, Senator Merkley.

Clean Energy Works Oregon is in the residential energy sector, which, as you know, represents about 20% of our nation's energy consumption.

Clean Energy Works is a private, non-profit organization that accelerates the delivery of home energy remodels. We bring citizens together with private contractors and private lenders to help them get their home upgraded for energy efficiency, and we ensure quality control and service throughout their project. We bundle the energy savings for the utility sector and we report the economic development benefits to our public sector investors.

Over the past two years, our results include:

- 1800 homes remodeled for energy efficiency
- 800 workers receiving paychecks, including 180 direct construction newhires—this is in a sector of our economy that, in Oregon, recently suffered a greater than 50% decline in employment
- Average wages of \$21/hour across multiple trades—from insulation installers to HVAC technicians to electricians to plumbers
- Market growth of 5x
- 30% average energy savings per home, generating over \$500,000 annually into the pockets of participating citizens
- \$25 million in economic development
- Four-to-one leverage on our Federal investment, primarily from private capital lenders

All of these numbers are rising on a daily basis.

We've been able to accomplish this because of the support from the US Dept. of Energy, State of Oregon, Energy Trust of Oregon, City of Portland, local governments and the Rockefeller Foundation.

We're proving a model where public sector investment delivered alongside private capital into energy efficiency pays dividends toward important American values:

- Energy independence from reduced reliance on volatile fossil fuel markets
- Small business growth
- Revitalization of our housing market
- Creation of local jobs that can't be outsourced and that can pay family supporting wages to historically disadvantaged populations including women, minorities and veterans

Here's what we're learning and what we'd like to convey to you:

1. The utility sector, while a critical player in this market, is in a limited position to value the full set of benefits that are derived from energy efficiency. For example, economic development is not and cannot be fully valued by utility capital. Therefore, current utility investment alone is not sufficient to get us the gains in efficiency we need. Restructuring of the sector and its business models should be explored.

2. Private capital can be unlocked, is widely available, and does not appear to need ongoing credit enhancement. What's needed to attract private capital is smart program design, good quality control, robust data and ongoing financial support from the public sector. As you know, many financial institutions are sitting on cash and getting pressure from shareholders to earn returns. The government doesn't need to be - and shouldn't be - the capital provider for this sector. Incidentally, our experience is that local credit unions and regional banks are the pathway toward larger-scale investment. As demand and predictability grow, the Wall Street banks will join in, and a national market will emerge.

3. The housing appraisal industry is beginning to recognize the value of energy efficiency improvements. We are making a dent in the turnaround of our housing economy. Once this starts to happen on a more predictable basis, demand will be steady.

4. Consumers respond to rebates. We believe rebates above utility incentive levels are extremely effective and needed to lift the industry and transform the market, at least until home valuations routinely recognize the value of energy efficiency improvements (very similar to Cash for Clunkers).

5. Private businesses are aiming their resources toward this growing market. Many of our contractors tell stories of reorienting their focus 3-4 years ago away from new home construction toward remodeling for energy efficiency. And they are seeing significant year-over-year growth. What these businesses need to continue investing is the predictability of knowing this market will be supported and sustained.

Looking forward, we expect this market to stabilize and reduce its dependence on public investment. We expect, in Oregon, that State-level investment will begin to recognize the value of job creation in this sector by assuming the next position of key financial support for further market development. We have built a model that doesn't rely on Federal investment to survive. However, it would be welcome, and it is clear that the combination of public sector capital alongside ratepayer dollars and private capital is a key to success of mobilizing a national energy efficiency industry.

So how can the Federal government help?

- Given that utilities are regulated locally, the Federal government can promote industry standards that cut across state lines, like the measurement of non-energy benefits and universal data exchange protocols.
- The Federal government can continue to engage the real estate community with development of tools like the Home Energy Score so there is transparency to consumers about energy costs of homes.
- The Federal government could continue to invest financial resources in the emergence of the nascent energy efficiency industry, which holds tremendous promise as a valuable component of a 21st century energy policy that recognizes American job creation in balance with energy independence from the increasingly volatile commodity markets for fossil fuels.
- And, finally, the Federal government can promote the value of energy efficiency. Imagine a national advertising campaign that links energy efficiency to patriotism, a la the Victory Gardens campaign from World War II.

In closing, I would like to thank you for your hard work in creating solutions to our country's energy needs, and for your support of energy efficiency as a key piece of the puzzle going forward.

The CHAIRMAN. Thank you very much.
Mr. Rodgers, go right ahead.

**STATEMENT OF WILLIAM A. RODGERS, JR., PRESIDENT AND
CEO, GOODCENTS HOLDINGS, INC., ATLANTA, GA**

Mr. RODGERS. Mr. Chairman, members of the committee: My name is Bill Rodgers and I am the President and CEO of GoodCents Holdings. GoodCents is headquartered in Atlanta, Georgia, and has provided operations in over 20 States and in Canada just in the past year. I thank you for the opportunity to testify before you today on the very important topic of energy efficiency.

Energy efficiency programs can and do exist independent of Federal financing and incentives. Our company has been in existence for over 30 years and our continued growth over that period is clear evidence of the role market forces can have in driving energy efficiency programs.

During that time, we have provided multiple types of demand side management programs, such as energy efficiency, to over 150 investor-owned utilities, cooperatives, and municipalities, as well as their customers. We have over 400 employees focused daily on assisting businesses and residents in conserving and better utilization of their energy requirements.

Our involvement covers the full spectrum of services, from initial program design to the critical marketing services targeted at customer education and enrollment into the programs; to the field implementation and the ultimate measurement and verification of the actual savings achieved, which is used to report back to the respective regulatory bodies.

With the focus of this hearing to review non-Federal programs for financing energy efficient building retrofits, I would like to review a few items. While there are several alternatives to replace or supplement Federal funding and support of various programs, such as performance contracting, equipment-based loans, on-bill financing, and the type, there is a key driver to the ultimate success of these programs. Essentially, where we have experienced the greatest level of achievement in terms of customer acceptance and collaboration is in States where clear standards have been established.

In our experience, the most successful programs are those in which States establish energy efficiency resource standards and

then allow the marketplace to develop the best methods to achieve those goals. The collaboration comes through a strong alignment of interests of the State, regulators, utilities, commercial and industrial businesses, and the residents, along with the private sector service provision.

Programs are developed that properly focus on maximizing the energy savings through targeting the effective rate of return on the investments made through these various retrofit projects.

Energy efficiency remains America's cheapest, cleanest, and readily deployable energy source when compared to any other supply side generation, where costs have continued to rise. We can reduce the costs for both the consumer and the utility, eliminate pollution, and create green jobs, all without Federal dollars.

A current example of such an initiative is being delivered across the State of Indiana. In 2009, the State of Indiana joined many other States to establish long-term Energy Efficiency Resource Standards. These standards set forth energy savings targets with very specific timetables for achievement. Once the standards were established, Indiana undertook an exhaustive effort to review their options for that achievement. Their model evaluated the need for a true partnership of all stakeholders in order to achieve their ultimate goals.

They established a Demand Side Management Coordination Committee of the Indiana Utility Regulatory Commission made up of representatives from each of the utilities, local municipalities, and consumer groups throughout the State. They went to the marketplace to bid and ultimately select an independent third party administrator for the statewide initiative.

Our company GoodCents was selected to reduce energy use by more than 1.2 million megawatt hours over just the first 2 years of the contract period. Branded "Energizing Indiana," the initiative is a united effort by the State, participating utilities, businesses, and consumer organizations to offer energy efficiency programs that will benefit communities across the State.

This extensive, statewide suite of 5 core energy efficiency programs includes: commercial and industrial retrofits; residential home energy assessments; income-qualified weatherization services; lighting expansion through over 300 retail participating outlets across the State; and energy education programs and commercial building assessments for Indiana schools.

The power of offering an integrated approach most definitely drives additional benefit and savings for the customers. The Energizing Indiana program has also created a significant number of new jobs for Indiana residents. The program will directly hire over 150 positions directly out of the Indiana work force. In addition, when efficiency improvements are made as a result of the assessments that are done, the work is performed by local professionals, which means that the dollars stay in the local community.

Similar to our efforts in Indiana, many other States have established their own energy efficiency resource standards. Once these goals and standards have been set, they then developed the proper alignment between all of the stakeholders to drive toward their aggressive goals. This allows for the best thinking to be put toward the market-based program requirements versus establishing Fed-

eral prescriptive programs that become very difficult to effectively deliver. Costs of these programs go through the regulatory system for proper review and inclusion in the local rate structure. The market ultimately drives the programs, the participation, and the returns once those standards have been established.

Thank you for your time.

[The prepared statement of Mr. Rodgers follows:]

PREPARED STATEMENT OF WILLIAM A. RODGERS, JR., PRESIDENT AND CEO,
GOODCENTS HOLDINGS, INC., ATLANTA, GA

GoodCents Overview

Mr. Chairman and members of the Committee on Energy and Natural Resources, my name is Bill Rodgers and I am the President and CEO of GoodCents Holdings, Inc. GoodCents is headquartered in Atlanta, Georgia and has provided operations in 20 states and Canada over the past year. I thank you for the opportunity to testify before you today on the important topic of energy efficiency.

Energy efficiency programs can and do exist independent of federal financing and incentives. Our company has been in existence for over 30 years and our continued growth over that period is clear evidence of the role market forces can have in driving EE programs. During that time we have provided multiple types of Demand Side Management programs such as energy efficiency to over 150 Utilities and their customers. Our Utility customers include Investor Owned, Co-operatives and Municipalities. We have over 400 employees located across our country and in Canada who wake up each and every morning focused on assisting businesses and residents in conserving, and better utilization of, their energy requirements. Our company partners with both electric and gas Utilities to deliver the most effective programs targeted at reducing their energy footprint. Just samplings of some of the programs we deliver are:

- Facility Audits (both residential and commercial)
- Income Qualified Weatherization
- Equipment Efficiency Studies
- Retrofit Programs for Commercial and Industrial
 - Lighting
 - H.V.A.C.
 - Equipment (motors, drives, refrigeration etc.)
- Trade Ally Network development and management
- Energy End Use Studies

Our involvement covers the full spectrum of services: From initial program design, focusing on the delivery of the required or targeted savings; to the critical marketing services, targeted at customer education and enrollment into the programs; to the field implementation and the ultimate measurement and verification of the actual savings achieved which is used to report back to the respective regulatory body. With the focus of this hearing to review non-federal programs for financing energy efficient building retrofits, I would like to review several items. While there are several alternatives to replace or supplement federal funding and support of various programs (such as performance contracting, equipment based loans, on-bill financing, etc.) there is a key driver to the ultimate success of these programs. Essentially, where we have experienced the greatest level of achievement in terms of customer acceptance and collaboration is in the states where clear and precise standards have been established. In our experience the most successful programs are those in which a state establishes Energy Efficiency Resource Standards (EERS) and then allows the marketplace to develop the best method to achieve those goals.

To date, 26 states have established EERS.

The collaboration comes through the strong alignment of interests of the state, regulators, Utilities, commercial and industrial businesses and residents, along with the private sector service provision. Programs and models are developed that properly focus on maximizing the energy savings through targeting the effective rate of return on the investments made through various retrofit projects. Energy efficiency remains America's cheapest, cleanest, and fastest energy source when compared to any other supply side generation where costs have continued to rise. We can reduce costs for both the consumer and utility, eliminate pollution and create green jobs all without federal dollars. A current example of a successful Initiative that doesn't require any federal financing is being delivered across the State of Indiana.

Energizing Indiana Overview

In 2009, the State of Indiana joined many other states, and since that time many others have followed, to establish long-term Energy Efficiency Resource Standards (EERS). Please see the map of the current State EERS on page 16 of this testimony. These standards set forth energy savings targets with specific timetables for achievement. Once the EERS were established, Indiana undertook an exhaustive review of their options for achievement. Their model evaluated the need for a true partnership of all stakeholders in order to achieve their ultimate goals. They established a Demand Side Management Coordination Committee (DSMCC) of the Indiana Utility Regulatory Commission (IURC) made up of representatives of each of the Utilities, municipalities and consumer groups in the state. They went to the marketplace to bid and ultimately select an Independent Third Party Administrator for their statewide initiative. GoodCents was selected and entered into a contract targeted to reduce energy use by more than 1.2 million MWh over the first two contract years of 2012 and 2013. Branded “Energizing Indiana,” the initiative is a united effort by the state, participating Utilities, businesses and consumer organizations to offer energy efficiency programs that will benefit communities across the state.

This extensive, state-wide suite of five core energy efficiency programs includes: Commercial & Industrial Prescriptive program on the most energy consuming equipment and process improvements, Residential Home Energy Assessments, Income-Qualified Weatherization Services, Residential Lighting expansion through over 300 participating retail locations, and both Energy Educational Programs and Commercial Building Assessments for Indiana Schools.

As administrator, GoodCents is coordinating, managing, implementing and reporting on this core suite of programs designed to meet the annual energy savings goals identified for each participating Utility. In addition, the Utilities also offer other “Core Plus” programs directed toward expanding to an even greater suite of energy efficiency services that GoodCents works to educate the ultimate customers on the combined value. GoodCents has built a world-class team of experienced professionals from across the state and is managing the program from four Indiana offices in Indianapolis, Merrillville, Fort Wayne, and Evansville.

GoodCents believes that by consolidating energy efficiency programs into one core initiative, Energizing Indiana has the power to benefit many Utility customers; from industry to businesses, and schools to homeowners. The power of offering an integrated, more tailored approach most definitely drives additional benefit and savings for the customers. We see other states following Indiana’s lead of program consolidation because of the efficiency and continuity gained by the scale of operations. One of the most important operational components of these Utility-sponsored programs is the focus on energy savings data-gathering, retention, and validation attributable to each Utility customer.

The Energizing Indiana program has also created a significant number of new jobs for Indiana residents; the program has to date directly hired over 100 management, administrative, and technical positions from the Indiana workforce. In addition, when a business or home makes efficiency improvements as a result of assessment programs, the work is performed by local professionals; that means dollars spent stay in the community.

Approach to Market

Through years of experience, GoodCents has identified a variety of tools that are effective in engaging customers and changing their behavior resulting in optimal program enrollment. The key to a program’s success is establishing a strong marketing campaign that spans across multiple marketing channels and provides multiple touches to Utility customers to increase both awareness and activity. In addition, it is essential to develop an enrollment channel that is easy and convenient for customers to use.

Effective marketing is the key to robust participation. GoodCents has a complete array of marketing capabilities including print collateral design and production, social marketing programs (community engagement programs, social media implementation, local enrichment programs, etc.), and electronic communications to include website development, landing pages, email campaigns, and online program administration. In many programs, incentives are used to drive higher response rates through both direct mail and community enrichment.

GoodCents also works with Utilities to establish program awareness through social marketing platforms and pushes to engage local newspapers for additional support. In addition we use resources such as social media sites like Facebook, Twitter, and YouTube to raise awareness of the energy efficiency and demand response programs. GoodCents works with the Utility to build a program webpage that provides

program information and allows the customers to enroll. In addition, we piggy-back some program marketing approaches with any of the Utility's current and future media campaigns or marketing efforts.

When working within the energy efficiency business the key to gaining both commercial and residential customer acceptance is in educating them as to the benefits of the programs, allowing them to understand the financial impact and return on their investment as well as working to make the process participation simple.

Types of Programs Delivered

Demand Response Programs

LOAD CONTROL PROGRAMS

For more than three decades, GoodCents has been a valued partner for Utilities implementing demand response programs. In addition to advanced and emerging smart grid technologies, the Company installs and commissions a wide array of demand response devices, including communicating thermostats, water heater and pool pump controllers, and internet gateways, across a range of protocols and communications mediums. Active programs being delivered in California, Georgia, Illinois, Indiana, Kentucky, North Carolina, Ohio, Oklahoma, South Carolina and Virginia. Recently completed programs were also in Nevada and Washington.

HOME AREA NETWORKING

Home area networks connect all aspects of the home to best understand how and where and to what degree energy is being used. A home area network is a network of energy management devices, digital consumer electronics, signal-controlled or enabled appliances, and applications within a home environment on the home side of the electric meter. GoodCents utilizes its decades of experience in demand response and working inside the home to leverage the optimal solutions for our customers in establishing the most effective home area networks to allow for maximum understanding of usage. We work with our Utility clients to identify, enroll and implement the networks as well as analyze the data for meaningful future program usage. Current programs in Arizona and Texas.

ADVANCED METERING INFRASTRUCTURE

GoodCents' Advanced Metering Infrastructure offering combines smart meter deployment, infrastructure component installation, proprietary scheduling and routing applications, and customer call centers. The combined offering ensures the most efficient deployment of smart grid programs, and positions GoodCents as an important link between the Utility and its customers.

Energy Efficiency Programs

INCOME QUALIFIED WEATHERIZATION

GoodCents' Income-Qualified Weatherization programs utilize a combination of a well-defined, standardized in-home measure installations process and a solid, long-standing analytic software tool. Our program delivery may include combustion safety testing, blower door guided air sealing, arranging for attic insulation, and providing conservation education and encouraging adoption of energy efficiency measures. Active programs are being delivered in Florida, Indiana, North Carolina and Virginia.

RESIDENTIAL ENERGY ASSESSMENTS

GoodCents believes that on-site energy assessments provide the best opportunity to reshape the energy usage habits of all customers. Our highly trained and experienced technicians perform detailed site surveys and work closely with the customer to install energy efficiency measures as determined by the Utility and their customers.

Along with installing measures, we are also capable and equipped to conduct in-out testing for implementation-style assessments such as weatherization, duct repairs, ceiling insulation and more. GoodCents generally uses six common elements for on-site energy efficiency programs, pre-visit and authorization, home health and safety, installed measures, energy audit inputs, energy audit analytic engine, and homeowner's energy report. Active programs are being delivered in Indiana, Ohio and West Virginia.

SIX COMMON ELEMENTS OF GOODCENTS ON-SITE ENERGY EFFICIENCY PROGRAMS

Commercial & Industrial Energy Assessments

GoodCents' Commercial and Industrial programs include prescriptive and custom incentive structures that reward participants with monetary incentives based on their installation of energy efficiency equipment upgrades. These upgrades include lighting, motors and pumps, HVAC, and potentially other equipment such as ENERGY STAR® transformers and efficient package refrigeration. Incentives will be provided for one-for-one replacements, retrofits and new installations of qualified equipment.

The objectives of the C&I Prescriptive Program are to:

- Lower electric energy consumption in the C&I market sector.
- Help C&I customers decrease their overall energy costs.
- Build market-based activity that captures near- and long-term energy and demand savings.
- Encourage equipment vendors and contractors to actively promote and install energy efficient technologies for their C&I customers.

To assist C&I customers in reducing their electric energy costs, the GoodCents team provides program participants with technical assistance accessible through Resource Managers working directly with their site as well as a toll-free customer service line. The technical assistance can include helping to understand the return on their potential investments, answering general questions regarding the program, evaluating available program incentives, verifying program eligibility, and/or connecting them with potential local installation contractors that are familiar with and participating in the program. Active Programs are being delivered in Indiana, Kentucky, North Carolina, Ohio, South Carolina, Virginia and West Virginia.

REBATE PROGRAMS

The goals of the rebate program offered by GoodCents are to provide Utilities and their customers with an avenue to reduce energy and demand requirements, save money on electric bills, and meet reduction goals set forth by state legislatures and commissions. To accomplish these goals, the GoodCents rebate program offers a complete turn-key offering from the marketing aspect through rebate check processing. Our rebate offerings can either be fully customizable or a standard prescriptive based program. Similar active programs as listed in the commercial energy assessments.

Conclusion

Similar to our efforts in Indiana, many other states have established their own Energy Efficiency Resource Standards. Once these goals and standards have been set they then developed the proper alignment between the state, regulators, local communities, Utilities, industrial and commercial businesses and the residential customers to drive towards their aggressive goals. This allows for the best thinking to be put towards the market-based program requirements versus establishing federal prescriptive programs that become difficult to realize ultimate success. Costs of these programs go through the regulatory system for proper review and inclusion in the local rate structures. The market ultimately drives the programs, participation and returns once the standards are established.

The CHAIRMAN. Thank you very much.
Ms. Borelli, go right ahead.

STATEMENT OF SHERI BORRELLI, SENIOR BUSINESS DEVELOPMENT PROFESSIONAL, THE UNITED ILLUMINATING COMPANY, ORANGE, CT

Ms. BORRELLI. Thank you. Good morning, Mr. Chairman, Senator Murkowski, members of the committee. Thank you for the opportunity to appear before you today to discuss financing energy efficient building retrofits. My name is Sheri Borrelli and I represent The United Illuminating Company. UI is an investor-owned electric distribution company serving approximately 300,000 customers in southern Connecticut. UI also administers energy efficiency pro-

grams funded by a 3 mil per kilowatt hour charge that is referred to as the Connecticut Energy Efficiency Fund.

I am here today to familiarize you with the Small Business Energy Advantage Program. This is one of our many programs that we serve as administrator of the Efficiency Fund. This program has been designed to provide cost-effective turnkey energy services to various types of small businesses.

This program features a network of vendor contractors provided by UI that provide energy efficiency proposals and services to our customers. These contractors provide a no-obligation energy evaluation identifying the potential energy-saving retrofit measures, the available incentives, and various financing options. These proposals will include dollars from the Efficiency Fund for a portion of the cost of the installation as it is determined by the energy savings that will be achieved. The greater level of comprehensive a project, the higher the incentive.

The objective is to offer the customer a proposal where there is no or little out of pocket expense and create a positive cash-flow scenario, which results in lowering their electric bill. Another benefit is that once the loan is paid off, usually within 3 to 4 years, the customer will be—the customer's bill will be less, reflecting the efficiency upgrades.

Although the program itself is a critical delivery mechanism, the innovative part of the program is the financing with the convenience of on-bill financing. The loans to the customer are interest-free. Interest-free loans are possible since the interest expense of 6.3 percent is bought down by the Efficiency Fund. Repayment of the loan is made as part of the customer's electric bill.

To qualify for the loan, the customer must have a good utility bill repayment history for the most recent 6 months. The most unique feature about the loan payment is the source of capital. UI provides the funds that are loaned to the customer. The Efficiency Fund is used as a loan loss reserve fund, allowing UI to recover any losses from the defaulted loans pending quarterly review from the Public Utility Regulatory Authority.

The interest paid to UI on the outstanding loans to UI's after-tax cost of capital, a mix of debt and equity, is the same rate the utility would earn on investments on the distribution system equipment.

Although we operate a very innovative financing program, we are not resting on our laurels. We are working with the Clean Energy Finance and Investment Authority in Connecticut, which is operating as a green bank to identify other sources of capital that might be beneficial to our customers. Among these opportunities is a commercial version of the Property Assessed Clean Energy. We are looking toward developing a portfolio approach to providing our customers with financing solutions for energy efficiency projects.

UI has a strong tradition of offering successful energy efficiency programs and the long-proven success of our small business model has been replicated nationally and researched internationally. If replicated, this program can also result in job creation on a national scale.

Thank you for inviting me here today to testify.
[The prepared statement of Ms. Borrelli follows:]

PREPARED STATEMENT OF SHERI BORRELLI, SENIOR BUSINESS DEVELOPMENT
PROFESSIONAL, THE UNITED ILLUMINATING COMPANY, ORANGE, CT

This testimony is being presented on behalf of The United Illuminating Company (UI), an investor owned electric distribution company in Connecticut. UI administers energy efficiency programs funded by a 3 mil per kilowatt hour charge that is referred to as the Connecticut Energy Efficiency Fund. The program being discussed is the Small Business Energy Advantage Program offered to customers since the year 2000. This program has been designed to provide cost effective, turn key energy services to various types of small businesses. The program features a network of vendors contracted by UI that provide energy efficiency proposals and services to the customers. These contractors provide a no obligation energy evaluation identifying the potential energy saving retrofit measures, the available incentives and various financing options. These proposals will include incentive dollars from the Efficiency Fund for a portion of the cost of the installation as determined by the energy savings achieved. The objective is to offer the customer a proposal where there is no or little out of pocket expense and create a "positive cash flow" scenario, which results in lowering their electric bill.

Mr. Chairman, Senator Murkowski and Members of the Committee, thank you for the opportunity to appear before you today to discuss financing energy efficient building retrofits. My name is Sheri Borrelli, and I represent The United Illuminating Company. United Illuminating (UI) is an investor owned electric distribution company serving approximately 300,000 customers throughout seventeen (17) towns and cities in southern Connecticut. UI also administers energy efficiency programs funded by a 3 mil per kilowatt hour charge that is referred to as the Connecticut Energy Efficiency Fund. The Energy Efficiency Fund was created in 1998 with the purpose of helping small and large businesses, homeowners and renters to promote, encourage, and facilitate the adoption of energy efficient technologies and behaviors. The programs are designed to help customers manage their energy usage and cost. These energy efficiency programs offered through the Energy Efficiency Fund play a vital economic role for Connecticut.

I am here today to familiarize you with one of the programs we operate as part of our role of program administrator for the efficiency programs, the Small Business Energy Advantage program. Since its inception in 2000, this program has been designed to provide cost effective, turn key energy services to the various types of small businesses within UI's service territory. Some examples of qualifying small business would be "various mom and pop" stores, houses of worship, retail spaces, convenience stores, gas stations, restaurants, apartment building common areas and non-profit organizations.

Typically, these businesses will have an average monthly electric utility bill from \$150.00 up to \$25,000.00 if they are a small manufacturing company. The program features a network of vendors contracted by UI that provide turn key energy efficiency proposals and services to the customers. These contractors provide a no obligation energy evaluation identifying the potential energy saving retrofit measures, the available incentives and various financing options. These proposals will include incentive dollars from the Efficiency Fund for a portion of the cost of the installation as determined by the energy savings achieved. The more comprehensive a project, the higher the incentive, for example a lighting only project incentive may be approximately thirty (30%) and for a comprehensive lighting, refrigeration and Heating Ventilation and Air Conditioning (HVAC) project incentives may be forty (40%) to fifty (50%). In most cases, these comprehensive projects max out at the fifty (50%) incentive level for multiple technologies. Zero (0%) financing with on bill repayment is available to all qualified customers.

The objective is to offer the customer a proposal where there is no or little out of pocket expense and create a "positive cash flow" scenario, which results in lowering their electric bill almost, if not, immediately and the energy savings achieved each month offsets the payment. Another benefit is that once the loan is paid off (usually in 3 or 4 years), the customer's bill will be less reflecting the efficiency upgrades that were installed. The minimum loan amount offered to the customer is \$500, and the maximum loan is \$100,000. Another appealing feature of the Small Business Energy Advantage Program is the ability to offer a loan term up to forty eight (48) months. (an example of a recent project comparing pre and post installation consumption is included as part of this testimony).

Although the program itself is a critical delivery mechanism, the innovative part of the program is the financing with the convenience of on-bill repayment. The loans to the customer are interest free (0%). Interest free loans are possible since the interest expense of 6.3% is bought down by the Efficiency Fund. Repayment of the loans is made as part of the customer's electric bill. The loan qualification is a good

utility bill repayment history for the most recent six months. The loans are fully transferrable and assumable. This particular feature is noteworthy especially since eighty (80%) of our customers enrolled in this program are tenants.

The most unique feature about the loan program is the source of the capital. The utility, UI, provides the funds that are loaned to the customer. The Efficiency Fund is used as a loan loss reserve fund, allowing the utility to recover any losses from defaulted loans pending quarterly review by Connecticut's Public Utilities Regulatory Authority (PURA).

The interest paid to the utility on the outstanding loans is UI's after tax cost of capital (a mix of debt and equity) the same rate the utility would earn on investments on distribution system equipment. By making investments in energy efficiency appear similar to traditional utility investments, the utility is encouraged to invest in energy efficiency.

Although we operate a very innovative financing program, available to our Municipal customers as well, we are not resting on our laurels. We are working with the Clean Energy Finance and Investment Authority in Connecticut, an innovative "Green Bank" to identify other sources of capital that might be beneficial to customers. Among those opportunities is a commercial version of Property Assessed Clean Energy (PACE). The PACE model may prove to be beneficial in certain circumstances. We are looking toward developing a portfolio approach to providing customers with financing solutions for energy efficiency projects.

UI has a strong tradition of offering energy efficiency programs, and the long term proven success of our Small Business Model has been replicated nationally and researched internationally, and our vendor network, if replicated could result in job creation on a national scale.

The impact of financing for energy efficiency for small businesses can be shown through these statistics, approximately ninety-four (94%) of our customers qualify for the financing, and of this percentage, fifty (50%) decide to participate. In contrast, for those who do not qualify for the financing less than twenty (20%) participate. With the combination of incentives and 0% financing we have been able to empower the small business community to take the initiative to move to energy efficiency and in doing so we are able to utilize utility funds for the benefit of both the customers and the utility.

Thank you for inviting me to testify today. I would be happy to answer any questions you may have.

The CHAIRMAN. Thank you very much.

Ms. LEEDS.

**STATEMENT OF SUSAN LEEDS, CHIEF EXECUTIVE OFFICER,
NEW YORK CITY ENERGY EFFICIENCY CORPORATION, NEW
YORK, NY**

Ms. LEEDS. Thank you for inviting me here today.

The New York City Energy Efficiency Corporation's mission is to help New York City achieve its energy and climate action goals by catalyzing an energy efficiency retrofit financing market for private building owners. We focus on financing commercial and multi-family retrofits in buildings of over 50,000 square feet.

Energy efficiency retrofits require up-front capital investment and the payback happens over time. Although up-front costs and lack of financing are often cited as barriers, I must emphasize that the availability of financing is only one component of what is necessary to ensure retrofit growth. Demand is also critically necessary, as is information on building energy use and retrofit performance.

Barriers to energy efficiency finance differ by building segment, but it is generally true that there must be a credible source of repayment. The flow of financing for commercial retrofit projects is hampered by the absence of collateral with significant value in the event of default and by borrowers who are not by their nature creditworthy entities with strong balance sheets. High transaction

costs, limited performance data, and preexisting liens on real property are complicating factors.

What is NYCEEC's strategy to address this challenge? We are a nonprofit public-private partnership. We are an example of the type of specialized organization that is necessary to develop effective energy efficiency financing programs, which we believe involves managing both energy efficiency technical risk and real estate finance risk and capturing data on the financial value of energy efficiency investments.

We are partnering with private financial institutions to leverage our core capital of approximately \$40 million, primarily from Federal stimulus funds, for greatest impact. We are piloting new financial products that we believe are replicable at scale. This work is generally not being undertaken by the private financial sector, primarily due to high transactions costs, unproven revenue streams, and a currently conservative credit culture.

We are using two main strategies. We are providing credit enhancement in the form of loan loss reserves to mitigate risks that lenders currently won't accept; and we are also offering loans where capital for retrofits is scarce, high cost, or unavailable.

We are currently working with 3 specific financing products. Energy services agreements have historically been used by the ESCO industry, along with performance contracting, to finance retrofits. We are applying a modification of this approach to the commercial real estate sector, which we call "ESA Version 2.0," in which a third party project sponsor invests in the energy savings potential in a building directly, although they do not own that building. This is a sophisticated approach that makes the most sense for capital-intensive projects.

Unsecured lending for retrofits is not new and is primarily applicable to high credit quality borrowers, such as the MUSH sector. We believe this is an important tool, but not a solution for scaling retrofit financing for commercial buildings.

Energy efficient mortgages allow building owners to borrow specifically for building retrofits on top of a conventional loan. This may be achieved by increasing the base loan amount at the time of refinancing or by providing a supplemental loan in conjunction with the first mortgage.

Conventional mortgage lenders are not providing this form of finance today. By providing credit enhancement to mitigate savings risk and by bringing energy efficiency technical expertise to lenders, we are helping lenders systematically incorporate retrofits into the mortgage lending process. We believe this is a highly scalable solution.

Programmatic approaches that we are not currently deploying but would like to in the future include PACE for commercial buildings and on-bill financing programs implemented through the regulated utilities.

What have we learned so far? We commenced operations 1 year ago. We have closed transactions and are working on many more. There is demand for the financing products that we support. However, base demand for retrofit investment is an issue. This means that more information and education is required to propel building owners to act. Lenders generally require some form of credit en-

hancement to finance most commercial energy efficiency projects. Individual transactions costs are high. Thus it is critically important to promote programmatic approaches.

The retrofit market is highly fragmented and no one financing product will suit the needs of all owners and major tenants. There is need for both modification of standard financial products and for new and innovative approaches.

My observation is that most policy drivers for building retrofits are happening at the municipal and State level. That said, NYCEEC would not exist without Federal stimulus funding.

What can the Federal Government do to help? Consider adjusting tax policy with the objective of driving demand for commercial retrofits through tax incentives. Encourage the GSE's to develop energy efficiency lending strategies. Expand efforts to aggregate and provide public access to data on retrofits and building energy performance. Finally, provide continued financial support through Federal grant funding to emerging programs that are demonstrating success.

Thank you.

[The prepared statement of Ms. Leeds follows:]

PREPARED STATEMENT OF SUSAN LEEDS, CHIEF EXECUTIVE OFFICER, NEW YORK CITY ENERGY EFFICIENCY CORPORATION, NEW YORK, NY

Introduction Thank you for inviting me to testify on innovative non-federal programs for financing energy efficient building retrofits.

My name is Susan Leeds, and I am the Chief Executive Officer of the New York City Energy Efficiency Corporation. I have worked in energy efficiency financing for the past four years in various capacities including advocacy, consulting, financial transaction execution, and business management. My prior professional experience spans capital markets, municipal finance and financial guaranty insurance.

The New York City Energy Efficiency Corporation - we call ourselves "NYCEEC" - was created as an independent non-profit corporation by New York City's Office of Long-term Planning and Sustainability. Our mission is to help New York City achieve its energy and climate action goals by catalyzing energy efficiency retrofit financing markets for private building owners. We were created because our City leaders believe that New York City residents can reap economic and environmental benefits through greater investment in energy efficiency in existing buildings, and that insufficient financing is a barrier to such investment.

What is the potential for energy efficiency investment?

Retrofitting commercial buildings to make them more energy efficient is widely acknowledged to have multiple benefits to building owners, occupants and the community at large. Yet actual investment in energy efficiency measures remains well below potential.

In March 2012, the Rockefeller Foundation and the Deutsche Bank Group published a report, titled, "United States Building Energy Efficiency Retrofits, Market Sizing and Financing Models."¹ This report provides a "snapshot" of the current investment potential in building retrofits of \$279 billion dollars or approximately 3 trillion BTUs of annual energy savings, with \$97 billion of this investment potential residing in the commercial and institutional building sectors. Studies vary in methodology, but in comparing these figures to the U.S. energy efficiency potential study published by McKinsey in 2009, we find reasonable consistency.²

¹Note that this analysis is based on an assumption of 30% energy savings in buildings built before 1980. Fulton, Mark and et al. "United States Building Energy Efficiency Retrofits: Market Sizing and Financing Models." The Rockefeller Foundation and Deutsche Bank Climate Change Advisors, March 2012.

²Granade, Hannah Choi and et al. "Unlocking Energy Efficiency in the U.S. Economy." McKinsey & Company, July 2009. http://www.mckinsey.com/client_service/electric_power_and_natural_gas/latest_thinking/unlocking_energy_efficiency_in_the_us_economy.

Figure 1.* What is the energy efficiency investment potential?³

However, actual investment is significantly lower. According to research published by Bloomberg New Energy Finance, approximately \$18-20 billion was invested in energy efficiency projects in the U.S. in 2010.⁴ An estimated \$3.5 to 5.5 billion of this amount is direct spending by homeowners, landlords, small business owners, real estate companies and corporations. Approximately 25% (or \$4.5-5 billion) was funded through debt financing—primarily municipal debt associated with energy performance contracting. Innovative financing approaches, which comprise NYCEEC's core mission, accounted for only 3% of non-owner equity funding sources.

Figure 2. What is the actual level of energy efficiency investment? (2010)⁵

What is the role of financing?

Energy efficiency retrofits require upfront capital investment, and the payback happens over time in the form of energy cost savings and improved property values. The “upfront cost” factor and lack of targeted financing options for building efficiency projects are consistently cited as barriers to the growth of energy efficiency retrofit markets.⁶

In Johnson Controls' 2012 “Energy Efficiency Indicator Survey,” U.S. and Canadian executives cited a lack of funding as the most significant barrier to undertaking energy efficiency investments (37%), followed by insufficient payback/return on investment (21%).⁷

As previously mentioned, in 2010, only 25% of the total U.S. energy efficiency expenditure was financed via debt, and this was concentrated among high credit quality institutions. In comparison, the \$16 trillion U.S. housing market is financed 60% via debt through mortgages. We conclude that a paucity of financing is likely to prevent energy efficiency investment from reaching its full potential.

That said, I must also emphasize that availability of financing options is only one component of what is necessary to ensure increasing throughput of retrofit activity across building sectors. Demand is also critically necessary, which in my experience must be supported by local policy drivers, a skilled workforce, including a robust energy audit profession, information on building energy use and retrofit performance, and effective service delivery business models for project implementation.

Why is so little capital provided to this sector through financing today?

Barriers to energy efficiency finance differ by building segment. However, it is generally true that there must be a credible source of repayment, either through a strong balance sheet or supported by assets with collateral value. The flow of financing for commercial retrofit projects is hampered by the absence of collateral with significant value in the event of default (in contrast to mortgage or auto lending), and by borrowers who are not creditworthy entities (these are often limited liability entities in the commercial real estate sector). Further, high transactions costs, limited performance data and pre-existing liens on real property are additional complicating factors. Split incentives, and in some regions, low energy prices reduce the economic feasibility of projects.

The chart** below enumerates various barriers relevant to financing energy efficiency projects in large buildings:

What is the strategy of New York City Energy Efficiency Corporation?

NYCEEC is structured as a non-profit, public-private partnership, as reflected in our Board structure. We are an example of the type of specialized organization that is necessary to undertake the development of effective energy efficiency financing programs, which we believe involves managing both energy efficiency technical risk and real estate finance risk, and balancing policy objectives with the need to prove and capture data on demonstrable financial value of energy efficiency investments.

Figure 3. What is NYCEEC?

* All figures and tables have been retained in committee files.

³Fulton 7.

⁴Hesser, Theodore Gates. “Is debt financing opening up for energy efficiency?” Energy Smart Technologies-Built Environment-Research Noe. Bloomberg New Energy Finance, 25 April 2012.

⁵Hesser 2.

⁶For the past six years, Johnson Controls has conducted an annual, global Energy Efficiency Indicator survey that tracks the energy priorities and investments by executives from the commercial, industrial and institutional sectors. The survey results have consistently cited limited capital availability as the most significant barrier to businesses undertaking energy efficiency investments. In 2012, there were 1,139 respondents in the U.S. and Canada. There were nearly 3,500 respondents worldwide in 2012. “Energy Efficiency Indicator Survey: U.S./Canada Results.” Johnson Controls Institute for Building Efficiency, 2012. <<http://www.institutebe.com/InstituteBE/media/Library/Resources/Energy%20Efficiency%20Indicator/2012-EEI-United-States-and-Canada-Fact-Sheet.pdf>>.

⁷Johnson Controls Institute for Building Efficiency 2012.

** All charts have been retained in committee files.

Our goal is to partner with private financial institutions to leverage our core capital for greatest impact. While there are many government sponsored programs that promote energy efficiency, NYCEEC is novel because we are operating as a non-profit specialized financing entity-with an ethos that balances risk management with customer-service.

We are filling gaps in the availability of capital, and piloting partnerships and financial products that we believe are replicable, eventually at scale. This work is generally not being undertaken by the private finance sector (with the exception of certain CDFIs⁸), primarily due to high transactions costs, unproven revenue streams and a current reticence on the part of many financial institutions to participate in innovative financing structures (within means of mitigating credit risk). We are generating a return on our capital, albeit calibrated to our non-profit, mission purpose. We seek to maximize energy efficiency investment within our community by attracting commercial lenders to the sector.

NYCEEC is using two main strategies to improve the availability of financing for building retrofits. We are providing credit enhancement to mitigate risks that commercial and mortgage lenders are currently unwilling to accept, and incentivize lenders to attribute value to energy efficiency investments. We are also offering loans (often in partnership with commercial lenders) to innovative applications of energy services agreements and unsecured or partially secured transactions, in cases where capital for technically sound energy efficiency investments is scarce, high-cost or unavailable.

Figure 4. NYCEEC's strategy

What are the innovative financing approaches?

I am going to briefly discuss five financing approaches that have merit for supporting the development of retrofit markets. We are working with three of these products at present: energy services agreements, energy efficiency mortgages, and unsecured lending. This reflects what is feasible today in New York City (without additional regulatory or legislative action) and what we believe has the greatest applicability to the building stock we are targeting: primarily multifamily, commercial and to a lesser extent, institutional buildings in NYC.

First, I want to share my observation that the energy efficiency retrofit market is highly fragmented. There is no one predominant or obvious approach to financing that will suit the needs of all owners and major tenants. Market segmentation is absolutely necessary and not well-defined at this moment.

There is need and opportunity for both modifications of standard financial products that can responsibly accommodate the retrofit process, and for new and innovative approaches that are specifically designed to facilitate investment in energy efficiency retrofits. There is important transactional activity underway representing initial progress in both of these categories of activity.

Energy Services Agreements—have historically been used by the ESCO industry, along with performance contracting, to finance retrofits. The innovation we are interested in developing is applying a modification of this approach to the commercial real estate sector, which we call “ESA Version 2.0”. In the ESA 2.0, a third party project sponsor funds the cost of improvements. These companies (and their capital sources) effectively invest in the energy savings potential in buildings directly, although they do not own the buildings. To varying degrees, they may assume the risk that the energy efficiency retrofit project will perform as expected and benefit from some or all of the “savings upside”. Often, ESA payments from building owners are considered to be operating expenses, as opposed to debt payments per se. This is a sophisticated approach that, generally speaking, seems to make the most sense for capital intensive projects, e.g., chillers, boilers, electrical and control systems, automated energy management systems, certain envelope measures and co-generation.

Unsecured lending—for energy efficiency projects and equipment is not new, and is primarily applicable to high credit quality borrowers including MUSH sector entities and high-quality corporates. This category includes commercial loans that are either unsecured or are flexible with respect to collateral, accepting equipment or collateral arrangements other than first or second liens on real property, and equipment finance including leasing arrangements. We believe that this is an important tool in our toolbox, but not a solution for scaling retrofit financing across the full range of commercial buildings.

Energy efficient mortgages—allow building owners to add borrowings specifically for building retrofits on top of a conventional mortgage. This may be achieved by increasing the base loan amount at the time of a refinancing to accommodate the cost of specific energy efficiency improvements, or by providing a supplemental first

⁸Community Development Financial Institutions

or a second lien loan for this purpose in conjunction with the first mortgage. Bloomberg New Energy Finance espouses the high potential of energy efficient mortgages, “. . . the potential market for energy efficiency debt derived through energy efficient mortgages is greater than any other financing mechanisms . . . , and could theoretically total up to \$270bn in outstanding energy efficiency debt on top of the \$13.5tn US mortgage market.⁹

Few if any conventional mortgage lenders are providing this form of finance today. By providing credit enhancement to mitigate the risk of that retrofit measures won't achieve projected cost savings, and by bringing technical expertise with respect to best practices for energy efficiency implementation to lenders, NYCEEC's goal is to help lenders systematically incorporate the value of energy efficiency-related operating savings (and additional value attributes) into the mortgage lending process. This is a potentially highly scalable solution in that it is based on a modification to standard lending practices that are commonly used to finance buildings across various building sectors. Furthermore, we believe that this approach has good applicability in low- to moderate-income communities.

Programmatic approaches that we are not currently deploying (but may in the future) include PACE commercial and on-bill financing programs through the regulated utilities.

Property assessed clean energy (PACE)—programs employ the ability of local governments to assess properties for improvements that have public benefit. Given appropriate state-enabling legislation, this assessment capability can provide a voluntary mechanism that permits property owners to finance clean energy improvements, including efficiency improvements, on individual properties. The assessment is attached to the property, not the owner, and is paid back through the property tax system. The assessment has the same status as property taxes, and therefore is empowered to attach a lien to the property in the event of nonpayment that is senior to any existing mortgage debt. Assuming adequate demand for retrofit investment, the biggest issue in relation to uptake of this model is likely the requirement for lender acknowledgement or consent. PACE commercial programs all require some form of it, and this creates a barrier that many owners may not care to deal with, and some mortgage lenders may reject.

On-utility bill financing—takes advantage of the important relationship that a utility already has with its building owner customers, and utilities often seek to increase penetration of existing energy efficiency programs by offering to finance measures on the utility bill. In essence, the upfront cost of efficiency upgrades is financed through a repayment charge on the monthly utility bill. In tariffed programs, the charge is tied to the meter, so the tariff stays with the property when the customer moves; in loan programs, the repayment is tied to the customer, so must be repaid at property sale.

According to Bloomberg New Energy Finance, “scaling on-bill lending will require programmes to break away from rate-payer coffers, and tap into outside credit from the capital markets.”¹⁰ Our research concludes that most existing on-bill programs are active primarily in the single-family residential building markets, although both New York State and California (and possibly others) are piloting effort to promote this financing mechanism for commercial properties.

Figure 5. Innovative financing approaches for commercial retrofits in New York City (NYCEEC's assessment)

Figure 6. Bloomberg New Energy Finance's assessment of innovative financing approaches¹¹

Figure 7. Bloomberg New Energy Finance's view of the highest potential financing solutions¹²

What is our experience so far?

NYCEEC commenced operations one year ago. We have closed transactions and are in-discussions on many more. Highlights of our learning to date include:

- We are seeing demand for the financing products we are offering across a range of building segments including commercial, multifamily, retail, hospitality and health care.
- However, base demand for retrofit investments is an issue - this means that more information and education is required to propel building owners to act. We are also anticipating increased demand as the full effect of local regulation - pri-

⁹Hesser 7.

¹⁰Hesser 11.

¹¹Hesser 3.

¹²Hesser 4.

marily as the local laws and regulations implemented as part of New York City's Greener, Greater Buildings Plan take effect.

- Almost all lenders require some form of credit enhancement to finance energy efficiency projects for all but the most credit-worthy borrowers.
- Individual transactions costs are high, and thus is it critically important to promote programmatic approaches.
- Few financial institutions are willing to invest in developing and integrating the engineering expertise with the specialized finance expertise that is required to implement effective retrofit financing programs in the commercial sector. To take this step, institutions must perceive strong local demand drivers.
- No one financing product is likely to dominate, particularly in the commercial sector. What federal support is appropriate and needed to ensure success?

My observation is that most of the policy drivers for building retrofits are happening at the municipal and state level. Retrofit markets are primarily local-and to an extent regional-markets, and need to be supported at these levels. That said, NYCEEC could simply not exist without Federal stimulus funding. What can the federal government do to help promote the development of energy efficiency financing markets?

- Provide continued financial support through federal grant funding to emerging programs such as NYCEEC that are demonstrating success;
- Promulgate learning and promote the sharing of experience and best practices among local and regional energy efficiency financing programs;
- Consider adjusting tax policy (by revising 179D so that it works better for existing buildings; by providing accelerated depreciation for retrofit capital equipment; by allowing efficiency improvements to qualify as real estate under REIT regulations; by including tenant-driven as well as owner-driven approaches) with the objective of driving demand for retrofits through tax incentives, and improving the balance of tax subsidy directed at renewables with that directed at energy efficiency, as such subsidy is currently more weighted towards renewables although there is a strong argument that energy efficiency is more cost effective;
- Encourage the GSE's to develop energy efficiency lending strategies.
- Continue and expand efforts to aggregate and provide public access to data on building energy performance, energy efficiency retrofit activity and performance, tenant energy consumption, and municipal initiatives on benchmarking and disclosure.

An area for future consideration may be developing pathways for the integration between building retrofit and energy markets by encouraging or incentivizing utilities to purchase aggregated energy efficiency in the form of "negawatts".

The CHAIRMAN. Thank you very much.
Mr. DeBoer.

STATEMENT OF JEFFREY D. DEBOER, PRESIDENT AND CHIEF EXECUTIVE OFFICER, THE REAL ESTATE ROUNDTABLE

Mr. DEBOER. Good morning, Mr. Chairman, Senators. Thank you for the opportunity to testify here this morning. As the last witness on the panel, I know I bear a heavy burden to be brief. I will try to be brief and direct you to see details in my written statement.

Let me dive right in with a few facts that I think will underscore what Senator Franken said about this retrofit business being a win-win in terms of saving energy, saving money, and creating jobs.

There are over 5 million commercial and industrial buildings in America. 85 percent of these buildings that exist today are going to be standing in America in 2030. Commercial buildings today account for about 20 percent of the Nation's energy consumption. The combined average annual energy cost for U.S. commercial buildings and industrial facilities exceeds \$200 billion. We estimate that you

can save \$20 billion annually by simply improving energy efficiency in these buildings by a mere 10 percent.

The basic tools—and Senator Franken referenced this. The basic tools for retrofitting buildings, like efficient furnaces, water heaters, spray foam insulators, and the like, are manufactured here in America and obviously are American jobs.

One other point, and it's been mentioned here, but I would underscore: It's cheaper, obviously, to save energy than it is to produce energy, and there are studies out there that show that energy produced by offshore wind is about 8 times as expensive as the equivalent amount of energy saved through energy efficiency measures. Similar data exist for nuclear sources and solar sources.

So the bottom line here is that government financing programs and the like get more bang for the buck by encouraging energy efficiency as opposed to creation of other energy, which obviously needs to be done as well.

While there is no silver bullet to help these retrofits from a national point of view, I do want to draw your attention to a few items that could be done here in Congress, each of which has bipartisan support here in the Senate. First of all, Senator Bingaman, I know you and other members of the committee, Senator Snowe and others, are looking at section 179D, which would improve the existing tax deduction for making buildings more energy efficient. We applaud you for that, hope that it can be enacted some time soon.

The DOE loan guarantee program which was put in place in 2005, but to date has focused on high-risk and expensive programs like solar, wind energy. There is a bill, S. 1000 that Senators Shaheen and Portman have, which would allow DOE to get into less risky, less expensive building retrofit loan guarantees, capped at \$10 million. We think that would go a long way.

Senator Bennet and Isakson have a bill which would encourage greater information sharing and the use of appraisals to determine the value of energy improvements in buildings and we think that is something that should be done.

There is also another bill that is here in Congress that Senator Bennet is developing, that would better align commercial owners, landlords if you will, with the tenants and their energy usage to make sure that there's a good exchange of information here. That would go a long way to help building owners manage their properties more energy efficiently.

Those steps would help directly on retrofitting. I would say, however, that to have successful retrofits at any level you have to have a more robust commercial real estate market in general. The commercial real estate market nationwide continues to have some difficulties in terms of overall macro financing. We would encourage you to take a look at a bill that Senator Menendez and Senator Enzi have that would encourage greater foreign investment in U.S. equity markets. We think that some of that equity that will come in, that will allow buildings to transition out of their sort of purgatory state today back into the marketplace, some of that capital will in fact be used to help retrofit buildings.

Finally in this area, Senators Leahy and Grassley have a bill to extend this EB-5 program, that allows foreign capital to come in

to create development so long as jobs are created in return. That program expires in September. Senators Leahy and Grassley want to extend that. We think it would be a good positive thing to do.

So I will end by saying these are some actions that could be done nationally that would help support some of these State programs and help the real estate markets and financing in general.

So thank you again for the opportunity, Mr. Chairman.

[The prepared statement of Mr. DeBoer follows:]

PREPARED STATEMENT OF JEFFREY D. DEBOER, PRESIDENT AND CEO, THE REAL ESTATE ROUNDTABLE

(I) INTRODUCTION

Chairman Bingaman, Ranking Member Murkowski, and Members of the Senate Energy and Natural Resources Committee, thank you for the opportunity to testify at this hearing on “Financing Efficient Buildings.”

I am Jeffrey D. DeBoer, President and CEO of The Real Estate Roundtable (www.rer.org). The Roundtable represents the leadership of the nation’s top privately owned and publicly held real estate ownership, development, lending and management firms, as well as the elected leaders of the major national real estate industry trade associations. Collectively, Roundtable members hold portfolios containing over 5 billion square feet of developed property valued at over \$1 trillion; over 1.5 million apartment units; and in excess of 1.3 million hotel rooms. Participating Roundtable trade associations represent more than 1.5 million people involved in virtually every aspect of the real estate business.

Our nation faces significant economic, employment, and energy challenges. One way to address these challenges is by upgrading the nation’s commercial building infrastructure through energy efficiency “retrofits.” These projects will get Americans back to work with jobs that will stay in the United States, save businesses billions of dollars a year in utility bills, and help secure our country’s energy future. The following “fast facts”¹ from the Environmental Protection Agency, the Energy Information Administration, and other sources confirm that the Committee is correct to consider policies that will leverage private sector financing to retrofit our existing commercial building stock—and spur job growth in the process:

- There are over 5 million commercial buildings and industrial facilities in the U.S.
- As much as 85% of commercial buildings that exist today will still be standing in 2030.²
- Commercial buildings account for about 20% of the nation’s energy consumption, and as much as 80% of energy consumption in urban areas.
- The combined average annual energy costs for U.S. commercial buildings and industrial facilities is \$202.3 billion.
- About \$20 billion can be saved if the energy efficiency of commercial buildings and industrial facilities improves by 10%.
- The basic tools to retrofit buildings - like efficient furnaces, water heaters, and spray foam insulation—are manufactured here in the United States and not in China, Germany, or elsewhere overseas.³
- Saving energy is cheaper than producing energy. Our country must pursue an “all of the above” energy policy, but it is important to recognize that efficiency is the lowest-cost resource available to move our nation towards energy independence. Simply put, the cost of a kilowatt hour of energy saved is cheaper than the cost of an equivalent kilowatt hour of energy produced:

¹ http://www.energystar.gov/ia/business/challenge/learn_more/FastFacts.pdf; <http://yosemite.epa.gov/opa/admpress.nsf/8b770facf5edf6f185257359003fb69e/>

² PlaNYC, “Greater Greener Buildings Plan”; http://www.nyc.gov/html/gbee/dpwnloads/pdf/greener_greater_buildings_plan.pdf

³ <http://green.blogs.nytimes.com/2010/03/12/made-in-the-u-s-a-efficiency-materials/>.

COSTS OF SAVING ENERGY vs. PRODUCING ENERGY

Technology	Costs (per kilowatt hour)
Energy Efficiency	2-3 cents ⁴
Wind	9 cents ⁵
Geothermal	10 cents
Advanced Coal	11 cents
Advanced Nuclear	11 cents
Solar PV	21 cents
Offshore Wind	24 cents

⁴Costs of saved energy (“CSE”) per kilowatt hour (“kWh”) for energy efficiency programs range from 2 cents to 3 cents per kWh. See American Council for an Energy Efficient Economy, “Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved Through Utility-Sector Energy Efficiency Programs” (Sept. 1, 2009), available at <http://www.aceee.org/research-report/u092>.

⁵Costs for all power generation sources in table provided by U.S. Energy Information Administration, “Levelized Cost of New Generation Resources,” Annual Energy Outlook 2011, available at http://www.eia.gov/oiaf/aeo/electricity_generation.html (provides “Total System Levelized Cost” for various “Plant Type(s)” in dollars per megawatt hour (“mWh”). For purposes of table conversion: mWh/1000 = kWh).

All of these technologies have their role in a comprehensive national energy policy, and will keep America globally competitive in the race for innovation, create jobs, and reduce dependence on foreign oil. But in allocating scarce government resources, policy makers should consider that financing programs like tax incentives and loan guarantees get more “bang for the buck” when they are geared to encourage energy efficiency measures, as opposed to assisting new energy production through clean fossil fuel or renewable energy technologies.

- According to a report⁶ released this past Monday by the Building Owners and Managers Association (BOMA) International, the expenditures that sustain office building operations—management, maintenance, repairs, building services and utilities—generate significant, continuous and growing expenditures that support local businesses, create job demand, and contribute significantly to U.S. gross domestic product (GDP):
 - For each dollar of office building expenditures, the U.S. economy gains \$2.57. And for every one of those dollars, nearly 20 jobs not related to the building itself are supported.
 - \$79.7 billion in office building operating expenditures contributed \$205.1 billion to GDP in 2011 - equivalent to the State of California’s annual budget.
 - As a result of the \$79.7 billion expenditures for office operations, 1.6 million indirect jobs were created across all sectors of the economy, about the same number employed by McDonald’s worldwide. This is in addition to the estimated 2.2 million jobs directly related to the on-site management and operations of buildings.

The Real Estate Roundtable’s members are at the vanguard of innovation in making our built environment more energy efficient. For example, 14 companies represented through The Roundtable are “partners” and “allies” in the U.S. Department of Energy’s Better Buildings Challenge⁷ and have agreed to showcase projects that lead the way for successful retrofits throughout the real estate sector. Our members routinely distinguish their buildings as “top of class” performers by receiving the “ENERGY STAR” label and also garner “Partner of the Year” recognition from the U.S. Environmental Protection Agency.⁸ Among our many members who

⁶“Where America Goes to Work: The Contribution of Office Building Operations to the Economy” (2012), available at <http://www.boma.org/Resources/news/presroom/Pages/pr062412.aspx>.

⁷See <http://www4.eere.energy.gov/challenge/>; http://www.rer.org/2011/PUBLIC-PRIVATE_INVESTMENTS_IN_ENERGY_EFFICIENCY_-_December_2,_2011_Roundtable_Weekly.aspx?terms=better+buildings+challenge.

⁸See http://www.energystar.gov/index.cfm?fuseaction=labeled_buildings locator; http://www.energystar.gov/index.cfm?fuseaction=pt_awards.showawardlist&year=2012.

have demonstrated sustained commitments to energy efficiency are Anthony E. Malkin, the Chair of our Sustainability Policy Advisory Committee and the President of Malkin Holdings, who is responsible for the groundbreaking retrofit of the Empire State Building⁹; and T. Patrick Duncan, the President and CEO of USAA Real Estate Company, which recently collected its eighth award from EPA for energy efficiency and has been ranked fifth in the Americas in the Global Real Estate Sustainability Benchmark.¹⁰ The Roundtable thus has considerable experience with retrofit projects and how to finance them, and we appreciate this opportunity to share our perspective.

(II) SUMMARY—SIX STEPS FOR TO SPUR FINANCING FOR EFFICIENT BUILDINGS.

There is no single “silver bullet” to encourage retrofit financing, much less a simple solution to inject more equity capital and encourage more debt financing in the real estate sector. But the Senate can and should take immediate action in this arena. The Roundtable suggests six steps Congress can take right now to further the goals of greater energy efficiency in commercial buildings, invigorate real estate activity in markets across the country—and most importantly, boost the optimism of American businesses and workers by making a serious dent in unemployment figures that have been too high, for too long.

The Roundtable’s first “four steps” directly address policies to spur more activity in energy efficiency financing. Our last two suggestions will have major, positive impacts to improve the economic condition of U.S. real estate markets broadly, and will have a ripple effect to generate more capital to invest in building retrofits.

(1) Extend and Reform the 179D Tax Deduction for Energy Efficient Commercial Buildings—Congress should extend and reform the tax deduction for energy efficient commercial buildings at Section 179D of the Internal Revenue Code. Chairman Jeff Bingaman (D-NM) and Senator Olympia Snowe (R-ME) have carefully studied this incentive for months, and have developed a thoughtful proposal to improve the deduction’s use to mobilize more existing building retrofits. When they introduce their bill to extend and modify the 179D deduction, it should be enacted swiftly.

(2) Authorize DOE Retrofit Loan Guarantees—Congress should enact the loan guarantee provisions in S. 1000, the “Energy Savings and Industrial Competitiveness Act” co-sponsored by Senators Jeanne Shaheen (D-NH) and Rob Portman (R-OH). President Bush signed the Department of Energy’s loan guarantee program into law in 2005, but to date it has focused on high risk (and expensive) solar, wind, and nuclear projects. S. 1000 would specifically authorize DOE loan guarantees for less risky and less expensive building retrofits, with modest federal credit support projected to leverage far greater multiples of private sector funding.

(3) Pass Legislation to Encourage Real Estate Appraisals that Value Energy Efficiency—The Roundtable’s members report that real estate owners, lenders, and appraisers need to be better coordinated when valuing properties to account for energy efficiency attributes. S. 1737, the “Sensible Accounting to Value Energy Act,” is sponsored by Senators Michael Bennet (D-CO) and Johnny Isakson (R-GA). This bill includes important provisions to encourage better information sharing among real estate professionals so that energy efficiency is more consistently, accurately, and fairly valued when appraising commercial and other real estate.

(4) Pass Legislation to Align Commercial Landlords and Tenants on the Goals of Energy Efficiency—A building can be retrofitted with the latest efficiency technologies but still not perform as designed, or result in optimal energy savings as much as those technologies would otherwise allow. This is because leased spaces may be “over built” at the time of new fit-outs to provide more energy capacity than a tenant needs, or because building occupants may have behaviors that unnecessarily waste energy. Senator Bennet is working on important legislation to encourage non-regulatory standards—with no budgetary impact - to get commercial landlords and tenants on the same page when it comes to energy efficiency. Upon its introduction, the bill should be studied by the Committee and enacted as soon as possible.

(5) Encourage More Foreign Investment in U.S. Real Estate—FIRPTA Reform and EB-5 Authorization—Foreign equity capital is a significant and largely un-

⁹See http://www.esbnyc.com/sustainability_energy_efficiency.asp; http://apps1.eere.energy.gov/news/news_detail.cfm/news_id=12387.

¹⁰See <http://www.bizjournals.com/sanantonio/news/2012/03/06/epa-to-honor-usaa-real-estate-ounce.html>.

tapped source to help increase depressed property values in domestic real estate. Injecting greater foreign investment into U.S. real estate markets may be channeled to encourage retrofits, and help overcome the barrier of up-front capital costs that remains the biggest impediment to energy efficiency projects. Congress should thus pass S. 1616, the “Real Estate Investment and Jobs Act” introduced by Senators Robert Menendez (D-N.J.) and Mike Enzi (R-WY) which has also garnered the support of 25 co-sponsors. S. 1616 would reform the Foreign Investment in Real Property Tax Act (“FIRPTA”) and correct the discriminatory treatment of foreign investment in U.S. real property that presently exists under the tax code. In a similar vein, Congress should pass S. 3245, introduced by Senators Patrick Leahy (D-VT) and Charles Grassley (R-IA), to permanently authorize the EB-5 immigrant-investor regional center program. EB-5 grants lawful permanent residence in the U.S. to foreign nationals who make investments of \$1 million (or \$500,000 in high unemployment areas) in domestic real estate and other business projects. These investments must be demonstrated to create jobs in the U.S. Permanent EB-5 authorization will allow the 225 regional centers across the country that manage this program to coordinate with the real estate community and efficiency advocates so that investment funds can be used to help finance retrofits.

(6) Conduct Oversight to Curb the Recent Rise in GSA “Holdover” Leases—In light of the recent troubles and changes in leadership at the General Services Administration (GSA), Roundtable members are reporting a trend in federal lease “holdovers” whereby the GSA is simply extending leases on a month-to-month basis after they expire. Congress should conduct oversight to ensure that GSA leasing practices operate efficiently so buildings with departing federal government tenants can be re-positioned in a manner that allows for long-term capital improvements like energy upgrades.

Each of these six steps for immediate congressional action is discussed in more detail below. However, a properly functioning real estate financing market is a prerequisite to a functioning retrofit financing market. I appreciate this opportunity to provide the Committee with a short overview on the current economic state of affairs in the commercial real estate sector, which will add context for the immediate topic at hand regarding policies to finance efficient buildings.

III. GENERAL ECONOMIC BACKGROUND ON REAL ESTATE CONDITIONS¹¹

Since the start of the Great Recession in 2009, property values have declined to the extent that up to half of all commercial mortgages are estimated to be “underwater,” with outstanding mortgage debt exceeding asset values. Meanwhile, nearly \$1.4 trillion in commercial real estate loans that were originated before the recession will come due in the next three years. As this outstanding debt matures, property owners will have difficulty refinancing in the current tight credit markets particularly in light of decreased property values, with the specter of default facing many properties.

There is anxiety in the real estate and lending sectors as to where all of the debt financing and equity capital will come from to retire this maturing debt. (On-going Eurozone turmoil and its effect on skittish markets here at home aggravates the situation.) Moreover, simply satisfying the outstanding trillion-plus loans would only bring real estate markets to a relative place of normalcy and avoid waves of foreclosures. Vastly greater sums of additional capital are needed to grow the economy and create jobs. There is consensus that a tremendous amount of potential equity investment capital is in the hands of foreign investors. These funds must be brought into U.S. markets now, to staunch the threat of current loan defaults and then help sustain a more accelerated pace of economic growth. Infusions of equity and credit are necessary to re-set the real estate, lending, and capital markets so transactions can move forward to refinance struggling assets.

Political uncertainty is compounding the commercial real estate sector’s wary economic outlook. The business community is concerned that the paralysis on Capitol Hill will continue for the rest of this year and beyond, and that Congress will not deliver certainty and progress to Wall Street and Main Street on tax, spending, budget, health care, and other significant policies. The Senate’s recent bipartisanship on infrastructure and agriculture legislation provides signs for optimism. We strongly encourage this Committee to continue down the path toward consensus energy and fiscal policies to jump-start the lackluster recovery once and for all.

¹¹ More detail on the current economic conditions of the U.S. real estate market is described in The Real Estate Roundtable’s 2012 Annual Report, “Managing Risks & Opportunities” (published June 2012), available at http://www.rer.org/Advocacy/2012_Annual_Report.aspx.

Not surprisingly, executives participating in The Real Estate Roundtable's most recent, 2Q-2012 "Sentiment Survey"¹² reflect the industry's economic and political circumspection. While signaling a general lack of confidence in the outlook for the rest of this year, the Sentiment Survey also portrays a bifurcated recovery for commercial properties. So-called "gateway" cities have come back strong while smaller, more mainstream markets still struggle.

There is improved access to functioning liquidity and improving values (particularly for "Class A" assets) in cities like New York, Washington, D.C., Boston, San Francisco, and Chicago. Contrast this to still-weak capital formation and lackluster fundamentals elsewhere around the country. Smaller, more mainstream real estate markets across the U.S. continue to face big challenges.

More directly on the topic of today's hearing and issues surrounding capital investments in building improvements, the sustained financial pressure on property owners and lack of credit availability has led to deferral of maintenance and upgrades on existing properties. Meanwhile, development of new projects outside of urban growth centers has trickled to a standstill—all resulting in national jobless figures that preclude robust recovery. The potential for commercial real estate defaults to derail a fragile economic recovery, particularly in non-gateway markets, and lead to even further job losses, bank closures and business retraction, is very real. The need to address these matters is imperative.

As part of the solution to get Americans back to work while also helping to generate real estate construction and transactional activity, The Roundtable appreciates this opportunity to offer our priorities to encourage financing for efficient buildings.

IV. SIX STEPS FOR CONGRESS TO SPUR FINANCING FOR EFFICIENT BUILDINGS

(1) Extend and Reform the 179D Tax Deduction for Energy Efficient Commercial Buildings.

The tax deduction at Section 179D of the Internal Revenue Code encourages energy efficiency in building design, construction, and operations. 179D covers private sector commercial buildings that generate rents and income like offices, stores, hotels, warehouses, plants, and apartments. It also covers government buildings like schools, hospitals and military facilities. The 179D deduction is a technology-neutral incentive that does not pick "winners and losers." It encourages retrofit projects and not specific products. It gives building owners the opportunity to select the best mix among a suite of measures to achieve optimal energy efficiency gains.

Section 179D was first enacted in the 2005 Energy Policy Act, extended in 2008, and is scheduled to expire at the end of 2013. While the deduction has resulted in some success (especially to encourage lighting upgrades), 179D has not yet lived up to its full potential to encourage "deep" retrofits due to the costs and regulatory complexity associated with upgrading multiple building systems including heating and cooling, hot water, windows, and insulation. The Roundtable wholly supports the work of Chairman Jeff Bingaman (D-NM) and Olympia Snowe (R-ME) who have carefully studied the deduction to gain a better understanding of how it has worked in the marketplace, and how it can be improved. Their proposal to reform the Section 179D deduction would, among other things:

- Measure energy savings for retrofits compared to the existing building's baseline—For purposes of the tax deduction, the Bingaman-Snowe proposal measures savings by comparing how much energy a building consumed before a retrofit, and then comparing how much energy is consumed after a retrofit. This logical "before-and-after" comparison makes sense for existing buildings with a track record of energy use, where a retrofit plan may qualify for the deduction based on actual and verified reductions in energy usage intensity.
- Award performance by linking the amount of the tax deduction to energy savings achieved—Under the Bingaman-Snowe proposal, the amount of the incentive would increase with greater energy savings. This "sliding scale" approach will encourage ambitious projects while also rewarding projects that achieve meaningful yet more moderate levels of energy savings.
- Make the tax incentive useable for a broad range of building efficiency stakeholders and building types, including REITs—Many buildings cannot use the 179D deduction because their ownership structures, like Real Estate Investment Trusts (REITs) and Limited Liability Partnerships (LLPs), cannot make use of conventional tax incentives. The full amount of the deduction that considers such entities' special tax requirements should be available for REITs

¹² See <http://www.rer.org/ContentDetails.aspx?id=12241>.

and other similar holding structures. Additionally, in order to make the incentive useable for more buildings, the building owner should be allowed to allocate the tax deduction to other parties responsible for the retrofit such as an architect, engineer, tenant, source of financing, or energy services company that may guarantee improved performance.

Of course, extension and modification of Section 179D will get caught up in the broader discussions of tax reform, budget policy, and re-examination of tax incentives generally. As Congress deliberates these important matters, it should keep in mind two points that favor 179D's extension and modification. First, Section 179D offers a tax deduction, and not a tax credit. As former Senator Don Nickles testified at hearing earlier this month to the Senate Finance Committee on energy tax policy, law makers must carefully distinguish between the need for tax credits which may operate as subsidies, compared to more favored tax deductions which are expensed as part of ordinary business operations.¹³ Second, 179D corrects a flaw in the tax code whereby businesses are allowed to immediately deduct utility bills as part of their ordinary operating expenses - but retrofits investments can only be depreciated over long periods of time as capital expenses. More inefficient structures with higher utility bills may thus benefit from a larger tax deduction compared to buildings that use less energy. 179D aligns the code so that it awards long-term capital investments to save energy, as opposed to the operating expenses deduction that can otherwise be claimed for wasted energy.

The 179D tax deduction is a critical incentive not only because it will deploy innovation in energy efficient commercial buildings, but will also lower unemployment. An analysis¹⁴ commissioned jointly by the Natural Resources Defense Council, The Real Estate Roundtable, and the U.S. Green Building Council, estimates that over 77,000 construction and related jobs will be created by the changes to 179D suggested by Senators Bingaman and Snowe. In keeping with their thoughtful reform proposal, The Roundtable strongly encourages extension and modification of the 179D tax deduction.

(2) Authorize Department of Energy Loan Guarantees for Building Retrofits

Senators Jeanne Shaheen (D-NH) and Rob Portman (R-OH) are to be commended for their bipartisan work on S. 1000, the Energy Savings and Industrial Competitiveness ("ESIC") Act, which this Committee passed by an 18-3 vote in July 2011. Section 202 of S. 1000 would authorize credit enhancement from the Department of Energy ("DOE") to support and leverage private sector financing for building retrofit projects.¹⁵ The Roundtable has long-advocated that DOE's current loan guarantee program should be used to assist lenders and building owners with the capital expenses associated with energy upgrades. Accordingly, we strongly encourage enactment of the ESIC Act's financing title.

The Roundtable recognizes the controversies associated with DOE's loan guarantee program following the Solyndra investigation. We believe, however, that S. 1000 gets the loan guarantee program back on track as it was initially envisioned and created by both Republicans and Democrats in 2005.¹⁶ Section 202 is carefully constructed so as to limit DOE's exposure to financial risks in the event of a borrower's default on a retrofit obligation, as follows:

- S. 1000 does not pick technology "winners and losers" by favoring the manufacture of any particular product or technology—Rather, S. 1000 is technology neutral, and supports retrofit projects and not products. The bill lets building owners in the market decide what types of efficiency measures it should install as part of a retrofit project, as best suited to lower energy consumption in their buildings.
- S. 1000 incorporates underwriting and due diligence requirements for retrofit financing—The bill directs DOE to develop guidelines that "shall include . . . measures to limit the exposure of the Secretary to financial risk in the event of default," like the borrower's ability to re-pay a retrofit debt and the value of the underlying collateral supporting the loan. To imple-

¹³ See stream of June 12 Senate Finance Committee hearing, "Tax Reform: Impact on U.S. Energy Policy," oral testimony of The Hon. Don Nickles, available at: <http://www.finance.senate.gov/hearings/hearing/?id=990f1101-5056-a032-5202-6921d68e8769> (at the 26:53, 75:50, and 102:01 marks).

¹⁴ See Table 8, p. 12 at: <http://c4bb.org/wp-content/uploads/PerIFINALForRelease06-10-11.pdf>

¹⁵ Companion legislation (H.R. 4017, the "Smart Energy Act") is pending in the House, introduced by Reps. Charles Bass (R-NH) and Jim Matheson (D-UT).

¹⁶ The DOE loan guarantee program was created as Title XVII of the 2005 Energy Policy Act (H.R. 6, 109th Cong.). It passed the House on April 21, 2005 by a 249-183 vote, and the Senate on July 28, 2005 by an 85-12 vote. President Bush signed it into law on August 8, 2005.

ment the loan guarantee program for retrofits, S. 1000 directs DOE to develop underwriting criteria that assess a borrower's creditworthiness, the building's loan to value ratio, and the building's history and expectations in generating rental and other income, among other factors.

- S. 1000 would provide credit support for successful retrofit projects guaranteed to result in energy savings—The bill directs DOE to consider private sector, third-party guarantees of energy savings after a retrofit is implemented, and whether those savings will pay for project costs over time. S. 1000 provides that DOE (and taxpayers) do not bear the “performance risk” of whether a project will succeed and result in energy savings. Rather, third-party contractors responsible for the retrofit like DOE-approved energy services companies-but not DOE itself-would bear risks that installed energy efficiency measures will perform as designed. In this way, the transaction can be structured so as to amortize retrofit financing through measured and verified energy savings accrued over time.
- S. 1000 places an upper limit on the amount of federal credit support—The bill states that the maximum amount of financial risk that DOE can bear for any single retrofit project is \$10 million. In contrast, the direct loan (not a loan guarantee) given to Solyndra left taxpayers on the line for \$528 million after the solar company's default.
- S. 1000 provides financial support for retrofits through loan guarantees - not through loans, grants, subsidies, or hand-outs—Loan guarantees will provide an incentive to leverage far greater amounts of private sector investment in building retrofits, so real estate, lending, and energy services firms have their own “skin in the game.” It has been estimated that a \$200 million federal loan guarantee investment in retrofits would leverage as much as \$2 billion in private sector financing.
- S. 1000 would provide credit support for proven building retrofit projects that already have a track record of success—We have case studies on the success of retrofits, such as the Empire State Building, showcase projects associated with the Better Buildings Challenge, and the experiences of EPA's “Partner of the Year” winners, among others.¹⁷ Retrofits pose far lower risks for federal guarantee support compared to unproven manufacture of certain renewable products, where the market may be heavily influenced by subsidies provided by foreign competitors.

Moreover, Congress should consider the impact of S. 1000 as a jobs creator. The Real Estate Roundtable, in conjunction with the U.S. Green Building Council and the Natural Resources Defense Council, estimates that a loan guarantee program like the one authorized by the ESIC Act can create up to 25,000 American jobs.¹⁸

In short, enactment of S. 1000's bipartisan retrofit loan guarantee title will provide a transformative platform to finance efficient buildings, lower energy consumption, and get construction workers back on the payroll. We urge Congress to pass it.

(3) Pass Legislation to Encourage Real Estate Appraisals that Value Energy Efficiency.

The Roundtable has long advocated for better information sharing between appraisers, building owners, and lenders to ensure adequate and consistent assessment of energy efficiency's effect on property values. S. 1737, the Sensible Accounting to Value Energy (“SAVE”) Act sponsored by Senators Michael Bennet (D-CO) and Johnny Isakson (R-GA), includes provisions that encourage parties to a real estate transaction to share energy efficiency information in the context of asset valuation. Discussions this spring among The Roundtable, the Appraisal Institute, and other organizations have built wider support for this concept.

High-efficiency equipment and better building operations may increase the value of commercial real estate. Yet stakeholders from all perspectives—lenders, appraisers, building owners and managers, and energy efficiency advocates—suffer from the lack of data regarding the monetary benefits that energy efficiency components can bring to real estate values. Better information sharing will help monetize any added values from efficiency equipment and platforms deployed in buildings, which in turn can spur greater investments in retrofits.

¹⁷ See notes 7-9.

¹⁸ See Table 8 at <http://c4bb.org/wp-content/uploads/PeriFINALForRelease06-10-11.pdf>. The American Council for an Energy Efficient Economy (“ACEEE”) estimates that the total impact of S. 1000 on employment (not just the loan guarantee title) would be 80,000 jobs created by 2020, and 159,000 jobs by 2030. See <http://aceee.org/white-paper/shaheen-portman>.

The SAVE Act would establish rules so that appraisers, owners and lenders have timely access to information that may be relevant to the efficiency, conservation, and renewable energy features of real estate. These include: building labels or ratings; installed appliances; blueprints and construction costs regarding retrofit projects; utility bills; energy benchmarking data; third-party verifications of a property's energy performance; and financial or other incentives regarding installed high-performing components and systems. If such information is consistently shared as an industry best practice, over time a greater number of comparable assets will be available for appraisers to evaluate energy efficiency features when determining market value.

Banks may thereby assess the financing risks associated with projects that will save money through energy savings, and develop lending products specifically to underwrite retrofit investments.

Accordingly, as another appropriate measure for Congress to spur financing for highly efficient buildings, it should enact the SAVE Act's provisions to provide better information regarding energy efficiency attributes in the process real estate valuation.

(4) Pass Legislation to Align Commercial Landlords and Tenants on the Goals of Energy Efficiency

A commercial building can be retrofitted with the latest efficiency technologies but still not perform as it was designed to achieve optimal energy savings. This is because spaces leased by tenants may be "over built" at the time of new fit-outs to provide more energy capacity than a tenant needs, or because building occupants may have behaviors that unnecessarily waste energy.

Legislation proposed to date has focused on how real estate owners and developers may lower energy consumption. But this is only part of the issue. Office tenants like data centers, law firms, trading floors, financial services firms, restaurants, and retail stores use a lot of energy. Based on the Empire State Building's retrofit experience,¹⁹ tenants can consume between 50%-70% of their structures' total energy. Choices made by office tenants in designing and operating within leased spaces thus have great impact on U.S. energy consumption.

Accordingly, we encourage Congress to consider legislation that gets office landlords and tenants on the same page with regard to energy consumption in commercial buildings. We are pleased that Senator Michael Bennet (D-CO) is developing a bill that will take a market-driven, non-regulatory approach to align building owners and their lessees to cooperatively reduce demands on the grid. Among other ideas, Senator Bennet's legislative concept is developing solutions to:

- Overcome Energy Consumption Data Barriers—In many cases, commercial property owners are unable to get the data to tell them how much energy their entire building consumes. This is because tenants control access to the energy meters in the spaces they lease. The utility serving the Chicago area, Commonwealth Edison, has overcome this significant data obstacle. An amendment to existing law (Public Utility Regulatory Policies Act [PURPA]) could establish a non-binding standard favoring the ComEd model. Utilities would be encouraged to provide aggregated "whole building" energy consumption information in a manner that fully safeguards tenant privacy concerns in their energy data, without increasing prices on consumers.
- Creates Opportunities for Voluntary "Tenant Star" Recognition—The Environmental Protection Agency's ENERGY STAR program for commercial buildings has been operating for over a decade and is widely embraced by commercial building owners. It is a huge success, and certified buildings typically use 35 percent less energy than average buildings and cost 50 cents less per square foot to operate.²⁰ Many Roundtable members and other large commercial building owners and managers strive for the ENERGY STAR label to distinguish their assets as "top of class." Senator Bennet's bill concept would provide EPA with the tools necessary to bring the program to the next level with tenant oriented certification for leased spaces. Today's ENERGY STAR is based on whole-building recognition. The imminent bill would deliver the data set needed to likewise recognize efficient tenant-leased spaces within a building. The synergy of "Tenant Star" spaces within "ENERGY STAR" buildings could transform—in a non-regulatory way—how commercial real estate

¹⁹ See note 9.

²⁰ See <http://www.energystar.gov/index.cfm?fuseaction=labeled--buildings locator;> [http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro.](http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro)

owners and their tenants think about energy efficiency and dramatically lower energy use throughout the built environment.

—Develop Replicable Standards for New Tenant “Fit-Outs.”—Commercial tenants are most likely to make structural investments in the areas they occupy when they enter into new leases, or renew leases for longer terms. We thus want to encourage high-performance design and construction of leased spaces at the point of new “fit-outs” that suit tenants’ needs, but are not “over-built” to encourage or allow wasted energy use. The imminent bill is developing a proposal for industry stakeholders to assist the Energy Department in studying and developing replicable standards for high performance new tenant fit-outs.

Sound energy policy must take a holistic approach by considering the consumption and behaviors of office tenants and other building occupants. The Roundtable applauds Senator Bennet for his leadership to educate and align commercial building landlords with their tenants, so they may cooperate to make even deeper cuts in energy consumption attributed to the commercial real estate sector as a whole. When his bill is introduced, we recommend that the Committee study it carefully and take the necessary steps to move it toward enactment.

(5) Encourage More Foreign Investment in U.S. Real Estate: FIRPTA Reform and EB-5 Authorization

The economic and political stability of the United States historically has attracted foreign investment capital to our real estate markets. The recent decline in the value of the dollar compared to other key currencies has made U.S. real estate even more attractive. Unfortunately, so far in the recovery, new equity investment from both foreign and U.S. sources has been skewed to a handful of urban “gateway” markets and large trophy assets. This propensity has bifurcated property values, with large market, large asset values recovering, while overall asset values have remained depressed and distressed property values have generally continued to slip.

Law makers must consider policies to attract new sources of equity capital from Europe, Asia, and the Americas, which in turn would help bridge the massive “equity gap” complicating the refinancing of hundreds of billions in commercial mortgages (and threatening a new wave of foreclosures). Injections of foreign investment capital in domestic real estate can, incidentally, also be used to finance energy efficient buildings.

To stimulate more foreign investment in U.S. real estate, The Roundtable offers two areas where Congress should act immediately. First, it should enact pending legislation to reform the Foreign Investment in Real Property Tax Act. Second, it should enact legislation to permanently re-authorize the EB-5 program for immigrant investors. Both are discussed in further detail below.

(a) FIRPTA Reform

The commercial real estate industry is united in its view that the Foreign Investment in Real Property Tax Act of 1980 (“FIRPTA”) dramatically disrupts the rational allocation of foreign capital into the U.S. real estate sector. Commercial real property markets in the United States need an infusion of equity at this time, not a tax regime that deters foreign investment.

FIRPTA is a significant barrier to non-U.S. investors. In contrast to the general U.S. tax law exempting foreign investors’ gains from U.S. stocks, bonds, and other securities, the United States imposes a high rate of taxation on foreign investment in U.S. real property. The U.S. tax rate on gains from such direct and indirect ownership of U.S. real property can exceed 50 percent, particularly when the branch profits tax regime applies to such transaction. Further, a non-U.S. investor who is subject to tax under the FIRPTA regime has a filing obligation with the Internal Revenue Service. Non-U.S. investors view the Internal Revenue Service as a highly intimidating force—much more so than the taxing authorities in most other jurisdictions. Thus, the filing obligation mandated by FIRPTA is a significant burden and deterrent to U.S. investment from the perspective of foreign investors. Indeed, the U.S. commercial real estate market has slipped to third in the race for global funds behind the United Kingdom and now Germany. In the absence of FIRPTA reform, potential foreign investors in U.S. real estate may choose to invest elsewhere - either in real property in countries overseas that have less onerous tax regimes, or in other types of U.S. corporations.

Our nation needs to compete more effectively for global capital, and the tax code should not be a barrier to foreign investment in U.S. real estate. Additional foreign equity investment would greatly assist community banks and other financial institutions now holding mortgages on U.S. properties, help address the ongoing residen-

tial housing foreclosure crisis, and directly lead to job creation and ultimately stimulate our economy's overall recovery.

FIRPTA is an idea whose time has come and gone, and, were it fiscally feasible, should be abandoned in its entirety. The Roundtable recognizes, however, that budgetary constraints may make it difficult to repeal FIRPTA at this time. Reasonable, cost-efficient reform is still possible, and The Roundtable strongly urges steps be taken to address the negative effects of FIRPTA. In particular, the "Real Estate Investment and Jobs Act" (S. 1616)²¹ has been introduced by Senators Robert Menendez (D-NJ), Mike Enzi (R-WY) and has support from 25 co-sponsors. It takes a measured approach to FIRPTA reform and would:

- Withdraw IRS Notice 2007-55—S. 1616 would reinstate an IRS position to allow redemptions and liquidating distributions to be treated the same as sales of stock in the case of a domestically controlled Real Estate Investment Trusts (REITs). Before 2007, such distributions generally were treated as sales of REIT stock, and not subject to U.S. tax. In 2007, The IRS issued Notice 2007-55 which concluded that such distributions should be treated as sales of real estate and therefore subject to FIRPTA. Until the issuance of the Notice, there was no reason for foreign investors to believe that liquidating distributions by REITs, as with the liquidating distributions of any other corporation, should be treated as anything other than sales of stock. The IRS's position has caused considerable consternation in the foreign investor community, has severely constrained continued foreign investment in U.S. real estate, and should be withdrawn.
- Increase the amount of stock minority shareholders can hold without triggering FIRPTA tax—Presently, a foreign shareholder owning five percent or less of a publicly-traded U.S. real property company, including a REIT, is exempt from FIRPTA on a sale of the corporation's stock. In addition, a foreign shareholder owning 5 percent or less of a publicly-traded REIT is exempt from FIRPTA on the receipt of a capital gain distribution attributable to the sale or exchange of a U.S. real property interest. There are numerous investors around the world who own just fewer than 5 percent of these companies' stock, but despite their willingness to invest in U.S. companies, won't dare to go over that threshold for fear of being ensnared by FIRPTA. S. 1616 would increase from 5 percent to 10 percent the exemption level threshold and apply it to investors in certain widely held investment vehicles.

FIRPTA reform is not far afield from the topic of today's hearing. Increased foreign equity investment in commercial real estate will provide real property owners with much-needed capital to successfully refinance maturing loans and engage in new projects to improve existing assets. The untapped availability of foreign investment capital would be used to invest in our nation's building infrastructure, and provide a source of funding for innovative energy efficiency retrofits. In short, without a functioning real estate finance market we will not have a functioning retrofit financing market. FIRPTA reform and enactment of S. 1616 would help achieve both objectives.

(b) EB-5 Authorization

Another vehicle to encourage more foreign investment in domestic real estate is the EB-5 "immigrant-investor" program. It is scheduled to expire on September 30, 2012. The Roundtable urges Congress to move on pending legislation that would permanently authorize this program.

Established in 1992, the EB-5 program deploys foreign investment as a means to spur job growth while simultaneously affording eligible foreign investors the opportunity to become lawful permanent residents of the United States. Roundtable members have used EB-5 as an important source to assemble funds for development projects that create well-paying American jobs. The program has grown dramatically in recent years and has nationwide impact; the U.S. Citizenship and Immigration Service has approved 225 regional centers that distribute foreign investment capital in 45 states.²² In 2011, the EB-5 program was estimated to create and/or save 25,000 American jobs and generated direct investment of over \$1.25 billion. Furthermore, EB-5 is revenue neutral, as program costs are offset by the fees charged in

²¹ Companion legislation (H.R. 2989) is pending in the House, introduced by Reps. Kevin Brady (R-TX) and Joe Crowley (D-NY).

²² See <http://www.uscis.gov/portal/site/uscis/menuitem.5af9bb95919f35e66f614176543f6d1a/?vgnextoid=d765ee0f4c014210VgnVCM10000082ca60aRCRD&vgnnextchannel=fac83453d4a3210VgnVCM100000b92ca60aRCRD>.

issuing permanent residency visas. Because there is no taxpayer impact, EB-5 has been extended with bipartisan support since its inception.

The Roundtable sees potential in EB-5 as a means to aid retrofit financing. Foreign investments received through the program may be directed to assist with the up-front capital expenses to underwrite energy efficiency projects. In considering whether to extend and/or permanently authorize the program, Congress has the opportunity to encourage EB-5 regional centers to distribute investments to projects that do not simply spur economic development, but also make our nation's building stock more energy efficient.

S. 3245, introduced by Senator Patrick Leahy (D-VT) and co-sponsored by Senator Chuck Grassley (R-IA),²³ would make the EB-5 regional center program permanent and thus ensure stability for investors, entrepreneurs, and stakeholders that develop and finance real estate. Congress should pass this bill, and we encourage the Committee to further consider how the EB-5 program may synergistically advance our national goal of energy independence.

Congress Should Conduct Oversight to Curb the Recent Rise in GSA "Hold-over" Leases

Roundtable members report a growing issue with the largest commercial office tenant in the country—the federal government. The General Services Administration ("GSA") is responsible for managing the federal buildings portfolio, which includes over 7,100 leased properties. GSA's actions thus register a significant impact in commercial real estate markets across the country.

When a tenant—in this instance the GSA—continues to occupy its leased premises after the term has ended, it is said to "hold over." While holdovers often result in short term extensions for government convenience, they have a deleterious effect in the marketplace and create uncertainty about the future operations of a commercial building. GSA's default position as a holdover freezes the ability of landlords to re-position their assets and market their properties to prospective new tenants. Federal leasing uncertainties also place building owners in precarious situations with their lenders, and unnecessarily shift the burden of cost and risk to the private sector. A vacant or severely underutilized building has a limited income stream and lenders may thus harshly assess the asset's credit worthiness. Making matters worse is the backlog of congressional approval required for prospectus-level leases worth more than \$2.7 million a year.

Holdovers are not standard practice in the commercial real estate industry. In the private sector it is commonplace for tenants to provide several years advance notice of their intention to vacate or renew a lease prior to expiration. As a result of holding over, the GSA immediately pays the direct penalty of higher lease rates as short-term extensions are generally 25-50% above standard market rates. Not only does the GSA pay significantly higher rates for short-term tenancy, but by deviating from standard practices of advance notice of intention prior to lease expiration, it also deprives itself of the opportunities to pursue the full range of options available in the marketplace.

For the immediate issue at hand, an unreliable federal leasing process impedes capital improvements in building efficiency upgrades. Commercial landlords dealing with federal holdover tenancies will lack access to predictable income and financing streams necessary to fund retrofit investments. Moreover, with spaces frozen to accommodate GSA holdovers, there is no chance to design or construct new fit-outs for state-of-the art tenant installations.

Congress's recent and ongoing investigations into the GSA should also consider solutions to break the holdover backlog. And, Capitol Hill should do its own part by approving prospectus leases as expeditiously as possible. More efficient and predictable federal leasing protocols in line with typical end-of-term notification practices will stabilize and correct commercial real estate markets—and establish the fundamental conditions that are necessary for private sector landlords and tenants to explore long term investments such as retrofit improvements.

V. CONCLUSION

To conclude, The Real Estate Roundtable recommends six actions Congress should take now to spur financing of efficient buildings:

- (1) Reform the 179D tax deduction for energy efficient commercial buildings specifically to encourage existing building retrofits.
- (2) Authorize a DOE loan guarantee program spur private sector retrofit financing.

²³ Companion legislation (H.R. 2972) is pending in the House.

(3) Enact legislation to establish information sharing practices so that building owners, appraisers, and lenders can more consistently consider energy efficiency attributes when valuing real estate.

(4) Enact legislation that creates voluntary programs and recognition platforms to encourage commercial tenants to cooperate with their landlords and achieve lower energy consumption in buildings.

(5) Lower barriers to foreign investment capital in U.S. real estate by reforming FIRPTA and permanently authorizing the EB-5 immigrant investor program—thereby making more funds available to finance building energy upgrades.

(6) Conduct oversight of GSA commercial leasing practices to curtail “hold-over” tenancies, so buildings can be re-positioned in the market when federal leases expire and attract financing that could be used for capital investments like retrofits.

Thank you again for this opportunity to testify on behalf of The Real Estate Roundtable on the important topic of energy efficiency financing. I look forward to answering the Committee’s questions.

The CHAIRMAN. Thank you. Thank you all for very, very good testimony. There’s a lot of innovative things that you’ve talked about that we need to understand better.

Let me just start with a few questions. Ms. Leeds, you indicated that the effort you’re making there in New York is something you think is eminently scalable, I think you said. I gather it could be used to facilitate commercial retrofits throughout the country. Could you describe a little more how you think that could happen? Do you think the Federal Government needs to be doing something that it’s not doing to cause this to be, what you’re doing, to be replicated elsewhere? Or do you think that the private sector can get that done?

Ms. LEEDS. In our experience, the Federal stimulus funding that we have as our core capital is essential to being able to do the work that we are doing. That said, I think the job rests primarily with private capital and that those who consider providing public funding into these programs need to carefully identify those sectors in which it is really necessary for credit enhancement.

I spoke of the energy efficient mortgage as being a very scalable opportunity and I believe that is something that can be replicated nationwide. This is something that really leverages off of an existing financing tool, and with the right expertise and the right motivations many mortgage lenders can incorporate this into their general practices.

The other mechanisms that—

The CHAIRMAN. This would be in the form of a supplemental mortgage in addition to the base mortgage that the property owner has, is that the idea?

Ms. LEEDS. We are working on two versions of this. One is a refinancing. At the point of time of refinancing, the base loan is increased by an amount that is required to fund energy efficiency retrofit measures with a demonstrable savings stream. The second is to add a supplemental loan, which can be done either in the form of a supplemental first or a second lien loan, and that is an approach that is being used with lenders who hold the first mortgage in their current portfolio.

So I think that this is something that could be done in the here and now, although I do believe that other approaches, other innovative approaches that we and others are working on, will eventually achieve scale. I think it will be a slower process.

The CHAIRMAN. Let me ask about rebates. I think one of you talked about—maybe, Mr. Smith, did you talk about rebates as an important part of the program?

Mr. SMITH. I did.

The CHAIRMAN. Could you describe how that works? I can understand the positive cash idea, where you basically persuade a residential homeowner to go ahead with retrofits and can see a benefit in their utility bills. How does the rebate thing work in your experience?

Mr. SMITH. We in Oregon are doing deep retrofits of residential buildings that are averaging about a \$12,000 investment per home. So these are multiple trade jobs, where we're replacing hot water space heat and doing a full insulation wrap. So it's a very involved project and a big cost for the consumer.

We also have very low energy prices in Oregon, and there's quite a variance across the country, as you know, in energy prices. So rebate levels need to be looked at based on what the utility sector is deploying in the current market and what the project cost is and where the customer is going to come out financially.

With larger rebates, the general philosophy is—and we have many contractors who've been in the market and who really understand the consumer intimate transaction and decisionmaking process. For us in our market, it's about \$2500 at least that is needed to motivate consumers to get to the level of making a \$12,000 investment.

The utility sector—my point that I was making was that the utility sector in our market, in the projects that I'm describing, are deploying about \$1,000, right around there. It's not enough. It's not enough to motivate consumers. So my message is, if we believe that there are other benefits beyond energy efficiency at this much demand to doing this work, and what I'm arguing is the economic developments are very real, we have very strong results, then it might be worth an investment from market actors, perhaps governments, who care about economic development, because we're not going to get there exclusively with utility sector investment. Demand could go from this [indicating] to this [indicating] if we add a little more juice in the form of a rebate, and that might need to be sourced from capital that values the economic development returns.

Over time, I think that the importance of rebates will go down as market adoption increases, as consumers value energy efficiency remodels just like they would a kitchen remodel or a bathroom remodel, and it becomes part of the conversation and the decision-making process of what you do in your home, and especially as the real estate markets value energy efficiency improvements and the sale price. But until then, I think it's a promotional industry and I think we need to respond accordingly.

The CHAIRMAN. Let me defer to Senator Murkowski.

Senator MURKOWSKI. Thank you, Mr. Chairman. I appreciate the comments from all the witnesses this morning.

I think we've all recognized, as several of you have said, that the cheapest energy source that we have out there is increased efficiency. I think we recognize that, despite all the talk and all that we have done up to this point in time, we're probably the most

wasteful Nation when it comes to our energy consumption. We don't really think about it. We keep this room too cool in my opinion. I'm from Alaska; it's too cool. We keep the lights on too long. We're in a Federal building. We should be setting the standard. I think generally we do a poor job. We try at the household level.

But I think part of what we're dealing with is just a lack of understanding or a lack of appreciation in terms of how much savings truly can be realized as individuals, as families, as small business people in our environment.

So the question—and Mr. Smith, Mr. Rodgers, you both spoke to this a little bit: How do we do a better job of educating the consumer about the value of energy efficiency, so that we start to make a real pronounced difference? Mr. Rodgers, you've described the program in Indiana and what you're doing there. I guess the question is can you take that Indiana example and spread that across the country? Is it important to have a national program? Is it better to allow the States and the local communities to focus on this?

I'd like to hear some input there, and I'd like you to address a little bit about how we deal with it on the rural side. I know that in your experience there in Indiana you've got some big box stores, you can find some economies of scale. I've got a lot of little villages where residents are paying over 40 percent of their income for their energy costs, as compared to the national average, which is somewhere between 3 and 6. Can this be translated to rural America as well? So your comments, please?

Mr. RODGERS. Great. Senator, I think when we—I'd address that in a couple of ways. First, I think, in regards to the educational component, in each and every program that we're involved in probably the biggest challenge is in putting forth essentially a branding, marketing, and educational component of the programs to really meet, whether it's a commercial facility or a resident, at their point of need and understanding how the energy that they are using is impacting them economically.

So that educational—if you can make that linkage, like we are doing in Indiana in the case of Energize Indiana, starting out at a larger branding component and driving very specifically down to the individual resident—we are moving to try and educate them to understand how having your temperature at this setting or having the lights on at a certain level, how that directly translates into the money that it costs them at the end of the month, because when you think about it virtually everything we do in society is an immediate transaction. In the case of your energy bill, you don't know about it until the end of the month, so it doesn't go hand in hand with the activity that you're performing.

So that educational component becomes a very big element in getting people to understand and to participate much better. So I think that educational component can happen across every State, can be supported definitely from a Federal perspective of really working with the States and businesses to allow that understanding to be elevated much greater than it is today.

When you spoke in regards to the rural part of our country, while sometimes that can be a challenge, I think the opportunities definitely exist to be able to work within those communities both

in the assessment of their properties and understanding how energy is being utilized there, as well as leveraging technology. So if they are not near a big box retail outlet, as an example, to be able to understand the impact of more efficient equipment or more efficient lighting or whatever the case may be, we can leverage and utilize technology to link them in for, one, that understanding, and two, the actual transaction can take place via technology as well.

So we have had a lot of success in really pulling in rural America to feel like they are right in the middle of these programs much more than they have been in the past.

Senator MURKOWSKI. Mr. Smith, did you have anything you wanted to add to that?

Mr. SMITH. Yes, if I may. First, I very much appreciate your comment on waste. This is about waste and we can do a much better job, and we're all proving that, I think.

How do you motivate consumers? I think you have to meet the consumer where they are. Historically, energy efficiency has been sold as save kilowatts. That's not what consumers respond to. What we try to do is take a very consumer-based marketing approach and sell this based on the benefits to the consumer, which is a more comfortable home or, as Senator Franken mentioned, a better work environment. That's the way this has to be sold.

In different communities, that message might be applied slightly differently. In Klamath Falls, a waste message plays much better than in Portland, where it might be reduce your environmental footprint, that goes along with the make your home more comfortable.

As far as rural markets, what I would add there is that in our case the Bonneville Power Administration, the Federal agency, supplies energy to a lot of these small consumer-owned utilities and they rely on that. Yet each of these little utilities has their own approach to an energy efficiency program. We need to be better, much less fragmented. We need to have much better common standards.

We're proving we can deploy and serve in rural and urban markets and we can have a marketing approach that works, we can have a contractor development approach that works. If we had consistent incentive levels and program delivery standards, I don't think it really matters if it's rural or urban. There are some real fuel delivery challenges, but from a marketing standpoint I think we can do it.

Senator MURKOWSKI. Thank you, Mr. Chairman.

Mr. SMITH. Thank you.

The CHAIRMAN. Senator Franken.

Senator FRANKEN. Thank you, Mr. Chairman. Thank you for calling this hearing, and thank you, all the witnesses.

I was especially struck with the testimony of a number of you who said this will not—this doesn't require Federal dollars. I know you said that, Mr. Smith. Mr. Rodgers, you talked about that.

When I first started this initiative in Minnesota, it was about 9 or 10 months ago. I said to my staff: We're not going to have any money to create jobs. It's essentially looking like that, what's going to happen in Congress. Let's find a way to create jobs without spending any money, almost a perpetual motion machine. No one had ever heard of this.

What is it? It's retrofitting, because the energy savings pays for the retrofit. In the mean time, you're putting to work people in the construction business, who have been the hardest hit during this recession. You're putting to work manufacturers. In Minnesota, we have manufacturers that make great geothermal pumps. We have manufacturers who make the most efficient HVAC. We have ESCO's like Honeywell and Johnson Controls. We have others.

We have—I at these conferences have had testimony from counties that have done retrofits and are saving \$900,000 a year in electricity. It pays for itself if you do it right. What I love about it is that we're not talking about spending a dime of Federal money. You can do this without spending a dime of Federal money and yet create American jobs and lower our use of energy and our carbon footprint. As I said, it's win-win-win, as Mr. DeBoer said.

My question is—and many of you spoke to it, which is—I think, Mr. Sundstrom, in your written testimony you said that this has the potential to create 3.3 million jobs across the country. What can Congress do? You've all spoken to it, but let's have a discussion about what kinds of things Congress can do to accelerate this to create these jobs and to create these great work environments, to create economic activity? Those people who are working will be spending money in America. The money stays here.

What kinds of things? Some of you have talked to them, but I'd like to have a little bit of a discussion here, but not so long that I don't get to ask another question, or you can talk. OK, Mr. Sundstrom?

Mr. SUNDSTROM. If I could start very briefly—I realize this is not the Banking Committee, but we really need some help with FHFA. If FHFA continues with its rules and it passes that rule, which is due in about 30 days now—there's about 15 days that have passed so far during the exposure period.

Senator FRANKEN. This is about PACE?

Mr. SUNDSTROM. This is about PACE, yes.

Senator FRANKEN. This is about them not putting PACE in first position?

Mr. SUNDSTROM. Right.

Senator FRANKEN. OK.

Mr. SUNDSTROM. PACE, of course, is not a loan. It's an assessment.

Senator FRANKEN. Right.

Mr. SUNDSTROM. So under the laws of most States it belongs, along with other assessments—

Senator FRANKEN. So basically, for everyone listening—let me see if I've got this right. Basically—and we have this in Minnesota. So a PACE thing is basically, it's almost like a property tax. In other words, the county government, the city government, can help a commercial building, say, make a retrofit and, instead of that building, the owner of that building, paying in front, it's added on sort of as an assessment.

Mr. SUNDSTROM. It's an assessment.

Senator FRANKEN. Right. So what you're talking about is whether the Federal Government, the FHFA, will recognize that as what it is, which is that you pass that on. If you sell the building, you pass that on, that assessment on, to the next owner, and that basi-

cally if there is a default somewhere along the line, that that gets paid off to the city before the mortgage. That's the problem in light of the obvious big problem we had.

Mr. SUNDSTROM. Yes, sir. Right now, as I mentioned, H.R. 2699 has a lot of accommodations for PACE programs, which the FHFA we would hope would want to accept. They include a little bit more rigorous qualification for loan. I believe it's 85 percent loan to value. They require established energy savings to be proved as the loans are being—as the assessments, excuse me, are being granted.

Your help in pushing for 2699 or, even better, would be if we could somehow exert some level of influence over FHFA to accept the language in 2599 before implementation, would be most helpful to us.

Senator FRANKEN. OK. Sorry that we got into this detail. I know that when we get in the weeds on these things this sounds very complicated. It sounds complicated, and I guess they are, but it's doable. It's all doable. It's not rocket science.

So I'm done. My time's over. But we'll come back to this, and excuse me for getting into this. But that's the nature of these things, and you all know that. You all know that the nature of these things is you have to discuss it for more than a couple minutes.

But the thing is, let me just say that for different kinds of buildings—and you talk about MUSH, which is municipals, universities, schools, and hospitals, and we all know that acronym who are interested in this subject. There are different models for different kinds of buildings and maybe different States, etcetera, etcetera. But this can be done and it should be done and it must be done.

Mr. Chairman, thank you.

The CHAIRMAN. Thank you very much.

Senator SHAHEEN.

Senator SHAHEEN. Thank you, Mr. Chairman. Thank you to you and Ranking Member Murkowski for calling the hearing today, and to all of you for testifying and for the really excellent work that you're doing on the ground.

My personal belief is that energy efficiency is not only all of the things that everybody's testified to, but it's also a way to bridge some of the differences on our energy strategy in this country, because it doesn't matter whether you support oil and gas, fossil fuels, or whether you support wind and solar; energy efficiency benefits us all. It benefits every region of the country.

So I think it's from that perspective a very good place to start with an energy strategy for the country. Notwithstanding that we're talking about non-Federal financing for energy efficiency programs, the fact is, as we have just talked and Mr. DeBoer pointed out very clearly, there are a number of things that we can be doing here in Congress that help promote energy efficiency in a way that's I think very good for the country.

I appreciate Mr. DeBoer's raising S. 1000, which Senator Portman and I have been working on for over a year. I think it's one of those pieces of legislation that could help promote energy efficiency around the country. I was pleased that the American Council for an Energy Efficient Economy analyzed the legislation and said that by 2020 it could save consumers \$4 billion and create

about 80,000 jobs. So the jobs—this is, as everybody has said, a real win-win for everybody.

Let me ask you, Mr. DeBoer, because I know that you have your fingers on what's happening in the real estate industry. One of the challenges that has been alluded to by many of you is how we quantify savings from energy efficiency and how do we get lenders to look at that and be able to include that in calculations around lending on this issue.

I wonder if you could talk about the challenge that is presented by that data issue and how we can address that.

Mr. DEBOER. Thank you. There is a huge problem, I think, between utilities, between tenants in buildings and between owners on getting a comprehensive sort of holistic picture of the energy use, how it's being used, what steps might be taken within an individual building to reduce energy consumption.

To the point from Senator Murkowski about how can we get, for example, users of energy to be more responsive, one item that we've been working on separate from S. 1000 with Senator Bennet to approach a market-driven approach to a bill that would give—now there is an Energy Star award for buildings, for example, for building owners, and we know that buildings that have an Energy Star use about 35 percent less energy than one that doesn't.

We would like to take that to the next level and give sort of a tenant-based Energy Star, if you will, to incentivize tenants to save energy. We think that that would encourage people to do things. We also need to have better data sharing between the utilities and the owners on how much energy is being used, where it's being used. Different tenants obviously use different levels of energy. A large trading floor in a tower in Manhattan is burning an awful lot more than an office building somewhere else around the country. So we need to share that data.

It frequently surprises people when we say that there is a barrier between utilities, owners, and lessees on how this energy is being used. The Chicago area has a great example of where there's been a sharing of information. We urge people to take a look at that.

The one other item that I think we'd like to see are these general appraisal rules, and we think the appraisal industry is very willing to help in this area, to give credit for making energy efficiency improvements in buildings. We ought to have more credit. We ought to be working more together, and there's legislation that would do this.

Most of what I'm talking about again echoes Senator Franken. We're not talking about spending Federal dollars here. We're talking about breaking down barriers for communication, sharing information, allowing people to do things, and incentivizing them in this market-based approach. So just a couple of ideas, I guess.

Senator SHAHEEN. Thank you.

I don't know if anyone has anything to add to that? Ms. Leeds?

Ms. LEEDS. Thank you. I agree with you wholeheartedly that the need for data is critical, and I feel that our experience shows that, with respect to the lender process and how lenders are actually using information to adjust their practices, this field is really quite nascent.

There's a considerable amount of lender education that needs to happen. There need to be concerted efforts to track data that shows the actual performance of retrofits, that helps people understand the financial benefits, both in terms of savings, but from a lender's perspective in terms of risk mitigation, that retrofits can offer; and that there needs to be, I believe, some encouragement, pressure, and assistance in data gathering efforts.

We are working with one study that was funded by philanthropy and a group associated with Deutsche Bank Foundation that tracked retrofit performance in affordable multi-family properties over several years based on an ACERTA program and the weatherization assistance program in New York. This information has provided a basis for us to work with two lending organizations, one local New York City lender and also a national lender, to develop energy efficiency retrofit financing programs.

More of this type of information would be extremely helpful, I believe, to the lending community, coupled with some pressure to get them to act.

Senator SHAHEEN. Thank you. My time is up, but I'm sure you're all aware that there's a DOE innovation hub in Philadelphia that's trying to develop data on building efficiency, that hopefully will help add to this debate significantly.

The CHAIRMAN. Senator Wyden.

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

To the witnesses, let me apologize. Suffice it to say, even by Washington, DC, standards, this has been something of a rollicking day here in the Nation's capital. So I appreciate your patience.

Mr. Smith, we're particularly proud of you. I think the Clean Energy Works program and the trailblazing effort that you've led, which of course is part of our tradition, is really special because you have been able to accomplish what essentially folks in the Congress just dream of. You have brought the utilities together, small business folks together, the State public utility commission, our lending institutions, urban and rural folks together, for an effort to promote clean energy and particularly prime the energy efficiency pump.

This is especially important right now, because I think it's pretty obvious that the well for taxpayer-financed incentives for a variety of energy technologies is running dry really at every level of government. So if anything, it's more important than ever to try to put the premium on innovation, to put the premium on innovation particularly as it relates to energy efficient investments.

It's of course easier said than done, but clearly to find a way to bring these investments to homes, buildings, and factories means that you've got to look at a variety of new approaches. That's what we've done in our State. It really began with the bottle bill, and particularly relevant, just 10 years ago we started the Oregon Energy Trust and that brought a surcharge on utility bills to finance energy efficiency and it has saved Oregonians about \$800 million so far. So it's generating real savings as we chart the path to a cleaner and more energy efficient future.

So I want to ask you specifically about how we really began that effort and particularly the role that on-bill financing plays in your program. With customers repaying energy efficient loans on their

monthly utility bills, the first question everybody asks is: How in the world did you get the utility companies to go along with this? Because I want to see if we can build, as we have often, on this Oregon model, bringing the players together.

Tell us a little bit, first of all, how you were able to get the utility companies to go along, and how you built this coalition that has in effect grown and become widely accepted, where in most places you can't get these folks to even talk to each other, let alone come together around a program you're talking about.

So start with utility companies and how you built this coalition?

Mr. SMITH. Thank you, Senator. Thank you. I mentioned your leadership before you entered the room and we couldn't be here without you. So we really appreciate that.

I really appreciate the point of supporting innovation. I think that's—to Senator Franken's point or question, that is really what the government can do, I believe, is to support these innovations that are going on out there.

On-bill started in Oregon over 3 years ago. We have progressive utilities by comparison to other parts of the country. We're very lucky to have that. But the reality is that using their bill for repayment of loans is not what they're in the business of doing. It presents some risks to them.

So they were compelled to do so through State law that was sponsored by Representative Jules Bailey and others in the State legislature and passed by the State in 2009. That law as it was being developed was built with a broad stakeholder engagement process, where we had contractors, utilities, lenders, everybody involved, as you mentioned. That is sort of the Oregon way, which you of course champion.

It's through that broad stakeholder engagement that we're going to get these solutions. That's the only way we're going to get to the real innovation that leads to ways that these things actually work.

What we have experienced with on-bill is the utilities have been wonderful and supportive of really cataloguing the challenges with this on a day to day basis. There's information-sharing challenges. There are challenges with trying to get payment of capital into the utility—not into the utility, but collected by the utility and then back to the lender. There's a lot of intricacies with this type of approach, and it doesn't also solve every solution that there is. On-bill is important and it's one segment of the population that has a solution to this larger problem, but we really need to get a bunch of lenders involved. We need to have multiple loan products that serve multiple needs.

Senator WYDEN. Let me, if I might, because my time—I'm just a few seconds over. Mr. Chairman, could I just ask one additional question?

The CHAIRMAN. Go right ahead.

Senator WYDEN. Even though you generated significant private sector support, you did get some government help at the beginning.

Mr. SMITH. We did.

Senator WYDEN. Why don't you—and if any other panel member wants to get into this—get into the question of, based on your experience, how long do you think programs like Clean Energy Works are going to require a role for government? In other words, in a

time of dwindling resources—and I very much share Senator Franken’s view on this effort to spark innovation. I think that’s exactly where we want to be. We’re still going to find a lot of programs needing a bit of governmental support in order to get out of the gait.

How long do you, and perhaps other witnesses want to chime in on this, how long do you see that taking in terms of getting to the point where you have critical mass and you don’t have Federal and State support, which is going to be hard to generate right now? How do you get there?

Mr. SMITH. I do respect very much the budget decisions that you all need to make, very large decisions. I think what we’re trying to build here is a performance-based model, where we are showing that the investment, public investment, actually results in real returns, and we have the data to share that. So as you make decisions, you might consider looking at where you actually know you’re going to get proven returns in economic development, if it’s economic development that you want.

If we want to support this industry and grow it because we believe in the returns that we’ve all said are win-win-win, then it does require some—or it can benefit—we can accelerate those outcomes through further investment. I believe more lies right now on the rebate side to get consumers involved, because until home valuations and property valuations recognize in real estate transactions the improvements made by energy efficiency I think we’re going to need further investment.

I think it’s maybe—it’s really hard to guess. There’s a lot of markers that we need to watch. But 3 years I think is what we feel the real estate industry needs to turn around and really recognize these improvements. We need market adoption to grow such that people talk about doing energy efficiency remodels like they would a kitchen remodel or a bathroom remodel.

Senator WYDEN. I’m way over my time. If any of you would even for the record furnish a written answer to the question of how long in your judgment—Mr. Smith thought maybe 3 years—how long you think it takes to get to critical mass so that the government support can go by the board.

Mr. Chairman, thank you for the extra time.

Mr. SMITH. Thank you, Senator.

The CHAIRMAN. Senator Murkowski, did you have some additional questions?

Senator MURKOWSKI. Let me just ask. On whole building retrofits, you’ve got the commercial side of it, you’ve got the residential or the private side. Assuming that from the financing perspective it’s different in how you approach the financing for the commercial—and Ms. Leeds, you spoke to that—what kind of incentives do we need, if any, for the whole building retrofit for private owners?

I throw that out to the whole. Ms. Leeds, if you want to start.

Ms. LEEDS. I will just briefly mention that I believe the most important driver we have the benefit of having in New York City is the city’s Greener Greater Buildings plan, which involves benchmarking and eventually mandatory audits and retro commissioning for buildings of over 50,000 square feet. This is not an incentive, but it is a set of local laws that promulgate information

about energy use and put in play competitive forces that we believe will drive more building owners, larger building owners, to adopt energy efficiency measures.

Senator MURKOWSKI. So you've got a mandatory audit on all private buildings over a certain size?

Ms. LEEDS. Private buildings over 50,000 square feet, there is a mandatory audit, ASHRAE Level 2 energy audit, and retro commissioning measures. This is being phased in over a period of years. Every building will need to do it once every 10 years.

Mr. DEBOER. Senator, if I could.

Senator MURKOWSKI. Mr. DeBoer.

Mr. DEBOER. I think it's important to recognize that building owners everywhere want to make their buildings more energy efficient. It's better for their bottom lines. It's better for their business. They want to do it. But what we're talking about here is beyond simply putting in a light switch that goes off when people leave the room or changing out the lighting.

In order to achieve deep energy efficiency, we need to have deep retrofits. These are very complicated, costly endeavors. So one thing that needs to be done if we're going to have a tax deduction—and there is one in current law, 179D, as the chairman well knows—it should work, and mechanically it doesn't work now, and there are some simple ways to make it work that would incentivize people to do these deeper retrofits.

On the financing side of things, we're not talking about direct loans. We're talking about guaranteeing a small part of a loan that could then be levered to a larger loan that a private owner could then do a deep retrofit. So there's a lot of relatively minor things that could go a long way to encourage these kinds of heavy benefits that could come out there. Many members of the committee have bills and we support them, we support them all.

Thank you.

Senator MURKOWSKI. Thank you, Mr. Chairman.

The CHAIRMAN. Senator Franken, did you have some additional questions?

Senator FRANKEN. I do. First of all, on the lighting here in this room. The reason it's so bright—and I don't know—I think the ranking member knows this—I used to be in show business, and they have this—these lights are for TV. Even though they—

Senator MURKOWSKI. We're not here for TV.

Senator FRANKEN. I know. I know that we're not here for TV. But we do have C-SPAN sometimes. Evidently there are members of the Senate who have egos and they do like the TV. Even though we're not on C-SPAN today, they just don't want Senators to come in here and see the lights dimmer and say: Oh, well, it's hardly worth it; I'm not on TV. So that's why it's so bright today. I just wanted to explain that. That's from my experience in a different business.

This is to anybody. Minnesota, like other States, has an energy efficiency resource standard requiring it to reduce energy use by 1.5 percent a year, to be that much more efficient. To meet the standard, Minnesota utilities are offering rebates or low interest loans to help homeowners and businesses retrofit their buildings. From what I've seen in Minnesota, the standard has turned utili-

ties into efficiency partners who support retrofits, and that's why I'm looking for a Federal energy efficiency standard that is in part modeled after these State programs. There's a lot of States that have this, I think a majority.

A Federal energy efficiency standard can help incentivize energy efficiency savings and encourage the use of innovative financing mechanisms to achieve these savings. This is for Mr. Rodgers or for anyone. In your written testimony, Mr. Rodgers, you mentioned that you've seen the greatest level of efficiency achievement in States with energy efficiency standards. In fact, you highlight a success story in Indiana. Can you elaborate on that and explain how a Federal standard could expand those kinds of achievements? For the rest of the panel, could you comment on whether energy efficiency standards have helped encourage the use of innovative financing mechanisms?

Mr. RODGERS. Yes, thank you, Senator. One of the things that we experience with these standards is it does bring out the best in who we are. When we have a challenge and a specific goal to put out there to meet, it does require all of the stakeholders that are involved to come to the table and have discussions so as to achieve that. So it's the regulators, it is the utilities and business that all come together to bring out the best in our thinking, bring out the innovation that is necessary.

There are over 25 States, as you have stated, Senator, who have established these standards and have made tremendous strides in the energy efficiency measures that they have put into place.

So I think, with a lack of standards, there isn't that motivating factor to really bring everyone together. So to the extent that there could be Federal involvement in helping to set a broader standard—

Senator FRANKEN. When I talk to utilities in Minnesota, they're eager. They're looking for these things.

Mr. RODGERS. Absolutely.

Senator FRANKEN. To help meet their standard.

Mr. RODGERS. Absolutely. In the case of Indiana, we have 5 investor-owned utilities. All come to the table, working strongly together to achieve those standards. As you said, sometimes it's difficult to get all the right folks around the table, but these standards are what it takes to make that happen.

Senator FRANKEN. I hope we can consider a Federal standard.

I'll move to something that Mr. DeBoer was talking about, if others don't mind not being able to ask a last question. You mentioned the 179D tax deduction for commercial building retrofits and how powerful they are as tools, helping building owners invest in energy efficiency. However, I've heard from religious groups and nonprofits, as well as real estate investment trusts, or REITs, in Minnesota that would like to retrofit their buildings, but don't have tax equity and therefore can't take advantage of these incentives.

If the tax deduction were transferable to a third party, like a retrofit contractor, the contractor could reduce the price of the retrofit based on the benefit of the tax deduction. That could help people with little or no tax equity take advantage of the Federal incentive and therefore retrofit their buildings.

Would making Federal tax incentives transferable to third parties in your view open up more retrofitting opportunities?

Mr. RODGERS. Consistent with my statement about being brief: Yes. It would very much help.

Senator FRANKEN. Thank you.

Mr. RODGERS. Because, as you said, there are a number of types of ownership structures that can't take advantage or use, is probably a better word, not "take advantage," but make use of the available deduction. Being able to allocate it, whether it's to engineers or appraisers or to other entities that are in the refitting, retrofitting business, yes, it would be very, very powerful.

Senator FRANKEN. I've got some other questions, but I've got like 12 seconds. I am so happy that you called this. This is so important. This is really an opportunity for us to create jobs. A lot of the Federal help—and when I talk to this energy efficiency standard, the Federal help doesn't have to be about us spending Federal dollars necessarily. Of course, tax being—opening a tax advantage there is.

But so much of it can be about just making it possible to do these things, just actually encouraging and helping and getting out of the way in some cases, get out the way. So I want to thank this panel for doing the work that you're doing, I really do. I want to thank the chair and the ranking member for facilitating this hearing.

The CHAIRMAN. Thank you very much.

Senator Murkowski, did you have anything else you'd want to—

Senator MURKOWSKI. No, I'd just thank all of you.

The CHAIRMAN. Let me thank the panel as well. We will take your full statements and pore through them and try to find what action items we can that we can move ahead on here. I think this has been a very useful hearing. I thank Senator Franken for continuing to keep a focus on this. I think it's a very important question.

Senator FRANKEN. Mr. Chairman, would you like me to explain again about the TV lights and why?

The CHAIRMAN. We would, we would. We're very anxious to hear.

Senator FRANKEN. Why Senators like being on TV?

The CHAIRMAN. We would be very anxious to—

Senator MURKOWSKI. Will you explain the cold temperatures, too?

Senator FRANKEN. Actually, when there are a lot of people in the room with the TV cameras, it warms up.

Now, today we don't have that. We don't have that. But you don't want the Senators walking in, it being dim and warm, and saying: There's no TV today; I'm not going to show up.

Senator MURKOWSKI. I'm going to keep that in mind.

The CHAIRMAN. We'll keep that in mind, and thank you very much.

That's the end of our hearing.

[Whereupon, at 10:55 a.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

RESPONSES OF DEREK SMITH TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Our experience is more in the residential sector so I will defer to other witnesses on questions 1-4.

Question 2. Government policy makers have been trying to stimulate large scale efficiency retrofit commercial building industry for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large scale retrofits? What are the alternatives?

Question 3. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by Ms. Borrelli from United Illuminating? The combination of turnkey service, cost-effective incentives and zero -interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. How can we replicate these programs?

Question 4. Ms. Leeds of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO's testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkeley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion? If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

Question 5. You say in your testimony that, "We have built a model that doesn't rely on Federal investment to survive". How does your model work? Is it replicable?

Answer. We believe the residential energy efficiency sector requires more public investment before it can become self-sufficient. As I mentioned in my testimony, I would estimate further public investment on a three-year horizon. My intention with this statement was to say we are not reliant on Federal investment beyond ARRA. That said, we would welcome it and we believe we are demonstrating the economic development value of further public investment through data on job creation, small business growth, citizen energy savings, private capital leverage, housing value increases, etc.

Our post-ARRA model is to transition from Federal investment to State investment. We are featured in Oregon Governor John Kitzhaber's 10-Year Energy Action Plan as an example of an effective public-private partnership that is worthy of consideration for further State investment. Our operational focus is to continue to bring down transaction costs currently covered by subsidy and to use additional State investment for consumer rebates to buy down project costs. We have data that shows that rebate levels above utility incentive levels drive additional consumer demand, which leads to significant incremental economic development. We call this "performance-based economic development," wherein public institutions know their investments will provide returns because they are founded on solid data.

We believe our model is replicable. The thrust of a well-capitalized and sustained market over the next several years is a collaborative investment approach by the

utility, public and private sectors. Clean Energy Works Oregon serves as the intermediary and capital aggregator between these sectors.

RESPONSES OF DEREK SMITH TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, should the federal government be investing in efficiency? If so, what is the proper role of the federal government for these types of retrofits?

Answer. Unequivocally, yes. The jobs can't be outsourced, small businesses grow, citizens save money, the country reduces its reliance on volatile fossil fuel markets, and more.

The Federal government can play several important roles, as noted in #2 below.

Question 2. Within your testimony you list several opportunities for the Federal Government to pursue as it pertains to energy efficiency. What do you believe would be the option that would have the most return on improving energy efficiency and why?

Answer. I honestly believe that the most important role the Federal government can play is as chief advocate for a collective commitment to energy efficiency—from setting common data standards (e.g., on energy and non-energy benefits) across state lines to catalyzing private sector engagement to encouraging citizen awareness to demonstrating leadership by reducing energy waste in public buildings (as you, Sen. Murkowski, pointed out in your remarks).

Additionally, on citizen engagement, I suggested in my testimony a reference to the Victory Gardens rallying cry by the Federal government during WWII. We should link energy efficiency to patriotism.

Question 3. Please further elaborate on the role that the State of Oregon is playing in incentivizing efficiency.

Answer. The Oregon Dept. of Energy has invested in CEWO. Its contributions in consumer rebates, private lender credit enhancements and other areas are spelled out in the attached overview.

Gov. Kitzhaber featured CEWO in his draft 10-Year Energy Action Plan (see attached). We are in discussions with the State about investing in further consumer rebates to generate “performance-based economic development” returns from the energy efficiency sector.

The State also provides various tax incentives and promotes supporting legislative and statutory actions.

Question 4. Is there a silver bullet to lower energy consumption? If not, what are options to put into the mix?

Answer. Ongoing consumer education is critical and often overlooked by utility programs. Smart customer management should constantly offer new technologies (e.g., smart meter appliances) to participants in home weatherization programs, for example. Ensuring quality work—through contractor certification and worker training—is also an important element of ensuring permanence of energy savings.

RESPONSE OF DEREK SMITH TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support are no longer needed?

Answer. The key challenge for this sector is that utility capital can only value the energy savings returns from energy efficiency. It explicitly, by PUC charter, can not value all the non-energy benefits. Until this structural issue is addressed, we face a world where public capital must “fill the gap”.

As I mentioned in my testimony, I think the horizon might be roughly three years. The markers of transformation that will herald this transition include:

- Steady, growing consumer demand wherein consumer consider energy remodels along with kitchen and bath remodels
- The real estate community recognizing the value of energy efficiency in home valuations
- Contractor capacity, including on sales and marketing, is sufficient to drive demand in a competitive market without rebates needed as a promotional hook

CEWO has figured out how to engage private lenders without credit enhancement. We feel very strongly that Federal dollars may be most effectively targeted toward consumer demand and contractor capacity rather than support for lenders

RESPONSES OF DAVID E. SUNDSTROM TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Although in my role as Auditor Controller Treasurer Tax Collector of the County of Sonoma, and Administrator of our local Property Assessed Clean Energy (PACE) program we have no direct experience with federal tax incentives, we are aware of their importance in motivating property owners towards retrofitting their property. Informed tax professionals working with commercial building owners and building performance professionals can best define the return on investment impacts to a business.

One particularly difficult segment of the market to stimulate to embrace energy efficiency upgrades is the multifamily housing sector. A large percentage of multifamily housing units are owned by real estate investment trusts, whose mission is to enhance the profits of the partners in the trust. Because the building owner does not pay the energy bill, there is no motivation, without proper incentives or mandates, to upgrade the property. An excellent analysis entitled "U.S. Multifamily Energy Efficiency Potential by 2020" can be found at: http://www.benningfieldgroup.com/docs/Final_MF_EE_Potential_Report_Oct_2009_v2.pdf. That study on multifamily housing concludes on p. 5: "We estimate that the achievable potential (the economic potential further bounded by reasonable expectations of budgets and adoption rates) by the year 2020 is over 51,000 gigawatt-hours of electricity and over 2,800 Million therms of natural gas (or the equivalent for those regions that use other fuels). That is roughly equal to the output of 20 average sized coal power plants and the entire non-power plant natural gas usage of California, Oregon, and Washington. The potential savings would have a value of nearly \$9 Billion annually to property owners and tenants, compared to current energy costs of over \$31 Billion."

We would urge the Committee to consider methods of stimulating this particularly difficult segment of commercial properties toward efficiency upgrades.

Question 2. Government policy makers have been trying to stimulate large scale efficiency retrofit commercial building industry for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large scale retrofits? What are the alternatives?

Answer. While this is not my particular area of expertise, because of my role as Administrator of our PACE program we believe a combination of mandates and incentives may be required to motivate efficiency upgrades. As explained in Response No. 1, some areas of the market, particularly multifamily housing, are very difficult to reach. Commercial property owners will consider upgrades if the upgrades financially benefit them, financing is available, and existing lenders support, or at least do not oppose, that decision. Some combination of rewards and mandates may be necessary to drive efficiency upgrades and motivate property owners that do not directly bear the energy costs of a building.

Question 3. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by Ms. Borrelli from United Illuminating? The combination of turnkey service, cost-effective incentives and zero-interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. How can we replicate these programs?

Answer. To the best of our knowledge, while both of these programs are very successful, they are also highly subsidized. Over time, we need to transition to programs that can operate with little or no subsidy and utilize private capital so that the scale is not limited to scarce government funds. PACE provides a vehicle for that approach, in both the commercial and residential sectors.

In the experience of Sonoma County, program success has rested on the foundation of strong political will based on established county-wide community climate and local power generation goals.

Sonoma supports the replication of a one-stop-shop local energy independence upgrade program model to:

- Leverage existing and develop local relationships among local government agencies, business, education, non-profits, utilities, trade organizations, etc., engage in a collaborative operational mode;
- Minimize consumer confusion by leveraging branding opportunities;

- Focus local workforce balancing and development to stimulate the local economy;
- Design and delivery quality assurance in the evolving building performance and renewable generation industry;
- Maximize rebates and incentive;—Deliver unbiased extensive education and outreach from the perspective of a not for profit organization; and
- Facilitate the pairing of fund sources through partnerships and the delivering of a financial clearing house to consumers.

A model for replication could include operational funding of the local government/not for profit agency by local public good utility charges, leverage rebates of utilities, maximize tax incentives from the federal government, to educate consumers, develop the clean energy workforce and facilitate the pairing of private funding sources with projects, including through the PACE model. We believe our model is replicable, as demonstrated by the establishment of a PACE program at a very reasonable cost, and completion of a PACE project in Encina, Minnesota, using documents and methodology developed by Sonoma County.

Question 4. Ms. Leeds of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO's testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkeley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion? If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

Answer. We do not have access to the utility use data, building square footage, and current efficiency information required to answer this question on a national level.

In Sonoma County we completed implementation of a comprehensive energy retrofit program for our central campus in 2010 (institutional buildings only). This program included numerous building retrofits, water conservation measures, solar PV installation, and the installation of a 1.4 megawatt fuel cell. The program had zero net cost to the county from day one and debt service of the upgrades is being paid through utility savings. The anticipated savings for the County over the 25 year life of the upgrades is estimated to exceed \$35M.

FINANCING PLAN	
Project Cost	\$22,272,029
Incentives, Grants, and Rebates	(3,941,226)
Financed Amount	\$18,730,803
Estimated Interest Rate*	4.98%
Repayment Term	16 years
Assumed Closing/Funding Date	1/1/09
Assumed Annual Energy Cost Escalation*	5%
First year of positive cash flow	Year 12
Total payments	\$31,794,615
Total cumulative positive cash flow after 25 years (estimate life of equipment)	\$38,404,231

RESPONSES OF DAVID E. SUNDSTROM TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, should the federal government be investing in efficiency? If so, what is the proper role of the federal government for these types of retrofits?

Answer. The federal government has a key role in creating standards and certification, such as Energy Star, as well as providing incentives to meet those standards.

In addition, the federal government can lead the way by retrofitting its own buildings and fleets to demonstrate the success and cost-savings in efficiency.

The federal government should, however, exercise caution. Many components work together for a successful nationwide program. While the government can stimulate one segment, such as manufacturing or innovation, there must be a market at the end of the day. As discussed above, there may be tax incentives or mandates that stimulate the private market for upgrades. In the residential sector, there must also be financing available to property owners. The position of the Federal Housing Finance Agency (FHFA) on PACE programs has severely frustrated making funding available to residential property owners, and crippled the market for products and services. The federal government should ensure that its various components are working in unison to promote national policy.

Question 2. Please describe how the first lien program works within the PACE Program. How is the PACE Community working with the lending community to address concerns about the lien priorities?

Answer. PACE programs are authorized by state legislation enabling local governments to establish assessment- or tax-secured programs so that properties can be upgraded for energy efficiency or by installation of renewable energy improvements. Legislatures have found that there is a public purpose in having these improvements made. The local government provides the funding which is secured by assessments or taxes levied on the property. As with all other assessments that repay bondholders for projects benefitting particular properties (sewer, road, etc.), the repayment is secured by a priority lien on the property. There are some 37,000 assessment districts in the country: this is a well established, well accepted mechanism for funding local improvement projects that address a public need.

A priority lien is essential in any sustainable and replicable PACE program. As part of the PACE model, should there be a mortgage default on a property with a PACE lien, only the amount in default (i.e., not the entire obligation) would need to be paid upon sale of the property. The lien would remain in place for all amounts not yet due. In contrast, if there were no priority lien and the PACE assessment followed the first mortgage in priority, the sale of the property by the mortgage holder would eliminate the PACE lien in its entirety. The public coffers can't sustain this loss; nor could we attract bond investors in the Program at a reasonable interest rate.

When we established our PACE program, we met with numerous local banks and worked with several national banks. For commercial properties, banks requested that the first lender be contacted and agree that the project made sense for the property. We have implemented that request and numerous commercial property owners have obtained their lender's agreement to projects. The commercial lenders generally evaluate the cash flow: if it is positive, they have no objection to the project. Although we believe we do not need a lender's consent to assess a property, we are willing to restrict eligibility for commercial properties to those that are able to work with their lender and receive consent.

On the other hand, it is impossible for residential property owners to obtain lender consent to the priority lien. Mortgages are bundled, collateralized and sold. The local bank is only the servicer of the mortgage, without power to agree to a priority lien. Local governments contend that the priority lien does not violate any provision in mortgages, and consent is not required, since tax and assessment liens are anticipated in all mortgage documents. Although some banks agreed with this position before the Federal Housing Finance Agency challenged PACE programs, it has not been possible to resolve this issue or reach agreement with any banks since that time. PACE jurisdictions have expressed support for HR 2599, which balances the interest of lenders and local governments desirous of instituting PACE programs. We hope the Committee would consider sponsoring similar legislation in the Senate.

Question 3. Is there value in one national program rather than each state implementing their program such as PACE? Or is PACE better suited for localities? Who would run such a program on the federal level? Could you broaden your program to a larger audience, and continue to maintain cost savings and efficiency improvements?

Answer. It may be valuable to have some national standards, such as those established in HR2599, if doing so resolves issues with FHFA, Fannie Mae, Freddie Mac, and lenders regulated by FHFA. National standards may also assist if creating fungible, marketable bonds that could be bundled for sale to investors at more favorable interest rates. However, in our view, PACE programs should be implemented on a local level although there could be regional cooperation for efficiency. In Sonoma County, we have partnered with our nine cities to deliver a countywide program.

Local implementation provides a framework to satisfy local goals and priorities in alignment with national standards. The building of a local partnership and collaboration model in this area benefits all areas of local government operation and provides flexible, responsive service to the public. Sonoma supports the replication of a one-stop-shop local energy independence upgrade program model to:

- Leverage existing and develop other local relationships among local government agencies, business, education, non-profits, utilities, trade organizations, etc., to engage in a collaborative operational mode;
- Focus local workforce balancing and development to stimulate the local economy;
- Design and deliver quality assurance in the evolving building performance and renewable generation industry including reliance on local jurisdictions' existing building inspection procedures;
- Deliver unbiased extensive education and outreach from the perspective of a governmental or not for profit organization; and
- Facilitate the pairing of fund sources through partnerships, and deliver a financial package to consumers.

A model for replication could include operational funding of the local government/not for profit agency by local public good utility charges, leveraging rebates of utilities, and maximizing tax incentives from the federal government. The local government or entity implementing the program can educate consumers, develop the clean energy workforce and facilitate the pairing of private funding sources with projects.

RESPONSE OF DAVID E. SUNDSTROM TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support are no longer needed?

Answer. I am not directly familiar with the Clean Energy Works program. Speaking from the experience of Sonoma PACE, the program started and continues to operate without requiring any state or federal funding. The barrier facing the potential of PACE financing is the opposition by the FHFA and the impact to the program in the long term financing market. Elimination of the opposition by the FHFA will open the door for the development of local PACE models leveraging the one-stop-shop model and partnerships with funding providers. With a grant funded by the California Energy Commission, Sonoma prepared a "replication kit" which has already been used by other jurisdictions to establish PACE programs and fund efficiency projects. We hope we have provided valuable guidance to other local governments that will assist in minimizing startup costs for other programs.

RESPONSES OF JEFFREY D. DEBOER TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Members of The Roundtable's Sustainability Policy Advisory Committee (SPAC) have long reported that one of the best ways to stimulate retrofit projects would be a workable and usable federal tax incentive for energy efficient commercial buildings. In that regard, the existing tax deduction at Section 179D of the Internal Revenue Code should be extended and improved.

Section 179D was first enacted in the 2005 Energy Policy Act, extended in 2008, and is scheduled to expire at the end of 2013. To date, this deduction has resulted in some limited success to encourage lighting upgrades. However, 179D has not lived up to its full potential to encourage "deep" whole-building retrofits because of the costs and regulatory complexity associated with upgrading multiple systems including heating and cooling, hot water, windows and roofing, and insulation. Brenna Walraven, Former Chair of the Building Owners and Managers Association (BOMA) International and past Vice Chair of the Roundtable's SPAC, is the national managing director of property management for USAA Real Estate Co.¹ She recently reported to the Wall Street Journal that:

¹USAA recently collected its eighth award from EPA for energy efficiency and has been ranked fifth in the Americas in the Global Real Estate Sustainability Benchmark. See <http://www.bizjournals.com/sanantonio/news/2012/03/06/epa-to-honor-usaa-real-estate-once.html>.

USAA . . . [has] tried “many, many times” to find renovation projects that could be supported by use of the [Section 179D] deduction . . . “In every case we modeled, [the benefit] was less than the \$50,000 to \$60,000 [from building modeling and other administrative costs] . . . ”²

Other SPAC members and industry leaders confirm Ms. Walraven’s experience. Even those real estate companies that have high levels of sophistication in energy efficiency design, construction, and building management typically find the 179D deduction—as presently structured—too complicated and beyond their reach.

To improve and update the 179D deduction, The Roundtable wholly supports the 179D reform proposal that Chairman Jeff Bingaman (D-NM) and Senator Olympia Snowe (R-ME) plan to introduce. They take a performance-based, technology-neutral approach to 179D reform that would, among other things:

- Measure energy savings for retrofits compared to the existing building’s baseline. For purposes of the tax deduction, the Bingaman-Snowe proposal measures savings by benchmarking how much energy a building consumed before a retrofit, and then comparing how much energy has been saved after a retrofit. This logical “before-and-after” comparison makes sense for existing buildings with a track record of energy use, whereby a retrofit plan may qualify for the deduction based on actual and verified reductions in energy usage intensity.
- Award performance by linking the amount of the tax deduction to energy savings achieved—Under the Bingaman-Snowe proposal, the amount of the incentive would increase with greater energy savings. This “sliding scale” approach will encourage ambitious projects while also rewarding projects that achieve meaningful yet more moderate levels of energy savings. At least 20% reduction in energy usage is the floor for qualification under the proposal.
- Make the tax incentive useable for a broad range of building efficiency stakeholders and building types, including REITS—Many buildings cannot use the 179D deduction because their ownership structures, like Real Estate Investment Trusts (REITS) and Limited Liability Partnerships (LLPs), cannot make use of conventional tax incentives. The full amount of the deduction should be available for REITS and other similar holding structures that cannot otherwise use the incentive because they have no tax liability at the corporate entity level. Additionally, in order to make the incentive useable for more buildings, the building owner should be allowed to allocate the tax deduction to other parties responsible for the retrofit such as an architect, engineer, contractor, tenant, source of financing, or energy services company that may guarantee improved performance.

Question 2. Government policy makers have been trying to stimulate large scale efficiency retrofit projects for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large- scale retrofits? What are the alternatives?

Answer. The Roundtable does not believe that regulatory mandates would be appropriate to stimulate energy retrofits. Congress has considered ideas like regulatory energy codes and building “labeling” mandates that would have been administered by the U.S. Department of Energy (“DOE”). From The Roundtable’s perspective, such “one size fits all” federal regulations would make little sense given the broad diversity of assets that span the U.S. real estate stock (office, retail, hospitals, restaurants, hotels, schools, single- and multi-family residential, etc.); the varying stability and prosperity of real estate markets and submarkets across the nation; and the widely heterogeneous nature of commercial building tenants and “plug load” uses that have a major impact on any given structure’s energy consumption. We are thus encouraged by the trend in recent congressional proposals that steer away from such “command-and-control” approaches.

The Roundtable believes that the escalating success of voluntary energy efficiency platforms preclude any perceived need for regulations that target building and occupant energy consumption. As market-driven programs gain more acceptance and traction, America’s buildings are indeed making major strides in improved their energy efficiency without mandates. For example:

²See <http://online.wsj.com/article/SB10000872396390444025204577543060812237798.html>.

- The ENERGY STAR program for buildings, administered by the U.S. Environmental Protection Agency (“EPA”), has been a great success since its inception in 1999.³
 - As of today’s date, 18,608 facilities have earned the ENERGY STAR “top-performers” label covering nearly 2.9 billion of commercial, institutional, and industrial office space in the U.S.⁴ Buildings that receive voluntary ENERGY STAR certifications typically use 35 percent less energy than average buildings, and cost 50 cents less per square foot to operate.⁵
 - Also noteworthy is the widespread use of EPA’s “Portfolio Manager” program, “an interactive energy management tool that allows [building owners] to track and assess energy and water consumption across [an] entire portfolio of buildings in a secure online environment.” This tool assists building owners and managers to “set investment priorities, identify under-performing buildings, verify efficiency improvements, and receive EPA recognition for superior energy performance.”⁶ Over 40,000 users currently rely on “Portfolio Manager” to benchmark, track, and assess energy and water performance in over 300,000 U.S. commercial buildings.⁷
 - The ENERGY STAR program’s national competition, “The Battle of the Buildings,” has seen exponential growth in the past year alone. In 2011, 245 buildings across the U.S. participated in this “biggest loser” type competition,⁸ where EPA provides recognition to assets that shed the most “weight” in terms of energy usage consumption over a 1-year period, as measured and verified by before-and-after Portfolio Manager inputs. For the 2012 competition, over 3,300 buildings have registered to participate⁹—an increase of about 1250% in just a year. This year’s competition will also provide recognition to all registered buildings that reduce energy consumption by 20% during calendar year 2012.

Congress should “do no harm” and avoid regulatory programs and instead foster ENERGY STAR and other voluntary platforms. Expanding the availability and application of the ENERGY STAR label to more building types (like retail malls) and subtypes (like large office buildings with data centers); creating a “Tenant Star” program to recognize energy efficiency in leased spaces within commercial buildings; and fostering even deeper market penetration of Portfolio Manager, are all better alternatives for Congress (and the agencies) to pursue instead of controversial and untested mandates on the real estate sector.

- Consensus-driven design and construction standards are making our built environment more energy efficient—without any federal building energy code. Through quantitative and qualitative analyses, DOE has determined that successive iterations of the ASHRAE 90.1 energy standard covering commercial and larger multifamily buildings will achieve greater efficiency than predecessor versions.¹⁰ As ASHRAE’s 2010-2011 Annual report asserts:

The latest 2010 version of 90.1 achieves more than 30 percent energy savings over the 2004 version of the standard. Extensive analysis work was performed by a team from Pacific Northwest National Laboratories in support of the DOE Building Energy Codes Program. Sixteen different building prototypes were modeled in 17 different climate zones for a total of 272 building types and climate zone combinations. Without plug loads, site energy savings are 32.6 percent and energy cost savings 30.1 percent. Including plug loads, the site energy savings are estimated at 25.5 percent and energy cost savings 24 percent.¹¹

³See “A Decade of ENERGY STAR Buildings,” at pp. 7–8, available at http://www.energystar.gov/index.cfm?c=business.bus_ES_bldgs.

⁴http://www.energystar.gov/index.cfm?fuseaction=labeled_buildings.locator.

⁵http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_intro.

⁶http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager.

⁷<https://www.energystar.gov/istar/has/index.cfm?fuseaction=absdemo.showDemoInfo>.

⁸http://www.energystar.gov/ia.business/buildingcontest/downloads/2011_NBC_Report.pdf?d88f-f211.

⁹<http://www.energystar.gov/index.cfm?fuseaction=buildingcontest.index>.

¹⁰2007 version of ASHRAE 90.1 more energy efficient than 2004 version: http://www.energycodes.gov/status/documents/Standard_901-2007_Final_Determination.pdf. 2010 version of SHRAE 90.1 more energy efficient than 2007 version: http://www.energycodes.gov/status/documents/Standard_901-2010_Final_Determination.pdf.

¹¹“Modeling a Sustainable World,” 2010 ASHRAE Annual report, available at <http://www.ashrae.org/home/search?k=annual%20report>.

Rather than creating a first-ever regulatory building energy code administered by a Washington, D.C. bureaucracy, The Roundtable believes that DOE's participation in the consensus-based process of ASHRAE (and similar bodies) should become more open and transparent to all stakeholders. In that regard, the latest proposal offered by Senators Jeanne Shaheen (D-NH) and Rob Portman (R-OH) in S. 1000, the "Energy Savings and Industrial Competitiveness Act," steps in the right direction. Among other things, S. 1000 would require DOE to conduct notice and comment procedures when it suggests building efficiency targets in the context of the IECC/ASHRAE codes and standards development processes; assess the cost implications, including a return on investment analysis, of building efficiency targets; and consider the impacts of such targets on small businesses. These improvements to DOE's participation in consensus-based processes can encourage more energy efficiency in buildings—with greater stakeholder support—rather than federal mandates.

- The single biggest obstacle to jumpstart more retrofit projects—especially in the midst of the sluggish recovery from the Great Recession—remains a lack of available capital for the up-front costs to pay for building improvements. The American Council for an Energy Efficient Economy ("ACEEE") recently explained:

Without access to private capital there will be limited funding for efficiency retrofits—and the associated jobs, energy and cost savings, and environmental benefits will not be realized. Because capital is scarce for energy efficiency finance programs, most use either utility or government funding for the loans, or they rely on small banks and credit unions. While this approach has had some success, large scale implementation is not likely.¹²

Regulations that would purport to mandate improved energy efficiency in buildings (such as through federal codes or labeling) would not address the main impediment to retrofits - namely, a lack of access to capital and financing. A comprehensive national energy policy should therefore include tailored and modest incentives that will leverage far greater sums of private investment capital into retrofit projects. In particular, Congress should enact the carefully and thoughtfully crafted reforms of the 179D tax deduction developed by Senators Snowe and Bingaman in the Commercial Buildings Modernization Act, and the DOE loan guarantee program for building retrofits proposed by Senators Shaheen and Portman in the ESIC Act.

Question 3. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by Ms. Borrelli from United Illuminating? The combination of turnkey service, cost-effective incentives, and zero-interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. How can we replicate these programs?

Answer. Our members report that success of utility-based energy efficiency programs generally depend on how well they are capitalized. Building owners and other consumers will access these programs but they typically run out of money, quickly. The major barriers to more widespread adoption of efforts like the United Illuminating program in Connecticut and New England is the same that impedes retrofit projects generally—that is, lack of access to investment capital.

Question 4. Ms. LEEDS of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO's testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion? If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

Answer. Regardless of whether the NYCEEC or NAESCO figure is the correct one, the potential market for building efficiency is undeniably large and has not reached its potential. More retrofit projects will certainly ripple throughout the construction, building ownership, architecture and design, energy services, and real estate financing sectors of our economy.

A sense of the economic potential that may be specifically attributed to building retrofits is provided by the contributions of the building operations industry generally to U.S. gross domestic product (GDP). According to a report released last

¹² See Sara Hayes, Steven Nadel, Chris Granda, and Kathryn Hottel, American Council for an Energy Efficient Economy, "What Have We Learned From Energy Efficiency Financing Programs?" Report Number U115 (September 2011), at p. 1, available at <http://www.cleanenergyfinancecenter.org/wp-content/uploads/EE-Financing-report-ACEEE-Sept-2011.pdf>.

month by BOMA International,¹³ the expenditures that sustain office building operations—management, maintenance, repairs, building services and utilities—generate significant, continuous and growing expenditures that support local businesses, create job demand, and contribute significantly to GDP. As set forth in my written statement:

- For each dollar of office building expenditures, the U.S. economy gains \$2.57. And for every one of those dollars, nearly 20 jobs not related to the building itself are supported.
- \$79.7 billion in office building operating expenditures contributed \$205.1 billion to GDP in 2011—equivalent to the State of California’s annual budget.
- As a result of the \$79.7 billion expenditures for office operations, 1.6 million indirect jobs were created across all sectors of the economy, about the same number employed by McDonald’s worldwide. This is in addition to the estimated 2.2 million jobs directly related to the on-site management and operations of buildings.

Regarding retrofit market barriers: As my written statement to the Committee explains (at pp. 5-6), a properly functioning real estate financing market is a prerequisite to a functioning retrofit financing market. The recession and the lackluster recovery, nagging unemployment figures that still hover around 8%, and falling U.S. property values have all dampened growth of the retrofit market. Sustained financial pressure on property owners and lack of credit availability has led to deferral of maintenance and upgrades on existing properties. Until our nation gets to a relative place of normalcy on these macroeconomic issues, the full potential of the retrofit market will not be unleashed.

As explained above, the lack of up-front capital and debt financing opportunities is the largest barrier to getting more retrofit projects off the ground. From the federal policy perspective, The Roundtable believes that an improved 179D deduction and a DOE loan guarantee product—specifically geared to building retrofits—will have a significant impact to encourage building owners and their financiers to underwrite more efficiency upgrades.

Finally, as my written statement maintains, improving information flow among owners, lenders, and appraisers (pp. 9-10), and encouraging utility “best practices” to provide energy consumption data to owners of multitenant buildings (p. 10), are other obstacles that can be overcome to spur more interest in retrofits.

RESPONSES OF JEFFREY D. DEBOER TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. Please explain why you would support tax incentives such as 179(D). How do credits and deductions differ within the tax code? Why do you feel that this incentive makes sense and why should it be a priority in the context of large-scale tax reform?

Answer. Section 179D offers a tax deduction—not a tax credit. Tax deductions reduce the amount of income that is subject to taxation. The value of a tax deduction thus depends on the taxpayer’s marginal tax rate, which rises with income. In contrast, tax credits are a dollar-for-dollar direct reduction in a person’s tax liability and hence have the same value for all taxpayers regardless of marginal income rates. Both types of incentives can lower the amount of taxes paid by individuals and businesses, but each has different economic effects, budgetary ramifications, and policy implications. As former Senator Don Nickles testified at a Senate Finance Committee hearing last month on energy tax policy, law makers must carefully distinguish between energy tax credits (such as those available for wind and solar energy production) which operate as subsidies, compared to more favored energy tax deductions like 179D which are expensed as part of ordinary business operations.¹⁵

Furthermore, 179D is needed to make sure that investments in energy efficiency improvements are properly incentivized relative to the deduction allowed for energy use. Under the Internal Revenue Code, it has been long-established that businesses

¹³“Where America Goes to Work: The Contribution of Office Building Operations to the Economy” (2012), available at <http://www.boma.org/Resources/news/pressroom/Pages/pr062412.aspx>.

¹⁴By way of example: Taxpayer A and B are both in the 33% tax bracket and they both earn \$100 in income. Without any incentives, they would each pay \$33.00 in taxes. If Taxpayer A gets a \$10 tax credit, his tax liability is now \$23. If Taxpayer B gets a \$10 tax deduction, her taxable income is lowered to \$90 and her ultimate tax liability is thus \$30.

¹⁵See stream of June 12 Senate Finance Committee hearing, “Tax Reform: Impact on U.S. Energy Policy,” oral testimony of The Hon. Don Nickles, available at: <http://www.finance.senate.gov/hearings/hearing/?id=990f1101-5056-a032-5202-6921d68e8769> (at the 26:53, 75:50, and 102:01 marks).

are allowed to immediately certain “ordinary and necessary” operating expenses such as utility bills.¹⁶ However, building retrofit investments (through purchases of high-efficiency equipment and materials) otherwise qualify as “commercial income property” that can only be depreciated as “capital expenses” over long periods of time—up to 39 years using straight-line depreciation.¹⁷ More inefficient buildings with higher utility bills may thus immediately benefit from a larger operating expenses tax deduction compared to retrofitted buildings that use less energy. 179D thus has a critical role to play in the context of comprehensive tax reform: It aligns the tax code to properly award long-term capital investments that save energy (thus helping building owners bear the immediate up-front costs of retrofit projects), as opposed to the operating expenses deduction that can otherwise be claimed for wasted energy.

Finally, the 179D reform proposal from Senators Bingaman and Snowe meets the hallmarks of tax reform insofar as it is technology-neutral, performance based, and a lever for significant private investment:

- The 179D deduction is a technology-neutral incentive because it does not pick “winners and losers.” It encourages retrofit projects and not specific products. It gives building owners the opportunity to select the best mix among a suite of measures to achieve optimal energy efficiency gains.
- The 179D reform proposal is performance-based because it would link the amount of the deduction to energy savings achieved. The amount of the incentive would increase under a “sliding scale” that will encourage ambitious projects while also rewarding projects that achieve meaningful yet more moderate levels of energy savings.
- The 179D deduction is expected to leverage three times as much private sector investment in retrofit projects.¹⁸ And, to ensure that building owners and lenders have their own “skin in the game,” the maximum tax incentive available under the Snowe-Bingaman proposal is 50% of the total cost of a retrofit plan.

Question 2. How do you maximize tax incentives? Where do you get the biggest bang for the buck? Please describe how energy-efficiency tax credits can be administratively simple and transparent.

Answer. In allocating scarce government resources, policy makers should consider that financing programs like tax incentives (and loan guarantees) get more “bang for the buck” when they are geared to encourage energy efficiency measures, as opposed to assisting new energy production through clean fossil fuel or renewable energy technologies. Renewable and clean energy production technologies certainly have their role in a comprehensive national energy policy. But simply put, the cost of a kilowatt hour of energy saved is cheaper than the cost of an equivalent kilowatt hour of energy produced. As portrayed in my written statement to the Committee:

COSTS OF SAVING ENERGY vs. PRODUCING ENERGY

Technology	Costs (per kilowatt hour)
Energy Efficiency	2-3 cents ¹⁹
Wind	9 cents ²⁰
Geothermal	10 cents
Advanced Coal	11 cents
Advanced Nuclear	11 cents
Solar PV	21 cents
Offshore Wind	24 cents

¹⁹ Costs of saved energy (“CSE”) per kilowatt hour (“kWh”) for energy efficiency programs range from 2 cents to 3 cents per kWh. See American Council for an Energy Efficient Economy, “Saving Energy Cost-Effectively: A National Review of the Cost of Energy Saved Through Utility-Sector Energy Efficiency Programs” (Sept. 1, 2009), available at <http://www.aceee.org/research-report/u092>.

¹⁶ See <http://www.irs.gov/publications/p535/ch01.html>.

¹⁷ See <http://www.irs.gov/publications/p946/index.html>; <http://www.irs.gov/publications/p946/ar02.html>.

¹⁸ See Table 8 at <http://c4bb.org/wp-content/uploads/PeriFINALForRelease06-10-11.pdf>.

²⁰Costs for all power generation sources in table provided by U.S. Energy Information Administration, "Levelized Cost of New Generation Resources," Annual Energy Outlook 2011, available at http://www.eia.gov/oiaf/aeo/electricity_generation.html (provides "Total System Levelized Cost" for various "Plant Type(s)" in dollars per megawatt hour ("mWh")). For purposes of table conversion: mWh/1000=kWh.

Question 3. You are supportive of the loan guarantee program within S. 1000, the Shaheen/Portman bill. Please describe how the loan guarantees in S. 1000 are similar or different from the 1703 program from EAct 2005 and 1705 programs from the stimulus bill.

Answer. The Shaheen-Portman bill would authorize a DOE loan guarantee program specifically geared to building retrofit projects. Since this program was created in 2005, its focus has been on credit support for nuclear, renewable and other forms of energy production that have higher degrees of financial and performance risks as compared to building efficiency projects. Indeed, none of the "project solicitation" from DOE to date have covered building retrofits.²¹

Shaheen-Portman represents sound energy policy because it would allow the credit support program to take advantage of the untapped potential in the building retrofit market. As I provided in my written statement, there are over 5 million commercial buildings and industrial facilities in the U.S.; they account for about 20% of the nation's energy consumption; and up to 85% of commercial buildings that exist today will still be standing in 2030; and about \$20 billion can be saved if the energy efficiency of commercial buildings and industrial facilities improves by 10%.²² Congress should enact S. 1000's loan guarantee title because it will encourage more private sector transactional activity and liquidity to underwrite retrofits—the primary barrier to efficiency upgrades.

Moreover, Shaheen-Portman represents sound financing policy - and would correct errors that came to light through recent investigations into DOE's loan guarantee program. Legislation pending in the House finds, among other things, that "the portfolio of projects the [DOE] included in the loan guarantee program were higher risk investments that private capital markets do not generally invest in," and that "most of the projects had little 'skin in the game' from private investors."²³ S. 1000 contains myriad provisions that address these very concerns such as:

- S. 1000 incorporates underwriting and due diligence requirements for retrofit financing—The bill directs DOE to develop guidelines that "shall include . . . measures to limit the exposure of the Secretary to financial risk in the event of default," like the borrower's ability to re-pay a retrofit debt and the value of the underlying collateral supporting the loan. To implement the loan guarantee program for retrofits, S. 1000 directs DOE to develop underwriting criteria that assess a borrower's creditworthiness, the building's loan to value ratio, and the building's history and expectations in generating rental and other income, among other factors.
- S. 1000 would provide credit support for successful retrofit projects guaranteed to result in energy savings—The bill directs DOE to consider private sector, third-party guarantees of energy savings after a retrofit is implemented, and whether those savings will pay for project costs over time. S. 1000 provides that DOE (and taxpayers) do not bear the "performance risk" of whether a project will succeed and result in energy savings. Rather, third-party contractors responsible for the retrofit like DOE-approved energy services companies—but not DOE itself—would bear risks that installed energy efficiency measures will perform as designed. In this way, the transaction can be structured so as to amortize retrofit financing through measured and verified energy savings accrued over time.
- S. 1000 places an upper limit on the amount of federal credit support. The bill states that the maximum amount of financial risk that DOE can bear for any single retrofit project is \$10 million. In contrast, the direct loan (not a loan guarantee) given to Solyndra left taxpayers on the line for \$528 million after the solar company's default.
- S. 1000 allows for proportionate recovery by taxpayers in the event of default—In the Solyndra situation, the taxpayers' financial interest was completely subordinated to private investors. S. 1000 would address this problem through a

²¹ See https://po.energy.gov/?page_id=58.

²² See http://www.energystar.gov/ia/business/challenge/learn_more/FastFacts.pdf; <http://yosemite.epa.gov/opa/admpress.nsf/8b770facfedf6f185257359003fb69e1603327c9023eb8c852579dd005e3385>; PlaNYC, "Greater Greener Buildings Plan": http://www.nyc.gov/html/gbee/downloads/pdf/greener_greater_buildings_plan.pdf

²³ H.R. 6213, "No More Solyndras Act" (findings (13) and (14)), available at <http://thomas.loc.gov/cgi-bin/bdquery/-D?d112:6:./temp/bdYBAB::bss/>.

pari passu structure if, in the event of default, taxpayers and private investors would get repaid based on their proportionate share of collateral interests held as security in the property. For example: Assume a building owner owes \$100, further, \$90 of it is owed to a bank that holds a prior mortgage on the property and \$10 is in the form of a retrofit obligation backed by DOE. If there is a default, for every ten dollars that is paid back by the owner, \$9 would go to the first mortgagee and \$1 would go to DOE (assuming it is called on the guarantee). In this manner, taxpayers and prior lien holders are treated fairly based on their respective shares of security interests in the property.

- S. 1000 provides financial support for retrofits through loan guarantees—not through loans, grants, subsidies, or hand-outs—Loan guarantees will provide an incentive to leverage far greater amounts of private sector investment in building retrofits, so real estate, lending, and energy services firms have their own “skin in the game.” It has been estimated that a \$200 million federal loan guarantee investment in retrofits would leverage as much as \$2 billion in private sector financing.
- S. 1000 would provide credit support for proven building retrofit projects that already have a track record of success—We have case studies on the success of retrofits, such as the Empire State Building, showcase projects associated with the Better Buildings Challenge, and the experiences of EPA’s “Partner of the Year” winners, among others. Retrofits pose far lower risks for federal guarantee support compared to unproven manufacture of certain renewable products, where the market may be heavily influenced by subsidies provided by foreign competitors.

RESPONSE OF JEFFREY D. DEBOER TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support are no longer needed?

Answer. The Roundtable agrees that, assuming meaningful and usable 179D incentives and loan guarantees are enacted and deployed for some period of time, they can transform the retrofit market to the extent they are no longer necessary because of adequate sources of private sector financing. We think, however, that these policies need to be adopted and implemented for at least a 5-10 year period to build such a “critical mass” of retrofit projects. The Roundtable also suggests that federal agencies with responsibility for these programs must study and report on successes/failures to Congress, so the legislature can best decide whether and how these incentives may ultimately be phased-out after a track record of implementation.

RESPONSES OF WILLIAM A. RODGERS TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Incentives will clearly assist with the building owners return on investment to allow for a much higher propensity to invest. While the energy savings and corresponding reduction in utility bills are the most critical component, tax incentives can be an important element toward meeting the required financial hurdles.

Question 2. Government policy makers have been trying to stimulate large scale efficiency retrofit commercial building industry for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large scale retrofits? What are the alternatives?

Answer. Mandates can be effective if developed in conjunction with the industry and are tied into realistic energy savings initiatives. These mandates should deal with overall energy reduction and not strictly those areas that deal with retrofit projects.

Question 3. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by Ms. Borrelli from United Illuminating? The combination of turnkey service, cost-effective incentives and zero-interest financing has been very effective in Connecticut and Massachusetts. These

programs should be implemented across the country. How can we replicate these programs?

Answer. When energy efficiency measures are aligned through standard service offerings in conjunction with the utilities these type of programs will become more prevalent across the country. Currently most regulatory bodies view these as “stand-alone” programs versus identifying energy efficiency as an overall service that allows for more customized turn-key delivery to the customers.

Question 4. Ms. Leeds of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO’s testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkeley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion? If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

Answer. We do not have statistics on institutional buildings to properly determine the market potential. However, when energy efficiency services are properly identified and education is developed to provide customers a basis to understand the savings potential I believe the market is very significant. Most likely closer to the NAESCO’s estimates.

Question 5. Is the United Illuminating commercial and industrial program one that your company could implement in other states?

Answer. Yes, programs like this would be adaptable to other markets.

RESPONSES OF WILLIAM A. RODGERS TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, should the federal government be investing in efficiency? If so, what is the proper role of the federal government for these types of retrofits?

Answer. The investment made should center on the efficiency of federally owned properties. Beyond that it would be beneficial to work to establish the standards and policy necessary to encourage the inclusion of efficiency practices and programs in the marketplace. This would include working with the states and utilities to develop efficiency standards that will have a direct positive impact on the ability to increase the level of efficiency related projects to drive to a higher degree of energy savings across the country.

Question 2. Please describe how your program in Indiana differs from the weatherization program.

Answer. The Weatherization Assistance Program was focused on income qualified households and delivered through a number of community action agencies. It was prescriptive in who and how the work was to be performed and as such there was a significant challenge in the understanding and execution of the program to the houses. Some of the concerns of that program were that the utilities, which provide the energy services, were not in the loop and a majority of the key industry service providers were prevented from participating and delivering services. In our Indiana program one of the programs we do deliver is an Income Qualified Program that also qualifies customers based on household income level. The main difference is in the coordination with the utilities, the clarity of education and communication with the customers and ultimately the impact to the house based on the services provided.

Question 3. How do you ensure success within your program (i.e. energy savings, reduced costs in weatherizing a home, etc.)? How do you measure success?

Answer. Success in all of our programs that we deliver is based on the energy saved from the activity that is performed. Based on the type of program, the equipment involved and the actual services performed the energy saved is determined and consolidated to understand the overall impact in the market. We then provide an evaluation, measurement and verification process which statistically validates the actual savings achieved.

Question 4. How would you characterize the key drivers of this program?

Answer. The key drivers of the Indiana program center on a few critical areas.

- i. Open and clear communication with the utilities covering the parameters of the program as well as regular measurement studies
- ii. Strong branding and educational campaign to allow for the marketplace to understand and ultimately participate in the programs
- iii. Clarity of communication with the customer regarding the services to be provided, status of activity and closure of all work performed
- iv. Detailed reporting of all activities including the energy saved and services performed to allow for critical analytical work to be performed to predict future impact

RESPONSE OF WILLIAM A. RODGERS TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support is no longer needed?

Answer. There are a number of organizations similar to Clean Energy Works across the country that do a tremendous job at developing relationships between stakeholders that advance the efforts of energy efficiency. Ultimately any type of Federal support should target education programs versus execution. The execution component must be supported by the marketplace and all of the stakeholders must understand the economic drivers and impact to lend their support. That type of support will ensure the longer term health of these types of organizations and their ability to be self-supported.

RESPONSES OF SHERI BORRELLI TO QUESTIONS FROM SENATOR BINGAMAN

I am glad to be able to further address the Committee through my written responses to your questions submitted to me for the record and to elaborate on innovative non-federal programs for financing energy efficient building retrofits. My responses are highlighted in bold format below your question.

Question 1a. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Tax incentives may be helpful if properly designed and implemented to stimulating a viable, sustainable commercial building efficiency retrofit market. Any tax incentives should be created in an equitable manner for all commercial property owners with a duration that extends beyond one to two years. The following describes one potential scenario.

A structured energy tax incentive based on predicted cost savings from energy efficiency retrofits for commercial building improvements is only beneficial to the industry if it has long term sustainable effects. Tax incentives applied to energy projects should be maximized for longer periods of time so the investment in the retrofit benefits the customer. Targeted tax incentives may also be applied towards specific energy conservation projects. This type of tax incentive would be instrumental in stimulating commercial building efficiency retrofits. The level of tax incentive can be tiered relative to the level of energy reduction achieved. For example, a thirty percent (30%) energy reduction would achieve a higher tax incentive than a ten percent (10%) reduction, etc. These tax incentives can be issued as a tax credit following one year of energy tracking after efficiency upgrades are installed and based on the comparison to the twelve (12) month usage prior to installation of upgrades. This type of tax incentive will keep the customer in business, attract new businesses (market growth), create jobs, and boost the economy.

Question 1b. Government policy makers have been trying to stimulate large scale efficiency retrofit commercial building industry for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large scale retrofits? What are the alternatives?

Answer. Investing in energy efficiency commercial retrofits on a large scale could be one of the most cost effective measures new and existing buildings could participate in to reduce energy consumption. Reducing the amount of consumption and operational costs for building owners in these buildings are goals that can be set. Mandates for uniform adherence to an efficient building code could be a strategy.

Other alternatives to such mandates are energy efficiency targeted tax incentives, innovative financing, performance contracting, and building labeling or rating. These mechanisms are already being practiced or are being developed. These mechanisms reduce payback periods, can increase incentives and create a supportive Energy State/Federal Bill.

Question 2a. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by you from United Illuminating?

Answer. The United Illuminating Company's Small Business Energy Advantage (SBEA) Program model has served as a template for program design in other states, and has earned international recognition. The success of the program hinges on appropriate incentive levels, on bill financing, and contractor management and it expe-

riences a low loan default rate. In order for other states to implement the SBEA program there has to be a commitment on all levels: from the utility to be able to reduce generation costs and retain the small business customer base; from the vendor infrastructure being in place to offer an incentive and the zero percent (0%) financing being backed by the utility company. In addition, there also has to be a commitment by the customer to undertake the no cost energy audit, complete the simple application, etc. When this has been completed, the customer realizes no upfront costs, a cash neutral or cash positive transaction and an energy efficient retrofit.

Question 2b. The combination of turnkey service, cost-effective incentives and zero-interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. How can we replicate these programs?

Answer. The United Illuminating Company can help other states with their efficiency goals and standards and program design and be used as a resource for other utilities who wish to adopt UI's practices. We continually make ourselves available as a resource to other utilities, states and/or countries that seek assistance with designing their programs or establishing efficiency goals and standards.

Recognizing that efficiency goals and standards will vary from one utility and state to another, efficiency goals and standards may be ambitious and/or costly to achieve and require going beyond ratepayer funds. Our financing model is a sensible means to help meet these goals. We have kept it simple. The financed incentive can cover 100 percent of the upfront cost, or it may make an efficiency investment cash-flow neutral or cash-flow positive. It is paid to the customer immediately and typically there are no funds paid up-front. The zero percent (0%) interest rate and on bill financing is possible with utility shareholder funds. In addition, we have attractive terms for repayment of the loan. Financing is critical to getting energy efficiency projects done in the commercial sector.

Another important aspect of our program that could easily be used as a template is the vendor structure. All vendors use standard software for savings calculation and determining incentive awards. If replicated, the utility should limit the number of contractors to those who are skill certified, background checked, trained and evaluated on a regular basis. We have the capability to enter a lead, qualify the customer for financing, perform the audit, approve the proposal and present documentation to the customer for signature in the same day.

Question 2c. Ms. Leeds of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO's testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkeley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion?

Answer. Yes.

If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

RESPONSES OF SHERI BORRELLI TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1a. In your opinion, should the federal government be investing in efficiency?

Answer. Yes, it is the lowest hanging fruit to accomplish energy saving goals.

Question 1b. If so, what is the proper role of the federal government for these types of retrofits?

Answer. Increasing our nation's energy efficiency creates jobs, saves businesses and consumers money, and increases economic productivity by providing appropriate targeted tax incentives and defined goals.

Question 2a. Please describe how you measure performance within the programs you administer to ensure energy efficiency.

Answer. In accordance with Connecticut General Statute §16-245m and §16-32f, UI submits its annual comprehensive Conservation and Load Management Plan (Plan) for the implementation of cost effective electric and natural gas energy efficiency programs. Along with this Plan, the energy savings are benchmarked through the Program Savings Document and by historical savings documentation. As a rule of thumb, a twenty percent (20%) average reduction can be achieved through a typical lighting retrofit from obsolete lighting to state of the art. The savings reduction increases as a project becomes more comprehensive.

Question 2b. Please describe the best policies and programs that you have participated in that have motivated energy-efficiency investments.

Answer. In part our program succeeds because of the partnerships and alliances we form in the community to promote our programs. Our partners have strong ties to the community since they live there and work there. Some of the various associations we partner with to conduct outreach are the Spanish American Merchants Association, (SAMA) and the Interreligious Eco Justice Network (IREJN) to reach out to houses of worship for the SBEA Program and the parishioners for the Residential Programs. These partnerships have substantial impact on our program performance.

RESPONSE OF SHERI BORRELLI TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support are no longer needed?

Answer. With advances in technology and energy efficiency strategies it would be hard to define the point at which critical mass is achieved. The advancement of technology may need programs to continue incenting energy efficiency.

Currently, our shareholder funds capitalize the program loans, and we receive our weighted average cost of capital which is approximately two percent (2%) less than the allowable return on these funds. Ratepayer funds buy the consumer interest rate down to zero percent (0%) and provide loan loss coverage. However, if a reserve of money, for example, a guaranteed fund mechanism replenishes the "fund" when the participants repay the loan, such as state or public funds then there would be certainty of the fund availability. The federal government can continue to help by making businesses aware, rewarding these customers with recognition for participation, and through tax credits for energy savings achieved.

RESPONSES OF SUSAN LEEDS TO QUESTIONS FROM SENATOR BINGAMAN

Question 1. How important are tax incentives to stimulating commercial building efficiency retrofits? Are there specific incentives we should enact?

Answer. Tax incentives should help stimulate commercial building efficiency retrofits, as they will improve the economics of any given project. However, non-economic barriers also exist. Tax incentives are absolutely important and useful, but I do not believe that enacting tax incentives alone will significantly change the pace of retrofit activity, (unless they are very rich incentives).

I strongly advocate for federal tax incentives for existing commercial and multifamily buildings as one step that the federal government can and should take that will have a positive impact on the pace of retrofits. Congress should extend and reform Section 179D of the Internal Revenue Code so that it is a more effective incentive for retrofitting commercial buildings. (There are detailed proposals and analysis that exist on this matter; the Real Estate Roundtable and the Natural Resources Defense Council (among others) have analyzed this matter and can supply details.) Further consideration should be given to providing accelerated depreciation for retrofit capital equipment, to allow efficiency improvements to qualify as real estate under REIT regulations, and to including tenant-focused incentives, as well as owner-focused incentives. The level of federal incentives directed towards energy efficiency implementation in buildings is far lower than those directed at wind and solar technologies; although there is a strong argument that energy efficiency investment in buildings is more cost-effective. At a minimum, the playing field between efficiency and renewables incentives should be leveled.

Question 2. Government policy makers have been trying to stimulate large scale efficiency retrofit commercial building industry for more than three decades, but experts say that mandates may be required to stimulate the real estate industry to perform large scale energy efficiency retrofits in the commercial sector, other than a few high profile trophy buildings. Do you agree or disagree that mandates will be required for the commercial sector to do large scale retrofits? What are the alternatives?

Answer. I agree that mandates will be required for the majority of the commercial sector to undertake comprehensive retrofits.

I also believe that without mandates, short-term payback efficiency investments (12-24 months) will often be made in the Class A commercial sector and by financial strong institutional buildings.

However, significant gains in more comprehensive energy efficiency investments across the majority of the commercial, multifamily and institutional sectors are very unlikely to occur without mandates. Without mandates, there will likely remain a

wide variance in building energy performance with energy “hogs” continuing to be found even in the Class A commercial sector. Furthermore, I believe that other sectors such as multifamily, Class B or C commercial and less credit-worthy institutions will definitely underinvest even in short-term payback efficiency measures without mandates.

A range of mandates is possible, with varying stringency, including (1) mandatory benchmarking, (2) code upgrades and enforcement improvements, (3) required efficiency implementation for major or partial renovations, (4) clean fuel requirements, (5) mandatory auditing, (6) mandatory retro commissioning, and (7) required efficiency measure implementation, etc.

The recent experience of New York City in implementing mandates in a dense urban environment should be studied when considering how to accomplish effective mandates. NYC chose to focus on the largest buildings (over 50,000 square feet) and to implement a suite of mandates with a range of compliance deadlines that the real estate sector in NYC was able to digest. See <http://www.nyc.gov/html/planyc2030/html/about/ggbbp.shtml> for details.

One important feature of this suite of policies is mandatory benchmarking which requires buildings to report their energy consumption and makes this information publicly available. Although the cost of complying with this law is minor for building owners, it is likely to spur competition with regard to the energy performance of buildings. See http://www.nyc.gov/html/gbee/html/plan/1184_scores.shtml for NYC's recent report analyzing its first year of benchmarking data.

Another important feature of NYC's “greener greater buildings plan” is the establishment of the New York City Energy Efficiency Corporation with the goal of improving access to financing for retrofits projects for commercial building owners who need or want it. [See www.nyceec.com.]

I strongly urge you to review the approach that NYC has taken and to follow the results that are produced. It goes without saying that these policies would need to be adjusted for smaller cities and communities, and for other parts of the country. I remain convinced that efficiency is best mandated at the local, or possibly state, level. This is due to variations in climate, energy market dynamics, energy prices and resources, utility regulation, real estate market conditions, prevalent building lease and ownership structures, and other local factors (including culture) around the country. Although I strongly believe that these local conditions suggest that mandates cannot be uniform around the country, I believe that there is much that the federal government can do to encourage or require such regulation.

I am happy to provide you with names and contact information of the relevant policy makers in New York City who crafted the local mandates, if that is of use.

The alternatives to mandates are incentives (such as tax, utility, and state incentives), well-designed utility programs, education, marketing and outreach initiatives, and efforts such as the federal Weatherization Assistance Program (which has provided economic assistance for many multifamily retrofit projects over the years). These approaches do stimulate specific energy efficiency projects; however, they have not had the effect of transforming our commercial building stock to realize its full efficiency potential. My research and experience leads me to believe that such alternatives have an important positive effect, but are not sufficient alone, and that well-crafted and well-enforced mandates are required.

An alternative that has not been discussed extensively is the “negawatt” approach. In this model, utilities would pay for energy efficiency as a resource, as opposed to offering demand-side incentives for efficiency implementation. Efficiency aggregators would be responsible for developing efficiency projects in existing buildings (much like wind developers develop wind farms), and would sell this resource back to the grid. Over the years, a few utilities have experimented with variations on this approach, but there has been no major push to attempt to implement such a strategy.

Question 3. How can utilities be encouraged to adopt the successful small commercial and industrial program that was described by Ms. Borrelli from United Illuminating? The combination of turnkey service, cost-effective incentives and zero-interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. How can we replicate these programs?

Answer. Replicating successful utility programs that combine services, incentives and no-cost financing is a laudable goal. There are definitely examples of successful programs including these features, but they are not widespread across the country. One issue with widespread implementation of these utility programs is likely cost, as well as the leadership of state utility regulators. The fact that the business model of most investor-owned utilities is not conducive to energy efficiency is a barrier.

Zero-interest financing for efficiency projects has cost associated with it for utilities offering this type of program, and such cost must be supported and approved by utility regulators. Working with the Regulatory Assistance Project to educate and influence state utility regulators may be fruitful. I am not knowledgeable about the ways in which the federal government can organize and coordinate with state utility regulators, but this type of communication and coordination is probably necessary for more widespread implementation of the types of programs used in Connecticut and Massachusetts.

Question 4. Ms. Leeds of NYCEEC cited a study published by the Rockefeller Foundation which estimated the potential for energy efficiency in institutional buildings at about \$25 billion. However, NAESCO's testimony (for the record) states that this estimate is low by a factor of four, based on studies performed by the Lawrence Berkeley Labs. Do you agree that the potential market for energy efficiency in institutional buildings approaches \$100 billion? If not, what do you see as the potential market and barriers to meeting the potential for energy efficiency in buildings?

Answer. Energy efficiency potential studies can vary widely, based on the assumptions made and the objective of the study. Economically feasible potential can be different from technical or theoretical potential. In any case, it is true that the potential for efficiency in institutional buildings remains high, and will not be static. New technologies to improve building efficiency will continue to emerge. The built environment is dynamic as well. Construction projects are undertaken for a wide variety of reasons—but generally not for efficiency sake alone.

Barriers to meeting potential are well-documented. Efficiency investment is not typically a priority for most organizations and institutions. Other barriers include (1) low awareness and attention, (2) limited organizational capacity / competing priorities for scarce organizational resources, (3) lack of trust in savings projections and lack of relevant, sector-specific, reliable data on savings projections, (4) upfront cost, (5) lack of low-cost, long-term financing, (6) split incentives (although this generally does not apply to institutions), (7) disruption of ongoing operations, among others. Basically, in marketing energy efficiency implementation, you are asking organizations to undertake construction projects in their facilities that are not strictly necessary.

Finding the right opportunities to introduce efficiency investment is critical. When equipment fails, when a moderate or extensive renovation is taking place, when another construction project is being considered, when refinancing is occurring—there are the points in time when efficiency must be introduced into the process. Our building stock will become significantly more efficient when efficiency investment is routinely “baked into” these other events and processes, and when the barriers to undertaking efficiency at the time of these events and during these routine processes are removed.

Another important point in relation to understanding potential accurately is that measurement of the actual level of efficiency investment activity seems to me sparse. Not only should we be effectively measuring economically feasible potential—which we need to do on an ongoing basis and for specific building sectors—but we should also be attempting to measure the level of actual energy efficiency investment activity taking place.

RESPONSES OF SUSAN LEEDS TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. In your opinion, should the federal government be investing in efficiency? If so, what is the proper role of the federal government for these types of retrofits?

Answer. Yes, the federal government should be investing in efficiency. It is cost-effective, creates jobs, reduces our use of foreign-sourced fuels, and improves our environment. It generally pays for itself.

First and foremost, comprehensive efficiency investment should be happening in all federal facilities, buildings and organizations.

For non-federal facilities and entities, the federal government can incentivize efficiency investments by private building owners (through tax incentives and other mechanisms) and can provide both information and education to the market. Levers for driving the utility sector towards greater implementation of, and incentives for, energy efficiency investments should be explored. My personal belief is that mandates are necessary to ensure an efficient building stock, and that such mandates are best implemented by state and local governments. That said, the federal government could do a lot to assist states and municipalities in crafting the right suites of policies for increasing investment in the energy efficiency of existing buildings.

Finally, many impactful energy efficiency programs around the country are strengthened and enabled by federal grant funds, and the approach of funding pro-

gram implementation at the local level is sound. This type of funding is the type of federal investment that should continue. The New York City Energy Efficiency Corporation, which is establishing several highly effective energy efficiency financing programs enabling numerous commercial and multifamily retrofits, would not exist without this funding source.

Question 2. Outside of funding from the Federal Government, what financing options have been most successful in funding energy efficiency within your program?

Answer. Within our program, the most successful financing options are (1) the energy services agreement “version 2.0” or managed energy services agreement, (2) power purchase agreements used for cogeneration equipment, and (3) energy efficiency mortgage financing.

Question 3. Please describe the amount of energy consumed in buildings. Please describe how retrofits differ between residential and commercial buildings.

Answer. Buildings (and the “plug load” in them) consume approximately 40% of the world’s primary energy and are responsible for 40% of global carbon emissions.

Energy efficiency retrofits are specific to each building, although in some building sectors, it is possible to characterize retrofit projects by “typical” measures. Single-family residential structures are typically smaller, and simpler from an energy systems perspective. Commercial buildings (including large multifamily) tend to have larger systems, often centralized energy systems, and require a higher degree of engineering expertise to design effective retrofit projects.

For example, whereas many residential (single family) energy efficiency programs are prescriptive in design (directing homeowners to a list of efficiency measures they should implement), New York City’s “greener greater buildings plan” was designed to encourage smart and effective retrofit investment in large commercial, multifamily and institutional buildings (actually any buildings over 50,000 square feet). NYC’s suite of policies includes the requirement that buildings perform an ASHRAE Level II audit to determine the efficiency measures they should undertake. Aside from the simplest measures, it is necessary to take this step of conducting a proper energy audit in order to identify the specific opportunities for energy efficiency investment in a commercial facility, and to know how to implement such measures effectively.

RESPONSE OF SUSAN LEEDS TO QUESTION FROM SENATOR WYDEN

Question 1. Even projects like Clean Energy Works, which use private financing, needed government financing to get started. Given the modest pace of the economic recovery, which limits the amount of secondary lending for things like energy efficiency, how long do you think programs like Clean Energy Works will require support? In other words, when do you think these sorts of programs will get to a critical mass, and where federal and state support are no longer needed?

Answer. My organization, the New York City Energy Efficiency Corporation, is similar to Clean Energy Works, in that we needed government funding to get started. NYCEEC was started with 100% EECBG grant funding through the Department of Energy, and we are using both private grants and private financing to complement this government funding and to increase our organization’s operating budget and to supply additional capital to our energy efficiency financing programs.

We are still in the process of deploying our federal capital, which we expect to have fully utilized by year-end 2013. It is unclear at this moment in time whether or not we will require additional government financing. I currently foresee the need for additional operating support for NYCEEC - which we expect to receive from the private philanthropic community, not government sources—for approximately 3-4 years. Beyond this time (2016/2107) we plan to be financially self-sufficient, in other words, our program revenue will support our energy efficiency program operations. I wish to emphasize that these are approximate projections/expectations based on our experience so far, and we are a new organization that commenced operations less than 18 months ago.

Although I believe that it is possible for NYCEEC to operate self-sufficiently without additional government financing in the timeframe indicated above, this does not mean that we will be optimizing our impact and reach. If we are to grow our energy efficiency financing program to meet the full market potential in New York City, we would do so most effectively if we had access to additional government financing.

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF THE AMERICAN INSTITUTE OF ARCHITECTS

The American Institute of Architects (AIA) appreciates the opportunity to submit this statement for the record and commends the Committee's work on the critical issue of financing energy efficient buildings.

Although there are numerous policies that impact financing an energy efficient built environment, our statement focuses on an energy efficiency tax provision, the Energy Efficient Commercial Building Deduction, which is contained in section 179D of the Internal Revenue Code. Set to expire in 2013, the AIA highlights the 179D deduction as an example of one provision in the energy tax family that has had a demonstrable effect on energy efficiency investment, domestic manufacturing, and design and construction industry jobs.

The 179D deduction has leveraged billions of dollars in private capital, resulted in the energy-efficient construction or renovation of thousands of buildings, and created or preserved hundreds of thousands of jobs in the process. It is one of the best indicators of the positive impact extensions of energy tax incentives can have on financing energy efficient property.

The AIA represents over 75,000 architects and emerging professionals nationwide and around the world. As a leader in the design and construction industry, the AIA supports incentivizing energy efficiency in a myriad of ways, but particularly through provisions like 179D, that have proven to be quite successful in the field.

The AIA strongly supported this provision when it was enacted as part of the Energy Policy Act of 2005. The AIA also helped form a partnership with other concerned stakeholders and through this partnership, developed implementation recommendations for building owners to obtain this tax deduction. In 2008, the AIA helped pass legislation to extend the life of the deduction so that it covers property placed in service by December 31, 2013. That same year, at the AIA's urging, the IRS issued guidance on how the deduction could be allocated to the designer.

The AIA was pleased with the initial clarification that this IRS guidance provided, and many agencies on the federal, state and local levels followed suit by issuing policies on the allocation of this deduction.

In recognition of the benefits of the section 179D deduction, there have been reform proposals offered in recent months aimed at further enhancing the important tax benefit. The AIA supports reform of the 179D deduction that makes it simpler and more accessible. As these discussions progress, the AIA also strongly urges Congress to consider enhancements to 179D that would provide an effective and efficient way to encourage investments in energy efficiency, stimulating construction activity and jobs during this fragile time in the nation's economy.

Background on Section 179D, the Energy Efficient Commercial Building Deduction

The Energy Efficient Commercial Building Deduction was created by the Energy Policy Act of 2005 (Pub. L. No. 109-58), in recognition of the fact that a substantial portion of U.S. energy consumption is attributable to commercial buildings and to provide a tax incentive to help offset the costs associated with enhancing their energy efficiency. Section 179D provides a deduction for certain energy-efficient commercial building property expenditures.

Eligible expenditures are for property which is: (1) installed on or in any building that is within the scope of Standard 90.1-2001 of the American Society of Heating, Refrigerating, and Air Conditioning Engineers and the Illuminating Engineering Society of North America ("ASHRAE/IESNA"); (2) installed as part of the (i) interior lighting systems, (ii) heating, cooling, ventilation, and hot water systems, or (iii) building envelope; and (3) certified as being installed as part of a plan designed to reduce total annual energy and power costs by 50 percent or more. The deduction is effective for property placed in service prior to January 1, 2014.

The maximum deduction is \$1.80 per square foot. In the case that a building does not meet the 50 percent energy savings requirement, a partial deduction of \$0.60 per square foot is allowed for each separate building system that comprises energy-efficient property and that is certified as meeting required savings targets. To encourage the public sector to utilize these same energy efficient enhancements, the 179D deduction also provides a federal, state, or local government owner of a commercial building an election to allocate the tax deduction to the primary person responsible for designing the energy efficient enhancements installed in the building.

Building owners who take advantage of 179D not only enjoy a deduction for qualifying levels of efficiency but also enjoy significantly lower energy costs down the road, the benefits of leading edge design and construction which enhances the building's long term market value, and the benefits of a cleaner environment overall. Owners have utilized the deduction for both new construction projects and retrofits of existing buildings.

Although a public entity cannot take advantage of the tax proceeds from the 179D deduction allocation, it will also receive other benefits in the form of energy savings and market value, often totaling more than the deduction proceeds received by the designer.

The average 179D project (typically \$0.60/sq. ft. for lighting upgrades) saves an agency an average of 20 percent on their energy expenses. However, even in cases where there are minimal upgrades that qualify for 179D, agencies have saved relatively large amounts.

For example, when a middle school set out to retrofit its lighting system, an architect worked to find 12 percent energy savings just on that single lighting system. The system then qualified for the 179D partial lighting deduction. In return, the school saved \$15,000 on its energy bill in that year alone. It saved even more the next year, and will continue to save each year. Over 10 years, that totals to over \$150,000, for a single school. School districts that take advantage of 179D for 5, 10, or 20 schools can save millions of dollars over 10 years, at no additional cost to them, because they can utilize the 179D deduction to finance the additional energy savings.

This example illustrates the impact of just 12 percent energy savings in a single school. There are hundreds of other examples of the deduction providing even greater benefits to school districts, army bases, civic structures, and other publicly owned buildings across the nation.

Proposals to Improve the 179D Deduction

There have been reform proposals offered in recent months aimed at further enhancing this important tax benefit. AIA supports commonsense efforts that make 179D more usable, effective and simpler. As these discussions progress, the AIA, in particular, strongly urges Congress to consider three key improvements to 179D: (1) ensuring the ability of pass-through entities to capture the full value of an allocated deduction in the case of a public owner of a building; (2) enhancing the value of the 179D deduction; and (3) allowing non-profit owners of buildings, similar to public owners of buildings, to allocate the deduction.

Allocating the Section 179D Deduction to a Pass-Thru Entity

The section 179D deduction provides a federal, state, or local government owner of a commercial building an election to allocate the tax deduction to the primary person responsible for designing the energy efficient enhancements. In December 2010, the IRS released a memo that effectively prevents design firms organized as partnerships or S corporations from fully realizing the benefit of a section 179D allocated deduction.

This problem is not merely theoretical-almost 80 percent of architectural firms have fewer than 10 employees and a significant number of these small businesses are organized as partnerships and S corporations. Moreover, it is often these small and mid-size firms that work on state and local government projects such as schools.

By way of background, an allocated section 179D deduction is a tax deduction that does not reflect an economic cost to the recipient taxpayer, because similar to a tax credit, the deduction provides an incentive. The technical tax rules nonetheless treat an allocated deduction as reflecting an economic cost to the taxpayer and accordingly reduce partnership and S corporation taxable income and the partners'/shareholders' basis in the partnership/S corporation (i.e., "outside basis") by the amount of the allocated deduction. The reduced outside basis may force partners and S corporation shareholders to recognize taxable gain on the distribution of economic earnings that were excluded from tax by the allocated section 179D deduction at the partnership and S corporation level. The IRS memo states that, in the absence of explicit statutory authority allowing for basis adjustments to preserve the benefit

of the deduction at the partner or shareholder level, the technical tax rules govern. The result will be that, in the case of many partnerships and S corporations, the benefit of the section 179D deduction will be lost or significantly diminished. This will harm not only these firms, but also the school districts and other public entities who own the buildings.

In order for partnerships and S corporations to obtain the intended benefits, it is necessary for partners and S corporation shareholders to obtain a basis in their partnerships and S corporations that is not reduced by an allocated 179D deduction. This issue could be addressed by a simple modification to expressly require Treasury to issue regulations that properly determine partnership or S corporation outside basis in the case where the 179D deduction is allocated. Such a clarification would provide certainty and address a widespread concern among many small businesses that design energy efficient buildings.

Enhancing the Section 179D Deduction

The impact of the section 179D deduction has become muted over time. The maximum deduction of \$1.80 per square foot has not been increased since the deduction was put in place in 2005 and, as a result, has not kept pace with inflation. Moreover, as the economy and financial markets continue their fragile recovery, the amount of capital available for building design, construction, and renovation continues to be limited. A recent AIA survey of architecture firms shows that nearly two-thirds report that a lack of financing has slowed or stopped construction projects that would create jobs. Owners are also less likely to invest the upfront capital costs associated with energy efficient systems, which often are somewhat more expensive to design, build, and install than their less efficient counterparts.

In 2010, a coalition of more than 80 organizations and companies called on Congress to increase the 179D deduction from the current maximum allowable amount of \$1.80 per square foot to \$3.00 per square foot. In the case of individual subsystems, the maximum allowable deduction should be increased from \$0.60 per square foot to \$1.00 per square foot. Bipartisan legislation was introduced in both chambers in the 111th Congress to enhance the deduction in this way.

Enhancing the 179D deduction would provide an important source of additional capital to stimulate building design, construction, and renovation, driving the creation of well-paying jobs. Studies have shown that every \$1 million invested in design and construction yields 28.5 full-time jobs. Moreover, an enhanced section 179D deduction would further incentivize energy efficiency, improve the nation's commercial building stock, and increase energy independence.

Allocating the Section 179D Deduction in the Case of a Non-Profit Owner of a Building

The 179D deduction allocation provision, which allows a federal, state, or local government owner of a building to allocate the deduction to the designer, has been used to great effect by design professionals to encourage their public sector clients to meet the energy targets of the deduction and then have the client assign them the tax deduction. The result has been more energy efficient public buildings, lower energy costs for the building owners, and tax relief for design professionals.

In many cases, non-profit entities, such as hospitals, universities, private schools, charities, and foundations, conduct functions similar to state and local governments. Currently, non-profit entities own thousands of properties across the country. Although retrofits to these properties could result in significant energy savings, the non-profit entities do not pay taxes and, consequently, cannot benefit from the section 179D deduction.

The section 179D allocation provision should be expanded to provide non-profit owners of buildings, similarly to public owners of buildings, with the ability to elect to allocate the deduction to the primary designer of the building. Such a provision would assist non-profits in financing energy efficiency upgrades and would reduce their energy costs in the longer-term.

Conclusion

The AIA appreciates the opportunity to submit this statement for the record. As Congress considers issues surrounding financing energy efficient property, it is important to recognize the impact the 179D deduction has had in leveraging private capital and increasing energy-efficient construction and renovation. Modest improvements to the section 179D deduction would increase the effectiveness and efficiency of this important tax policy. The AIA and its members are ready to serve as a resource to Congress and the Committee on these and other issues.

STATEMENT OF RICK BARNETT, CORVALLIS, OR

Thank you for the opportunity to share my views on non-federal programs for financing energy efficient building retrofits. I have been a residential builder and efficiency advocate for 30 years. Since the 70's, building contractors have engaged in efficiency retrofits, guided by consumer demand and the local building department. Based on their experience with installations, contractors continue to market insulation, efficient equipment, and reduced heat loss. The homeowner is assured of a proper job with the building official's verification of meeting code standards.

I appreciate your effort in gathering this cross section of efficiency expertise, and providing an excellent status report of the industry today. Mr. DeBoer (The Real Estate Roundtable) has succinctly cast the untapped potential of efficiency: "Our nation faces significant economic, employment and energy challenges. One way to address these challenges is by upgrading the nation's commercial building infrastructure through energy efficiency "retrofits"." I believe that the same opportunity is available with residential efficiency.

From this sampling of program models, I point to the United Illuminating Company's "Small Business Energy Advantage Program" as the best example of efficiency being delivered without public sector involvement via ARRA/tax dollars, energy agencies or local tax departments. With in-house, on-bill financing, this utility program simply connects contractors to interested energy customers. As Ms. Borelli, United Illuminating Company's representative, testified, "by making investments in energy efficiency appear similar to traditional utility investments, the utility is encouraged to invest in energy efficiency". If utilities use this model for residential programs, they will invariably improve the product being sold and their return on investment.

The economic opportunity has been documented for many years: as referenced in Ms. Leeds' (NYCEEC) testimony, the Rockefeller/Deutsche Bank (2012) and McKinsey (2009) Reports outline the conservation and employment potentials. Unfortunately, since residential retrofits were included in ARRA, my expectation for contractor jobs has not been met. Rather, I've seen the emergence of a new marketing and verification system, running parallel to the historical marketing role of contractors, and oversight role of Building Officials. Mr. Rogers (GoodCents Holdings, Inc.) graphically identifies some of the new administrative elements on page 12 of his testimony: only one of his "Six Common Elements" is about installing insulation.

The value of streamlining the new trend is not just about better delivery of efficiency: it's also about improving the efficiency being delivered. In the current trend, most thermal retrofits bring very leaky homes into the range of code standards, which have caused the need to reduce residential demand. Fortunately, existing technology is able to produce "net zero", making higher standards available to capture the economic potential.

Such a transition to high performance and lower energy bills will be facilitated by using "Home Performance Scoring", where a number is used to rate a building's measured thermal performance. With evaluation based on a numerical score, the existing checklist-style energy code could be simplified.

From my building experience, I believe that a better return on investment is available from higher performing retrofits. This occurs because thermal upgrades are labor intensive: using better materials doesn't significantly increase the cost, but results in significantly better performance. With an elevated private sector role, I am confident that efficiency investments would continue improving, until we routinely optimize the performance of our buildings. Why should we expect anything less?

Utilities have been increasing their commitment to efficiency, producing programs like United Illuminating Company. I agree with Ms. Borelli's concluding statement, that utilities "are able to utilize utility funds for the benefit of both the customers and the utility". I am confident that more efficiency and construction jobs can be delivered at a lower cost by continuing to expand utility programs. Their private sector perspective motivates them to maximize the energy savings per dollar invested, and fully capture the economic potential of existing buildings.

When I talk to people about the opportunity represented by our existing buildings, the question of capital is quickly raised. I believe that the key to attracting an adequate flow of capital is to get better at delivering really good efficiency. I ask the Energy and Natural Resources Committee to encourage a new commitment by the private sector, to unlock this residential energy asset.

STATEMENT OF THE NATIONAL ASSOCIATION OF COLLEGE AND UNIVERSITY
BUSINESS OFFICERS

This testimony is submitted today on behalf of the National Association of College and University Business Officers (NACUBO) which represents chief financial officers and their staff at more than 2,100 public and nonprofit colleges and universities. NACUBO's mission is to promote sound administrative and financial management of institutions of higher education.

In 2009, NACUBO, in collaboration with Second Nature, published "Financing Sustainability on Campus," a resource detailing a range of financing strategies and options available to campuses responding to the challenges of financing sustainability efforts. The full range of financing options are examined in the publication, including internal resources, grants, bank loans, bonds, leases, energy performance contracts, tax incentives, power purchase agreements, energy hedges, renewable energy certificates, and carbon offsets.

In a more recent report, "Higher Education: Leading the Nation to a Safe and Secure Energy Future," published in June of 2012 by the National Association of College and University Business Officers, Second Nature, and the American College & University Presidents' Climate Commitment, the organizations explore how the federal government can develop and enhance clean energy incentives and investments that are specific to the higher education sector and how these federal policy options could further stimulate deep energy-efficiency and renewable-energy investments at colleges and universities.

This testimony reflects the five federal policy options presented in that report and explores how federal support, with state and local government initiatives as well as with institutional funds and private-sector investments can expand possibilities and mitigate or eliminate barriers to furthering energy efficiency goals at colleges and universities across the country.

Building on a Solid Foundation

Higher education institutions are on the forefront of advancing efficient and renewable energy production—from wind and solar generation, to natural gas cogeneration, to geothermal and biomass heating and cooling systems. Equally impressive are the dramatic measures taken to maximize the operating efficiency of campus infrastructure. During the past decade, institutions have systematically curtailed energy consumption through multiple rounds of lighting upgrades, weatherization initiatives, and energy audits and system controls, and have implemented institution-wide Energy Star procurement policies. Buildings that adhere to advanced levels of energy-efficient performance criteria are commonplace on many college and university campuses. The sector has also embraced aggressive programs for water conservation, waste minimization and recycling, alternative-fuel vehicle fleets, and local food production—each with direct and indirect impacts on campus energy demand.

All these changes are spurred in part by a growing environmental consciousness among students, but they also represent higher education's commitment to equip graduates to be future leaders and problem solvers within a starkly different energy economy than that of decades past. The pursuit of substantial energy savings and new energy sourcing also reflects a strong and growing commitment to energy efficiency among presidents and campus business administrators and a mounting consensus that such shifts in campus operations are necessary to contain costs. Ensuring long-term energy reliability and financial security of the academy are crucial in advancing the educational mission of America's colleges and universities. According to the National Center of Education Statistics (NCES), colleges and universities annually expend more than \$14 billion in operations and maintenance of buildings and grounds. They also expend between \$6 billion and \$7 billion each year on energy and utilities, about three quarters of which is directed toward electricity generation, transmission, and use.

Estimates from APPA, the national association representing higher education facilities officers, suggest that America's colleges and universities collectively own and manage more than 250,000 buildings and heat and cool more than five billion square feet of space on a daily basis—no insignificant expenditure. For every college and university, stewardship of energy resources bears a direct impact on the institution's ability to be a good steward of its financial resources.

In many ways, institutions of higher education represent the ideal partner to engage in advanced energy solutions.

- Small-scale cities—Many higher education institutions are, in effect, small-scale cities. Through the built infrastructure of their campuses, colleges and universities operate as mini-municipalities of several hundred to tens of thousands of individuals. Many campuses have their own power plants in addition to aca-

demical and research buildings, dormitories, cafeterias, athletic facilities, transportation fleets, and more.

- Long-term investors—The higher education sector’s long-term perspective regarding investments, infrastructure, and buildings, combined with its willingness to adopt new ideas and technologies and to “go deep” with energy-efficiency retrofit projects underscore the fact that American colleges and universities can play a key role in leading the nation to energy independence, energy security, and energy innovation.
- Cross section of the nation—Geographically diverse and serving nearly every population center across the country, U.S. higher education institutions are ideal places to test unique local and regional energy solutions and markets in the drive toward energy efficiency, energy independence, and energy security.
- Learning laboratory—Higher education has a long tradition of equipping graduates with not only the technical skills and knowledge to meet current workforce requirements, but also the critical problem-solving abilities to discern emerging trends and to solve society’s greatest challenges. Modeling a variety of energy solutions on their campuses is one way colleges and universities are preparing future scientists and civic leaders to meet tomorrow’s energy challenges and opportunities.
- Job trainer—From the responsiveness of community and technical colleges to quickly develop and introduce training programs to retool workers’ skill sets, to the systems thinking and complex problem solving offered through immersive learning opportunities that are a hallmark of so many residential liberal arts campuses, to the sophisticated and cutting-edge discovery that takes place at the nation’s research universities, the higher education sector collectively holds the capacity to train the next generation of energy managers, engineers, architects, scientists, and entrepreneurs.
- Driver of market transformation—In addition to showcasing to society what is possible in the realm of deep energy efficiency, the higher education sector has the capacity to create new and better markets for goods and services. Consider that the U.S. higher education sector represents operational budgets totaling \$350 billion annually—about 2.5 percent of U.S. gross domestic product (GDP). College and university campuses not only possess the purchasing power to encourage emerging and local energy markets, but they are also in a position to sustain these markets.

Potential Savings in Energy Demand, Supply, and Distribution

New opportunities exist for colleges and universities to dramatically improve their energy and fiscal stewardship by further reducing energy consumption (demand), altering and expanding their energy sourcing (supply), and maximizing infrastructure improvements that address energy storage (distribution).

Demand—Opportunities for higher education to lower demand through deep energy retrofits fall into three primary categories.

- Smart labs and high-performance buildings. As a nation, the United States takes pride in its status as a world leader in cutting-edge research. One reason that research-intensive institutions in particular have difficulty reducing overall energy consumption is because today’s highly sophisticated research typically requires advanced levels of heating and cooling, illumination, and information technology (IT) infrastructure to support the research mission. The costs to build highly efficient labs and retro-commission existing labs and other campus facilities to improve their energy efficiency are extensive, yet the potential energy savings through the introduction of advanced efficiency measures are as dramatic. When considering that for many research universities, two thirds of total energy costs for the campus’ core teaching and research buildings are directly associated with their laboratories, it makes sense to implement measures that safely manage “smart” energy use. The ability to dramatically curtail research-related energy consumption—particularly in the thousands of university research labs across the country—would not only lower the overall cost of research-related education but would help maximize the federal dollars flowing into the higher education sector for sponsored research, thereby providing a direct benefit to taxpayers.
- Illumination—Every campus, large or small, can benefit operationally from broad incorporation of the latest developments in advanced lighting technologies to more efficiently illuminate everything from classrooms to parking lots. Today’s lighting retrofits go far beyond switching out fixtures. Total redesign of lighting systems can incorporate better spacing of fixtures and the introduction of task lighting as well as circuits zoned to maximize daylighting and influence occupancy behavior. This more sophisticated approach to determining lighting

requirements and efficiencies of laboratories, classrooms, office spaces, residential settings, and alongside roads, parking facilities, streets, and pathways suggests that the potential for savings is not only significant when extended across an individual campus, but is also highly scalable across the entire higher education sector and beyond.

- IT/computers—While computing and information technologies do not account for the biggest share of campus energy consumption, they do represent the fastest-growing energy strain on most campuses. Growing on average at a rate of 20 percent per year, IT-related energy costs could quickly eclipse those of illumination if left unchecked. For instance, computing clusters purchased with federal dollars create excessive energy demands when the equipment is not installed in an energy-efficient facility setting.

Supply—Expanding energy-supply options is good not only for colleges, but for the country. Many higher education institutions are already pursuing a diverse energy strategy centered on enhanced efficiency and the transition to renewable and reliable clean energy sources as a way to stabilize long-term energy costs, provide hands-on educational opportunities for students, encourage local and regional economic growth through development of new energy markets, and reduce dependence on nondomestic energy supplies. Generating demand for renewable energy should encourage continued development of related technologies that can lower the costs of these energy sources.

Distribution—As the nation moves to increase its share of renewable energy production, lingering challenges include the intermittency of renewable power and the lack of an adequate energy storage and distribution system. In many respects, colleges and universities are in the best position to lead the country in developing solutions to thermal energy storage and distribution because of efforts already under way on many campuses to incorporate smart metering and design microgrids that can transfer energy across campus infrastructure based on demand.

While many colleges and universities have tackled the low-hanging fruit of quick-payback energy efficiency and conservation efforts on their campuses, deep energy-efficiency measures represent a tremendous and as yet untapped opportunity for the higher education sector to further reduce operational costs.

Herein lies a key role for the federal government: to assist institutions in meeting the initial costs of pursuing advanced energy-efficiency opportunities, infrastructure modifications, and alternate sourcing of energy. The right mix of incentives and investment could boost institutions over the hump of the current cost feasibility gap in order to invest in projects that over time would yield long-term savings dividends for taxpayers.

Five Policy Options for Fostering Energy Efficiency and Renewable Energy at Colleges and Universities

1. Allow tax-exempt revenue bond financing to prepay power purchase agreements.

The transition to renewable energy is most expensive for the first 5 to 10 years until projects begin to pay off. Because large-scale power purchase agreements (PPAs) for these projects cost more initially, one solution would be to allow colleges and universities to pre-purchase a 20-year supply of power with low-cost capital bonds and with flexibility to shape the debt (e.g., interest-only payments during the early years). The opportunity to use tax-exempt revenue bond financing for prepayment of PPAs is currently not a qualified use for the nonprofit higher education sector, although it is available to municipal utilities.

Many colleges and universities effectively constitute small municipalities, replete with infrastructures, municipal services like parking and security, and on-site energy utilities that serve an array of customers. Investing in an institution's energy infrastructure will yield certain, long-term fiscal benefits to taxpayers through downward pressure on tuition and indirectly through lower federal and state financial aid dollars spent on utility bills.

2. Develop new energy-efficiency and renewable-energy loan options for institutions of higher education.

Colleges and universities use term loans to fund a wide variety of projects, including energy investments. There is wide variability in up-front and ongoing administrative costs as well as interest rates, debt term and structure, and market conditions on bank debt. A federal loan guarantee program and/or a federal revolving loan fund dedicated to higher education energyefficiency and renewable-energy efforts can take some of the variability and uncertainty off the table as institutions embark on a long-term energy strategy.

a. Establish a federal loan guarantee program for energy-efficiency or renewable-energy projects at institutions of higher education—One potential solution for financing advanced energy-efficiency and renewable-energy projects is to provide access to guaranteed loans. Federally backed loan guarantees are particularly beneficial to colleges and universities because these would prevent institutions from pushing beyond their debt capacity limits, which could jeopardize an institution's credit rating and adversely impact its borrowing ability, its reputation, and its cash flow while also increasing the cost of all functions that depend on financing. Providing such an option for the higher education sector to finance energy projects would also provide real value for the government, since there are few entities that are less risky than public universities when it comes to offering loan guarantees, and since the outcome would return real savings to taxpayers.

b. Develop a federal revolving loan fund for energy-efficiency initiatives—Revolving loan funds (RLFs) are increasingly common on college campuses and could be used as a model for federal investment. A revolving loan fund provides capital for projects that create some level of return or cost savings, such as energy-efficiency or renewable-power projects. Some portion of that return or savings is used to repay the fund until the full project cost has been paid off. Repayment can include an interest rate or be interest-free. As the fund is replenished it can finance more projects that meet the RLF's investment criteria. According to a recent study by the Sustainable Endowments Institute, more than 50 higher education institutions have at least \$66M invested in green revolving loan funds, with an average rate of return of 32 percent. Colleges and universities have generally found RLFs to be a flexible, relatively low-cost, high-return mechanism for funding energy-efficiency projects. Such a program on a national scale would result in tremendous efficiencies on campuses across the nation.

3. Establish, alter, and fund federal grant programs.

Section 471 of the Energy Independence and Security Act of 2007 authorized, for FY09-FY13, grants and loans to institutions of higher education to carry out projects to improve energy efficiency. Unfortunately, the program has never been funded. Congress should support the overall goals of Section 471 and consider reauthorizing and funding the program. The higher education sector recommends modifying the program to incent state-based matching grant programs, eliminating the \$1 million limit on the maximum award, and enabling the federal grant to support up to 30 percent of total project cost.

Additionally, the American Recovery and Reinvestment Act of 2009 created a renewable-energy grant program that is administered by the U.S. Department of Treasury as Renewable Energy Grants, taken in lieu of the federal, business, energy investment tax credit (ITC). Only colleges and universities partnering with commercial developers can benefit from the program. Eligibility should be extended to tax-exempt entities.

4. Allow long-term charitable deductions and tax credits for biomass and biomethane contributions.

Solar, wind, hydro, and geothermal energy are not viable options in all parts of the country. However, biomass and biomethane, especially in agriculturally dense communities, have proven to be practicable options and of growing interest within the higher education sector for combined heat-and-power applications. These systems hold great promise not only for college and university energy generation but for transforming the nation's energy economy. Yet, construction of a bio-digester plant represents a huge capital investment—upwards of tens of millions to hundreds of millions of dollars to get up and running at scale. Likewise, assurance of a steady flow of the materials needed to power the system is essential for embarking on such a large-scale commitment. A change in the tax code to assign a charitable contribution to a supplier of organic material (e.g., farm, canning operation, cheese maker, etc.) and make it contingent on a length of time (e.g., 10 years) would give incentive to the provider to maintain the flow of materials and would provide reassurance regarding supply to institutions contemplating such a major investment. Gift tax benefits should be offered for the imputed value of source materials if donors are willing to make a 10-year commitment.

Extending existing incentives and tax credits to biomass, biogas, biomethane, and geothermal production in addition to wind, solar, and hydro power solves a supply-side challenge and could make the difference for many institutions to take advantage of readily available renewable-energy sources in their region. Agricultural communities in particular offer great promise for institutions to partner on projects that

would reduce consumption of and dependence on foreign sources of energy and would open up new possibilities for domestic fuel markets.

5. Extend eligibility of clean and renewable energy bonds.

The U.S. higher education sector is a national leader in renewable-energy purchasing and development. Colleges and universities in many cases are exceeding state-mandated renewable portfolio standards as part of their total power supply, some with support from Clean and Renewable Energy Bonds. The CREB program allows entities to finance renewable-energy projects at lower costs than traditional financing mechanisms. Currently, private colleges and universities are not eligible to take advantage of this tax credit bond. Extending eligibility of this financing option to independent institutions could boost participation in renewable-energy markets.

In conclusion, at a time when economic resurgence and job creation remain national priorities, incentivizing investment in infrastructure that can lead to economic productivity and markedly lower costs is not only logical, but necessary. For public institutions in particular, it is fiscally responsible for governments to take the steps necessary to make every investment in energy efficiency for the properties they own. Through bolstering incentives and investments in advanced energy efficiency and clean domestic-energy sourcing, both federal and state governments have the means to avoid waste and to pursue the wise use of taxpayer dollars applied to these efforts to ensure that precious resources are available for other critical needs.

NAESCO,
Washington, DC, July 10, 2012.

Hon. JEFF BINGAMAN,
Chairman, Committee on Energy and Natural Resources, U.S. Senate, 304 Dirksen Senate Building, Washington, DC.

Hon. LISA MURKOWSKI,
Ranking Member, Committee on Energy and Natural Resources, U.S. Senate, 304 Dirksen Senate Building, Washington, DC.

Re: June 28 Hearing on Energy Efficiency Financing

DEAR SENATORS BINGAMAN AND MURKOWSKI:

The National Association of Energy Service Companies (NAESCO) appreciates the opportunity to submit these comments for the record in the matter of the above-referenced hearing.

NAESCO has had a chance to review the testimony offered by various parties at the June 28 hearing, and we concur with much of what the witnesses said. We would like to amplify some of the points that they made and offer several policy suggestions, based on the experience of our members that collectively provide approximately \$4 billion in energy efficiency investment annually to public and private sector building owners.

First, we agree that the potential for energy efficiency in the US is huge, and that the nation desperately needs the kind of leadership that your committee has demonstrated with its overwhelming bipartisan support of common-sense energy efficiency legislation. We believe, as several witnesses said, that energy efficiency should be the nation's first energy resource. No other source of energy is as cheap and plentiful as energy efficiency. The high costs and technical issues involved with other energy sources—coal, nuclear, oil tar sands, shale gas, etc.—demand that we make the most efficient use of every unit of energy we have. We, therefore, urge you to press forward with consideration and enactment of your legislation in the Senate, and to work to convince your colleagues in the House to immediately move similar bi-partisan approaches.

If we have any quarrel with the estimates of the potential for energy efficiency in the US, it is that the estimates are too modest. For example, Ms. Leeds from the New York City Energy Efficiency Corporation (NYCEEC) cited a study published by the Rockefeller Foundation and Deutsche Bank, which estimated the potential for energy efficiency in institutional buildings at about \$25 billion.

We believe this estimate is low by a factor of four. The federal government has estimated that its potential energy efficiency improvements in buildings is more than \$8 billion, and federal buildings represent a small fraction of the total square footage of institutional buildings in the country. NAESCO, based on studies performed by the Lawrence Berkeley National Laboratory, estimates that the potential market in institutional buildings approaches \$100 billion.

This potential, of course, equates to jobs—hundreds of thousands of jobs in the hardpressed construction industry—as well as billions of dollars of reductions in taxpayer expenditures for wasted energy.

Second, we would like to provide some historical context for the status of energy efficiency in commercial buildings, and make a policy suggestion based on this history. NAESCO member companies, NAESCO staff, government policy makers at all levels and utility companies have been trying to stimulate large-scale energy efficiency retrofits in the commercial building industry for more than three decades. Our efforts have not yielded significant results, particularly in the Class A tenant-occupied buildings. We appreciate the fact, as Mr. DeBoer noted at the hearing, that the commercial real estate market is in a financial trough today, but during these three decades the real estate industry has gone through several full boom-and-bust cycles, and there was no noticeable uptick of energy efficiency retrofits during the boom cycles, such as the first part of the last decade.

The problem is that the real estate industry does not believe that increasing energy efficiency is its business. Rather, the industry defines its business as buying and re-selling buildings. Moreover, many landlords don't see the value of making their buildings energy efficient as they pass on the energy costs to their tenants. We, therefore, think that mandates are going to be required to stimulate the real estate industry to pursue energy efficiency outside of a few high profile trophy buildings. We know that government mandates are an unpleasant topic these days, but the history of the real estate industry is that they work. More than a decade ago, most jurisdictions mandated that commercial buildings be retrofitted with fire-suppression sprinkler systems. The real estate industry protested vigorously that the retrofits would be financially ruinous, but a decade later the job was done. And sprinkler systems do not pay for themselves from savings, as energy efficiency retrofits do.

The near potential for mandates is massive. As Mr. deBoer noted in his testimony, more than \$1.4 trillion in commercial mortgages will be refinanced in the next three years. A mandate that all new commercial mortgages be increased to finance all of the retrofits that are costeffective within the term of the mortgage (e.g., a five-year mortgage would be expanded to include all retrofits that have a payback of five years or less) would have no practical effect on the building owners (since the retrofits would repay their costs on a cash flow basis) but would significantly increase the value of the buildings over their remaining life.

Third, the Committee should seek ways to encourage utilities to adopt the very successful small commercial and industrial program that was described by Ms. Borelli from United Illuminating, a Connecticut utility, at your hearing. The combination of turnkey service, substantial and cost-effective utility incentives and zero-interest financing has been very effective in Connecticut and Massachusetts. These programs should be implemented across the country. Utilities should also be encouraged to investigate expanding these programs into large buildings, many of which could be seen to be vertical aggregations of small customers that could be serviced with the same programs that today service horizontal (i.e., neighborhood stores and businesses) aggregations of small customers.

In closing, NAESCO appreciates the opportunity to offer these comments for the record, and we are ready to answer questions from you or your staffs or to supply more information about our suggestions.

Sincerely,

DONALD GILLIGAN,
President.

STATEMENT OF MALCOLM WOOLF, DIRECTOR, MARYLAND ENERGY ADMINISTRATION,
AND CHAIR, THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Chairperson Bingaman and members of the Committee, I am Malcolm Woolf, director of Maryland Energy Administration and Chair of the National Association of State Energy Officials (NASEO). NASEO represents all 56 of the State and Territory Energy Offices and helps to support and leverage the work of the energy offices throughout the nation. We are pleased to have this opportunity to discuss some of the successes and innovations in energy efficiency retrofit financing programs both in Maryland and other states. Prior to joining the Maryland Energy Administration, I served as Staff Director of the Natural Resources Committee of the National Governors Association, as counsel on the U.S. Senate Environment and Public Works Committee and at U.S. Environmental Protection Agency, and in private legal practice. My message today is to highlight that America has a rich resource of energy efficiency readily available and that States continue to be at the forefront of innova-

tion by developing creative, new financing solutions to save money, enhance U.S. competitiveness, create opportunities for the private sector and preserve the environment. Well-established, long-running programs such as the Nebraska Dollar and Energy Savings Loan and Texas Loan STAR programs have proven how state programs can enable more energy efficiency retrofits by working with the private sector to increase access to financing and reduce market barriers. Two decades ago, these and other groundbreaking financing programs were created to open new energy-related economic development opportunities utilizing seed funds from the U.S. State Energy Program and other state and federal resources. Other more recent State Energy Office innovations, such as Maryland's financing programs, the Kentucky Green Bank, Florida's statewide property assessed clean energy (PACE) program, Alabama SAVES revolving loan fund, and New York's on-bill repayment program are pushing the envelope and making great strides towards scaling up energy efficient retrofits, and leveraging funds through public-private partnerships with the financial community, even as consumer, commercial, and industrial demand and confidence continues to slowly bounce back after the most serious economic downturn in decades.

In my home state of Maryland, Governor O'Malley led the passage of the EMPOWER Maryland Act in 2008 to move our state to the forefront of energy efficiency. Under his leadership, Maryland has achieved a 9.1% reduction in per capita peak demand, which has helped keep the lights on while avoiding the need to build a new fleet of fossil fuel peaking plants. In addition, over 430,000 Marylanders to date have implemented energy efficiency measures in their homes or businesses that will save \$2.6 billion over the life of the measures and avoid 880,000 metric tons of CO₂, which translates to about 180,000 cars taken off the road.

Let me share two examples of how we are trying to overcome the barriers with respect to financing. First, using a longstanding revolving loan fund, Maryland has provided 70 loans worth about \$20 million for energy efficiency improvements that are estimated to save nearly \$60 million in project lifecycle costs. For example, we recently provided a \$600,000 loan to improve a 26-story office building in downtown Baltimore that, when combined with a utility rebate, will save over \$300,000 per year. Maryland has also helped local governments update parking garage and traffic lights, hospitals achieve significant improvements in indoor air quality, and private schools replace aging and wasteful heating and cooling systems. Typical projects include lighting, heating, and cooling upgrades, as well as building optimization technologies and controls. A sister revolving loan program focused on state buildings has achieved similar results.

Maryland has also created a loan loss reserve fund to help leverage \$15 million in private capital for unsecured residential energy efficiency loans. In partnership with the Maryland Clean Energy Center, we are providing affordable capital to homeowners with limited options for overcoming the upfront cost of an energy efficiency makeover-without relying on state tax funds.

Other State Energy Efficiency Financing Examples

The Nebraska Dollar and Energy Savings Loan program is a revolving loan fund that the State Energy Office established in 1990, and over the last 22 years, the program has financed over 27,000 projects (e.g., commercial, industry, small business, residential) totaling over \$247 million, with less than \$70,000 in defaults or less than a 0.03% default rate over the program life. Of that \$247 million, more than \$111 million came from the state revolving loan fund, and the rest was financed by Nebraska banks, credit unions, and building owners, amounting to a 1 to 1 private sector leverage on program funds. The key to the program's success has been the active participation of the state's participating local banks and credit unions who view the program as a good service for their communities and customers, and therefore good business for them. Currently 290 Nebraska banks and credit unions offer the program at 914 locations statewide. This flexible program has supported retrofits in Nebraskan homes, businesses, and agriculture.

Like the Nebraska program, the Texas Loan STAR program has operated for more than 20 years. Established in 1988, Texas Loan STAR targets retrofits in public buildings, including state agencies, school districts, higher education, local governments and hospitals. Over its program life, Texas Loan STAR has funded approximately 200 loans totaling over \$280 million dollars. The program has achieved cumulative energy savings of over \$212 million dollars for state and local public buildings. In 2001, the program was expanded to allow for the use of energy savings performance contracts (ESPCs), which enabled private energy services companies (ESCOs) to expand their work with public buildings and bring their technical expertise to bear to develop more projects on a larger scale and at lower costs.

In Kentucky, the high level of interest in the Kentucky Green Bank has shown a large area of unmet need and opportunity in the state. Founded in September 2009 and capitalized at \$14.17 million, this revolving loan fund completely disbursed all its funds in one and a half years. The program aims to lower operating costs and energy and water use without additional taxpayer burden, promote economic development, and create new construction and energy management jobs. Through this program, Kentucky has funded improvements at the Kentucky School for the Blind, the Kentucky School for the Deaf, the Future Farmers of America Leadership Training Center, and three nursing facilities in the Department of Veterans Affairs. Many of the larger projects were accomplished through ESPCs and working with ESCOs.

Florida recently launched a statewide commercial property assessed clean energy or PACE program to support energy efficient upgrades for commercial buildings and industrial facilities, which will be expanded to residential properties in the future. This program approach addresses two primary barriers to implementing upgrades: high upfront costs and the owner-tenant split incentive. The voluntary statewide program addresses those barriers by providing the upfront capital for improvements and using assessments on the building's annual property tax bill to serve as security and the repayment mechanism. Although this program is too new to report results, it is a great example of the kind of creative, practical solutions States devise. This program relies on a public-private approach and is a potential proving ground for PACE financing programs that other states-and federal programs-can learn from and adapt.

In Alabama, the State Energy Office operates a hybrid revolving loan fund/loan loss reserve program called Alabama SAVES, which supports retrofits for private businesses. The \$25 million fund is projected to leverage up to \$120 million over its program life. Each deal is unique, which has proved essential to closing loans on larger commercial and industrial projects, and the program relies heavily on its private sector partners such as Philips Lighting, Metrus Energy, Bank of America, Efficiency Finance, First Commercial Bank of Huntsville, and a network of engaged engineers and contractors. Without these partners and their relationships with local businesses, the program would not have as many projects under development or as much private sector capital leverage. Although it only launched a year and a half ago, the program has already financed a number of projects that have improved the competitiveness of Alabama businesses and supported job creation. For instance, a \$2.3 million loan for new high-efficiency equipment to the Dixie Group, a carpet yarn manufacturing plant in Roanoke, Alabama is expected to create 20 new jobs.

Recently, Alaska passed new landmark legislation-Alaska's Sustainable Strategy for Energy Transmission and Supply, or ASSETS. The legislation established a \$125 million into a Sustainable Energy Transmission and Supply Development Fund (SETS) to provide low-interest loans for energy infrastructure and energy efficiency projects in Alaska, including construction of power lines, new renewable energy generation projects, natural gas projects, bulk fuel tanks, and energy efficiency measures. Under ASSETS, the administering agency, the Alaska Industrial Development and Export Authority (AIDEA), cannot finance more than one-third of the cost of a project without additional approval from the Legislature. This provision shows that the state intends for the private sector to drive the development of energy projects and leverage their own resources for the majority of a project's needed funding. This type of public--private partnership at the state level truly supports economic development and job creation.

Another exciting and innovative program is New York's statewide utility on-bill repayment program. Established by New York state legislation in 2011, the on-bill repayment program provides an easier way for homeowners to make loan payments on energy efficient upgrades to their homes and because the loan is tied to the meter, it is transferrable to new owners when the home is sold. Further, putting the loan repayment on the utility bill provides additional security for the loan and reduces risk and interest rates. These on-bill loans are offered as part of the overarching Green Jobs - Green New York program and benefits from the extensive network and infrastructure that New York has built over the last decade through its Home Performance with ENERGY STAR program. Since November 2011, New York has been closing more than 100 energy efficiency retrofit loans a month.

Less well known is the scale and success of the State and local public facilities retrofit market, which exceeds \$5 billion in retrofit investments annually. This investment is accomplished almost entirely with private sector financing linked to State Energy Office and other state agency programs. The stream of utility bill savings from upgrading facilities as diverse as office buildings, schools, correctional institutions, and wastewater treatment plants pays for the upgrade and returns additional savings. In Kansas, the U.S. State Energy Program-supported program re-

sulted in the upgrade of 76 percent of the state-owned buildings. States piloted, refined, and delivered these programs in partnership with the energy services industry through energy savings performance contracting two decades ago, which was an approach later adopted by the Federal agencies and others.

The above are just a few examples of the innovative financing programs operating in states across the country. Many of these programs are opening new opportunities for the private sector and helping to create new retrofit businesses, spurring innovation among financial institutions, and working with the market to motivate cost-effective energy efficiency retrofits. NASEO has catalogued State Energy Office-administered financing programs in an online database, which can be found at: <http://www.naseo.org/resources/selfs/>.

Recommendations to Support State Energy Efficient Building Retrofits

To support and further state efforts in facilitating energy efficient building retrofits, NASEO recommends the following:

1) Continue to support reauthorization and federal formula funding at \$125 million for the U.S. State Energy Program (SEP). Formula SEP funding is utilized by states to create innovative programs in a flexible manner that responds to each state's needs. Many of the financing approaches I have touched on today are part of larger state strategies to support and stimulate market growth for energy efficiency. Financing on its own is just one tool. Past experience has shown us that programs are the most successful when access to financing is delivered as a part of a comprehensive and well-designed program that includes clear marketing, technical support, and streamlined program administration. SEP is the only program offered by the U.S. Department of Energy that allows states to allocate funding within the guidelines and goals of the program, in ways that are best suited to the opportunities and resources of each state.

Furthermore, SEP is a highly successful program that has achieved tremendous results. In January 2003 (and updated in 2005), Oak Ridge National Laboratory (ORNL) completed a study finding that, "The impressive savings and emissions reductions numbers, ratios of savings to funding, and payback periods . . . indicate that the State Energy Program is operating effectively and is having a substantial positive impact on the nation's energy situation" ORNL found that \$1 in SEP funding yields: 1) \$7.22 in annual energy cost savings; 2) \$10.71 in leveraged funding from the states and private sector in 18 types of project areas; 3) annual energy savings of 47,593,409 million source BTUs; and 4) annual cost savings of \$333,623,619. These cost saving and leveraging data are all non-stimulus results. Energy price volatility makes the program more essential as businesses and states work together to maintain our competitive edge.

2) Continue to support the Weatherization Assistance Program (WAP), which employs workers in every state and county in America, and has weatherized more than 7.1 million homes over the past 35 years. Weatherization has proven its value and is a highly successful and effective investment in the American workforce. We support continued funding for the program in FY 2014 at the pre-Recovery Act level of \$210 million. This level of funding is necessary to keep the Weatherization program operating in all of the states. We also strongly support the addition of innovative grants, which provide incentives for non-profit groups like Habitat for Humanity to get into the weatherization program. We and other state partner organizations have worked closely with Senator Coons of Delaware in developing consensus language on innovative grants as part of the reauthorization bill for the State Energy Program and the Weatherization Assistance Program.

3) Continue to support the Shaheen-Portman bill. Several of the provisions in this bill, such as enabling on-bill repayment for rural electric co-operatives, would positively impact the energy efficient building retrofit market.

4) Support the Sensible Accounting to Value Energy or SAVE Act (S.1737). This proposed legislation would improve the accuracy of mortgage underwriting used by Federal mortgage agencies by ensuring that energy costs are included in the underwriting process. Better valuation of energy costs and energy efficiency in property value would make the economic benefits of energy efficiency more obvious to consumers and financial institutions. This would increase market demand and aid the energy efficient building upgrade industry to scale up and mature, creating new jobs in construction and manufacturing.

5) Provide incentives for residential energy efficient retrofits, otherwise known as home energy upgrades. These incentives should support deep energy savings using a whole-house approach and at the same time, allow for a prescriptive path that incents individual measures such as air sealing and furnace

replacement. All work should be delivered by qualified contractors and operate under a robust system of quality assurance and inspection to ensure that the energy efficient retrofits are executed to the highest quality and to protect homeowners.

6) Finally, we recommend that the Internal Revenue Service provide clearer guidance on Qualified Energy Conservation Bonds (QECBs). QECBs provide a significant resource for state and local governments to fund energy efficient building retrofits, and while many state and local governments have taken advantage of this resource, about 80% of these bonds are still available for use. In NASEO's discussions with state and local governments, frequently cited barriers include the lack of clarity around how projects should demonstrate the required 20% energy savings for a project, the definition of a "green community," and recognized processes for local governments to waive unused allocations back to the state. If IRS were to issue guidance on these three issues, it would remove these barriers and allow for easier and greater use of these bonds.

Conclusion

In conclusion, energy efficient building retrofits present enormous potential to achieve energy savings, increase national security and our businesses' competitiveness, and support economic growth in partnership with the private sector. States have been actively working in this area for decades, and despite the challenges of implementing energy efficiency retrofit financing programs during an economic downturn where consumer confidence hit historic lows, the states were still able to seize the opportunity to lay the groundwork for many innovative programs that will continue to pay dividends years into the future and help to scale and transform the energy efficient building retrofits market. With continued and expanded support and funding, the states and their private sector partners can further accelerate that transformation.