
ENERGY EFFICIENCY BILLS

HEARING
BEFORE THE
SUBCOMMITTEE ON ENERGY
OF THE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
ONE HUNDRED THIRTEENTH CONGRESS

FIRST SESSION

ON

S. 717	S. 1205
S. 1084	S. 1206
S. 1191	S. 1209
S. 1199	S. 1213
S. 1200	

JUNE 25, 2013



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

U.S. GOVERNMENT PRINTING OFFICE

82-642 PDF

WASHINGTON : 2013

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

RON WYDEN, Oregon, *Chairman*

TIM JOHNSON, South Dakota	LISA MURKOWSKI, Alaska
MARY L. LANDRIEU, Louisiana	JOHN BARRASSO, Wyoming
MARIA CANTWELL, Washington	JAMES E. RISCH, Idaho
BERNARD SANDERS, Vermont	MIKE LEE, Utah
DEBBIE STABENOW, Michigan	DEAN HELLER, Nevada
MARK UDALL, Colorado	JEFF FLAKE, Arizona
AL FRANKEN, Minnesota	TIM SCOTT, South Carolina
JOE MANCHIN, III, West Virginia	LAMAR ALEXANDER, Tennessee
BRIAN SCHATZ, Hawaii	ROB PORTMAN, Ohio
MARTIN HEINRICH, New Mexico	JOHN HOEVEN, North Dakota
TAMMY BALDWIN, Wisconsin	

JOSHUA SHEINKMAN, *Staff Director*

SAM E. FOWLER, *Chief Counsel*

KAREN K. BILLUPS, *Republican Staff Director*

PATRICK J. MCCORMICK III, *Republican Chief Counsel*

SUBCOMMITTEE ON ENERGY

AL FRANKEN, Minnesota, *Chairman*

TIM JOHNSON, South Dakota	JAMES E. RISCH, Idaho
MARY L. LANDRIEU, Louisiana	DEAN HELLER, Nevada
MARIA CANTWELL, Washington	JEFF FLAKE, Arizona
BERNARD SANDERS, Vermont	LAMAR ALEXANDER, Tennessee
DEBBIE STABENOW, Michigan	ROB PORTMAN, Ohio
MARK UDALL, Colorado	JOHN HOEVEN, North Dakota
JOE MANCHIN, III, West Virginia	
MARTIN HEINRICH, New Mexico	
TAMMY BALDWIN, Wisconsin	

RON WYDEN and LISA MURKOWSKI are Ex Officio Members of the Subcommittee

CONTENTS

STATEMENTS

	Page
Bennet, Hon. Michael, U.S. Senator From Colorado	2
Coons, Hon. Chris, U.S. Senator From Delaware	3
Diament, Nathan J., Executive Director for Public Policy, Union of Orthodox Jewish Congregations of America	48
Franken, Hon. Al, U.S. Senator From Michigan	1
Laskey, Alex, President and Founder of Opower	19
Molotsky, Brad A., Executive Vice President, General Counsel and Secretary, Brandywine Realty Trust, on Behalf of the Real Estate Roundtable	40
Nadel, Steven, Executive Director, American Council for an Energy-Efficient Economy Resources (ACEEE)	10
Risch, Hon. James E., U.S. Senator From Idaho	8
Sanders, Hon. Bernard, U.S. Senator From Vermont	52
Spurr, Mark, Legislative Director, International District Energy Association ..	35
Sylvia, Mark, Commissioner, Massachusetts Department of Energy Re- sources	1
Udall, Hon. Mark, U.S. Senator From Colorado	8
Warner, Hon. Mark, U.S. Senator From Virginia	8
Wyden, Hon. Ron, U.S. Senator From Oregon	51

APPENDIX I

Responses to additional questions	65
---	----

APPENDIX II

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

ENERGY EFFICIENCY BILLS

TUESDAY, JUNE 25, 2013

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

The subcommittee met, pursuant to notice, at 2:30 p.m. in room SD-366, Dirksen Senate Office Building, Hon. Al Franken presiding.

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

Senator FRANKEN. Good afternoon. The subcommittee will come to order. The purpose of this hearing is to consider a number of energy efficiency bills that have been introduced by our colleagues.

I'm pleased to be joined by Ranking Member Risch and other members. I know that Senators Bennet and Coons would like to speak about the energy efficiency legislation they have introduced. So we will hear their testimony and then Senator Wyden, or Chairman Wyden, would like to make some remarks.

Then because of a vote on the floor we will recess for about 15 minutes then we will move on to the rest of the witnesses.

At some point Senator Warner will testify on an amendment that he supports or has written. I know my colleagues are all very busy. So you should feel free to leave once you've finished with your testimony, if you wish.

So I'd like to recognize Senator Bennet for his remarks and then we'll go to Senator Coons.

Senator Bennet.

[The prepared statement of Senator Udall follows:]

PREPARED STATEMENT OF HON. MARK UDALL, U.S. SENATOR FROM COLORADO,
ON S. 1084

Thank you all for your testimony on the importance and benefits of furthering energy efficiency efforts in the U.S. As a Coloradan, I am proud that my State is a leader in a balanced approach to energy and energy security. In particular, the Department of Energy's National Renewable Energy Lab in Colorado is a world leader in the research of efficiency improvements and the future of energy development. Energy efficiency advancements are an important component of our pursuit of a clean energy economy, both in my State and throughout the nation.

As we discuss legislation to promote energy efficiency in buildings, I believe one issue of particular importance is increasing the efficiency of our children's schools. This is why I, with Senator Collins, introduced the Streamlining Energy Efficiency for Schools Act (S.1084), which would help organize the Federal government's efforts to improve the energy efficiency of our schools. There are numerous programs already available to schools to help them become more efficient, but it is challenging

for schools to traverse the different eligibility and application requirements in order to take full advantage of these programs. This bill will provide a coordinating structure for schools to better navigate the existing federal programs and financing options available to them. However, the legislation leaves the decisions to the states, school boards and local officials to determine what is best for their schools. It is a common-sense way to help our schools save money on energy bills, while most importantly, strengthening our children's education.

I look forward to continuing the dialogue on the Streamlining Energy Efficiency for Schools Act, and the other efficiency legislation, over the coming weeks. I look forward to this committee advancing this bipartisan legislation.

**STATEMENT OF HON. MICHAEL BENNET, U.S. SENATOR
FROM COLORADO**

Senator BENNET. Thank you, Mr. Chairman. Thank you for beginning the committee hearings so promptly. Senator Risch, thank you for being here today as well.

I'm here today to support the Better Buildings Act. Over the last several years we've worked with building owners across Colorado and the country to craft this significant bill. I want to thank Senator Kelly Ayotte of New Hampshire for working with me to improve the bill and being the lead co-sponsor in the Senate.

The economic environmental benefits of improving energy efficiency in buildings are clear. Publicized retrofit of the Empire State Building reduced energy usage there by 38 percent and has saved an estimated \$4.4 million annually for the building owner. Not only is the building owner reducing emissions and saving money, they've also created over 250 good paying construction jobs in the process. It's this example and these ideas that help form the basis for the Better Buildings Act.

In crafting the bill we sought to think about efficiency in buildings, not only from the top/down, where a building owner makes improvements, but also from the bottom/up where a tenant would see advantages from designing and configuring their rented space in an energy efficient manner. Tenants use 50 percent or more of the energy in all office buildings. With this in mind the bill we've introduced accomplishes 2 goals.

One it allows for a first of its kind study by the Department of Energy to chronicle private sector best practices as tenants build out their lease spaces and commercial buildings. The study would then form a voluntary Department of Energy program to recognize tenants that design and construct high performance, leased spaces in the future.

The second provisions called Tenant Star would expand on the popular Energy Star program and make it available to tenants instead of just landlords. Under the Better Buildings Act tenants will be recognized for the energy efficiency performance of their leased office space. This will provide value to their customers, their investors and to the building owners as well.

The Energy Star label has proven to be a very powerful tool all over the country to achieve whole building efficiency. Our bill takes the next logical step and confers this recognition onto tenants as well. It is broadly supported from the Alliance to Save Energy, to the Real Estate Roundtable, to the Sierra Club.

The Congressional Budget Office has confirmed that it has no score.

I hope the committee will see fit to promptly and favorably move this bill forward in the process.

With that I thank my colleague from Delaware for his patience. I thank you, Mr. Chairman for holding this hearing.

Senator FRANKEN. Thank you very much, Senator Bennet.
Senator Coons.

PREPARED STATEMENT OF HON. MICHAEL BENNET, U.S. SENATOR FROM COLORADO,
ON S. 1191

Thank you Chairman Franken, Senator Risch and other members of the panel for holding this important hearing on energy efficiency legislation.

I'm here today to support The Better Buildings Act.

Over the last several years, I worked with building owners across Colorado, and the country, to craft this important bill.

I want to thank Senator Kelly Ayotte of New Hampshire for working with me to improve the bill and being the lead cosponsor in the Senate.

The economic and environmental benefits of improving energy efficiency in buildings are clear.

A very-well publicized retrofit of the Empire State Building reduced energy usage by 38 percent and has saved an estimate \$4.4 million annually for the building owner.

Not only is the building owner reducing emissions and saving money, but they also created over 250 construction jobs in the process.

It's this example, and these ideas, that helped form the basis for Better Buildings Act.

In crafting the bill, we sought to think about efficiency in buildings not only from the "top down"—where a building owner makes the improvements;

But also from the "bottom up" where a tenant would see advantages from design and configuring their rented office space in an energy efficient manner.

After all, tenants use 50 percent or more of the energy in all office buildings.

With all that in mind;

The bill we've introduced accomplishes two goals:

One, it allows for a first-of-its-kind study by the Department of Energy to chronicle private sector best practices as tenants "build out" their leased spaces in commercial buildings.

This study would then inform a voluntary DOE program to recognize tenants that design and construct high performance leased spaces in the future.

The second provision-called Tenant Star-would expand on the popular Energy Star program, and make it available to tenants instead of just landlords.

Under the Better Buildings Act, tenants will be recognized for the energy efficient design and construction of their leased office space;

This will provide value to their customers, their investors and the building owner.

The Energy Star label has proven a very powerful tool to achieve "whole building" efficiency.

Our bill takes the logical next step and confers this recognition on tenants as well.

Thank you again Chairman Franken and Senator Risch for allowing me to testify this afternoon.

**STATEMENT OF HON. CHRIS COONS, U.S. SENATOR
FROM DELAWARE**

Senator COONS. Thank you, Senator Bennet. Thank you, Chairman Franken.

Before I begin I just wanted to say how much I've enjoyed and appreciated my time of service on the Energy and Natural Resources committee. I will genuinely miss it. The view from this side is nowhere near as good, I must say.

I am grateful to Chairman Wyden and to Ranking Member Murkowski, who have both been enormously supportive. I appreciate their leadership and the way that they work together. It continues to be my belief that energy efficiency is an area where this com-

mittee can make real progress and do it in a bipartisan way and in a way that contributes to real progress for the country.

I've been a believer in energy efficiency and its cumulative power for a long time and an enthusiastic advocate for it since my days as a county executive. So I leapt at the chance to support energy efficiency work and in particular the bill co-sponsored by Senators Shaheen and Portman during the last Congress which I'm proud to be one of many co-sponsors of again during this Congress.

The Shaheen/Portman bill receives the bulk of attention in the energy efficiency space and with good cause. But I'm glad that Chairman Franken, that you're holding this hearing today and considering many other great bills in this hearing including, of course, 2 of which you are the principle author.

One which I introduced with Senators Collins of Maine and Reed of Rhode Island is bipartisan and it's named the Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act, a catchy name or S. 1213. This bill reauthorizes 2 critical energy programs for 5 more years.

The Weatherization Assistance Program.

The State Energy Program.

Both are programs that have been in place for decades and are at work daily in each of our States. These programs link national, State and local interests together in a critical way. It creates highly effective public/private partnerships that have delivered real results.

For every dollar invested the Weatherization Assistance Program returns \$2.51 cents in household savings. The program has served more than 7 million families including more than a million in just the last 4 years.

For the State Energy Program the results are even more impressive. For every Federal dollar invested there's leverage of an annual energy cost savings of more than \$7 and nearly 11 in non-Federal funds that are leveraged in terms of multiplier effect.

So this bill isn't just about reauthorization. It is also about modernization. We wanted to make sure that we approached these long standing programs in a fiscally appropriate way. So we've actually reduced the authorization levels by more than half from 2007.

Second, there was some concern or criticism about how a few States used the significantly increased Weatherization Assistance Program funds that were awarded during the Recovery Act.

Now the vast majority of States used their funds effectively. But a few, frankly, did not. There wasn't a set of national standards in place so it became apparent that new minimum energy efficiency, excuse me, new minimum efficiency standards in this program and certifications would be needed going forward.

Now the Department of Energy is already working on some. This bill requires they be in place no later than October 2015. This will make sure these Federal dollars are being spent more wisely and more efficiently.

Third, we're proposing a complementary, competitive grant program in which a wide range of NGO's or non-governmental organizations could compete for a piece of the funding. Now the goal is to bring in new partners, new approaches, new technologies and

new ideas to ensure that more homes can be weatherized given limited Federal funding going forward.

All told, S. 1213 supports the base programs, enhances them with new ideas and ultimately ensures their long term viability so they can keep making a difference in each of our States.

Now this bill has the support of 25 organizations that work day and night in the efficiency space including some of the folks you'll hear from on the next panel.

I'll comment that just this past Friday I had the chance to visit the Energy Efficiency Hub at the Philadelphia Navy Yard, that Senator Shaheen has also visited, if at some point it happens to fit within your priorities and schedule, Senator Franken, we would certainly welcome you. It is an impressive opportunity to see demonstrated in one place at one time compelling technologies and a team approach to energy efficiency. At some point I also hope to be able to speak to the Master Limited Partnership Parity Act which you were kind enough to support in the last Congress which has to do with energy financing, not energy efficiency.

Thank you for the opportunity to be here this afternoon and for the opportunity to talk about this particular bill, S. 1213. Although no longer a member of the committee, I look forward to working with you and hope for the passage of it in this Congress.

Thank you very much, Chairman Franken.

PREPARED STATEMENT OF HON. CHRIS COONS, U.S. SENATOR FROM DELAWARE,
ON S. 1213

Before I talk about my bill, I just wanted to quickly say how much I've enjoyed and appreciated my time on the Energy and Natural Resources Committee. I'm really going to miss it. Chairman Wyden and Ranking Member Murkowski have both been enormously supportive, and I really appreciate their leadership, and the way they work together.

It continues to be my belief that energy efficiency is an area where this committee can make some real progress, and can do it in a bipartisan way. I've been a believer in energy efficiency for a long time, and an enthusiastic advocate for since my days as a county executive, so I leapt at the chance to support the work of Senators Shaheen and Portman during the last congress. I'm proud to cosponsor it again during this congress.

Shaheen-Portman receives the bulk of the attention in the energy efficiency space, and with good cause, but I'm glad, Senator Franken—Chairman Franken—that you're holding this hearing today on the other good ideas in this area. There are a lot of them.

One of them I just introduced with Senators Collins of Maine and Reed of Rhode Island. It's bipartisan. It's the Weatherization Enhancement, and Local Energy Efficiency Investment and Accountability Act, or S. 1213. The bill reauthorizes two critical energy programs for five more years—the Weatherization Assistance Program and State Energy Program.

Both are programs that have been in place for decades and are at work daily in each and every one of our states. These programs link national, state and local interests together in a very critical way. They create highly effective public/private partnerships that have delivered real results.

For every dollar invested, the Weatherization Assistance Program returns \$2.51 in household savings. The program has served 7.4 million families, including more than 1 million in the last four years.

The results are even more impressive for the State Energy Program, where for every federal dollar invested, there is an annual energy cost savings of more than \$7, and nearly \$11 in non-federal funds is leveraged.

Our bill isn't just about reauthorization. It's about modernization.

First, we wanted make sure we approached these programs in a fiscally appropriate way, so we've actually cut the authorizations by more than half from their 2007 authorization levels.

Second, there was some criticism over how a few states used the significantly increased Weatherization Assistance Program funds awarded under the Recovery Act. The vast majority of states used their funds effectively, but a few did not. There wasn't a set of national standards in place, so it became obvious that new minimum efficiency standards and certifications were needed. The Department of Energy is already working on some, and this bill requires that they be in place no later than October 2015. This will make sure these federal dollars are being spent more wisely and more efficiently.

Third, we're proposing a complementary competitive grant program in which a wide range of NGOs could compete for a piece of the funding. The goal is to bring in new partners, new approaches, new technologies, and new ideas to ensure that more homes can be weatherized with limited federal funding.

All told, S.1213 supports the base programs, enhances them with new ideas, and ultimately ensures their long-term viability so they can keep making a difference in each of our states.

This bill has the support of 25 organizations that work day and night in the energy efficiency space, including some of the folks you'll hear from on the next panel.

Thank you for the opportunity to be here this morning. I may no longer be a member of this committee, but I look forward to continuing to work with you on measures to strengthen energy efficiency, innovation, and independence. Thanks.

Senator FRANKEN. Thank you, Senator Coons and best of success in your new committee. If I make a request for approps, I hope you grant it.

[Laughter.]

Senator COONS. I'll be sure to be attentive.

Senator FRANKEN. Thank you. That's all I can really ask for.

Thank you, Senator Coons. Thank you, thanks to Senator Bennet, who has left, for those remarks on this very important work that you both are doing to advance energy efficiency. We look forward to hearing more about their legislation from the witnesses, other witnesses today.

I'm pleased to see so many people here. So much interest in today's subcommittee hearing on energy efficiency.

In the United States and by the way, just no emotional outbursts, OK?

[Laughter.]

Senator FRANKEN. In the United States our energy consumption is about one-fifth of the world's total energy consumption. That's remarkable when you consider that we have less than one-twentieth of the world's population. A tremendous amount of that energy is simply lost through inefficient buildings, appliances, industrial processes and cars. Those losses have been estimated to cost U.S. businesses and households \$130 billion each year.

In the same way that we discovered new energy reserves off the Gulf of Mexico or in the Bakken formation we can also recover and use new energy resources, non-polluting energy resources, by simply making our energy use more efficient. By making investments in energy efficiency we can help consumers lower energy costs and we can reduce pollution, boost our manufacturing sector and create jobs. That is a win/win/win formula.

One central question before us today is how to unlock this tremendous potential. When I talk with Minnesotans about this question I often hear that there are major impediments to building retrofits or to industrial energy efficiency. Some need help with financing. Others need technical assistance and everyone needs assurance that they're making a worthwhile investment.

That's why I'm pleased that our committee passed Senators Shaheen and Portman's Energy Savings and Industrial Competi-

tiveness Act which will help our economy become more energy efficient. Today we have the opportunity to receive testimony on a number of other bills to further that goal. Many of the bills we will hear about provide ways to overcome barriers to improving energy efficiency with modest investment or just simple innovation on the part of the Federal Government we can help the manufacturing sector, residential and commercial buildings and communities overcome hurdles to energy efficiency improvements.

Take one example, over one-third of all the energy consumed in the United States is simply lost in the form of waste heat. One of the pieces of legislation we will consider today is a bill I've developed to help industries, communities, universities and others capture this waste heat and put it to use in a way that it's already being done in St. Paul, Minnesota, and in other places around the country.

We also have a tremendous opportunity to reduce energy consumption in buildings, in homes, schools and in the non-profit sector. We have a number of bills that address energy efficiency in these areas and also in commercial buildings.

When I am back in Minnesota I often meet with folks who are interested in retrofitting buildings, but who can't access the required upfront financing. We've got to identify where those barriers to financing are and figure out how to overcome them. By the way, a lot of this isn't about new funding. It's about identifying financing models that already exist and that we know are working.

Of course we have to remember that if we don't measure energy use in buildings and compare that use among the buildings then we can't make fully informed decisions regarding the best available options to reduce energy costs. That's why I've introduced legislation to help building owners measure and report their energy use which will help private investors and energy service contract companies identify and deploy more effective energy efficiency retrofit improvements.

I'm very pleased that we have with us an excellent panel of experts to discuss the range of bills that we have before us. I was going to turn to the ranking member, but we do have a vote. So I will recess this hearing for about 15 minutes because there are votes that I have to go to.

[Laughter.]

Senator FRANKEN. So we now stand in recess for about 15 minutes.

[RECESS]

Senator FRANKEN. The committee will be in order. Thank you all for your patience. I'm going to turn it over to the Ranking Member, Senator Risch, for any comments that he might have before I introduce the witnesses.

I just want to thank Senator Risch for working with me on this hearing, our first together. I look forward to continuing our work together on the Energy Subcommittee.

**STATEMENT OF HON. JAMES E. RISCH, U.S. SENATOR
FROM IDAHO**

Senator RISCH. Thank you very much, Mr. Chairman. You may feel differently after I say a few things here. But I appreciate those kind words.

[Laughter.]

Senator FRANKEN. OK, well then we'll go right to—

[Laughter.]

Senator RISCH. That's right, you do have that.

Senator FRANKEN. I have the gavel.

Senator RISCH. Yes, that's right.

But anyway, thank you.

Senator FRANKEN [continuing]. Have consequences.

Senator RISCH. Yes, they do that.

Thank you, Mr. Chairman. It will be interesting as we review these. In the time I've—one of my banes has been the regulatory overreach of the Federal Government. It's constant. It's regular. It is incredibly oppressive upon the American people and upon American businesses.

Market based economy has worked so very well for us for over 2 centuries, has made us a leader in the world and I continually look for free enterprise, free market solution to all issues. Since I've been here, this particular issue on the use of energy, has been one that it seems like there is no end to how the Federal Government wants to regulate our lives. I was shocked to find out when I first got here that they had passed a bill that indicated that Americans were not smart enough to buy their own light bulbs.

In any event, I would hope that we would all use as much restraint as we could, going forward, and that we trusted the marketplace as we have for over 200 years and that has served us so well over that period of time.

Having said all that, of course, I'm always interested in new ideas, innovative ideas and things that can help. Certainly everyone wants to conserve energy. Everyone wants to spend less on energy. Given the choice in the marketplace people will do something.

So thank you very much, Mr. Chairman.

Senator FRANKEN. Thank you, Senator. You're almost right until the end there. Then I'm very happy that you're here. Look forward to working with you.

Senator RISCH. Thank you.

Senator FRANKEN. I'd like to recognize Senator Warner, who is going to speak on one of the amendments that he has proposed to. Take it away.

**STATEMENT OF HON. MARK WARNER, U.S. SENATOR
FROM VIRGINIA**

Senator WARNER. Thank you, Mr. Chairman.

Thank you, Mr. Chairman. I actually have one that might bridge the gap between the chairman and the ranking member, at least on one piece of this. I just want to thank you all for having the hearing. I appreciate the fact that you've got folks who've traveled long and far and wide to get here. So I'll be brief.

I mean, we have a lot of debate about energy policy in this country, but one of the things, I think, we generally agree on is that

American competitiveness and productivity is something we need to improve. All the rankings are in. America ranks dead last, behind China, on energy productivity. We've called it in the past energy efficiency. I actually think we ought to be calling it energy productivity because this is really about increasing productivity, about saving money.

I'm proud to be Chairman of the Bipartisan Alliance to Save Energy that's made up of Senators of both environmental groups, virtually wide swaths of American industry, who all see this as an enormous opportunity. We put out a study that showed that a whopping 57 percent of our energy flowing to our economy is simply wasted as heat, noise and leaks and cost U.S. businesses and household owners about \$130 billion bucks a year. This commission, co-chaired by Governor Pataki and has Republican Senators, Republican House members, Democrats on it as well, came forward with a goal that said how do we try to double energy productivity between now and 2030? Over the next 20 years that would create about 1.3 million American jobs, cut carbon emissions and boost America's overall economic outlook by 2 percent.

So Senator Manchin and I have established a bill to create a State energy race to the top which would reduce energy waste and double energy productivity, again as I said, by 2030. Again, this is a competitive based grant program. Because it would save where a lot of the best work is being done is at the local and State level.

It would be modeled after the very successful race to the top education competition. It would create \$200 million of existing funds that would basically allow States to go out and show best examples. Because at the end of the day you need to demonstrate and show this increased productivity.

I think the ability to take this relatively small amount of money and leverage it exponentially with local, State, private sector, would be a very responsible approach.

This would be looking at things in retrofitting buildings.

It would be looking at remote metering.

It would look at the household level, the office level.

It would also basically say to the States and local, not all wisdom is wise in Washington. I know that's something the Ranking Member feels very strongly.

That said, there may be a better Idaho situation and something dictated out of Washington. Let's give Idaho. Let's give Boise. Let's give Minneapolis. Let's give Minnesota. Let's give Virginia a chance to prove out this concept. Not all best ideas come from Washington, but sometimes we can learn from best practices around the country.

It's, my hope is that this would be one of the tools where we could find some common agreement. I, again, thank the Chair and the Ranking Member for having this meeting. I look forward, I'm not going to be able to stay for all the presentations but I've got staff here and look forward to hearing the reports of all the Commission membership that are involved and the committee members.

Thank you, Mr. Chairman.

Senator FRANKEN. Thank you, Senator Warner. I know you have a busy schedule today. So feel free to leave whenever you need to.

I'm going to turn to our panel now. I'll just briefly introduce our witnesses. All of them are very well positioned to speak to energy efficiency and the legislation before us.

We have with us today, Steve Nadel with the American Council for an Energy Efficient Economy, ACEEE.

Alex Laskey, who is President of Power.

Mark Sylvia, the Commissioner of the Massachusetts Department of Energy Resources.

Mark Spurr with the Internal District Energy Association, who is with us from Minnesota. So special thanks to you for the hardship getting here. I understand it so well.

Brad Molotsky joins us from the Brandywine Realty Trust.

Finally Nathan Diament represents the Union of Orthodox Jewish Congregations of America.

Thank you all for being here. We will start with you, Mr. Nadel and just work our way down the table. Since we have 6 witnesses, I would ask you to please stick to about 5 minutes for your testimony.

Thank you.

**STATEMENT OF STEVEN NADEL, EXECUTIVE DIRECTOR,
AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY
(ACEEE)**

Mr. NADEL. OK. Thank you, Senator Franken.

As you noted, my name is Steven Nadel. I'm the Executive Director of ACEEE. We are a non-profit organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments and behavior. We were formed in 1980 by energy researchers. Personally I've been involved in energy efficiency issues since the late 1970s.

Today's hearing is on 9 bills that are potential amendments to S. 761, the Energy Savings and Industrial Competitiveness Act. S. 761 was authored by Senators Shaheen and Portman and previously has been voted out by the full committee on a 19 to 3 vote.

ACEEE strongly supports S. 761 and urges the Senate leadership to schedule this bill for full floor time as soon as possible. Now ACEEE has a long history of estimating the energy and economic impacts of energy efficiency legislation going back to the 1980s. We have recently begun an analysis of this year's Shaheen/Portman bill as well as an analysis of most of the amendments before us today.

At this point we have preliminary estimates of energy savings, but are only just starting our analysis of the micro and macro economic impacts. Our preliminary analysis finds that the 2013 Shaheen/Portman bill, as it is currently drafted would save about 9 and a half quadrillion BTUs of energy. These are called quads. It would save these energy over of the 2014 to 2030 period.

As a reference the United States uses about 100 quads per year. So saving 9.5 quads is significant even though it's over many years. The amendments that we support and that I discuss in my written testimony could add 6 additional quads of energy savings for a combined total of more than 15 quads. These 15 quads is more energy than would be used by the State of Utah or Nevada over this period or nearly as much energy as would be used by the State of

Oregon. Savings start modestly and grow steadily over time as illustrated in Figure 1 in my written testimony.

Of the 9 bills before us today ACEEE supports all of these bills although in one case our support is contingent on several modifications. In this oral statement I briefly wanted to touch on a few of these bills knowing other witnesses will comment on most of the others.

First I want to discuss S. 1206, dealing with commercial building benchmarking. Senator Franken, I'd like to thank you for your leadership in this area and for introducing this bill. This bill will promote benchmarking of large commercial and multifamily buildings.

Building benchmarking is a process that allows building owners to assess the energy use of their buildings and compare them to otherwise similar buildings. This process helps identify buildings that can most benefit from building upgrades. Senator Risch, it's basically providing information to building owners so that they can work with the market and try to decide what investments make the most sense.

The Energy Star Building Programs encouraged benchmarking for many years and has, so far, benchmarked more than a billion square feet of commercial floor area and resulted in average energy savings of about 7 percent in those benchmarked buildings. However, the majority of existing commercial building stock has not been benchmarked. S. 1206 would encourage benchmarking of additional buildings by making whole building energy use information more readily available to building owners and promoting benchmarking in a variety of other ways.

This provision only applies to commercial buildings and multifamily residential buildings. Single family homes and small buildings that house several families are not included.

Second, I wanted to note S. 1200, introduced by Senators Sanders and Wyden which would establish a pilot program for State loans for residential building energy efficiency upgrades. Many homeowners lack the capital to make energy efficiency investments. This bill would assist States and other eligible entities to provide this capital on attractive terms. This would be a very useful complement to the commercial building loan program now in S. 761.

Third, I wanted to note S. 1020 and S. 1199, 2 versions almost of the same bill introduced by Senators Hoeven and Manchin which would repeal section 433 of the Energy Independence and Security Act and replace it with 2 new provisions that would extend and improve energy performance requirements of Federal buildings and extend the Federal Energy Efficiency Performance Standards that apply to new construction to also include alterations.

We support this bill because as currently written section 433 is not workable and because according to our analysis, the 2 new provisions will result in larger energy savings and repeal Section 433 would use.

Fourth I would note S. 717 introduced by Senators Klobuchar and Hoeven which would help non-profit organizations save energy, a laudable goal. We do support this bill, but it does take its authorization out of the Building Technology Program, a very important

program. So our support is contingent upon finding another offset. We also recommend a few wordsmithing details to make the program clearer.

Fifth, while I do not want to go into the details, we do support the various other bills that are before this hearing.

S. 1191, the Better Buildings Act.

S. 1209, on Race to the Top.

S. 1084, on School Retrofits.

S. 1205, on local energy supply, your bill, Senator Franken.

S. 1213, on weatherization and State energy programs.

Regarding this last bill, we understand that finding funding offsets may be difficult in which case we encourage the Senate to consider moving forward with the usual refinements, the modernization, as Senator Coons said, that are contained in the bill while perhaps being silent on the authorizations.

With that, in conclusion, we believe that the energy savings and industrial competitiveness Act would be an important step toward improving the energy efficiency to the U.S. economy. All the bills before us today, as well as several additional amendments I discuss in my written testimony would add to these savings. We estimate that we're talking about 16 quads of energy savings over the 2014 to 2030 period. We recommend that this bill, these bills, be adopted to benefit our economy and our environment.

So, thank you.

[The prepared statement of Mr. Nadel follows:]

PREPARED STATEMENT OF STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (ACEEE)

Summary

This hearing is on nine energy efficiency bills that are potential amendments to S. 761, a bill endorsed by the full Senate Energy Committee that may soon reach the Senate floor. ACEEE strongly supports S. 761 and also supports the nine bills before us, although for one bill our support is contingent on a few modifications. In addition, I discuss several other possible amendments, most of which we support but one of which is a potential "poison pill."

ACEEE has conducted a preliminary energy savings analysis of S. 761 and many of the potential amendments. Overall, we estimate that S. 761, together with all the amendments we support, will reduce U.S. energy use by over 15 quadrillion Btu's over the 2014-2030 period. This is nearly as much energy as will be used by the state of Oregon over this period. Saving this much energy will benefit our economy and our environment and we urge the Senate to adopt S. 761 and the other bills I discuss, but to avoid "poison pills" that lack broad support.

Introduction

My name is Steven Nadel and I am the Executive Director of the American Council for an Energy-Efficient Economy (ACEEE), a non-profit organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behavior. We were formed in 1980 by energy researchers and celebrated our 30th anniversary in 2010. Personally I have been involved in energy efficiency issues since the late-1970s and have testified multiple times before this committee and its Subcommittees as well as before the House Energy and Commerce Committee.

Today's hearing is on nine bills that are potential amendments to the Energy Savings and Industrial Competitiveness Act of 2013 (S. 761) that was previously reported out of the Senate Energy and Natural Resources Committee on a 19-3 vote. ACEEE strongly supports S. 761 and urges the Senate leadership to schedule this bill for floor time as soon as possible.

ACEEE has a long history of estimating the energy and economic impacts of energy efficiency legislation, going back to the 1980s. For example, last year we pre-

pared an analysis on the 2012 Shaheen-Portman bill.¹ We have begun an analysis of this year's Shaheen-Portman bill as well as an analysis of most of the amendments, which I discuss later in my testimony. At this point we have preliminary estimates of energy savings, but are only just starting our analysis of micro- or macro-economic impacts. Our preliminary analysis finds that the 2013 Shaheen-Portman bill, as it is currently drafted, would save about 9.5 quadrillion Btu's ("quads") of energy over the 2014-2030 period. As a point of reference, the United States uses about 100 quads annually. The amendments we support and that I discuss below could add 6.3 additional quads of energy savings, for a combined total of 15.8 quads. This is more energy than would be used by the state of Utah or Nebraska over this period, and nearly as much energy as would be used by the state of Oregon (assuming annual use stays constant at current levels). Savings start modestly and grow steadily over time, as illustrated in Figure 1.* Near the end of my testimony I will provide additional information on our analysis including energy savings by provision.

Of the nine bills before us today, ACEEE supports all of these bills, although in one case our support is contingent on a few modifications. In the next section of my testimony I discuss each of these bills, and then touch on several additional potential amendments that may be introduced when S. 761 reaches the Senate floor.

Bills We Support

S. 1206—Benchmarking

S. 1206, introduced by Senator Franken, would promote benchmarking of large commercial and multifamily buildings. Building benchmarking is a process that allows building owners to assess the energy use of their buildings and compare them to otherwise similar buildings. This process helps to identify buildings that would most benefit from building upgrades. The federal ENERGY STAR Buildings program has encouraged benchmarking for many years and U.S. Environmental Protection Agency estimates that this program has benchmarked more than 185 million square feet of U.S. commercial building floor area, and resulted in average energy savings of about 7 percent in these buildings each year. However, the vast majority of the existing commercial building stock has not been benchmarked. This provision would encourage benchmarking of additional buildings by making whole building energy use data more readily available to building owners and promoting benchmarking in a variety of ways. This provision only applies to commercial buildings and multifamily residential buildings. Single-family homes and small buildings that house several families are not included.

Specific provisions in the bill call for:

1. Benchmarking additional federal buildings. Under existing federal law, federally-owned buildings must be benchmarked but most federally-leased buildings are not included in this requirement. This provision requires benchmarking of leased buildings where practical, addressing a gap in current law.
2. A study by the U.S. Department of Energy (DOE) on best practices for benchmarking, energy use data aggregation, and energy use disclosure. Many cities and some States are considering policies in these areas and this study would provide guidance on approaches that work and those that have been problematic so that new policies can take advantage of these lessons.
3. Combining existing public federal buildings databases and facilitating consolidation of other existing public buildings databases to make reporting easier for building owners and identification of best practices easier for analysts.
4. Establishing a small competitive grant program for utilities, their partners, and utility regulators to make whole building energy use data available to building owners. This includes aggregated tenant consumption so that whole buildings can be benchmarked. Data on individual tenants would not be provided in order to protect privacy.

This provision has been extensively vetted with the real estate industry and has been significantly modified to address their views.

S. 1191—Better Buildings Act (Tenant Star)

S. 1191, introduced by Senators Bennet and Ayote, would encourage landlords and tenants to cooperate on energy efficiency. Presently most leased buildings suffer from a "split incentive" problem. Tenants pay energy bills but are usually not in

¹Farley et al. 2012. Impacts of Energy Efficiency Provisions in Pending Senate Energy Efficiency Bills. American Council for an Energy-Efficient Economy. <http://aceee.org/files/pdf/white-paper/shaheen-portman.pdf>

²All figures have been retained in subcommittee files.

buildings long enough to justify making energy-saving capital investments. Building owners make capital investments but since tenants pay the energy costs, they have little incentive to invest in energy efficiency upgrades. This bill would help address these problems by:

1. Identifying best practices for energy efficiency during tenant “fit-outs”—the improvements to a space tenants make between when they sign a lease and when they move in.
2. Establishing a new voluntary “Tenant Star” program to recognize tenants whose energy performance is substantially above average, complementing the existing whole building ENERGY STAR Buildings program.
3. Encouraging “energy-aligned” federal leasing by having the General Services Administration develop model leasing provisions that would spur cooperation on energy savings between federal tenants and building owners. Such leases can reduce costs to federal agencies and also serve as a model for leases by non-federal tenants.

Another witness at this hearing will be discussing this bill in depth so I will keep my comments brief.

S. 1200—Residential Energy Savings Act of 2013 (Residential Financing)

S. 1200, introduced by Senators Sanders and Wyden, would establish a pilot program for state loans for residential building energy efficiency upgrades. Many homeowners lack the capital to make energy efficiency investments and this bill would assist states and other eligible entities in providing this capital at attractive terms, often working with banks and other financial institutions. The bill would have DOE make loans to states, local governments, utilities, and other eligible entities who would use the funds to recapitalize, expand, or begin energy efficiency loan programs. The loans would be repaid with interest, providing for a high degree of cost recovery. States and other eligible entities would apply for funding and DOE would evaluate these applications based on a variety of criteria in the bill designed to encourage best practice program design. For example, the bill calls for consumer repayments to be “consumer friendly” and would encourage innovative approaches such as on-bill repayment. Since the federal cost of capital is lower than the cost of capital for many eligible entities, the program could provide a moderate-cost source of loan capital. To the extent states and other eligible entities could provide or raise additional funds for such activities as loan loss reserves, interest rates that are very attractive to consumers may be possible. This provision is a useful complement to the commercial building loan program now in S. 761.

S. 1209—Race to the Top

S. 1209, introduced by Senators Warner and Manchin, would establish a “race-to-the-top” program for states to spur innovative energy efficiency efforts, just as the program by the same name at the Department of Education has spurred innovation in that field. The Race to the Top initiative was a top recommendation of the Energy 2030 initiative led by the Alliance to Save Energy, so I will leave it to their witness to provide more details on this bill.

S. 1084—School Retrofits

S. 1084, introduced by Senators Udall and Collins, would have DOE coordinate federal efforts to help school systems, including K-12 and higher education, make their buildings more efficient. Currently there is a patchwork of efforts by various departments that are not well coordinated. We believe this is a useful objective that will make it easier for school systems to retrofit their buildings.

S. 1020—All of the Above Federal Energy Conservation Act

S. 1020, introduced by Senators Hoeven and Manchin, would repeal Section 433 of the Energy Independence and Security Act of 2007 and replace it with two new provisions that would:

1. Extend and improve energy performance requirements for federal buildings. Under current law these requirements call for reducing energy use of federal buildings by 30 percent by 2015 relative to a fiscal year 2003 base. The new provision would extend this requirement to a 45 percent reduction by 2020.
2. Extend the federal energy efficiency performance standards that now apply to new construction to also include alterations. These standards call for performance levels 30 percent better than those in the most recent model building code for commercial buildings established by the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE).

We support this bill because, as currently written, Section 433 is not workable and because, according to our analysis, the two new provisions would result in larger energy savings than repeal of Section 433 would lose. The current Section 433 is not very workable because in its present form it discourages investments in long-term energy savings contracts and in combined heat and power systems. This was not its intent. Regarding energy savings, our analysis is summarized near the end of my testimony. We believe that Section 433 had a laudable goal—to reduce dependence on fossil fuels. We would prefer that Section 433 be rewritten to be more workable rather than outright repealed, but the legislative process requires compromise and we believe that S. 1020 is a workable compromise.

We also support the following two bills but recognize that they have significant costs and therefore to move forward will likely need reasonable funding offsets.

S. 1213—WAP and SEP Reauthorization

S. 1213, introduced by Senators Coons, Collins and Reed, reauthorizes the low-income Weatherization Assistance Program (WAP) and the State Energy Program (SEP). WAP has been the key federal program to help low-income households to reduce their energy bills. It makes sense to help these households reduce their energy bills on an on-going basis, rather than just help to pay bills through the federal Fuel Assistance program (e.g., recall the old proverb, “Give a man a fish, and you feed him for a day; show him how to catch fish, and you feed him for a lifetime”). The WAP program has been very successful—the last “meta-evaluation” on the program found average energy savings of more than 20 percent.² The new legislation includes several useful improvements to the current program—a requirement that DOE develop minimum professional standards for WAP contractors and workers, a requirement for an independent quality assurance program, and a new competitive leveraged grant program for non-profit agencies that have a track record of success in serving low-income communities. This bill will also reauthorize the SEP program, which has been a key program funding State Energy Offices in all states, including some states where this is the only funding. Another witness at this hearing will discuss these programs in more depth.

S. 1205—Local Energy Supply and Resiliency Act

S. 1205, proposed by Senator Franken, is intended to enable energy efficiency and renewable energy projects by addressing market barriers for both the planning and financing of district energy and waste energy recovery projects. From an efficiency perspective, promoting district energy projects is important in that the aggregation of thermal loads creates opportunities for expanded combined heat and power, and implementing thermal systems at scale can improve efficiency and be responsive to electric system demands. In addition, waste energy recovery projects offer the opportunity to reduce electricity and fossil fuel requirements needed to meet local energy needs. The focus of this provision on the valuation of thermal energy represents an important precedent. ACEEE has not yet estimated the energy savings opportunities from this provision, but intends to analyze the provision in the coming weeks.

Bill We Support with Modifications

S. 717—Non-Profit Energy Efficiency Act

S. 717, introduced by Senators Klobuchar and Hoeven, would help non-profit organizations save energy, a laudable goal. It provides matching grants, up to a cap, so that the non-profit organizations themselves will have to provide a significant contribution. In general we find this a useful bill. We are troubled, however, by the proposal to offset this bill with funding from the Building Technologies Program at DOE, an important program with a budget of only \$220 million for this fiscal year. The Buildings Technology Program is working on developing and popularizing a variety of new and cost-effective energy-saving technologies and practices. A cut of \$50 million in this program would be devastating. From our research, spending \$50 million on the Building Technology Program provides a higher return on the federal investment than would be provided by spending the same money on retrofits using conventional technologies in a narrow subset of the building sector. To gain our support, this bill would need to be funded using an alternative offset.

In addition, we suggest a few other modifications. First, we suggest adding two criteria by which to prioritize grants: (1) the percentage of funds leveraged from other sources (e.g., a grant for 25 percent of the cost would receive priority over one

²See Schweitzer, Martin. 2005. Estimating the National Effects of the U.S. Department of Energy’s Weatherization Assistance Program with State Level Data: A Meta-Evaluation Using Data from 1993-2005. Oak Ridge National Laboratory. <http://weatherization.ornl.gov/pdfs/ORNLCON-493.pdf>.

for 50 percent of the cost); and (2) the financial need of the non-profit (e.g., poor non-profits should have priority over those with large available resources). Second, the language on eligible measures is probably too broad as it appears to include items whose primary purpose is not saving energy.³

Additional Useful Potential Amendments to S. 761

In addition to the bills that are formally part of this hearing, we wish to briefly mention several other likely amendments to S. 761 that we support as follows:

S. 1106—Sensible Accounting to Value Energy Act (SAVE)

S. 1106 was recently introduced by Senators Bennet and Isakson and has been referred to the Banking Committee. The bill would encourage energy efficiency upgrades to homes by: (1) encouraging efficiency improvements at the time of purchase; and (2) recognizing the value of efficiency upgrades, and the operating cost savings they provide, when buildings are assessed and qualification for mortgages determined. Specifically, this bill instructs the Department of Housing and Urban Development (HUD) to issue updated underwriting and appraisal guidelines for borrowers who submit a qualified home energy report. The bill would cover any loan issued, insured, purchased, or securitized by the Federal Housing Administration and other federal mortgage loan insurance agencies or their successors. These agencies collectively guarantee more than 90 percent of all new loans. The bill has three components:

- **Debt-to-Income Adjustment**—Instructs lenders to account for expected energy cost savings as an offset to other expenses in the debt-to-income qualifying ratio, which tests the borrower’s ability to afford monthly mortgage payments. If no qualified energy report is provided, the DTI will not be adjusted.
- **Loan-to-Value Adjustment**—Instructs lenders to add the present value of expected energy savings when calculating the loan-to-value ratio, where not already accounted for in the home’s appraisal report. If no qualified energy report is provided, the valuation will not be adjusted.
- **Consumer Information**—Instructs lenders to inform loan applicants of the costs and benefits of energy efficiency and resources for improving the energy efficiency of a home.

The bill does not add to the current deficit or rely on taxes or fees; instead it removes current obstacles holding back more efficient building and remodeling of our homes. A recent study of more than 70,000 mortgages found that mortgages on energy-efficient homes were 32 percent less likely to be in default.⁴ This study provides strong evidence that the SAVE Act is good credit policy and would help protect lenders and taxpayers from the risk of mortgage default. The bill removes an impediment to home energy efficiency from federal mortgage policy by recognizing how energy efficiency can increase home value and reduce operating costs, freeing up more income to pay a mortgage. In addition, the bill would allow American homeowners to finance cost-effective home energy upgrades as part of a traditional mortgage, improving access to the comfort and money-saving benefits of efficiency without increasing the cost of homeownership. The result is improved and lower cost access to capital to invest in making homes better.

The SAVE Act has support from a broad, diverse coalition including the National Association of Manufacturers, U.S. Chamber of Commerce, National Association of Realtors, National Association of Home Builders, ACEEE, the Institute for Market Transformation, the Alliance to Save Energy, and the Natural Resources Defense Council.

Manchin Power Plant Efficiency

This bill has not been introduced yet but would direct DOE to conduct a study on opportunities to improve the efficiency of existing electrical generation plants. There are significant opportunities to improve existing power plants⁵ and this bill

³Specifically, on page 2, lines 17-20, we recommend deleting “electrical wiring” (on lines 17 and 19) and “plumbing, sewage” (on line 18). Likewise, on page 3, lines 9-10, “modernize” should be deleted. If the primary purpose of a measure is improving energy efficiency, the remaining language on p. 3, lines 9-12 should be sufficient.

⁴Sahadi et al. 2013. Home Energy Efficiency and Mortgage Risks. Institute for Market Transformation. <http://www.imt.org/resources/detail/home-energy-efficiency-and-mortgage-risks>.

⁵For example, the Electric Power Research Institute hosted a conference on this topic in February, 2013. See http://mydocs.epri.com/docs/PublicMeetingMaterials/1202/epri-call_to_papers.pdf.

would help identify the most promising approaches, helping power plant owners and regulators to identify cost-effective opportunities to improve their plants.

H.R. 540—Energy Efficient Government Technology Act

This bill was introduced in the House by Representatives Eshoo and Rogers. We are aware of several senators who plan to shortly introduce a similar bill. The bill would encourage the use of information and communication technologies to save energy and would also assist efforts to improve the energy efficiency of data centers. The bill would expand upon the guidance in section 401 of S. 761 and also “turbo-charge” section 453 of the Energy Independence and Security Act of 2007, dealing with energy-efficient data centers and cloud computing. Both of these provisions would take advantage of recent advances in information and communications technologies to increase opportunities for saving energy, including reducing energy required to run data centers. To provide one example of these opportunities, the Natural Resources Defense Council and an “intelligent efficiency” service provider worked with the owner of several already-efficient Washington, D.C. office buildings and achieved 13 percent average energy savings in the first year by monitoring building meter data, identifying problems, and making actionable suggestions to building operations staff.⁶

Use of Federal Disaster Relief and Emergency Assistance for Energy-Efficient Products and Services

Senator Gillibrand is now developing a bill to authorize and encourage the use of efficient products and services when buildings and other structures need to be replaced following a disaster. Under current law, if the old building was inefficient, disaster funds cannot be used to replace it with a more efficient building, which just perpetuates inefficiency. The proposed bill will specifically authorize acquisition of efficient equipment that has been screened by the ENERGY STAR or Federal Energy Management Program, or efficient buildings that meet national model building codes.

Water Efficiency

S. 761 is focused on energy efficiency, but in a number of places the term “and water” can and should be added to also encourage water efficiency. Using water more efficiently saves energy by reducing energy used for water and waste water pumping and treatment. Specific suggestions have been forwarded to Senators Shaheen and Portman by the Alliance for Water Efficiency and we hope that some of these suggestions can be included in a managers’ amendment to S. 761.

Potential “Poison Pill” Amendments to S. 761

In addition to all of the above amendments which we generally support, we have heard about a few amendments that have been drafted but not introduced that would reduce energy efficiency and increase energy use.

Most importantly, we are concerned about a provision being advanced by the National Rural Electric Cooperative Association (NRECA) to establish new efficiency standards for “grid-enabled” electric water heaters that will use twice as much energy as water heaters that meet a federal efficiency standard that will go into effect in 2015. NRECA wants to allow electric coops to promote off-peak electric water heating and to use other demand response techniques. However, their proposed amendment is poorly drafted and will allow widespread use of less-efficient water heaters in applications without off-peak water heating or load management. Furthermore, their proposal would establish a standard that has not been well vetted and would prohibit DOE from ever revising that standard to improve energy efficiency. DOE also understands NRECA’s concern and is working on a waiver to the standard for the appropriate use of electric water heaters in demand response programs. DOE’s initial proposal had some problems, but NRECA and others heavily commented on the DOE proposal and DOE is now working to address these comments. We recommend that instead of dictating a solution that has the support of only one set of parties to this proceeding, Congress specifically direct DOE to make a decision and provide a deadline for such a decision. We are also open to discussing other potential compromises. There is also a potentially troubling amendment dealing with the Leadership in Energy and Environmental Design program (LEED), a voluntary “green building” certification program. Fortunately, we understand that negotiations are ongoing between the interested parties and we hope that a reasonable compromise can be found.

⁶Report forthcoming shortly.

Energy Savings from these Provisions

As discussed at the beginning of my testimony, ACEEE has conducted a preliminary analysis of the energy savings from S. 761 and most of the bills and provisions discussed in my testimony. In compiling these estimates, we have made informed assumptions on their impacts. For example, where appropriations are required, given the tight federal budget, we assume that full authorizations will not be funded and instead we assume that the appropriation is half of the authorization. Our savings estimates are summarized in Table 1. Table 1 lists annual savings in 2020 and 2030 as well as cumulative savings over the 2014-2030 period (e.g., the sum of annual savings for each year over this period). The largest savings, in order, come from Section 101 of S. 761 (on building codes), S. 1106 (the SAVE Act), improving the efficiency of existing power plants (Manchin), and Section 311 of S. 761 (industrial efficiency).

Table 1. Preliminary Estimate of Energy Savings by Provision

Title	Subtitle	Section	Energy Savings in 2020 (Quads)	Energy Savings In 2030 (Quads)	Total Energy Savings (Quads)
1	A	Sec. 101 Building Energy Codes	0.22	1.19	7.66
	B	Sec. 111 BTAC	0.00	0.00	0.07
2		Sec. 201 Building Finance	0.01	0.00	0.12
3	A	Sec. 311 Industry	0.08	0.12	1.46
	C	Sec. 321 Motors	0.004	0.004	0.072
	D	Sec. 331 Transformers	0.001	0.001	0.016
4		Sec. 401 - 404 Fed Agency ICT	0.010	0.007	0.115
Subtotal			0.32	1.327	9.46
Energy Saving Amendments		SAVE Act	0.09	0.40	2.81
		Tenant Star	0.004	0.02	0.17
		Residential Finance	0.001	0.001	0.02
		Nonprofit	0.001	0.000	0.01
		Benchmarking	0.01	0.02	0.15
		Schools	0.01	0.03	0.29
		FFMA	0.01	0.02	0.19
		Electricity Supply Efficiency	0.08	0.14	1.51
		Federal Energy Efficiency	0.03	0.03	0.41
		WAP-SEP	0.03	0.01	0.30
	Race to the Top	0.01	0.00	0.13	
Subtotal			0.27	0.67	6.00
Non-Energy Saving Amendments		Repeal of 433	0.000	-0.001	0.00
		NRECA	-0.03	-0.06	-0.59
Subtotal			-0.027	-0.060	-0.59
Eliminate Overlap			-0.010	0.007	-0.115
TOTAL			0.55	1.93	14.76

Notes: Federal energy efficiency are the two new provisions in S. 1020. The line "Eliminate Overlap" adjusts for overlap between these two provisions and the Federal ICT provision in S. 761.

Overall, the savings from the provisions we support are roughly the same as those from last year's version of Shaheen-Portman. Some sections that were included in last year's version of this bill have changed or been dropped, and we now have one year less to accrue savings before the 2030 end-point in our analysis. Also, we revised some of our earlier estimates based on updated data. Furthermore, none of the amendments we analyzed this year were in last year's bill.

In last year's analysis we estimated that the Shaheen-Portman bill would generate nearly \$60 billion in net consumer savings (i.e., savings minus costs) and would support nearly 160,000 net jobs by 2030. Since the energy savings from the new bill with amendments are nearly the same, we would expect similar economic impacts in the new bill as in the old. We will publish a detailed report when we complete our analysis.

We are aware that S. 1020 ("repeal and replace") has attracted much attention so we paid special attention in our preliminary analysis to that section of that bill. We found that the fossil fuel energy savings achieved as a result of the implementation of Section 433 of the Energy Independence and Security Act of 2007 (EISA) would be less than intended when accounting for other, existing requirements applicable to new and renovated federal buildings. New federal buildings are already required by Section 305 of the Energy Conservation and Production Act to operate at 30 percent below the energy consumption levels of applicable building code. In addition, there is an existing requirement in Section 431 of EISA for a reduction of overall energy intensity of federal buildings by 30 percent in 2015. The benefit to new and renovated federal buildings from these two requirements effectively reduces the impact of Section 433 by roughly 50-80 percent annually. It is also important to note that these reduced impacts are also due to some drafting problems with Section 433 that has hindered its implementation; recognizing this, we assume that Section 433 would ultimately only achieve 75 percent of its objective and not 100 percent. If S. 1020 is adopted, it would extend the existing 30 percent below code requirement for new buildings to all buildings undergoing major renovations. The energy savings from this provision, when paired with energy savings from a proposed increase in the energy intensity target for all federal buildings to 45 percent by 2020, would exceed any savings gap from repeal of Section 433. Together these two provisions could save approximately 0.03 quads more than Section 433 would have in both 2020 and 2030, with an estimated total cumulative additional savings of about 0.4 quads over the 2014-2030 period.

Conclusion

ACEEE believes that Energy Savings and Industrial Competitiveness Act of 2013 (S. 761) would be an important step toward improving the energy efficiency of the U.S. economy. All of the bills before us today, as well as many of the additional amendments that may be considered, would add to the energy efficiency savings achieved. We support:

- S. 1206—Benchmarking
- S. 1191—Better Buildings Act (Tenant Star)
- S. 1200—Residential Energy Savings Act of 2013 (Residential Financing)
- S. 1209—Race to the Top
- S. 1084—School Retrofits
- S. 1020—All of the Above Federal Energy Conservation Act
- S. 1213—WAP and SEP Reauthorization
- S. 1205—Local Energy Supply and Resiliency Act
- S. 717—Non-Profit Energy Efficiency Act provided our recommended modifications are made
- S. 1106—Sensible Accounting to Value Energy Act (SAVE)
- Senator Manchin's Power Plant Efficiency provision
- H.R. 540—Energy Efficient Government Technology Act
- Senator Gillibrand's provision on Use of Federal Disaster Relief and Emergency Assistance for Energy-Efficient Products and Services
- Adding Water Efficiency to S. 761 in appropriate places

On the other hand, a potential amendment supported by NRECA on water heater efficiency standards is a potential "poison pill" that could make enactment of energy efficiency legislation difficult.

Overall, we estimate that S. 761, together with all the amendments we support, will reduce U.S. energy use by more than 15 quadrillion Btu's over the 2014-2030 period. This is nearly as much energy as will be used by the state of Oregon over this period. Saving this much energy will benefit our economy and our environment and we urge the Senate to adopt S. 761 and the other bills I have discussed, but to avoid "poison pills" that lack broad support.

This concludes my testimony. Thank you for the opportunity to present these views.

Senator FRANKEN. Thank you, Mr. Nadel. I'll note that all of your written statements will be entered into the record.

Mr. Laskey.

**STATEMENT OF ALEX LASKEY, PRESIDENT AND FOUNDER
OF OPOWER**

Mr. LASKEY. Thank you, Senator Franken, Senator Risch, Senator Sanders. It's an honor to be here.

My name is Alex Laskey. I'm the President and Founder of Power. We are the world's leading provider of energy efficiency software for the utility industry.

My friend, Dan Yates and I started the company 6 years ago because we thought that Americans deserved better than a bill that was basically impossible to understand. That people had a right to know, ordinary homeowners had a right to know, more about the energy they use and the energy they waste in their own homes. What they ought to do to save.

We're based just here in Arlington, Virginia. We're now 400 employees, 2 of us 6 years ago. We're in 7 countries with serving 91 utilities in 30 States including Minnesota and Idaho, not yet Vermont and 7 countries.

Today we've helped save ordinary families more than \$300 million on their electric bills. This includes as much as \$6 million last year in Minnesota alone. I think this year it will be close to ten million. We're just starting with a vista in Idaho so we can give you numbers before too long.

But we're just getting started. This year alone, in the next 12 months, we'll generate another 2 Terrawatt hours in energy savings. Two Terrawatt hours, that's more than enough energy to power every home in St. Paul and Cincinnati combined. It's every home in Vermont uses less, in total, uses less than 2 Terrawatt hours a year. It's roughly a third the size the State of Idaho.

Put in another context the solar industry last year in this country produced 4 Terrawatt hours of electricity. We're producing 2. The Hoover Dam produces just about 2 Terrawatt hours a year in energy savings, in energy.

I'm pleased to be here today as a designee of the Alliance to Save Energy and as a Commissioner on Senator Warner's Commission, the bipartisan Commission, that he led with National Grid President, Tom King. This was a truly bipartisan Commission. We—Governor Pataki was on the Commission, Executives from the Southern company, Exelon Utilities, EEI, as well as the Presidents of both the National Resources Defense Council and EDF.

We didn't agree on everything, to put it mildly. But one thing that we did agree on was that energy productivity was a significant problem that we needed to address. We believed we could double energy productivity in this country by 2030. One of the ways that we had in mind to get there was this race to the top which I'll speak about in a moment.

So, but before I do I just pose the question that perhaps doesn't need to be posed in this room with the people sitting on both sides

of the table which is why should we care about energy productivity?

Senator Warner talked to it. But 57 percent of the energy in our economy is flat out wasted. I don't know about you, but I wouldn't tolerate having 57 percent of the coffee I pour into my coffee mug every morning could fall out the other side of it. Although I have a 2-year old, so sometimes some of that coffee does fall out. But all the more reason I need more of it.

But we tolerate somehow 57 percent of the energy entering our economy being lost to things like heat, leakage, noise. This doesn't even account for the energy that's lost and wasted in homes when lights are left on regardless of the light bulb in empty rooms or air conditioning is left on in unoccupied homes. That we've estimated that 20 percent of the energy that's consumed in homes is wasted on energy that does not contribute to lifestyle but does contribute to climate change. It's \$40 billion a year just on behavioral waste.

So this is an urgent problem that we ought to do something about. As the Senator talked we rank ninth of the twelfth industrialized countries in terms of energy productivity that is GDP per energy input. We rank behind China. This is costing us \$130 billion a year. That's \$1,000 a household.

So the question is what can we do to eliminate waste and make our economy more productive?

In many places utility regulation, this is in part not just about regulation, but it's about reforming bad regulation. Regulation hasn't changed much since Thomas Edison. Rate utilities are still rewarded when their customers waste energy. They ought to be rewarded for helping their customers save it.

Thomas Edison may not have envisioned a world in which we incentivize utilities to help customers use less power, but it's common sense. Because helping people use less energy costs a lot less than building new power plants and transmission lines.

Some States including Massachusetts already get this. Over the last 2 decades about half the Nation's States have put in place energy efficiency goals or other policies for their utilities to help businesses and families use energy more productively. These policies are working.

Between 2002 and 2011 States without efficiency goals exhibited an average increase in per capita consumption of 9 percent over a 10-year period. In States with efficiency goals it's been a 5 percent reduction. So it's a 14 percent swing in 10 years just because of better policy.

These are not just States like Minnesota and Vermont. Governor Bush passed the first energy efficiency resource standard in Texas. Arkansas, Ohio, North Carolina and Arizona have all passed efficiency resource standards. Even this week, I know Senator Landrieu isn't here, but this week in Louisiana tomorrow they're considering passing a law in Louisiana as well.

So how do we do more of this? From the Federal Government's perspective the easiest way to do this is to create a race to the top. It's, you know, as the Senator mentioned, this would be based on the education race to the top. This is S. 1209. We are highly supportive of it.

By providing States with incentives to enact policy and regulatory reforms, that will stimulate new investment in energy efficiency and demand response. This legislation would reduce family's energy bills, increase American competitiveness and help the environment. More specifically S. 1209 would challenge States to design effective policies to produce productivity using a \$200 million incentive fund.

While States will have flexibility to address their own local circumstances, they must demonstrate how the money would be spent, how the savings and increased productivity will be measured and how the public dollars can be leveraged through cooperative efforts with utilities.

Finally, to ensure that energy productivity is actually improving, the National Resource Council would be required to produce an independent evaluation of the program's performance.

So in conclusion, right now our approach to energy is wasting our money, polluting our skies and reducing our competitiveness. S. 1209, the Energy Race to the Top bill, is a common sense approach that will accelerate the elimination of outdated regulation, spur innovative reform of energy markets and energize our economy.

Thanks again for letting me be here. I look forward to hearing your questions.

[The prepared statement of Mr. Laskey follows:]

PREPARED STATEMENT OF ALEX LASKEY, PRESIDENT AND FOUNDER OF OPOWER

Introduction

As President and Founder of Opower, I am pleased to appear before this Subcommittee as the designee of the Alliance to Save Energy and a Commissioner on the Alliance's Commission on National Energy Efficiency Policy. Thank you Chairman Franken, Ranking Member Risch, and the other esteemed members of the Subcommittee for the opportunity to testify.

Opower is the world's leading provider of energy efficiency software and customer engagement solutions to the utility industry. My friend Daniel Yates and I founded Opower six years ago because we believed that if we provided families better information about their energy use, they could save money and help the environment all at the same time.

Based in Arlington, Virginia with offices now in San Francisco, London, and Singapore, our company has grown to more than 400 employees and works with 91 utilities to serve 18 million households in 30 states and 7 countries. To date, we have helped families save more than \$300 million on utility bills. Last year alone, we saved Ohioans \$7 million, Minnesotans \$6 million, Arizonans and Michiganders \$3 million, and Coloradans more than \$2 million on their electricity bills.

We're just getting started. Over the next twelve months we'll generate another 2 Terrawatt hours in energy savings. That is more than enough energy to power every home in Cincinnati and St. Paul combined, or to take all of the homes in Las Vegas off the grid for the whole year. It's enough energy to power every home in Portland (OR), Nashville, Albuquerque, or Tucson for a year. 2 Terrawatt hours is roughly half of what the entire US Solar industry produced last year, and it's equivalent to the annual production from the Hoover Dam.

Utilities partner with Opower to provide families both the motivation and information to save energy. Smart people understandably struggle to decipher typical energy bills with esoteric terms such as Kilowatt Hours. We firmly believe everyone has a right to personally relevant energy usage information. To that end, we show families how their energy use compares to similarly sized homes coupled with personalized tips for saving. Importantly, our approach delivers consistent savings regardless of one's age, income, education, or access to technology.

Broad-based engagement on energy efficiency is a prerequisite for reducing energy waste at scale. To that end, Opower is helping make every household and every person a part of the solution to energy waste. For instance, as part of our partnership with National Grid Rhode Island, we will soon be delivering energy usage information to all 425,000 households in that state.

Commission on National Energy Efficiency Policy

For the past year and a half I have served on the the Alliance to Save Energy's Commission on National Energy Efficiency Policy's (see attached list of Commission members and their biographies). The Alliance is a non-partisan group of business leaders, policymakers, and utility executives, representing stakeholders ranging from leading utilities such as Southern Company, Exelon, and the Edison Electric Institute to leading non-governmental organizations including the Natural Resources Defense Council and the Environmental Defense Fund.

Our Commission, co-chaired by Senator Mark Warner and National Grid USA President Tom King, released a report earlier this year calling for a bold national strategy to double our energy productivity by 2030 (i.e., in 2030, every unit of energy consumed will correspond to twice the amount of GDP as compared to 2011). We issued a list of policy recommendations (Energy 2030) designed to help America meet this goal. Meeting this goal would deliver exceptional benefits to the United States, including enhanced economic competitiveness and technological innovation, greater energy reliability and security, and strengthened stewardship of our environment and natural resources.

Created in 2012 to identify solutions for increasing U.S. energy productivity and jump starting the economy, the Commission built its recommendations upon a large body of research that examines the issues of investment, technology, human behavior, and government in relation to growing energy productivity in the United States across an array of economic sectors, including residential, commercial, industrial, and transportation.

An independent analysis by the Rhodium Group for the Commission found that doubling energy productivity would require investment of \$166 billion each year through 2030, but would avoid \$327 billion a year above those costs, save the average household \$1000 a year, add over a million jobs, and reduce both carbon dioxide emissions and oil imports by a third.

Moreover, the enclosed figure demonstrates how the Commission's energy productivity target compares with the reference (i.e., current course of activity) case projection of the U.S. Energy Information Administration (EIA) 2012 Annual Energy Outlook

Over the last 40 years, the United States has made significant gains in energy productivity. In 1970, about \$63 billion of GDP in year 2005 dollars were produced per quadrillion Btu (quad) of energy used domestically according to the U.S. Energy Information Administration. In 2011, the figure was about \$135 billion per quad. The Commission's goal is for the U.S. economy to achieve \$270 billion (in 2005 dollars) of GDP for each quadrillion Btu consumed in 2030.

If not for energy productivity gains since the early 1970s, the United States would need about 50 percent more energy—with concomitant impacts on energy bills, oil imports, energy reliability and security, and environmental quality—to deliver today's GOP. The following Alliance to Save Energy figure graphically illustrates the point.

While the United States has made significant energy productivity progress over the last several decades, the nation cannot afford to rest on its laurels. Indeed, heightened international economic competition; stresses on American energy, transportation, and other physical infrastructure; continued economic and geopolitical vulnerabilities to energy price shocks (despite increased North American oil and natural gas production); and multiple environmental challenges associated with energy all underscore the need to strengthen U.S. efforts to enhance energy productivity.

In addition to the Commission's work, three other reports have been issued recently that call for energy efficiency as a central pillar of sound U.S. energy policy. These include the National Association of Manufacturers' Energy Efficiency Task Force on the building sector; the Business Roundtable's Taking Action on Energy: A CEO Vision for America's Energy Future; and the Bipartisan Policy Center's America's Energy Resurgence: Sustaining Success, Confronting Challenges. The Commission intends to work collaboratively with these organizations and their associates to implement our common and important agendas on energy efficiency.

The Alliance Commission on National Energy Efficiency Policy urges policy makers and the private sector to take immediate and concerted action to grow our economy and create jobs while using less energy and reducing associated costs, environmental harm and security impacts.

Of the recommendations, three overarching strategies were established to meet this energy productivity goal:

- UNLEASH INVESTMENT in energy productivity throughout the economy;

- MODERNIZE REGULATIONS and Infrastructure to improve energy productivity; and
- EDUCATE and ENGAGE consumers, workers, business executives, and government leaders on ways to drive energy productivity gains.

LEGISLATIVE INITIATIVES

State Energy Race to the Top (S. 1209)

The education “Race to the Top” initiative spawned significant education reforms and has received broad, bipartisan support. Similarly, an energy productivity competition that provides federal resources and rewards states for progress toward becoming more energy productive could spur significant advances in efficiency throughout the nation.

To that end, Opower applauds Alliance to Save Energy Honorary Chair Senator Mark Warner (D-Va.) and Senator Joe Manchin (D-W.Va.) for introducing the State Energy Race to the Top proposal (S. 1209) that would create, fund, and implement a voluntary energy productivity competition for states. This concept was a key pillar of the Alliance Commission’s consensus-based Energy 2030 recommendations to double U.S. energy productivity.

This Race to the Top-style competition- which was embraced by the President in his State of the Union and Fiscal Year (FY) 2014 budget-aims to promote innovation and adoption of best practices in energy efficiency at the state and local levels of government. By providing states with incentives to enact policy and regulatory reforms that will stimulate new investment in energy efficiency and demand response, this legislation would help keep more money in local communities, save taxpayer dollars, reduce families’ energy bills, and increase American competitiveness.

More specifically, S. 1209 would empower the federal government to challenge states and local governments to design effective policies to boost energy productivity, using a \$200 million incentive fund. The legislation builds upon existing public/private networks and encourages states, businesses, and utilities to modernize. Key aspects of the legislation include;

- Up to 25 states would compete for a combined \$60 million to develop innovative energy productivity programs and policies.
- States must demonstrate how the money would be spent, how the savings and increased energy productivity will be measured, and how the public dollars can be leveraged through cooperative efforts with utilities.
- Eighteen months after the initial allocation to 25 states, an additional \$105 million would be divided among no more than six additional states to continue implementation of energy productivity efforts, including adoption of “best practices” spearheaded by the initial group of 25 states.
- \$25 million would be set-aside for innovative energy productivity programs proposed by public power utilities, rural electric cooperatives and utilities serving recognized Native American reservations.
- The National Research Council would be required to produce an independent evaluation of the program’s performance.

Proposals Related to the Building Sector

Buildings account for approximately 40 percent of all U.S. energy use. Efficiency in the domestic building sector represents an investment opportunity in the hundreds of billions of dollars, with potential savings estimated as high as \$1 trillion over the next 10 years—30 percent of what we now spend annually on electricity. New and existing building stock can become more efficient and productive through adoption and enforcement of codes and standards, investment in efficiency retrofits, improvement in technologies, and greater education of users, among other means.

The Alliance’s Commission on National Energy Efficiency Policy also assesses the state of building energy efficiency to inform the development of policy recommendations for expanding energy productivity in residential and commercial buildings. It examines the unique financing challenges in the buildings sector, an array of available energy productivity technologies, new developments in providing building efficiency information, and recent policy innovations.

Building owners and builders themselves decide on components that affect energy use; building operators affect energy use through operations and maintenance; and occupants exert control over many types of energy-using equipment. Importantly, energy management can be improved through building energy use feedback and benchmarking systems, building staff training and occupant education, social norms and marketing, and financial incentives. Behavior-based energy efficiency approaches, such as energy feedback systems, can empower building operators and individual households to better manage their energy use and costs. An Environmental

Defense Fund study estimated a \$3 billion potential annual savings if simple monthly comparative energy-e reports were sent to residential customers nationally.

For these reasons, the Alliance to Save Energy supports Chairman Al Franken's (D-Minn.) legislation (S. 1206) that would extend the existing federally owned building benchmarking requirement to federally leased buildings; require an agency study on benchmarking methodologies for commercial and multifamily buildings; and authorize a competitive grant program for interested utilities and regulators to ensure availability of building energy use data. Similarly, the Alliance also commends Senators Michael Bennet (D-Colo.) and Kelly Ayotte (R-N.H.) for introducing the Better Buildings Act (S. 1191), which would advance a voluntary, market-driven approach by creating a Tenant Star program within ENERGY STAR to promote efficiency in tenant-occupied commercial spaces. Both of these measures are in keeping with the policy recommendation in the Education Energy 2030 category, which calls for effective building energy ratings, benchmarks, and disclosure methods to reduce energy waste.

Equally important is the leadership role that all levels of government can play. The federal government is the largest single energy user in the United States, responsible for just over 1 percent of total energy use. State and local governments combined own one fifth of commercial building space, with much larger energy use. But beyond their own energy use, governments can serve as highly visible test beds and early adopters of innovative technologies and practices. They also can influence their large base of contractors and suppliers to increase their energy productivity.

Furthermore, Federal agencies should adopt the Investment category Energy 2030 policy recommendation that focuses on applying innovative best practices to government buildings, including setting targets for efficiency improvements; implementing energy management systems (under ISO 50001 standard); benchmarking, rating, and disclosing of building energy use and efficiency; and conducting recommissioning.

As such, the Alliance to Save Energy has publicly endorsed the All-Of-The-Above Federal Building Energy Conservation Act (S. 1199). Authored by Senators John Hoeven (R-N.D.) and Joe Manchin (D-W.Va.), this bipartisan legislation would strengthen several energy efficiency targets and requirements for federal buildings by extending the current efficiency targets to require each agency to reduce energy intensity of its buildings (energy use per square foot) by 3 percent each year, ending in a 45 percent reduction by 2020. It would also modify a current directive to conduct energy and water audits, and adjust efficiency standards that apply to new federal buildings.

Although the proposal is much different in scope, the Streamlining Energy Efficiency for Schools Act (S. 1084) falls under the same Energy 2030 policy recommendation, and is backed by the Alliance as well. Introduced by its Honorary Vice-Chairs Senator Mark Udall (D-Colo.) and Senator Susan Collins (R-Maine), this bill would simplify the scope of existing federal energy efficiency programs available to schools and provide clearer guidance on financing options to help make certain that they are able to take advantage of energy savings opportunities.

Uncertainties and risks, capital constraints, corporate strategy, and public policy affect decisions to invest in energy productivity in the building sector as significantly as they do other investment decisions. Businesses and households can be dissuaded from making energy or other upgrades by high first-costs. Both often demand very rapid payback on investments.

Energy productivity investments may be undertaken primarily to achieve energy benefits, but often energy productivity gains are a co-benefit of investments made for other purposes. A broader modernization of manufacturing, renovation of building stock, replacement of vehicles, and upgrade of infrastructure can yield energy productivity gains while simultaneously improving economic productivity and business competitiveness, quality of products and services, and energy and environmental performance.

Promising opportunities for such investments include the Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act (S. 1213). This bipartisan measure, which was sponsored by the Alliance to Save Energy's Honorary Vice-Chairs Senators Chris Coons (D-Del.) and Susan Collins (R-Maine), would reauthorize and improve the Weatherization and State Energy Programs, which have been responsible for efficient upgrades in more than 7.4 million homes. This important bill would maintain the national profile of the programs, allowing millions of low-income Americans to reduce their energy consumption and save money, and also introduce a complementary innovation initiative to leverage private funding for weatherization projects.

Other potential initiatives that aim to address investments include the Non-Profit Energy Efficiency Act (S. 717), which would create a Federal pilot program to pro-

vide grants of up to \$200,000 (with a 50 percent match) to schools, youth centers, houses of worship, hospitals and other nonprofit facilities to undertake energy efficiency improvements. Chairman Franken's Local Energy Supply and Resiliency Act (S. 1205) also offers promise by offering financing for public and private entities the ability to assess and implement energy systems that recover and use waste heat and local renewable energy resources.

CONCLUSION

While the United States has made significant energy productivity progress over the last several decades, the nation cannot afford to withhold support for policies or investments in energy efficiency. Heightened international economic competition; stresses on American energy, transportation, and other physical infrastructure; continued economic and geopolitical vulnerabilities to energy price shocks (despite increased North American oil and natural gas production); and multiple environmental challenges associated with energy all indicate a necessity to strengthen U.S. efforts to enhance energy productivity.

Opower recognizes that today's economic and political challenges make it increasingly difficult to address national energy policies. Advancement of the State Energy Race to the Top initiative and other efficiency proposals, however, would help address high energy costs, create jobs, improve our national energy security and reduce the harmful environmental impacts associated with the production and use of energy.

In many places, utility regulation has not changed much since the days of Thomas Edison. Utilities make more money when their customers waste energy. They ought to be rewarded for helping their customers save it. While Thomas Edison may not have envisioned a world in which we incentivize utilities to help customers use less power, it is common sense. Reducing demand and increasing energy productivity is cheaper and cleaner than building new power plants and transmission lines.

Thank you for your time and attention, and I would be glad to respond to any questions that you may have.

Senator FRANKEN. Thank you, Mr. Laskey. I'm sure Senator Risch is looking forward to those figures from your project in Idaho. It is Risch, by the way, not Reesch. It's Risch.

Mr. LASKEY. Sorry.

Senator FRANKEN. It's OK. I just want to recognize that Senator Saunders is here.

[Laughter.]

Senator SANDERS. Thank you, Senator Franken.

Senator FRANKEN. Mr. Sylvia.

STATEMENT OF MARK SYLVIA, COMMISSIONER, MASSACHUSETTS DEPARTMENT OF ENERGY RESOURCES

Mr. SYLVIA. Thank you very much, Chairman Franken and Senator Sanders. My name is Mark Sylvia. I am the Commissioner of the Massachusetts Department of Energy Resources. I'm appearing today on behalf of the National Association of State Energy Officials.

As noted in the written testimony we generally support the multiple pieces of legislation being considered by the subcommittee today. We appreciate your consideration of these bills. In my oral statement I will mostly focus on the bipartisan legislation introduced by Senators Coons, Collins and Jack Reed, to reauthorize the State Energy Program and the Weatherization Assistance Program.

As discussed in my written testimony there are good examples of energy efficiency programs from every State. We would be happy to answer questions and supply other information for the record. However a few overarching points should be stressed.

One, the existing State programs leverage a large amount of non-Federal funds.

Two, these energy efficiency programs are a key to economic development and international competitiveness.

Three, there is an important and continuing Federal role in key areas of energy efficiency as reflected in the bills the subcommittee is considering today.

The Coons/Collins/Reed bill reauthorizes the State Energy Program at a lower funding level than contained in the 2007 authorization. But otherwise recognizes that the program has been a continuing success. Because it encourages State flexibility and acknowledges the programs efforts with the private sector.

For the Weatherization Program the bill makes some changes to the underlying statutes, but also recognizes that this program is robust and has been successful as well. The bill would strengthen weatherization standards and establish a modest innovations program that would encourage other organizations, such as volunteer organizations, to expand on the fine work of the Community Action Agencies and non-profit delivery agents. Our biggest challenge for the State energy program in weatherization is maintaining strong Federal appropriations.

Just a brief word on other bills you are considering today.

The Warner/Manchin State Energy Race to the Top Initiative would build on the success of the State energy program while acknowledging that all States are at different places. The Massachusetts Lead by Example program is the type of activity that could be expanded with this program and adopted by other States. We support this bill as well.

Mr. Chairman, your bills on benchmarking and encouragement of combined heat and power focus attention on important untapped resources. We hope these bills are advanced as well.

Finally the Sanders/Wyden bill would encourage the establishment and expansion of energy efficiency financing programs by creating a Federal loan program to the States. We also support this bill.

That concludes my oral statement. I would be happy to answer any questions. Thank you.

[The prepared statement of Mr. Sylvia follows:]

PREPARED STATEMENT OF MARK SYLVIA, COMMISSIONER, MASSACHUSETTS
DEPARTMENT OF ENERGY

My name is Mark Sylvia. I am Commissioner of the Massachusetts Department of Energy Resources (DOER). I am very pleased to be here today. I am appearing before the Subcommittee on behalf of the National Association of State Energy Officials (NASEO). NASEO represents the 56 states, territories and the District of Columbia on energy matters. The state energy officials generally represent their Governors and address a range of energy issues. Our primary focus is the development and implementation of rational energy policies in the context of economic development, promotion of a diverse portfolio and working with the private and public sectors to achieve these goals. As a NASEO member I am very pleased to serve on the Board of Directors. As energy directors we share "best practices" and work across party lines and across state lines to move the country forward.

In general, NASEO supports the bills that the Subcommittee is considering today. I would be remiss if I did not offer some additional context with respect to the Shaheen-Portman bill (S. 761). NASEO worked with the bi-partisan sponsors as well as the Committee Staff of this committee, on both sides of the aisle, in developing this rational legislation. We certainly urge swift floor action and, we hope, passage by the Senate. We will continue to support House action on their companion legislation, also introduced on a bi-partisan basis, by Representatives' McKinley and Welch. S. 761 addresses a variety of matters, and certainly relevant to today's dis-

cussion is the private commercial buildings energy financing program included as Section 201 to that bill. Some of the pieces of legislation that you are debating today are complementary to that provision of S. 761.

Reauthorization of the State Energy Program and the Weatherization Assistance Program

Senators' Coons, Collins and Reed have introduced a bill to reauthorize the State Energy Program (SEP) and the Weatherization Assistance Program (WAP), "The Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act". These two programs are critical to our nation and need to be continued. The bill reauthorizes SEP at a lower funding level than the level contained in the 2007 reauthorization, but otherwise recognizes that the program has been a success because it encourages state flexibility. After the original authorization in the 1970s, Congress has modified the underlying statute to increase that flexibility through the State Energy Efficiency Programs Improvement Act of 1990, the Energy Policy Act of 1992, the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. Many of the bills that you are considering today are intended to expand on many of the pilot programs developed in SEP. The goals of the states' implementation of SEP include:

- Support the public and private sectors;
- Strengthen America's competitive position and energy security;
- Provide high value programs and projects that facilitate the private sector delivery of energy innovation;
- Maximize energy, environmental, and economic benefits;
- Increase market acceptance of energy efficiency and domestic energy resources; and
- Use innovative approaches to reach market segments and meet policy goals.

The provisions regarding WAP in this bill make some changes to the underlying statute. I should stress that the underlying program is robust and has been a success. With changing times, we all recognize that certain modifications can help this program in the 21st century. The bill would strengthen standards for weatherization services, something that has been worked on by state and local officials, community action agencies, the private sector and DOE. Over the years, training has certainly improved and DOE and the states have had a strong partnership in expanding these activities. I should also note that Oak Ridge National Laboratory has been extremely helpful in assisting in this effort. Regional training centers have also been established to update the program. New technologies have been used for the first time in WAP, such as blower-door testing programs. In addition to reauthorizing the basic program, also at a reduced funding level, the bill would establish an innovation program that would encourage other potential participants to seek out opportunities to weatherize dwellings of low-income Americans, those with disabilities, the elderly and an expanding population of returning veterans. Organizations such as Habitat for Humanity and Rebuilding Together, that have a track record of helping people with volunteer labor, are the types of groups that we hope will participate in the program. We also hope that the community action agencies and existing non-profit entities that deliver WAP services will also participate in the innovation program.

Some examples of the states' accomplishments utilizing WAP funding, include:

- Served over 7.4 million low-income homes since the program's inception, with millions more high-energy use units still eligible and in dire need of services;
- Saves low-income families an average of \$250 to \$450 per year in heating, cooling, and electric costs, depending on their housing type, location, and fuel source;
- Returns \$2.51 for every dollar spent in energy and non-energy benefits over the life of the weatherized home;
- Serves as a foundation for residential energy efficiency retrofit standards, technical skills, and workforce training for the emerging broader residential energy efficiency retrofit market;
- Impacts communities through local purchasing and jobs, supporting over 10,000 local, American businesses nationwide; and
- Decreases national energy consumption by the equivalent of 24.1 million barrels of oil annually.

Following enactment of landmark environmental and economic legislation in 2008, Massachusetts, has used funding for the energy efficiency and renewable energy investments from a variety of sources, including ratepayer funds, RGGI auction proceeds, renewable energy credits, and the forward capacity market created through

the New England Independent System Operator. Massachusetts also uses SEP funds, which support the core functions of the Department of Energy Resources (DOER), including oversight of the state's energy efficiency programs, recognized by ACEEE as the best in the nation for the last two years.

SEP funding awarded to Massachusetts enables DOER to support the state as an innovation hub for energy policy and technology. In FY2013 Massachusetts used federal SEP funding to 1) conduct energy reliability planning and monitoring; 2) develop an energy data and analysis database to be used for public and private energy market analyses; 3) support the Commonwealth's Renewable Portfolio Standard to enhance our state's robust solar and emerging renewable heating and cooling markets; and 4) fund education and infrastructure enhancement to facilitate a transition to alternative forms of transportation, including expanded use of biofuels and electric vehicles. Following are a few examples:

- We have leveraged federal funds through our Leading by Examples (LBE) program to procure \$122.3 million in additional public and utility investments for state facility improvements estimated to produce greenhouse gas emission reductions equivalent to removing 139,802 cars from the road. In addition, LBE project investments generated 1,162 construction-related jobs.
- The majority of LBE funding, \$9.7 million, went toward supporting the Enterprise Energy Management System (EEMS) program, which installed 1,291 real-time energy meters at 469 buildings to enhance energy efficiency planning. EEMS is the largest project of its kind in the United States. Other LBE projects include: 238 energy efficiency measures by the Division of Capital Asset Management and Maintenance, low emissivity ceilings at five public ice skating rinks, 86 small-scale energy efficiency and lighting projects, and the purchase of 7,464 LED light bulbs for 58 state facilities. Overall, LBE's investment of funds helped reduce energy use and GHG emissions at more than 200 state-owned facilities.
- SEP funds led to a wide variety of innovative initiatives, ranging from deep energy retrofits at commercial and residential buildings that achieved greater than 50 percent savings, creative new energy outreach strategies, pellet boiler installations at schools and residences, real-time metering at dozens of state facilities, envelope, lighting and HVAC improvements at state buildings, and over 9 megawatts of solar installations across public and private entities. The SEP program for the past five years is projected to save \$290M over the lifetime of the projects.

A few other examples of state innovation utilizing SEP funding to leverage other public and private sector resources include:

- Idaho's K-12 Energy Efficiency Project began with a pilot in the Homedale School District that replaced two failed compressors, a blower motor, multiple thermostats and outside air damper actuators; at a cost of \$11,196, these projects provide an estimated \$18,000 in yearly savings to the district. With the success of the K-pilot, the state moved forward with the K-12 Energy Efficiency project to audit 894 K-12 school buildings throughout Idaho; continued with HVAC and control system tune-ups on 836 of the buildings resulting in an estimated yearly energy savings of up to \$3.9 million dollars; and Energy Expert Software was installed in 91 schools.
- Michigan utilizes SEP funding to leverage private sector resources to upgrade energy efficiency in state buildings. Over 25 loans and grants have been made through the Michigan Clean Energy Advanced Manufacturing program. One example of a private sector project is a Michigan based company that manufactures biomass gasification systems for waste to energy projects. The firm built a pilot scale biomass gasification center and an advanced manufacturing rapid prototyping center. Their labs are capable of characterizing many types of biomass giving them the ability to optimize their gasification technology.
- North Dakota operates a cost-shared training initiative implemented by North Dakota State University that helps farmers adopt conserving farming practices to lower production cost. To date, 43 workshops have been held with 861 participants. Another SEP-supported program has provided 23 grants to state agencies, cities and towns to incorporate energy efficiency equipment into their facilities to reduce energy usage. The SEP funding provides for energy efficiency measures that have a payback of less than ten years.
- In Washington the state's transportation and commerce departments leveraged SEP funds and teaming up to implement the nation's first "electric highway," an initial network of public access electric vehicle recharging locations along Interstate 5. The infrastructure will enable electric vehicle drivers to travel the

length of the state along the 276 miles of Interstate-5 between Washington's borders with Oregon and Canada.

We strongly support reauthorization of SEP and WAP.

Our biggest challenge in 2013 and now looking at 2014 is the lack of funding for the programs. SEP has received approximately \$50 million in each the past three years (postsequester—\$47 million), with \$36.6 million going to the base, formula program in FY'13. We really want to see the base, formula program receive the maximum amount of funding because, by its nature, it encourages innovation and flexibility at the state level. The most recent comprehensive study showed that for every Federal dollar invested approximately \$11 is leveraged and over \$7 is saved in energy costs.

For WAP, the House passed a \$68 million funding level in FY'12, which was maintained through the FY'13 Continuing Resolution. We are very concerned that the House Energy and Water Development Appropriations Subcommittee has continued to cut the program. Though the Subcommittee marked-up their version of the FY'14 bill on June 18th, we have not seen the details, other than a 50 percent cut in the overall Energy Efficiency and Renewable Energy accounts. A national program cannot be run on \$68 million. Funding in FY'11 for WAP was \$174 million. The Senate Energy and Water Development Appropriations Subcommittee was scheduled to act today. We remain hopeful. 40 Senators signed a "Dear Colleague" letter supporting a funding level of \$57 million for SEP and \$230 million for WAP.

We urge the committee to approve this legislation. It is good for the country and costeffective. The changes in the bill will only make the program better.

State Energy Race to the Top (S. 1209)

Senators' Warner and Manchin have introduced the State Energy Race to the Top legislation (S. 1209), which would authorize \$200 million to further encourage innovation at the state level. The proposal would provide \$60 million to up to 25 states to offer amended plans for policy and program changes. After 18 months, a smaller group of states would share a larger portion of funds (up to 6 states) based upon their success in implementing their plans. This would be a voluntary, competitive program operated by DOE. It is focused on improving energy productivity. One key facet of the bill, is that it is based on improvements from where states are now, without an arbitrary set of absolute goals. Based upon the Administration's recommendation, there is a set-aside for consumer-owned utilities and tribes of \$25 million. Each state is in a different position, with different resources and priorities. The fine work of the Alliance to Save Energy's, Commission on Energy Policy, recommended a Race to the Top. A wide variety of groups support this effort.

NASEO also strongly supports this legislation.

The Residential Energy Savings Act of 2013 (S. 1200)

Senators' Sanders and Wyden have introduced the Residential Energy Savings Act of 2013 (S. 1200). It would provide homeowners with access to low-cost loans for energy efficiency upgrades. Funds would run through the states and tribes, but the bill encourages cooperation with local utilities, financial institutions and others. The key objective is to reduce the financing barriers by limiting up-front costs. As energy cost savings generated through buildings upgrades payback over time, financing programs can be catalysts for energy efficiency investment.

In Massachusetts, the Mass Saver HEAT loan program has closed 18,371 zero interest loans valued at nearly \$155 million from 2006-2012, for residential energy efficiency upgrades. The program has been a great success, but we have had to promote it tirelessly, as consumers often do not understand the value of investing in energy efficiency. This program is offered through 40 local banks across Massachusetts.

A number of other states' programs are worth stressing, including the following:

- Delaware's SEP funds have supported rebates and loans for residential efficiency measures through which 3,000 homeowners have improved their home's energy efficiency. Through the same program, 96 solar electric systems, 14 geothermal system installations, one wind system, and one solar thermal hot water system have been supported with SEP funding since 2010.
- Louisiana's Energy Office manages an SEP-funded Home Energy Rebate Option Program (HERO) that offers cash rebates for energy retrofits and provides training and quality control for the energy raters who certify efficiency projects. During the past two years, more than 1,100 existing homes were retrofitted, resulting in a 30 percent average increase in energy efficiency per home completed. SEP funding also supported energy efficiency designs in 565 new homes, resulting in a 35 percent average increase in energy efficiency per home. For

the commercial portion of the program, 89 energy retrofits were completed, resulting in a 25 percent average increase in energy efficiency.

- Nebraska’s Energy Office has operated the Dollar and Energy Saving Loan Program for more than 21 years, which finances energy efficient improvements in homes, farms, ranches, businesses, industrial facilities, schools, and other buildings. SEP funds are leveraged with utility and other funds for a total loan pool of \$36 million. Between 1990 and 2011, 27,339 projects totaling more than \$258.7 million have been financed with low-interest loans from the Energy Office and the state’s 894 participating lender locations. Although the overwhelming majority of loans are for residential projects, in the summer of 2011 the first two public compressed natural gas stations in Omaha were financed with low-interest loans. Defaults of only \$106,000 on the \$258 million in loans has occurred since the program began.
- Oregon, in 2010, issued nearly 77,000 Residential Energy Tax Credits with SEP funding, saving more than \$4 million in energy costs for Oregonians. SEP has also helped fund more than \$11 million of projects in 60 urban and rural school districts across Oregon in the past two years providing for lighting upgrades, window replacements, HVAC improvements, and biomass boiler installations, resulting in enhanced learning environments, reduced energy bills, and contractor jobs. SEP also provided for energy audits that provided work for audit firms and students in the local college energy management program in 101 rural Eastern Oregon school districts participating in the Governor’s School Energy Audit Initiative.

Consumers need more information on energy efficiency. In working with the Senators’ staffs we believe this proposal can really encourage innovation and public-private partnerships. This will build on the work of the revolving loan programs that are operated in over 35 states. Other opportunities include, guarantees, bond financing, on-bill financing, etc. In order to reduce the cost to the U.S. Treasury, the bill is designed through loans to states and tribes. The key criteria are: 1) reduction in energy use and increased energy efficiency; 2) leveraging of non-federal funds; and 3) consumer-friendly financing options.

Separate legislation that is not jurisdictional to this committee would also have a positive impact on residential energy efficiency. The Sensible Accounting to Value Energy Act of 2013 (SAVE Act), introduced by Senators Bennet and Isakson, would encourage the consideration of energy costs in the appraisal process. NASEO supports enabling the consideration of the energy performance of residential properties through the appraisal process. This will be a true market transformation that will build awareness of energy performance and allow for greater transparency to facilitate more informed real estate investments. DOER is managing a residential “HomeMPG” project, also funded through a competitive SEP grant award, to provide property owners in Western Massachusetts with better information about the energy performance of their homes. The Colorado Energy Office recently launched a new partnership with The Appraisal Institute to incorporate building energy elements into a Green Multiple Listing Services (MLS) program.

Benchmarking and CHP bills

Subcommittee Chairman Franken has introduced two innovative bills to promote: 1) building benchmarking—to encourage entities to utilize available resources so they know what they are using in terms of energy; and 2) Combined Heat and Power (Local Energy Supply and Resiliency Act of 2013). We support both bills.

Benchmarking has been used in increasing numbers of jurisdictions so that businesses and consumers know how much energy they are using and can help bridge the “information gap.” As noted above, helping consumers understand their energy use and their energy use patterns is a key first step in appropriately increasing energy efficiency as well as energy conservation behavior. The bill would facilitate benchmarking of federally-leased buildings, require a benchmarking study, and establish a small competitive grant program.

There are a number of good state models in the area of public facility efficiency improvements and benchmarking, such as the following:

- Alaska’s program which established a \$250 million Alaska Energy Efficiency Revolving Loan Fund (AEERLF) to finance public facility energy efficiency improvements, using SEP funds to benchmark 1,300 public facilities in order to identify high—energy use buildings and provide an Investment Grade Audit. SEP funding was also used to develop the Alaska Retrofit Information System (ARIS) database that holds 60,000 records of residential energy audits and benchmark data from the 1,300 public facilities.

- In addition to Minnesota’s groundbreaking benchmarking of state facilities and the creation of a model Energy Savings Performance Contracting Program, 36 facilities were retrofit across the state which are now realizing more than \$3 million in permanent, ongoing annual energy savings through a one-time, \$4.1 million energy upgrade grant program. The grants, funded through SEP, were completed during the past year and are contributing significant energy-savings to commercial, industrial, and nonprofit facilities across Minnesota.

Combined Heat and Power (CHP), district heating and cooling, and waste-heat-to power are an enormous untapped resource in the United States. This bill will help begin to address the economic necessity of encouraging us not to waste energy. Industrial and commercial facilities throughout the United States presently use these technologies. Unfortunately, the upfront costs tend to be high. The positive impacts on economic productivity, especially when measured against our foreign competition, is critical to our nation’s future. Flexible actions are the key to success. A number of the state energy offices are involved in promoting these activities. Ohio is among the states taking action to support industrial efficiency and CHP through actions such as the state’s Energy Efficiency Program for Manufacturers (EEPM) program, which provides facilitation services and financial assistance to Ohio manufacturers to diagnose, plan, and implement cost-effective energy improvements at their facilities, estimates energy savings of 28,331,432 kwh/year (electric) and 876,349 MMBTU/year (gas, oil, other) through \$21 million in grants supported by SEP. There are other examples and district heating systems have been operational for decades. The benefits for economic development cannot be overstated.

Combined Heat and Power (CHP) can be a cornerstone to efficiency gains and add resiliency, as communities and businesses diversify their fuel supply. Massachusetts has been effective in driving more adoption of CHP in our industrial, commercial, institutional, and multiunit residential sectors. The Commonwealth deploys two mechanisms to support CHP. The first is through the energy efficiency programs, based on projected energy savings. The second is through the Alternative Energy Portfolio Standard, where annual payments are achieved as a matter of system performance.

The success of these programs is supported by the Northeast CHP Application Center, one of the regional Centers supported by DOE across the country. The Northeast CHP Application Center, co-located at Pace University and the University of Massachusetts Amherst, provides important policy and market support and technical assessments directly to industry. Federal funding for this Center is highly leveraged by our programs and affords opportunities for industrial facilities to drive down their energy costs.

Tenant Star (S. 1191)

The Bennet-Ayotte “Better Buildings Act” (Tenant Star) (S. 1191) would help address the “split incentives” problem that exists which discourages energy efficiency investments by both tenants and landlords. The people paying the bill don’t generally get the benefits of energy efficiency investments. This voluntary effort should help break down these problems. Tenant Star should be read in conjunction with Section 201 of Shaheen-Portman (S. 761), which would help provide financing for large and small commercial building energy efficiency retrofits.

Massachusetts believes that there is a need for a transformation of the manner in which commercial markets consider energy use and cost. Information about the energy performance of a building can be difficult to ascertain and the incentive programs do not always benefit the bill payer.

In recent years state energy offices and their private sector allies have tried to address problems such as the split incentive, in both the residential and commercial markets, and to provide market actors with more accessible and accurate information about the energy performance of building assets, with which we believe they are better able to make informed investments.

For example, a 2012 analysis of the potential gas and electric savings in Massachusetts’ commercial sector suggests that nearly 38 percent of the electric savings and 55 percent of the gas savings reside in office buildings. In such properties, where a high proportion of occupants lease space from the building owner, investments in the building’s major assets may be a low priority for owners as the performance benefit, in the form of lower utility bills and increased comfort accrue to the tenant. For this reason, DOER and one of the state’s largest utilities,

Northeast Utilities, have convened a Commercial Real Estate Working Group to address problems such as this split incentive. Additionally, DOER’s Building Asset Rating (BAR) pilot, which is funded by a competitive SEP grant, seeks to develop new, low cost methods to assess the energy performance of buildings. These new methods conduct an analysis in a fraction of the time and cost of conventional tech-

niques and with a lower barrier to information, DOER hopes they will provide the market with more information about building energy use to drive increased investment in energy efficiency.

NASEO also supports this bill.

School Retrofits Legislation (S. 1084)

NASEO also supports the Udall-Collins "Streamlining Energy Efficiency for Schools Act" (S. 1084). Both Senators have worked on school energy issues for many years. NASEO worked with Senator Udall's staff in the House when they were first developing energy efficiency schools legislation. Many of the innovations in school energy efficiency programs stemmed from the Institutional Conservation Program (ICP)(42 U.S.C. 6371e), which has not been funded for many years. This program began in the 1970s, but in 1986, through an amendment to an annual appropriations bill pushed by Iowa and Oregon (and their Senators), these states were able to utilize their ICP funds to promote alternative delivery systems. Oregon had prepared bond financing, which it implemented, while using the small amount of federal ICP dollars to support the private financing. It produced much greater leverage. In Iowa, they established a Schools Facilities Program, in which the state energy office utilized an RFP to bring in the best financing available, developed fill-in-the-blank forms for the school superintendents, prequalified engineers to evaluate energy efficiency upgrade options and do all the legal work necessary to get the program going. The hundreds of school districts utilized this program, with private financing, and it achieved over 100 percent of projected savings with net-present-value paybacks of less than 6 years for measures.

In Massachusetts, we have several relevant models that we have implemented in both state and local facilities. The schools sector has been a real test-bed for energy service performance contracts, and we would expect that the Udall-Collins bill will help with this set of activities. The states stand ready to help implement S. 1084, in conjunction with the schools.

We support the legislation.

Non-Profit Grants Program (S. 717)

Senators' Hoeven and Klobuchar have introduced "The Non-Profit Energy Efficiency Act" (S. 717), which is intended to provide funding from DOE to non-profits, including religious institutions, to provide energy efficiency upgrades to these facilities. A number of state energy offices have programs targeted to non-profits and look forward to expanding those activities. S. 717 could be a key asset in this effort. We are concerned that the \$50 million authorization takes funds, generically, from the buildings technology office at DOE, which is already underfunded. We hope to work with the sponsors and the outside groups to identify alternatives. Otherwise, the bill is well-grounded and provides the opportunity for states to work with these institutions. We have not had the opportunity to examine individual state laws or constitutional constraints that may limit the ability in certain areas to provide funding. We have been assured by the outside groups that this situation has been addressed.

CONCLUSION

We applaud the Subcommittee for holding this hearing. As noted above, we support the legislation being considered and we encourage an early mark-up, with full Senate consideration quickly.

Senator FRANKEN. Thank you, Mr. Sylvia.

Mr. Spurr.

**STATEMENT OF MARK SPURR, LEGISLATIVE DIRECTOR,
INTERNATIONAL DISTRICT ENERGY ASSOCIATION**

Mr. SPURR. Chairman Franken, Ranking Member Risch and members of the committee, I want to thank you for inviting me to talk with you today about opportunities to reduce energy waste and strengthen the resilience of our energy infrastructure.

My name is Mark Spurr. I'm Legislative Director for the International District Energy Association. This is a group formed 104 years ago to improve the efficiency of thermal energy delivery.

I'm also President of FEB Energy which is an international consulting firm that focuses on energy efficiency.

I want to congratulate Senators Shaheen and Portman on S. 761. It's an outstanding bipartisan bill that will help increase energy efficiency in 2 important sectors, buildings and industry.

I invite the committee to consider the broader picture of U.S. energy use and how S. 761 can be amended to make significant additional strides in reducing energy waste. We can do this by considering not only the buildings and industrial sectors, but also the potential synergies between these sectors as well as with a broad array of energy resources that exist in every State represented at the U.S. Senate. Of particular note is a huge energy consuming sector that is not considered in S. 761 and that's power generation.

When you look at the total picture of U.S. energy use what is striking is that based on DOE data 36 percent of total national energy consumed is wasted, largely in the form of heat from power generation, industry and buildings. We've heard several times today a figure of 57 percent which is also correct. However, given the difficulty of chasing around millions of cars and trying to harvest the waste heat from the tailpipes, we're focusing on the waste heat that we have a prayer of actually recovering. That's the 36 percent.

I know that Senator Manchin has called attention to this issue in prior committee deliberations on S. 761. Speaking of power generation, which is currently only 32 percent efficient, Senator Manchin commented we have a lot of waste there. He's quite right.

I believe this committee is well aware that combined heat and power systems are highly efficient. They generate power while recovering the normally wasted heat boosting efficiency from the current 32 percent to over 80 percent. DOE has estimated that increasing CHP from its current 9 percent share of U.S. electric power to 20 percent by 2030 would create more than 1 million new high skilled jobs.

So, how do we get there?

It's important to note that CHP is more cost effective at larger scales. Industrial plants can provide those economies of scale. So can district energy systems.

District energy systems supply hot water or steam and chilled water to buildings for space heating, domestic hot water, air conditioning and industrial process energy. These systems pool the thermal users to accommodate larger, more cost effective CHP units. District energy systems exist in all 50 States and cities, colleges, universities, industrial facilities, hospitals and military bases.

District energy systems are critical to more widespread implementation of CHP because they provide not only economies of scale but also because they're usually operated by organizations that have a long term economic perspective. Existing district energy systems represent a substantial heat sink for implementation of combined heat and power.

Beyond CHP, there are plenty of other sources of local energy, homegrown energy sources that exist in our backyards. I noted a few examples in my testimony. I would be happy to elaborate as time permits.

Mr. Chairman, with your permission I'd like to call 6 additional witnesses to this hearing. Their names are Sandy, Katrina, Ike, Irene, Gustav and Wilma. Beyond huge property damage these

storms resulted in enormous economic losses from interruption of business operations, reducing output, income and employment.

For example, Moody's Analytics attributed nearly \$20 billion in losses from suspended business activity just due to super storm Sandy.

CHP and other local energy sources are inherently more resilient to disruption from natural disasters or other events that interrupt energy supply from complex and interconnected grids. CHP systems can be designated to operate in island mode during a grid outage and have demonstrated that they can keep the power on, keep businesses running and continue to keep people warm in the winter and cool in the summer even when the power grid is down.

I cited a few examples in my written testimony. I'd be happy to elaborate as we have time.

I urge your support for S. 1205, recently introduced by Senator Franken. The Local Energy Supply and Resiliency Act will help industry, universities, hospitals, cities and others implement combined heat and power, capture industrial waste heat and use renewable resources for heating, cooling and power generation. It will also strengthen our ability to keep the lights on, keep buildings comfortable, keep people safe and enable uninterrupted business operations during increasingly common severe weather events.

I greatly appreciate the opportunity to talk with you today. I would be happy to answer any questions.

[The prepared statement of Mr. Spurr follows:]

PREPARED STATEMENT OF MARK SPURR, LEGISLATIVE DIRECTOR, INTERNATIONAL DISTRICT ENERGY ASSOCIATION

Chairman Franken, Ranking Member Risch, and Members of the committee, thank you for inviting me to testify today on behalf of the International District Energy Association regarding opportunities to reduce energy waste and strengthen the resilience of U.S. energy supply infrastructure.

I want to congratulate Senators Shaheen and Portman on S.761—the Energy Savings and Industrial Competitiveness Act of 2013. It is an outstanding bipartisan bill that will help increase energy efficiency in two important sectors: buildings and industry.

I invite the committee to consider the broader picture of U.S. energy use, and how S.761 can be amended to make significant additional strides in reducing energy waste. We can do this by looking at energy efficiency holistically, considering not only the buildings and industrial sectors but also the potential synergies between those sectors as well as with a broad of energy sources right in our own backyards. Of particular note is a huge energy consuming sector that is not considered in S.761: power generation.

Lawrence Livermore National Laboratory produces a flow diagram showing the total picture of U.S. energy use, based on data from the U.S. Department of Energy. I've included the 2011 version as Figure 1* on the next page. It shows how each source of fuel flows through five energy-using sectors: power generation, residential buildings, commercial buildings, industry and transportation.

What is striking is that of the total 97.3 quadrillion Btu (quads) of energy consumed, only 43 percent was converted to useful energy, and 57 percent was wasted (or, in the more neutral term, "rejected"). Of the wasted energy, power generation and transportation loom large. Boiling down the data, Figure 2 shows that 36 percent of our total national energy use is waste energy—largely in the form of heat—from power generation, industry and buildings.

I know that Sen. Manchin has called attention to this issue in prior committee discussion of S.761. Speaking of the power generation sector, which is only 32 percent efficient, Sen. Manchin commented "We have a lot of waste there." He's quite right.

* All figures have been retained in subcommittee files.

Combined heat and power (CHP) refers to a set of technologies for generating power while recovering the normally-waste heat, boosting efficiency to over 80 percent. The recovered heat can be used for industrial process heat, space heating and/or domestic hot water, or can be converted to cooling for industrial processes or air conditioning.

CHP currently represents 82 GigaWatts (GW) or about 8 percent of U.S. power generation capacity, compared to 30 percent or more in European countries such as Denmark, Finland and the Netherlands.

A recent study estimated a technical potential of 125 GW in additional CHP capacity in systems below 100 MegaWatts (MW) in size. Of the technical potential for new CHP capacity, 56 GW is in the industrial sector and 69 GW is in the commercial sector. Of the total technical potential, it is estimated that 6 GW has strong economic potential (payback less than 5 years), 35 GW has moderate economic potential (payback 5-10 years) and 82 MW has low economic potential (payback exceeds 10 years).¹

The Department of Energy has estimated that increasing CHP from its current 9 percent share of U.S. electric power to 20 percent by 2030 would:

- Avoid 60 percent of the projected increase in U.S. carbon dioxide emissions (equivalent to taking half of all U.S. passenger vehicles off the road);
- Create more than 1 million new, high-skilled jobs here in the U.S.; and
- Generate \$234 billion in new investments.²

Economies of scale make it more cost-effective to install CHP in sizes above 5 MW, which is why district energy systems are critical to more widespread implementation of CHP.

District energy systems supply hot water or steam and chilled water to buildings for space heating, domestic hot water, air conditioning and industrial process energy. These systems pool the thermal users to accommodate larger, more cost-effective CHP units. Widespread use of district energy is the reason that countries like Denmark and Finland have high levels of CHP.

District energy systems help increase CHP because they pool the thermal users to accommodate larger, more cost-effective CHP units. District energy systems represent a substantial “heat sink” for further implementation of CHP. Many U.S. cities, colleges, universities, industrial facilities, hospitals and military bases use district energy. These systems exist in all 50 U.S. states. Landmark buildings like the White House, U.S. Capitol and Supreme Court, Empire State Building, Mayo Clinic and Harvard Medical School use district energy. District energy systems serve over 8 billion square feet of building space, equal to 12 percent of total commercial floor space.³ About 13 percent of U.S. district energy systems incorporate CHP.⁴

Beyond CHP, there are plenty of other sources of local energy—“home-grown” energy sources that exist today in our backyards. For example:

- Most of the buildings in downtown St. Paul, Minnesota are heated and cooled using energy that literally comes from residents’ backyards: tree trimmings and other waste wood. This community waste material is converted to supply heating, cooling and electricity.
- In Detroit, Michigan, the downtown district energy system fueled with municipal solid waste.
- Both the University of Iowa and the University of Minnesota have used oat hulls, a food processing waste, as fuel.
- Lake Cayuga is in Cornell University’s backyard. Cornell constructed a piping system which uses the naturally occurring cold lake water for air conditioning, cutting power consumption by 87 percent.
- Montpelier, Vermont broke ground in April on a district heating system to be fueled with local wood.
- The Oregon Institute of Technology uses a resource under its backyard— geothermal hot water that provides a clean, renewable source of campus heat.

¹The Opportunity for CHP in the United States, ICF International, May 2013.

²U.S. Department of Energy, “Combined Heat and Power: Effective Energy Solutions for a Sustainable Future” (Dec. 1, 2008), p. 3-4.

³Commercial Buildings Energy Consumption Survey, 2003, U.S. Energy Information Administration, with updated based on data collected by the International District Energy Association.

⁴Energy and Environmental Analysis Inc. and IDEA, District Energy Services: Commercial Data Analysis for EIA’s National Energy Modeling System, August 2007; unpublished surveys by IDEA, 2003-2009.

- A BMW manufacturing plant in Spartanburg, SC uses local landfill gas as a CHP fuel. Combustion turbines produce 11 MW of electricity as well as process steam.
- Cox Interior is a Kentucky company that makes interior and exterior finishing products. They use wood waste from their manufacturing process to fuel a 5 MW CHP system, providing process power and heat.

Hurricanes Sandy (2012), Irene (2011), Gustav (2008), Ike (2008), Katrina (2005) and Wilma (2005) brought power grids down, causing huge economic losses in output, income and employment. The Northeastern blackout in 2003 was not caused by severe weather but by transmission system failures, but also resulted in substantial economic losses as data centers, factories, hospitals, offices and other employers shut down.

The economic losses from energy supply disruption from interruption of business operations are enormous. For instance, economic research firm Moody's Analytics attributed nearly \$20 billion in losses from suspended business activity just due to Superstorm Sandy.⁵ Rutgers recently published a report that estimates economic losses, not including damages to physical structures, of approximately \$11.7 billion in state Gross Domestic Product (GDP).⁶ The study found that overall GDP losses could have been reduced in New Jersey if there had been additional backup sources of power such as CHP, which would have lessened the economic losses associated with power outages.

In 2001 report,⁷ the Electric Power Research Institute (EPRI) evaluated industrial and digital economy businesses to determine the economic costs of power outages and power quality disturbances, focusing on 3 sectors:

1. Digital Economy (DE) sector: comprised mainly of data storage and retrieval, data processing, or research and development operations such as the telecommunications, data storage, biotechnology, electronics manufacturing, and the financial industry.
2. Continuous Process Manufacturing (CPM) sector: comprised of manufacturing facilities that continuously feed raw materials through an industrial process such as the paper, chemical, petroleum, rubber and plastics, stone, clay, glass, and primary metals industries.
3. Fabrication and Essential Services (F&ES) sector: all other manufacturing industries, plus utilities and transportation facilities, water and wastewater treatment, and gas utilities and pipelines.

Although these three sectors only accounted for 17 percent of all U.S. businesses, they amounted to 40 percent of U.S. GDP. The study found that industrial and digital economy firms are losing about \$45.7 billion per year due to power outages, with an additional \$6.7 billion in costs resulted from power quality disturbances other than outages. The EPRI study concluded that the cost of power outages for all industry combined is an estimated at \$120 to \$190 billion per year.

The total cost of business interruptions from the 2003 Northeastern blackout, which lasted 2 days, have been estimated as follows: 1) Anderson Economic Group⁸—\$4.5 to \$8.2 billion; 2) U.S. Department of Energy⁹—\$6 billion; and 3) ICF Consulting¹⁰—\$7 to \$10 billion.

CHP and other local energy sources are inherently more resilient to disruption from natural disasters or other events that interrupt energy supply from complex and interconnected grids. CHP systems can be designed to operate in "island" mode during a grid outage. CHP and district energy systems have demonstrated that they can keep the power on, keep factories and business running, and continue to keep people warm in the winter and cool in the summer even when the power grid is down.

⁵ <http://money.cnn.com/2012/10/29/news/economy/hurricane-sandy-business/index.html>

⁶ Rutgers Regional Report, The Economic and Fiscal Impacts of Hurricane Sandy in New Jersey, January 2013.

⁷ Consortium for Electric Infrastructure to Support a Digital Society (CEIDS), An Initiative by EPRI and the Electricity

⁸ Anderson, Patrick L. and Ilhan K. Geckil, "Northeast Blackout Likely to Reduce US Earnings by \$6.4 Billion," AEG Working Paper 2003-2, August 19, 2003

⁹ Transforming the Grid to Revolutionize Electric Power in North America, Bill Parks, U.S. Department of Energy, Edison Electric Institute's Fall 2003 Transmission, Distribution and Metering Conference, October 13, 2003.

¹⁰ The Economic Cost of the Blackout: An Issue Paper on the Northeastern Blackout, ICF Consulting, August 14, 2003.

A recent report for Oak Ridge National Laboratory¹¹ notes: “When Superstorm Sandy made landfall on the eastern coast of the United States—New Jersey, New York and Connecticut were the most heavily hit areas.

Extended power outages affected the region for days. However, some commercial and industrial facilities in the area were able to power through Superstorm Sandy due to onsite CHP.” Here are very brief summaries of some of case studies presented in that report:

- Princeton University—Princeton, NJ.—During Superstorm Sandy, Princeton disconnected from the grid and used its district energy CHP system to power the campus. The CHP system was also able to provide uninterrupted steam and chilled water service. Many staff members stayed overnight at the University because of the storm. CHP was vital to maintaining important university facilities such as research labs, experiments and data that could have been compromised by a loss of power.
- Louisiana State University—Baton Rouge, LA.—For four days during Hurricane Gustav in 2008, the CHP system provided electricity to critical sections of the campus. During Hurricane Katrina, LSU stayed on-line and never lost power, which allowed the school to continue to operate and allow administrative offices of the University of New Orleans and the LSU Medical School to relocate to the main LSU campus.
- Nassau Energy Corporation—Garden City, NY.—During Superstorm Sandy, the CHP system was able to continue supplying power to the grid, and also maintained the supply of thermal energy to the Nassau University Medical Center, Nassau Community College, and all other end-use customers. Nassau Community College served as an emergency shelter during the hurricane and provided services to over 1,000 people displaced by the storm for about a month and a half. A representative from the Community College said that the College has never experienced any disruptions in service from the district energy CHP system.
- South Oaks Hospital—Amityville, NY.—South Oaks isolated itself from the grid on the evening of October 28 and remained disconnected from the grid for 15 days. South Oaks was able to provide critical services relying solely on their CHP system. They admitted patients from other sites that had been displaced by the storm. They offered refrigeration for vital medicines to those who had lost power and had no means of keeping medicines refrigerated.
- Greenwich Hospital—Greenwich, CT.—Due to its CHP system, Greenwich Hospital was able to continue normal operations throughout the storm. The hospital admitted additional patients during the outage period. In addition, 150 extra staff stayed overnight to ensure the hospital remained fully functioning.
- Public Interest Data Center—New York, NY.—During the storm the power to the building and surrounding area was out for over two days; however, the data center was able to remain fully operational. Even though the areas surrounding the building were out of power, employees of PINS were able to come into the office and resume their normal functions. In addition to keeping the power and cooling operational for the data center, the CHP system was also able to provide the building landlord with power to continue to run their computer and security systems.
- New York University—New York, NY. NYU’s core campus maintained both power and heat during Superstorm Sandy because of its CHP system. The system provided uninterrupted electricity, heating, and cooling to the campus, and also enabled NYU and City officials to set up a command post on the campus as well as serve area residents forced to evacuate their homes.

I urge your support for legislation introduced by Sen. Franken. The Local Energy Supply and Resiliency Act (LESRA) will help industry, universities, hospitals and others implement CHP, capture waste heat and use renewable resources for heating, cooling, and power generation. It will also strengthen our ability to keep the lights on, keep buildings comfortable and enable uninterrupted business operations.

Industrial competitiveness will be enhanced by LESRA because it will help steel mills, paper mills and other businesses develop new revenue streams. LESRA will also help communities, universities and others reduce energy costs, reduce emissions and enhance energy supply resiliency.

The bill establishes two programs:

¹¹ Combined Heat and Power: Enabling Resilient Energy Infrastructure for Critical Facilities, prepared for Oak Ridge National Laboratory, ICF International, March 2013.

- **Technical Assistance Program.**—The bill establishes a grant program in the Department of Energy to provide technical assistance for identifying, evaluating, planning and designing waste heat recovery systems for the purposes of heating, cooling, and power generation. This program helps for-profit and nonprofit entities identify opportunities, assess feasibility, overcome barriers to project implementation, conduct financial assessments and perform the required engineering. Authorized appropriations: \$150 million over the period 2014 to 2018.
- **Local Energy Infrastructure Loan Guarantee Program.**—The bill authorizes the Department of Energy to provide loan guarantees to projects that: 1) recover waste heat or use local renewable energy for heating or cooling; 2) generate power locally with CHP or renewable energy; 3) distribute power in microgrids, or 4) distribute heating or cooling energy to buildings. Reducing interest costs is the key to implementing highly efficient and resilient energy infrastructure. Unlike past DOE loan guarantees for innovative technologies, this program would focus on proven technologies, with the goal of reducing interest costs for local energy infrastructure. Funds to carry out the program will come from user fees and unused funds that were previously appropriated.

Thank you for the opportunity to speak with you today.

About the International District Energy Association

IDEA is a non-profit trade association founded in 1909 to facilitate the exchange of information among district energy professionals. IDEA currently has 1733 members in 27 countries, and is governed by a 20-member, all-volunteer Board of Directors. IDEA's mission is to foster the success of its members as leaders in providing reliable, economical, efficient and environmentally sound district energy services. IDEA promotes energy efficiency and environmental quality through the advancement of district heating, district cooling and cogeneration (also known as combined heat and power or CHP).

Senator FRANKEN. Thank you, Mr. Spurr.
Mr. Molotsky.

STATEMENT OF BRAD A. MOLOTSKY, EXECUTIVE VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY, BRANDYWINE REALTY TRUST, ON BEHALF OF THE REAL ESTATE ROUNDTABLE

Mr. MOLOTSKY. Good afternoon, Chairman Franken, Ranking Member Risch and Senator Sanders. Thank you for the opportunity to testify today. My name is Brad Molotsky. I am the Executive Vice President and General Counsel of Brandywine Realty Trust, one of the Nation's largest commercial office building owners with over 30 million square feet of built and owned space.

I'm here today on behalf of the Real Estate Roundtable where I currently serve as the Vice Chair of its Sustainability and Policy Committee. My comments will focus on S. 1191, the Better Buildings Act introduced by Senators Bennet and Ayotte.

This is a priority initiative for the roundtable and many other real estate stakeholders. Yesterday a letter signed by over 50 organizations and companies, representing over 5 billion square feet of built space, including real estate firms, trade associations and environmental advocates, all lined in support of the bill was sent to the committee.

The Better Buildings Act is innovative in that it's readily actionable and potentially transformative energy policy. It imposes no mandates and as Senator Risch had indicated earlier, no additional regulations. It comes at no cost to taxpayers because it builds upon already existing, highly successful programs already existing with the EPA and DOE which have already achieved extraordinarily high levels of market penetration throughout the Nation's commercial real estate markets.

S. 1191 is unique and powerful and will be a piece of legislation because it focuses on the end users of energy. In my sector, which is the commercial buildings environment, this is the tenant. Tenants in our office buildings tend to use well over 50 percent of the energy in the building. Lights and plug loads being the main culprit.

Visualize for a moment all the data, Senators, to law firms, the banks, the restaurants, the stores that lease space in commercial office buildings.

Think about the spaces leased in buildings to medical offices and high tech companies like Google, Facebook and LinkedIn. Now think in that space about all of the computers, monitors, printers, coffee machines, vending machines and cell phone chargers being used each and every day.

Now consider how those office spaces are lit, heated and cooled. Over 70 billion square feet of built space in the United States uses these types of devices every single day, 365 days a year.

Now consider how and when those devices are turned off or down at night and if in fact they are at all.

The Better Buildings Act will help focus attention on these types of consumption and move the market forward to reduce it.

Meaningful efficiency legislation should, as the bill indicates, encourage commercial tenants to work with their landlords to design, construct and operate within leased spaces to achieve optimal levels of energy performance. That, in fact, is the Better Buildings Initiative or Better Buildings Act objective. To date much of the policy coming from Congress and the Federal agencies focused on what owners can do at the whole building level. A worthy endeavor and initiative, but it only hits on half of the puzzle and as I said earlier tenant's consumption in their built space consumes the other 50 percent via plug load and lighting.

As Senator Bennet noted in his comments earlier today the Better Buildings Act recognizes that energy efficiency in buildings must be tackled both from the top/up and the bottom or reverse that from the bottom/up and the top/down. S. 1191 centerpiece revision is known as Tenant Star. It would give tenants in leased spaces the same opportunity for energy efficiency recognition that building owners like me currently receive from the EPA through the Energy Star label.

The Energy Star label for buildings is something that has helped transform the real estate markets by bringing focused energy consumption within the built environment. It's free and it's voluntary and it provides a marketing incentive that is a powerful motivator toward higher performing buildings.

I'd like to refer to pages 9 and 10 of my written testimony which describes a huge success that Energy Star's building program has had to date. Namely over 240 thousand buildings in the United States, out of over 5 million buildings that exist, use portfolio manager to measure their energy consumption. While 240 thousand buildings is a mere 5 percent of the building stock in the United States, in terms of the square footage it represents, those 240 thousand buildings represent 27.5 billion square feet out of 70 billion square feet of built space.

Suffice it to say that buildings rated by the EPA's Energy Star are located in every single State in the country. Energy Star certified buildings with scores of over 75 represent over 3 billion square feet of that inventory. EPA estimates that these buildings alone help save businesses more than \$2.7 billion annually in energy costs.

Clearly Energy Star for the whole building has positively impacted the real estate markets. Imagine, however, the added benefit we would see if tenants also get similar opportunities for recognition via S. 1191 Tenant's Star program. A national platform for Tenant Star spaces in Energy Star buildings could very easily reshape how commercial landlords and tenants interact together on energy use and help create a more collaborative exchange between the 2 parties most needed to overcome inertia to not doing anything in the middle of a lease term and to breaking down the split incentive barriers that exist in certain markets of energy efficiency investments.

I speak a bit from experience. Because at Brandywine we've engaged with a large 125 thousand square foot new tenant Reed Smith. At the beginning of the lease term, prior to their build out and connected them with the NRDC Center for Market Innovation which is doing some ground breaking work on the high performance lease space demonstration project at the Empire State Building and elsewhere. This upfront innovative focused collaborative effort will allow them to save over \$1.5 million over the term of their lease which they can then reinvest in people, plant and equipment inside their law firm.

With the national Tenant Star platform envisioned by Senators Bennet and Ayotte there will be important recognition based incentives to encourage more landlords to work with their tenants in the common goal of lowering energy consumption across the United States.

In summary it's my view and that of the Roundtable that Congress should enact the Better Buildings Act as its earliest opportunity. Together we can reduce the over \$210 billion we all spend on energy in the built environment. A 10-percent reduction via energy efficiency gains can and will make a difference for all of us, each and every year, the gift that keeps giving.

Saving energy is much less expensive to our Nation and better, frankly, for our collective health and now the planet than producing more energy. With this bill it can be done. Enacting the Better Buildings Act and Tenant Star will help us take a big step toward making that goal a reality.

I thank you and I appreciate any questions you would have.
[The prepared statement of Mr. Molotsky follows:]

PREPARED STATEMENT OF BRAD A. MOLOTSKY, EXECUTIVE VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY, BRANDYWINE REALTY TRUST, ON BEHALF OF THE REAL ESTATE ROUNDTABLE

Introduction

Chairman Franken, Ranking Member Risch, and Members of the Energy Subcommittee, thank you for the opportunity to testify at this hearing on pending energy efficiency legislation.

My name is Brad A. Molotsky, and I am the Executive Vice President, General Counsel and Secretary of Brandywine Realty Trust (<http://>

www.brandywinerealty.com/.) My curriculum vitae is attached for your reference. I am currently Vice Chair of the Sustainability Policy Advisory Committee (SPAC) of The Real Estate Roundtable (www.rer.org), and appear before you on its behalf. 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. Gerard H. Sweeney, Brandywine's President and CEO, is one of The Roundtable's members.

Of the bills that the subcommittee is considering today, my statement will focus on and emphasize S. 1191, the "Better Buildings Act," introduced by Senators Michael Bennet (D-CO) and Kelly Ayotte (R-NH). Companion legislation has also been introduced in the House (H.R. 2126) by Representatives David McKinley (R-WV) and Peter Welch (D-VT).

As explained in more detail below, the Better Buildings Act will help drive commercial real estate markets across the nation to become more energy efficient through a voluntary, non-regulatory, non-financial, recognition-based program. This bill requires no appropriations, because it would build upon existing, highly successful partnership programs between the Environmental Protection Agency ("EPA"), the Department of Energy ("DOE"), and the private sector real estate community. S. 1191 has garnered widespread support from a diverse group of real estate and energy advocacy stakeholders, as evidenced by the letters to Senate and House energy committee leadership that are attached to this statement.

(II) Brandywine Realty Trust and its Commitment to a Sustainable Real Estate Portfolio

I would like to provide a bit of context as to my company and our commitment to owning and managing a high performance real estate portfolio. Brandywine Realty Trust (NYSE: BDN) is headquartered in Radnor, PA, and is one of the largest, full-service, integrated real estate companies in the nation. Organized as a real estate investment trust (REIT), Brandywine owns, leases and manages an urban, town center and suburban office portfolio of over 30 million square feet with properties in California, Delaware, Maryland, Metro DC, New Jersey, Pennsylvania, Texas, and Virginia.

An energy efficient real estate portfolio lowers utility bills and other operating costs. Minimizing energy use in our buildings is not simply good business for Brandywine and our tenants, but also responds to investors who increasingly demand more efficient and environmentally-responsible performance. Sustainability and energy efficiency are thus among Brandywine's core values, consistent with an overall commitment to provide excellent office environments to our customers, our employees and our vendor service providers. As part of our management structure, we have established a Sustainability Advisory Group led by a coordinator who organized a "Green Team" that meets on a regular basis to develop and prioritize corporate-wide policies and practices, makes recommendations to the Senior Management Committee, and keeps sustainability initiatives at high levels of awareness in our company through employee education and discussion programs. The Green Team is responsible for providing periodic reports to Brandywine's management and for posting results on-line regarding progress in minimizing our company's environmental footprint—reflected in policies such as those that encourage energy conservation in our assets' heating, cooling and lighting systems; negotiations with tenants and utilities to realize higher and more efficient performance from our buildings and spaces; use of sustainability criteria in the purchase of supplies, equipment, and services; and waste reduction and recycling platforms to minimize disposables and packaging, and foster the reuse of equipment and supplies where feasible.

As a result of these and other efforts, Brandywine is proud to have been distinguished with several of the real estate industry's prominent awards that recognize leadership in sustainability including an EPA Energy Star Partner of the Year (2013); Honorable Mention for NAIOP Sustainable Development Award—2012; Finalist for NAIOP Developer of the Year 2012 and 2013; Pinnacle Award Winner for our sustainable efforts; and NAREIT Leader in Light Silver Award winner (2011).

Brandywine's Voluntary Participation in the EPA ENERGY STAR Program and Tenant Engagement on Energy Efficiency

As S. 1191 draws heavily on the market acceptance of EPA's ENERGY STAR program for commercial buildings, it is worthwhile to discuss Brandywine's voluntary

commitment to the program. In 2009, eight of the approximately 260 buildings in our real estate portfolio at that time were labeled as ENERGY STAR. Today, we have 97 ENERGY STAR-labeled buildings, representing over 14.5 million square feet of our owned portfolio as labeled by EPA (i.e., receiving a “75” score or higher on the agency’s rating scale). This represents over 50 percent of Brandywine’s owned square footage, and over 75 percent of buildings where utility meters are in our name and where we can fully benchmark those assets ourselves. Monthly data from these meters is automatically fed into EPA’s energy consumption benchmarking tool, Portfolio Manager; no human interaction is needed to direct this data or to return it to us with our ENERGY STAR scoring. The energy consumption data is then provided back to us on a per building basis, and shared every month with our Property Managers for over 205 assets that we presently own. This process reveals to us the “top performers” in our portfolio that strive for the ENERGY STAR label, and those that can improve their energy performance with positive impacts from equipment, behavioral changes, and/or increased education.

As a result of and in connection with Brandywine’s voluntary involvement in the ENERGY STAR program and our use of the Portfolio Manager benchmarking tool, we have:

- Engaged a local company out of Richmond, VA to check 25 buildings in our Pennsylvania portfolio to confirm and fix metering configurations and assist in reducing consumption;
- Developed building-by-building energy plans in our Northern Virginia portfolio to review and reduce consumption;
- Automated our Richmond portfolio with Trane system controls that measure building energy consumption daily via pulse meters, and which send warning emails to our engineers when tolerance is out-of-kilter or if set points (start and stop times) are off by five percent;
- Retrofitted all parking lots serving our Richmond buildings with LED fixtures—which will save wattage and extend useful life ten-fold;
- Retrofitted lobby and elevator lights in selected buildings in the Philadelphia, PA central business district, thereby reducing consumption and extending useful life—and using all local workers.
- Participated in EPA’s national “Battle of the Buildings” competition—a “biggest loser” program to recognize buildings that lower the most energy consumption over a 12-month period—where our participating assets have placed in the top 10-15 office buildings nationwide over the last two years.

Finally, while the energy measures I discussed above are steps Brandywine has taken that are within our control, the work we have started to better align tenants with our ENERGY STAR-related goals warrants a brief description. We have directly engaged with a tenant prospect and connected them with the team at NRDC’s Center for Market Innovation, which is assisting them with an integrated design for their energy usage in a new leased space “fit-out.” This high performance new tenant space design should save this tenant approximately \$1.25 million dollars in utility costs over the leased term (i.e., the savings are between \$.85 to \$1.00 per square foot in a 225,000 square foot leased space). With another set of tenants in the middle of their leases, we have agreed to a 50/50 split to share the costs of lighting upgrades. The payback on this effort was less than three years, which was inside the lease term—a great result for the tenants and for our building’s performance. Also, we have met with various tenants to engage them in discussions about how they can better manage “plug loads” and lighting loads within their leased spaces via wireless devices (e.g., Modlet and BERT).

In short, Brandywine’s voluntary commitment to ENERGY STAR has had a profound impact across our real estate portfolio. Creating a brand of EPA recognition for tenants in our buildings—as the Bennet-Ayotte bill (S. 1191) would accomplish—will allow us to better engage on energy efficiency initiatives with our key customer base, and can help achieve an even higher level of energy performance in our assets.

(III) Fast Facts on Energy Efficiency

As part of an “all of the above” energy policy, the Subcommittee is right to emphasize efficiency legislation. The following “fast facts”¹ from EPA, DOE’s Energy Information Administration, and other sources confirm that the cheapest barrel of oil or the least expensive kilowatt of energy is the one that is avoided. Programs to encourage energy efficiency are the most effective and lowest-cost measures in moving

¹ <http://www.energystar.gov/ia/business/challenge/learn—more/FastFacts.pdf>.

our nation closer to energy independence, and spurring U.S. job growth in a globally competitive “new energy economy”:

- There are over 5 million commercial buildings and industrial facilities in the U.S., totaling about 70 billion square feet.
- The vast majority of commercial buildings standing today will be with us for decades and into the middle of this century. For example, in New York City, as much as 85 percent of commercial buildings that exist today will still be standing in 2030.²
- Commercial buildings account for approximately 20 percent of the nation’s energy consumption, and as much as 80 percent of energy consumed 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 every year if the energy efficiency of commercial buildings and industrial facilities improves by 10 percent.
- The basic tools to retrofit buildings—like efficient furnaces, boilers, water heaters, and spray foam insulation—are manufactured here in the United States and not in China, Germany, or elsewhere overseas.³ Construction workers on retrofit projects rely on local workforce resources where, obviously, buildings are located.
- Saving energy is cheaper than producing energy. Our country should pursue an “all of the above” energy policy, but it is important to recognize the cost of a kilowatt hour of energy saved is cheaper than the cost of an equivalent kilowatt hour of energy produced:

²PlaNYC, “Greater Greener Buildings Plan”: http://www.nyc.gov/html/gbee/downloads/pdf/greener_greener_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

- According to a report⁶ released 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.

⁴ 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-reports/0922>.

⁵ Costs 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/aes/elec/generation.html> (provides “Total System Levelized Cost” for various “Plant Types”) in dollars per megawatt hour (“mWh”). For purposes of table conversion: mWh / 1000 = kWh

⁶ “Where America Goes to Work: The Contribution of Office Building Operations to the Economy” (2012), available at http://www.boma.org/industry-issues/state-local-issues2/Document%2011_BOMA_Fewer_Innet_FINAL%20Proc%20for%20print.pdf

—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.

With that foundation on the importance that Congress should place on energy efficiency policy, I appreciate this opportunity to draw the Subcommittee’s attention specifically to “The Better Buildings Act” (S. 1191).

(IV) The Better Buildings Act (S. 1191) (a.k.a., “TENANT STAR”)

Congress should enact S. 1191, sponsored by Senators Michael Bennet (D-CO) and Kelly Ayotte (R-NH), at the earliest opportunity.

Owners and managers of large buildings report that tenants consume 50 percent or more of their structures’ total energy.⁷ Accordingly, choices made by office tenants in designing and operating within leased commercial spaces have a great impact on U.S. energy consumption. Although tenants and building occupants have an essential role to play within spaces they control to improve overall building efficiency, to date bills introduced by Congress have focused on how real estate owners and developers may lower energy consumption at the “whole-building” level. This is only part of the issue. Office tenants like data centers, law firms, banks, trading floors, restaurants, and retail stores use high amounts of energy—especially in our nation’s growth centers.

In Brandywine’s experience, voluntary education and recognition programs create motivation for building owners to engage with tenants who account for vast quantities of the energy consumed by commercial real estate. S. 1191 is an innovative step forward in federal energy efficiency policy, because it takes a holistic approach by considering office tenants’ impact on energy consumption. It will synchronize commercial landlords and tenants toward a common goal of lowering energy use in built environments across our nation. Notably, the bill does not impose regulations or mandates on businesses. Rather, the Better Buildings Act relies on market-driven, non-regulatory, “best practices” and recognition incentives to align building owners and occupants to cooperatively reduce demands on the energy grid. It warrants emphasis that this bill does not require new federal spending or appropriations, because it fits within existing, proven, and already-funded public-private partnership programs at EPA and DOE.

The Better Buildings Act offers two mechanisms to prompt tenants and landlords to cooperate on energy efficiency. The first concerns “best practices” to encourage high-performance design and construction of new tenant “fit-outs” of spaces in buildings, prior to the point they are occupied pursuant to the terms of a commercial lease agreement. The second concerns valuable marketing recognition for leased spaces after they are occupied, by offering a “Tenant Star” label for building occupants that distinguish themselves through high efficiency operations in the spaces or floors they lease. The “Tenant Star” label will serve to incent positive end-user behavior, help companies attract and retain like-minded employees, and may satisfy increasing demands from the shareholder and pension fund communities that call for investments in environmentally responsible business concerns.

(1) Best Practices to Encourage New High Performance Tenant “Fit-Outs”

Commercial tenants are most likely to make structural investments in the building spaces they occupy at the time they enter into new leases, or renew leases. S. 1191 would encourage high-performance design and construction of leased spaces at the point of new “fit-outs” by authorizing DOE to study and learn from private sector “best practices” of how commercially leased spaces are constructed up-front to achieve high performance, implement cost effective measures with viable pay-back periods, and ultimately reduce utility costs for businesses. Based on DOE’s study, it may then develop a voluntary program—with stakeholder comment—to reward and recognize tenants that design and construct high performance leased spaces.

DOE would be given the platform to draw heavily from the groundbreaking work by the Natural Resources Defense Council’s Center for Market Innovation (CMI). In particular, CMI is spearheading a “High Performance Tenant Demonstration Project” in collaboration with industry leaders and technical advisors including Goldman Sachs, Johnson Controls, Jones Lang LaSalle, Malkin Holdings, SKANSKA, and Urban Land Institute(ULI)/Greenprint.

I strongly encourage the Subcommittee’s members and staff to explore CMI’s webpage⁸ to gain a fuller appreciation for this project, which makes the business

⁷ See <http://www.nrdc.org/business/cgi/process.asp>.

⁸ <http://www.nrdc.org/business/cgi/>.

case for the design and construction of cutting edge and efficient tenant spaces. As CMI explains, the “High Performance Tenant Demonstration Project”:

[A]ims to promote the compounding effect of owner/tenant collaboration, as tenants who value high performance spaces choose to locate or remain in buildings with highly efficient central systems and transparent energy management practices. As a result, building owners investing in central system energy efficiency improvements will not only garner operating savings, but will also gain competitive advantage in attracting and retaining these high value tenants.

CMI’s Project team is modeling, quantifying, documenting, and publishing the energy savings generated by a series of high efficiency tenant build-outs, and the corresponding return on the tenants’ respective incremental investments in the installed energy performance measures (EPMs). The Project case studies will also note the value placed by tenants on various other advantages to these build-outs, including furthering corporate social responsibility goals, and increasing employee attraction, retention, and productivity.

The CMI website contains a “how to” design guide, case studies, and describes a replicable “optimization process” for commercial landlords and tenants to consider how various energy performance measures can be packaged to reduce loads and manage occupant behavior in leased commercial spaces. CMI’s work shows that its process—used in actual buildings (such as the Empire State Building) during the early stages of build-out and design of leased spaces—can provide 30 to 50 percent energy use savings compared to a standard code compliant space. The payback period for these measures is three to five years, ensuring that these projects “pencil out” and make for sound investment choices given the duration of commercial leases (generally around 10 years) in the nation’s urban and suburban growth centers.

The Bennet-Ayotte bill fills a market need in providing commercial landlords and tenants with information and “best practices” guidelines to select, design, build, and occupy spaces that will make a significant difference in energy usage and operations across the U.S. real estate sector.

(2) Opportunities for Voluntary “Tenant Star” Recognition in Existing Leases

In addition, once tenants move into their leased spaces, they should be able to gain recognition for energy efficient behaviors as a marketing tool to advertise to their own customers, investors, and other audiences. S. 1191 furthers this objective by authorizing EPA and DOE to develop a new program for a voluntary “Tenant Star” label. Such a program would build upon the widely successful ENERGY STAR label that is already available for real estate owners at the whole-building level.

The ENERGY STAR label for buildings has been available since 1999. Its growth, popularity—and impact—are well-documented.⁹ Across the U.S., owners strive to voluntarily distinguish their buildings as ENERGY STAR rated, to attract tenants and satisfy investor demands. The Better Buildings Act brings this market-based program to the next level—with a tenant-oriented certification for leased spaces. Today’s ENERGY STAR is based on whole-building recognition for “top of the class” energy performers. The Bennet-Ayotte bill correctly tackles energy efficiency as an issue that the commercial real estate sector must advance from both the “top-down” and “bottom-up.” It would enable “Tenant Star” certified spaces within “ENERGY STAR” whole-buildings and thereby transform—in a non-regulatory way—how building owners and their tenants think about energy efficiency.

Just as ENERGY STAR has dramatically improved how real estate owners, utilities, governments, and businesses interact to improve energy efficiency in buildings and lower energy costs, “Tenant Star” has vast potential to do the same. Please consider the following:

- ENERGY STAR buildings are located in all 50 states. Any member of Congress can find where these buildings are located in their states or districts with EPA’s easy-to-use on-line locator tool.¹⁰
- Attached at the end of this statement are fact sheets¹¹ that EPA makes available on its website. They show the geographic range of cities and real estate

⁹See “Celebrating a Decade of ENERGY STAR Buildings,” available at: http://www.energystar.gov/index.cfm?c=business.bus_ES_bldgs

¹⁰http://www.energystar.gov/index.cfm?fuseaction=labeled_buildings locator.

¹¹See “Data Trends” series: http://www.energystar.gov/index.cfm?c=business.bus_energy_star_snapshot

markets from coast-to-coast that boast the most ENERGY STAR labeled buildings.

- EPA's facts sheets also explain that:
 - As of December 2012, more than 20,000 ENERGY STAR certified buildings across America helped save more than \$2.7 billion in annual utility bills.
 - The cumulative number of ENERGY STAR certified buildings increased by more than 24 percent from 2011 to 2012, representing more than 3 billion square feet of floorspace nationwide. In 2012 alone, more than 8,200 buildings earned EPA's ENERGY STAR certification. The program is thus experiencing great growth.
 - ENERGY STAR certified whole-buildings use an average of 35 percent less energy and emit 35 percent fewer greenhouse gas emissions than typical buildings.
 - As of December 2011—on a voluntary basis—organizations have used the ENERGY STAR benchmarking tool known as "Portfolio Manager," to track and manage the energy use of over 260,000 buildings across all 50 states, representing nearly 28.2 billion square feet—that is, nearly 40 percent penetration of the commercial real estate market.
 - ENERGY STAR certification is good business for commercial building owners. Studies show that ENERGY STAR labeled buildings may command higher rents, have less volatile occupancy rates, and can command higher selling prices than otherwise similar conventional buildings.

With these metrics for success at the whole-building level, the Better Buildings Act sets the stage for further innovation through voluntary recognition for commercial office tenants that may cooperate with their landlords to earn the "Tenant Star." The Bennet-Ayotte bill would help to further unleash the economic and environmental power of the ENERGY STAR brand, through the innovative next step of allowing tenants to join their landlords in striving for—and reaching—higher levels of energy performance, and giving them the tools they need to understand how much energy is consumed by the devices and equipment they control within their leased spaces.

Thank you again for this opportunity to testify on behalf of The Real Estate Roundtable on the important topic of energy efficiency, and S. 1191 in particular. I look forward to answering the committee's questions.

Senator FRANKEN. Thank you, Mr. Molotsky.
Mr. Diament.

**STATEMENT OF NATHAN J. DIAMENT, EXECUTIVE DIRECTOR
FOR PUBLIC POLICY, UNION OF ORTHODOX JEWISH CON-
GREGATIONS OF AMERICA**

Mr. DIAMENT. Subcommittee Chairman Franken and Ranking Member Risch and members of the subcommittee, thank you for inviting me to participate in today's hearing. My name is Nathan Diament. I'm the Executive Director for Public Policy of the Union of Orthodox Jewish Congregations of America.

But I'm not here today just representing the largest Orthodox Jewish umbrella organization in the United States and our nearly 1,000 congregations. I'm here representing a diverse coalition of faith based and other non-profit sector groups including the U.S. Conference of Catholic Bishops, National Council of Churches, the YMCA Association, the Association of Art Museum Directors, Jewish Federations of North America and more. Our organizations all strongly support S. 717, the Non-Profit Energy Efficiency Act sponsored by Senators Klobuchar and Hoeven.

We appreciate your consideration of this legislation today.

As you know our organizations and so many others in the non-profit sector provide an array of social welfare, educational, recreational and communal across this country to people from all walks of life. But across the diversity of services we provide and

citizens we serve we have at least one thing in common, our training workshops, English language classes, soup kitchens, clothing co-ops, tutoring sessions, homeless shelters, health clinics and more all take place in buildings. Some of those buildings are quite old and quite drafty, but they must be warmed in the winter and cooled in the summer.

According to the EPA non residential buildings in the United States consume more than \$200 billion annually in energy costs. Among those many buildings are this country's 2,700 YMCAs, 2,900 non-profit hospitals, 17,000 museums and more than 370,000 houses of worship. Looking just at the house of worship sector, the EPA, based on its Green Congregations project estimates that these entities could cut their energy use and costs by one-third through energy efficiency improvements.

If America's houses of worship cut their energy use by just 10 percent, the EPA estimates that would save 1.8 billion kilowatt hours of electricity and reduce 1.3 million tons of greenhouse gas emissions, the equivalent of the emissions of 240,000 cars. We, in the non-profit sector are eager to achieve these results by updating and replacing outdated and inefficient energy systems. Unfortunately the front end costs to make these improvements and retrofits are very high. For the non-profit charity world, the hurdle of these front end costs is even higher to surmount because we cannot just raise the prices of our widgets we sell or take on greater debt to finance them. Candidly a new HVAC unit or boiler in the basement is not the most exciting project to pitch to even the most deeply dedicated donor to our institutions.

Moreover while there have been and still are a variety of State and Federal financial incentives to making energy efficiency retrofits, they are often in the form of tax credits and rebates which are, of course, not available to tax exempt, non-profit charities. That's why we are supported the Klobuchar/Hoeven proposal which will create a pilot program in the Department of Energy to award financial grants to non-profits for energy efficiency building improvements. Under S. 717, non-profits could apply for grants for up to 50 percent of the cost of an energy efficiency retrofit project with a maximum grant of \$200,000.

The legislation authorizes an appropriation of \$50 million for each of the fiscal years 2014 through 2017 and identifies an offset for those funds.

We are confident that by making these funds available in a cost sharing program Congress would enable non-profits to raise or borrow the balance of the funding needed for an energy efficiency project and thus leverage public funds as they should.

We also suggest that S. 717' program would be a catalyst for job creation as non-profits would finally be able to undertake deferred projects and generate demand for the products and the contractors to install them.

Finally, the Federal investment in the non-profit sector's energy efficiency would be leveraged through our sector's social capital to generate greater private action and investment toward efficiency. This would recognize the 2010 report of the President's Advisory Council on faith based partnerships which spoke of this multiplier effect for congregations.

Senators, the Orthodox Union and our coalition partners appreciate and support your efforts to enact broad and impactful energy efficiency legislation including the various other bills before the subcommittee today as well as other legislation pending before the Senate. Improving America's energy efficiency is, in our view, critical for the long term welfare of our Nation's environment and economy. We hope you recognize and support S. 717, aiding the non-profit sector as a complementary effort to those other bills.

But if I may, I'd like to conclude with an important note that improving energy efficiency and reducing harmful pollution is not just a matter for the economy and the environment. From our perspective it's also a matter of values. God charged us with a mission to be his partner in creation to work the Earth, but also in Genesis 2:15 spoke of our mission to preserve the Earth.

As you Senators work to enact legislation to help us be good stewards of God's creation and our energy resources and environments, you are serving this mission as well. For that, we thank you.

[The prepared statement of Mr. Diament follows:]

PREPARED STATEMENT OF NATHAN J. DIAMENTI, EXECUTIVE DIRECTOR FOR PUBLIC POLICY, UNION OF ORTHODOX JEWISH CONGREGATIONS OF AMERICA

Subcommittee Chairman Franken, Ranking Member Risch and Members of the Subcommittee—thank you for inviting me to participate in today's hearing. My name is Nathan Diament and I am the Executive Director for Public Policy of the Union of Orthodox Jewish Congregations of America.

But I am not here today just representing the largest Orthodox Jewish umbrella organization in the United States and our nearly 1000 congregations, I am here representing a diverse coalition of faith based and other nonprofit sector groups—including the U.S. Conference of Catholic Bishops, the National Council of Churches, the YMCA Association of the USA, the Association of Art Museum Directors, Jewish Federations of North America and more.

Our organizations strongly support S.717—the Nonprofit Energy Efficiency Act—sponsored by Senators Klobuchar and Hoeven. We appreciate your consideration of this legislation today.

As you know, our organizations—and so many others in the nonprofit sector—provide an array of social welfare, educational, recreational and communal services across this country to people from all walks of life. But across the diversity of services we provide and citizens we serve, we have at least one thing in common—our job training workshops, English language classes, soup kitchens, clothing co-ops, tutoring sessions, homeless shelters, health clinics and more all take place in buildings. Some of those buildings are quite old and drafty, but they must be warmed in the winter and cooled in the summer.

According to the EPA, nonresidential buildings in the United States consume more than \$200 billion annually in energy costs. Among those many buildings, are this country's 2700 YMCAs, 2900 nonprofit hospitals, 17,000 museums and more than 370,000 houses of worship. Looking just at the houses of worship sector—the EPA, based on its "Green Congregations" project,¹ estimates that these entities could cut their energy use—and costs—by one third through energy efficiency improvements. If America's houses of worship cut their energy use by just ten percent, the EPA estimates that would save 1.8 billion kWh of electricity and 1.3 million tons of greenhouse gas emissions, equivalent to the emissions of 240,000 cars.

We are eager to achieve these results by updating and replacing outdated and inefficient heating and cooling systems, lighting and other electrical systems, windows and doors and more. Unfortunately, the "front end" costs to make these improvements and retrofits are very high. For nonprofit charities, the hurdle of these front end costs is even higher to surmount because we cannot just raise the prices of the widgets we sell or take on greater debt to finance them. Candidly, a new HVAC unit or boiler is not the most exciting project to pitch to even deeply dedicated donors to our institutions.

¹http://www.energystar.gov/index.cfm?c=small_business.sb_congregations

Moreover, while there have been (and still are) a variety of state and federal financial incentives for making energy efficiency retrofits, they are typically in the form of tax credits and rebates—which are, of course, unavailable to tax exempt, non-profit charities.²

This is why we are supporting the Klobuchar—Hoeven proposal which will create a pilot program in the Department of Energy to award financial grants to nonprofits for energy efficiency building improvements.

Under S.717, nonprofits could apply for grants for up to 50 percent of the cost of an energy efficiency retrofit project—with a maximum grant amount of \$200,000. The legislation authorizes an appropriation of \$50 million for each of the fiscal years 2014-2017, and identifies an offset for those funds.

We are confident that making these funds available—in a cost sharing program—will enable nonprofits to raise or borrow the balance of the funding needed for an energy efficiency project, and thus leverage public funds as they should.

We also suggest that S.717's program would be a catalyst for job creation as nonprofits would finally be able to undertake deferred projects and generate the demand for new HVAC systems, windows and insulation as well as the contractors and workers to install them.

Finally, the federal investment in the nonprofit sector's energy efficiency will be leveraged through our sector's social capital to generate greater private action and investment toward energy efficiency. As was stated in 2010 by the President's Advisory Council on Faith Based Partnerships:

Houses of worship can exert a powerful influence when they practice good energy stewardship . . . Similarly, actions taken by nonprofit organizations can serve as an important role model for their employees, volunteers, and beneficiaries. There is a multiplier effect as congregants and nonprofit participants adopt the energy-saving practices in their homes and businesses³

Senators—the Orthodox Union and our coalition partners appreciate and support your efforts to enact broad and impactful energy efficiency legislation, including the various other bills before the Subcommittee today, as well as other legislation pending in the Senate.

Improving America's energy efficiency is, in our view, critical for the long term welfare of our nation's environment and economy; and we hope you recognize and support S.717—aiding the nonprofit sector—as a complementary effort to these other bills.

But if I may, I would like to conclude with an important note—that improving energy efficiency and reducing harmful pollution is not just a matter of the economy and the environment. From our perspective, it is also a matter of values.

God charged us with the mission to be His partner in creation—to “work” the earth; But God also charged us to “preserve” it. (Genesis 2:15)

As you, Senators, work to enact legislation to help us be good stewards of our energy resources and environment, you are serving this mission as well.

For that, we thank you.

Senator FRANKEN. Thank you, Mr. Diament.

The Chair of the full committee, Chairman Wyden, is here. I know that you'd like to make a few remarks, sir.

STATEMENT OF HON. RON WYDEN, U.S. SENATOR FROM OREGON

The CHAIRMAN. Thank you very much, Mr. Chairman. I will make them very, very few. I apologize for just parachuting in and having to go out again. But I want to commend you and Senator Risch for holding this very important hearing.

You know, I think it's very clear if you look at the President's address today, whether one agrees or disagrees with a particular

²At the federal level, the Energy Policy Act of 2005 enacted Section 179D of the Internal Revenue Code, providing a one-time accelerated depreciation for commercial, multifamily, and public agency owned facilities; there are also federal tax credits available for residential homeowners installing energy efficiency improvements http://www.energystar.gov/index.cfm?c=tax_credits.tx_index

³Report and Recommendations to the President; Environment & Climate Change— <http://www.whitehouse.gov/sites/default/files/partnerships-environment-climate-change.pdf>

part of it, there is strong support for energy—efficiency, what you and Senator Risch are looking at this afternoon. Certainly the Shaheen/Portman legislation, which we hope to have on the floor early in July after we come back from the work period, is an example of it.

It has exceptional bipartisan support. The Chamber of Commerce and the Business Roundtable understand it makes sense. It's jobs. It's the quality of life that empowers our communities.

You're going the next step today which is to look at bills that would complement the Shaheen/Portman legislation. I very much appreciate that you're doing it because the fact is all of these bills that constitute the energy efficiency agenda put points on the board in the fight against climate change which you, Mr. Chairman, have hammered away at. Senator Sanders has hammered away at it.

We talked about it this morning; the NOAA finding, in terms of concentration, we're talking about 400 parts per million now. This is not something made up by an advocacy group. This is the government's finding. I think it reaffirms how important the energy efficiency agenda is.

I commend you and Senator Risch for tackling something which is demonstratively bipartisan. I'm glad you're holding this hearing.

I also want to commend the leadership of Senator Sanders. I'm very proud to join him in this effort to try to use the States in a creative role to promote energy efficiency. I think we all understand.

It really stems from earlier days, the earliest days of our Republic, that we wanted to use the States as a laboratory to try out fresh, creative approaches. Senator Sanders, in my view, deserves considerable credit for really zeroing in on the energy efficiency needs of homeowners. So I am proud to be a partner in this Sanders effort.

I think it really—without mandates, without requirements, the participation is voluntary—really targets in a way that I think it'd be very effective in the energy efficiency area. I want to commend my colleague from Vermont. Again, apologize to Senators for my bad manners to just be here so shortly. The Intelligence Committee is meeting now and I'm being brought back to that.

But I want to commend all of you and especially Senator Sanders for his good work on this. I thank you.

Senator FRANKEN. Thank you for your statement.

Now we're going to go to questions, but first Senator Sanders, would you like to make a statement?

**STATEMENT OF HON. BERNARD SANDERS, U.S. SENATOR
FROM VERMONT**

Senator SANDERS. I would just very briefly. I want to thank Senator Wyden for his work and thank you and Senator Risch for holding the hearing and the fine testimony from all of our panelists.

Here's the issue. Let me boil it down and maybe somebody agrees with me, maybe they don't. In my view, global warming is real. It is the major crisis facing our planet.

We have already seen many of the disastrous impacts of global warming today. If we don't get our act together in terms of extreme

weather disturbances, floods, droughts, fires, it will only get worse in years to come.

There are a lot of ways we can tackle this problem. I've got legislation in global warming. But what Senator Wyden and I are trying to do is something enormously simple. What every one of you has said and what every American understands is we are an enormously wasteful society. We all agree on that. We all agree that the lowest hanging fruit, the easiest way to save energy is through energy efficiency.

One of the great stumbling blocks is that while millions of Americans want to be involved. They want to make their homes more energy efficiency. They want to move to sustainable energy. They understand that they could cut their fuel bills, play a role in protecting our environment.

What the problem?

The problem is they don't have the \$10,000, \$15,000, \$20,000 that they need in order to become energy efficient.

The beauty of what, in a sense, all of us are talking about, but what Senator Wyden's bill and my bill does, is say to these people, look, we are going to lend you. Each State will do it in a different way. We're going to lend you the money.

You're going to save, I think it was Mr. Molotsky or somebody talking about 20, 30 percent reduction. You're going to save in your home 20, 30, 40 percent. You know what? You're going to pay back the loan with that savings.

Now if that doesn't make sense to everybody, I can't see that this is a partisan issue. We're lending people money. They're going to pay that money back by saving energy and at the same time we cut greenhouse gas emissions.

You know what else we do? Somebody has to make those products. Somebody has to install those products. You create jobs.

So if this is not a win/win/win situation of which there should be no ideological opposition. I cannot understand why we all can't come together on this.

So I look forward to working with you, Mr. Chairman, Ranking Member Risch, certainly Senator Wyden and everybody else. With all of your help to bring forth this legislation.

Thank you very much.

Senator FRANKEN. Thank you, Senators Sanders.

Now we'll start the questions. I'll go first, then the ranking member and then we'll go to Senator Sanders.

I'd like to start with Mr. Spurr. Thank you for coming from Minnesota.

I'd like to discuss distributed energy with you, in particular combined heat and power, CHP. As you said in your testimony in the United States up to 36 percent of all energy we consume is lost from power plants, industrial facilities and buildings as waste heat. Combined heat and power or co-generation and district energy systems are available, tested the technologies that can be used to capture waste heat and put it to use.

In Minnesota the city of St. Paul, as a biomass district energy system, it's a great model on how to do this. By using more of our abundant biomass more efficiently we can support more forest jobs,

invest in our power infrastructure and provide environmental benefits.

Senator Risch has pointed out that we need to be doing a better job of getting rid of the hazardous fuel in our forests to prevent forest fires. We can do that. Use the biomass we get out of this to power our combined heat and power systems or our district energy plants.

Mr. Spurr, I know that you've been working with the city of Grand Marais on the north shore of Lake Superior and others throughout Minnesota to deploy combined heat and power in other distributed energy systems. Can you talk about the level of interest that you've received from communities there and elsewhere in the country?

Mr. SPURR. Alright. Thanks very much for that question, Senator Franken.

We're seeing an enormous increase in the interest of communities large and small in becoming more efficient and in using the resources in their own backyards.

You mentioned fire hazard. That actually was the initial motivation by the city of Grand Marais to develop a biomass district heating system. When I first went up to Grand Marais to talk with folks there I usually ask people, well, why are you interested in this? When the guy, who was on the Public Utilities Commission, said fire, I was taken aback. I was expecting energy or jobs or what not.

It's certainly true, certainly in Minnesota and I think, in many other places the decline of the forest products industry has led to a lot of forests becoming what the foresters call decadent. In other words they're falling in on themselves. They're becoming fire hazards.

So one of the things that I think is a tremendous opportunity is to take that problem and turn it into a positive for the communities.

But beyond biomass and smaller communities that don't have natural gas. They rely on fuel and on propane. There's also strong interest by larger communities that do have natural gas but are very much interested in the resiliency of having a CHP system serving their downtowns.

I think this is really a turning point in this country. Many other countries have long had municipal governments getting it when it comes to energy opportunities and reducing energy waste. I'm seeing a great growth in the U.S. now.

Thank you.

Senator FRANKEN. I wish Senator Risch had been here to hear that. But we'll make sure that he, you know, has access to that testimony because he's someone who has a degree in Forest Management. This is something that he talks about a lot which is these hazardous waste materials that are on the forest floor in the forests that we need to harvest if we're going to prevent the kind of wildfires that we've had.

I'd just like to follow up on combined heat and power. I have a feeling that when Senator Risch comes back we'll maybe have a couple rounds to be able to do it.

Can you talk, Mr. Spurr, about how combined heat and power could be helpful to utilities, to electric utilities?

Mr. SPURR. Thank you, Senator Franken.

I do think sometimes when you bring up combined heat and power to utilities they can approach it with a bit of trepidation. Because in many cases these facilities, these combined heat and power facilities, are being developed by somebody other than that utility. But in fact, combined heat and power can really be a great partner for electric utilities.

Utilities have a tough time when the July afternoon comes. It's 95 degrees and the power demand is peaking. It's a challenge meeting that peak power demand not only from the standpoint of generation because it requires them to bring on inefficient, expensive, usually dirty power generating plants. But also oftentimes they're having a tough time getting the power into the load centers relative to transmission constraints. So combined heat and power systems can actually help electric utilities solve problems and manage the grid better.

A great example is Princeton University. They have, not only a combined heat and power system, but also a thermal energy storage system. So they make chilled water at night when power is cheap and clean. Store it in big tanks and use it in the daytime to meet peak power demands.

They've been able to reduce their peak power demand from 27 megawatts to 2 megawatts, more than a 90 percent decrease through the use of, what I think of, is the dynamic duo. It's combined heat and power and thermal energy storage. I think oftentimes when utilities stop to think about it they realize hey, this is actually helping us do our job. I'm hoping more utilities will look at it from that perspective.

Senator FRANKEN. Thank you. I understand the Princeton stayed on line because they had a combined heat and power plant.

Mr. SPURR. Yes, that's a—

Senator FRANKEN. During Hurricane Sandy. I'll get to that maybe in a while, but about the resilience of these systems in these hurricanes.

Let me move on. I'll come back to other, the combined heat and power. But let's talk, Mr. Nadel, about data.

One of challenges improving energy efficiency in buildings is lack of important data. Unless we really know how well our buildings are performing, we can't be sure what types of energy efficiency technologies will be the most effective. That's why the city of Minneapolis and there are others around the country have begun looking at energy data disclosure policies for large commercial buildings.

I would like to help more cities take advantage of these opportunities. To that end I have introduced legislation to provide grants to utilities and their partners to help them work with building owners and pursue energy benchmarking and disclosure. Now Mr. Laskey's company, Power, is doing great work based on the idea that if you tell people how much energy you are using and how their energy consumption compares to that of their neighbors, that will lead people to change their behavior. How they use energy and how much they use. That will lead to energy savings.

I think we can get energy savings by applying this model to the commercial building sector. So Mr. Nadel, is there evidence that that same basic idea that more information energy can lead to energy savings can be applied at the commercial level? Can you talk about how energy disclosure in large commercial buildings can lead to improved energy use and money being saved?

Mr. NADEL. Yes. You are absolutely right. Providing that information to the building owner so that they can understand it and then to decide to act can be very influential. As I mentioned earlier, EPA has found that average energy savings among buildings that have been benchmarked has averaged 7 percent over about, a multiyear period.

Do a little bit 1 year. Do a little bit more. So 7 percent savings is very significant.

You also pointed out a number of cities that are doing—going farther. Are understanding they are well on the path to achieving additional energy savings. Because in this way not only the building owner gets the information but in some of these cities the information is also provided to perspective purchasers, perspective renters and therefore there is—creates a demand for these more efficient buildings.

I do know that it's been shown by Costar that occupancy rates tend to be a little bit lower in buildings that are Energy Star lead certified. Rents tend to be a little higher. So these are ways if the tenants can understand what the benefits are they can create a benefit as well.

Thank you.

Senator FRANKEN. They can have a more desirable building.

Mr. NADEL. Exactly.

Senator FRANKEN. Somebody talked about the Empire State Building earlier. Maybe it was in the earlier testimony by one of the Senators, but my understanding is not did it save an incredible amount of energy, but also drove up the cost of the tenants, the rent.

Mr. NADEL. Right.

Senator FRANKEN. Why can't I think of the word?

So let's go to Mr. Laskey and Mr. Molotsky.

What, in your view, should we be doing to maximize energy efficiency of commercial buildings?

Mr. LASKEY. I think your proposal is an excellent one. Providing the data is one first piece. I think doing it absent the utilities though is there's an opportunity to engage the utilities. After all even in commercial buildings the amount of money that goes to energy is relatively low. We have relatively low energy prices in this country.

In households the average American household spends less than 2 percent of their income on household energy. So even the promise of cutting that by 50 percent is not significant savings for ordinary people. So, engaging cities as you have and as you propose in your legislation, but also engaging utilities which have the scale to act across multiple buildings across multiple tenants, I think, is a necessary step in addition to making the data available.

Senator FRANKEN. Mr. Molotsky.

Mr. MOLOTSKY. Yes, Senator Franken. Thank you for the opportunity.

I'd just add a couple of points to that. It goes back to your original opening comments.

It's giving people information to make informed decisions, I think. So 7 different things.

Creating a national equipment data base where owners, like me and friends and colleagues like us that own a lot of square footage, can go without having to be nipped at by 50 different vendors. So an objective national equipment data base that tells us what the return on the investment is in particular environment at a particular tariff rate would be extremely helpful.

Assistance with national policy and/or discussion with utilities to provide us, the owner, with real time data would also be extraordinarily helpful. In certain sectors of the country the utilities do share that data. In others, it's much more difficult to obtain. So I own the building, yet I need to get permission from the tenant, who has a meter in the building, to get their consumption data. Difficult in order for me to move a conversation forward, in order to reduce consumption if I don't know what they are consuming.

A national repository of case studies for different buildings and what they've been able to achieve and how quickly they've been able to get a return on their investment would be helpful.

Education, frankly. Resources for training of building owners and engineers on energy efficiency and frankly, where to start. I'll have a conversation with informed folks in this room but once we leave it folks are a little bit less informed as to—they are overwhelmed with the information. They're not exactly sure where to start. So education.

Continued support for portfolio manager and what Energy Star has been able to do. Again, a free resource, online, easy to access, easy to use, good information.

I think following up on some earlier conversations with this committee and the Tax Committee. Liberalization of 179(d) which is a great tool which has not been used under the tax code to provide for tax deductions for energy efficiency upgrades to create a sliding scale and to allow that deduction to be portable so that folks like to my left, who are 501(c)(3)'s that can't use that. But then they can assign it to the installer to reduce the cost of the equipment. That type of initiative would start to, again, start to move the discussion along.

Senator FRANKEN. Thank you.

In crafting this we've been very conscious of partnering with utilities. So it's very important. My bill provides grants, \$2.5 million in grants to utilities and utility partners to help building owners develop these benchmarking practices.

Is there any, I mean, what is the data on benchmarking, just—
Sure, Mr. Laskey.

Mr. LASKEY. So we've been able to demonstrate now over 5 and a half years that in the residential sector across, now more than 8 million homes, on average just by providing people benchmark data, proactively delivered to them. The importance of engaging utilities is that this table is filled with energy geeks. But most of the voters and citizens out there are not energy geeks.

Senator FRANKEN. Oh, I don't know.

[Laughter.]

Mr. LASKEY. In Minnesota I wouldn't discount it.

[Laughter.]

Mr. LASKEY. But so the utilities have the ability to proactively deliver this information not just about making the information available for some geek or ordinary citizen to come find but actually delivering it. When you deliver that data on average in the residential sector you can reduce consumption by between 2 and 3 percent just on behavior. Then that in turn spurs interest in larger investments in the home whether it's insulation, new appliances, lighting, etcetera. Those numbers, of course, grow over time in terms of the total impact.

Two to 3 percent is diminimus in any one home, but across millions of homes it adds up to quite a bit of energy.

Senator FRANKEN. What about the evidence in commercial buildings?

Mr. MOLOTSKY. Again the use of Energy Star and when you, kind of, marry that with either voluntary or mandatory benchmarking the trajectory is left side of the page to the right side of the page, almost straight up.

The number of buildings that have been included in portfolio manager on Energy Star in their numbers is rather extraordinary. So that 240,000 buildings I was alluding to earlier most of that is in the recent, 3, 4, 5 years. The amount of energy that's been saved is rather extraordinary. It's in the billions of dollars in those buildings.

Not per se because they've benchmarked. But because they're starting to pay attention to and use that information to, again, make these informed decisions.

Senator FRANKEN. I'm here and I might as well go on. This is—I want to talk about combined heat and power and district energy some more. Can you just describe for everyone St. Paul's district energy and combined heat and power system and just in a nice nutshell?

Mr. SPURR. I'd be happy to. I have a lot of familiarity with that system.

That system was started in the early 1980s. It's a district hot water system. It supplies about 80 percent of the heating in the downtown area. I don't recall now what they're up to on cooling but a substantial majority of the cooling in downtown.

It's fueled with urban waste wood, tree trimmings, old pallets, land clearing waste. This is community waste that would otherwise end up in a landfill. It's used to produce power and heat and cooling.

Ironically enough one can make cooling with heat. So—

Senator FRANKEN. For those who aren't energy geeks, just explain how you can create cooling from heat.

Mr. SPURR. It's—well, there actually are 2 ways.

One is to use steam and push it through a steam turbine to make heat.

Another is a chemical process kind of like—

Senator FRANKEN. To make electricity which in turn?

Mr. SPURR. No, actually you directly turn the chiller compressor with the steam turbine.

Senator FRANKEN. Oh, I see. OK.

Mr. SPURR. But in St. Paul they use a process called absorption cooling. Basically the heat is used to recharge a set of chemicals, who once they want to combine together they're actually able to chill another water loop.

I remember, Senator Franken, some years ago you asked me to explain in simple terms how absorption cooling works. It's pretty hard to do it in a simple way.

Senator FRANKEN. Right.

Mr. SPURR. But it's—

Senator FRANKEN. Obviously.

[Laughter.]

Mr. SPURR. Thank you very much.

But the other element in that system besides using urban waste wood to make power heating and cooling is they use extensively chilled water storage.

So as I spoke earlier—

Senator FRANKEN. I see.

Mr. SPURR. They depress that electric demand by making chilled water.

Senator FRANKEN. OK. Speaking of that because you were talking about Princeton and I want to talk about the resilience and this island mode. Can you explain what an island? What it means to be in island mode and why this could represent incredible savings in terms of saving businesses from incurring tremendous costs during an electrical, electricity outage?

Mr. SPURR. The use of CHP in island mode has saved the bacon of a lot of universities and industries and other areas during storms. In my written testimony—

Senator FRANKEN. Mr. Diament, sorry about the bacon.

[Laughter.]

Mr. SPURR. Exactly.

It's been—what happens with an island mode is that you generally CHP systems are run in integration with the broader grid. But it can be designed so that if the broader grid goes down, it can cutoff the relationship and operate as its own micro grid. That has allowed many places, noted in my written testimony.

Senator FRANKEN. Right.

Mr. SPURR. To survive these storms. In my written testimony is only a sampling of the case studies that have taken place. It's an enormously important issue because whatever your beliefs are about what's happening with climate change. The fact is we're having a lot more severe storms. They're causing power outages.

Senator FRANKEN. Thank you.

Your written testimony does provide a number of examples that are very interesting.

I want to talk about retrofitting and why it obviously makes sense. I've been partnering with leaders in Minnesota like Governor Dayton, local chambers of commerce, businesses, utilities, elected officials, non-profits on the retrofitting. I call it back to work Minnesota because as Senator Sanders suggested it's just

win/win/win/win/win because when you do a retrofit it obviously saves energy. That's the purpose.

Over a certain amount of time pays for itself. A great retrofit can pay for itself or, you know, very quickly or over a certain amount of time. But in the meantime you're putting people to work. You're putting people to work actually doing the work on the retrofit, people in the building trades, also people in energy service companies, who design the retrofit and implement them.

You are putting people to work who manufacture the energy efficient material that's being used and who make the software for energy efficient lighting and those kinds of things. Also you're lowering the carbon footprint which we all know or most of us know is very important. So that's a win/win/win/win/win. I think that's 4 or 5. Anyway, it's a lot of wins.

Now and so sometimes there are barriers. One of the barriers is in the financing. We have been focused and back to work Minnesota is providing different creative and I want just everyone or anyone who wants to talk about this of what we can do to help people help entities. This can be everything from commercial buildings to hospitals, university, you know MUSH, municipals, universities, schools and hospitals, MUSH.

The city—I'll give one example, the city of Edina has set up the first commercial property assess clean energy or PACE program outside of California. Minneapolis has begun energy benchmarking programs for large commercial buildings and that. But as far as—talk to me about barriers and about financing.

Anybody? I'm throwing it up. It's a jump ball.

Mr. MOLOTSKY. I'll jump in.

So the barrier in particular, I guess, it's not my expertise or my area, but it won't stop me from talking about it. In the residential side and also on the commercial side one of the big barriers is when you go to borrow money from a financing source. The lack of underwriting criteria and appraisal techniques that would take into account energy efficiency for purposes of value for the asset is not there yet. So the appraisal institute some of us have talked with or aware of it, but they still need to promulgate educational activities for their members because they don't take that into account.

So when they come up with what the value of the building or what the home is, to the extent somebody has invested in some good technology, it's not typically counted or ever counted for purposes of what that property is worth. Separate from today but there's the SAVE Act, S. 1106, addresses or starts to focus on that particular issue which is appraisal techniques and getting the appropriate amount of credit on the credit score. So that would be one thing in particular I would start to think about or continue to think about.

Senator FRANKEN. Thank you.

Mr. LASKEY. Just quickly on the, I think, some lessons from the short lived PACE programs on the residential side. You look, there was a paper that came out of Elton, the Lawrence Berkeley National labs in California looking at financing programs, I think, 19 different financing programs across the country. It looked at—had different structures, different underwriting criteria.

One thing that was striking to me was that even in Berkeley, California where everyone agrees climate change is an issue and where there was an opportunity to take advantage of PACE financing, less than one-third of 1 percent of people took advantage of PACE financing when it was available, residential. This was not from lack of interest, high electric rates, access to financing, all this. In spite of that only one-third of 1 percent.

I think one of the reasons for this is that energy just is a low engagement thing. People only think—I was in a meeting with a utility CEO, who compared it to toilet paper. You only notice it when it's not there. So when the lights don't work.

So I think one of the things as you look to push out MUSH or MUSH, is to think about how are you going to market it. How are—and I think your data benchmarking idea is a terrific one because if you can identify which of the buildings that are most likely to benefit the most then you can go after those buildings aggressively to make—so they can avail themselves to the financing.

So this isn't about mandates, but it's about targeted marketing using these kinds of marketing techniques that are used in other industries to make—so when you design these financing systems they actually have customers.

Senator FRANKEN. Let's—actually Mr. Diament, let's talk about this in the context of the non-profit sector. Then we'll go to Mr. Nadel. Then Mr. Sylvia I'd like to talk about in terms of weatherization.

Let's go first to Mr. Diament.

Mr. DIAMENT. Thank you, Senator.

So as I said before, I mean, the front end cost is definitely the highest barrier, the front end cost of an HVAC system or a whole, you know, or a couple scores of windows, especially if they have to be specially designed to fit over very pretty stained glass windows and other things. So the front end cost is a barrier that the non-profit sector shares with the other sectors as well.

I would, before I forget, want to say you asked what can you do aside from the legislation before the committee today. What my colleague mentioned earlier which is with regard to the Section 179(d) tax credit. If that could be made portable, if that could be made transferrable that would be very valuable to the non-profit sector because—

Senator FRANKEN. Can it be made transferrable to a vendor?

Mr. DIAMENT. Yes.

Senator FRANKEN. That's what you're talking about, Mr. Molotsky, right?

Mr. DIAMENT. Or to some other party that's—either a vendor or it could be like—you could structure it like air rights where you could really have a market for it, theoretically.

But the other thing is when you're talking about the financing sector, I mean, when you're talking about small and midsized non-profits, they have real trouble getting financing. If you're looking at, you know, open market sort of terms because the balance sheets of small and midsized non-profits are not something that people who—

Senator FRANKEN. Pretty.

Mr. DIAMENT. Yes.

[Laughter.]

Mr. DIAMENT. Pretty much. I mean, you know, you can—they are very much living whether they are secular or sacred they are very much living on a wing and a prayer.

[Laughter.]

Mr. DIAMENT. On, you know, you can know that your donor is going to come through to help you close your budget gap, but when you go in for the loan application that doesn't really, they don't have a box for that.

Senator FRANKEN. Right.

Mr. DIAMENT. Just the last thing I would mention in the non-profit sector and certainly in the religious non-profit sector to make up for the comment before, I mean, going down the road of energy retrofits is both kosher and commendable.

[Laughter.]

Mr. DIAMENT. We've seen that in the fact that the EPA Energy Star runs a green congregations project which has gotten, I think, thousands of churches and synagogues and others participating in it. It's not a finance. It's a set of webinars and internet tools that you can use to try to benchmark your own institution and so on.

But there's a substantial amount of traffic on that on a regular basis because in the non-profit sector folks know that every dollar of savings they can squeeze out of their overhead budget is—are dollars they can devote to the kinds of social welfare and other kinds of programs that they're really in the mission to do.

Senator FRANKEN. Thank you.

Mr. Nadel? Then we'll go to Mr. Sylvia on the weatherization assistance program.

Mr. NADEL. Right. Just to add to the discussion about financing which I agree can be a very useful tool for those people who lack the capital.

But as Mr. Laskey pointed out only a limited number of people want to apply to these special programs whether they are PACE or what have you. To the extent we can make the conventional financing much more accessible for energy efficiency. Mr. Molotsky mentioned the SAVE Act and how it would incorporate energy efficiency into evaluations. That's helpful.

But another part of the SAVE Act would encourage the lenders to offer energy efficiency financing at the time of the mortgage.

Senator FRANKEN. Right.

Mr. NADEL. You already have someone taking out a loan. Why not add the energy efficiency at that point? Likewise in the commercial sector the average building gets refinanced every 8, 10 years, something like that. They vary.

That's a great time to add in the energy efficiency. Not have a special loan, but make energy efficiency part of that.

Senator FRANKEN. Add it to the refinance.

Mr. NADEL. Exactly.

One other thing I'd say is we need creative ways to make it much easier for people to participate in these loan programs instead of having to go down to the bank and the special system.

Two examples come to mind.

One is OnBill repayment where the utility arranges for capital could actually do a credit check based on whether you pay your

utility bill or not. Then collect the money as part of your bill. It makes it very simple for people.

A variation on that and I'll use this to pass off to Mr. Sylvia. In Massachusetts they have worked with a whole coalition of community banks and credit unions to make it very simple.

I'll let him take it from here.

Senator FRANKEN. Nice segway.

Mr. SYLVIA. Thank you.

Senator FRANKEN. Beautiful.

Mr. NADEL. Yes, sorry.

Mr. SYLVIA. Thank you very much, Steve.

In Massachusetts the experience has been particularly with the heat loan program which is a program that is offered in conjunction with the utilities that provide our efficiency, energy efficiency programs and working with local community banks and credit unions and others to provide loans to residents and businesses to do energy efficiency work. Over the course of the loan program there have been 18,000 loans that have been made and over \$155 million worth of investments made in energy efficiency as a result.

So this program has been very successful and has had high utilization. We had to deal with some of the challenges that have been talked about in terms of educating lenders in the banking community of the value of energy efficiency. But certainly once you get over that hump it's a pretty easy sell. In Massachusetts we have a very good model with the heat loan program.

As to the weatherization assistance program from, certainly from our perspective at NASEO and more specifically as an official for Massachusetts, the weatherization assistance program has provided critical support to low income families and households so that they are able to provide for their families. Comfort, reduced costs, without the weatherization assistance program they would, in all likelihood, not be able to take advantage of energy efficiency programs or they themselves provide the necessary resources to do the types of things to reduce their costs to provide a healthy and safe environment for their families.

So from our perspective in Massachusetts using the weatherization assistance program has been critically important for low income families.

Senator FRANKEN. Thank you, Mr. Sylvia. Thank you everyone. It's been a great discussion today.

I hope we can move these bills soon as part of the Shaheen/Portman package on the Floor.

Thanks again to everybody.

With that, we will adjourn.

[Whereupon, at 4:30 p.m., the hearing was adjourned.]

APPENDIXES

APPENDIX I

Responses to Additional Questions

JULY 12, 2013,

Union of Orthodox Jewish Congregations of America.

Hon. RON WYDEN,
Chairman, Senate Committee on Energy & Natural Resources, Washington.

DEAR CHAIRMAN WYDEN & SUBCOMMITTEE CHAIRMAN FRANKEN,
Thank you for the opportunity to testify at the Subcommittee's June 25 hearing in support of S.717, the Nonprofit Energy Efficiency Act. I am writing to respond to the Question for the Record transmitted to me by your staff.

Question 1. Production of energy is not the same as energy efficiency, yet the definition of "energy-efficient improvement" in this bill includes "an installed measure involving a renewable energy generation or heating system, including a solar, photovoltaic, wind, geothermal, or biomass system or component of the system." Why is this?

Answer. As we discussed at the hearing, S.717 seeks to aid nonprofit entities reduce their energy use—and thus their overhead costs—by improving the energy efficiency of their buildings. These efficiencies can be achieved by replacing outdated HVAC, electrical and other systems with newer more efficient ones. It is our understanding that a nonprofit's energy usage can also be reduced by installing the types of energy systems listed in Section (2)(B)(ii) of S.717 in circumstances in which these alternative or renewable energy systems are most cost efficient than others. We anticipate that, with the assistance of the grants program proposed by S.717—nonprofits will be able to make market-informed choices about the most cost effective building retrofit they can implement to improve their efficiency and reduce their operating costs.

Thank you again for your interest in and support for this bipartisan legislation.

Nathan Diamant

RESPONSES OF ALEX LASKEY TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. Federal vs. State Budgets—Why is it appropriate for the federal government—which has \$16.8 trillion in debt, and counting—to give grants to the States, for efficiency, when many of them have budgets that are in far better shape?

Answer. Energy is a national issue: it impacts our national economy, environment, and security. If not for energy productivity gains since the early 1970s, the United States would need about 50 percent more energy to deliver today's GDP. However, the U.S. is far behind many developed countries in our energy productivity, which undermines our competitiveness and leads to hire utility bills for businesses and families.

Energy efficiency is a sound national investment because it pays for itself and delivers a healthy return on every taxpayer dollar spent. An independent analysis by the Rhodium Group done for the Alliance to Save Energy found that doubling energy productivity by 2030 would provide net savings to Americans of \$327 billion per year.

While some states have made significant investments in energy efficiency, others lack the expertise, capacity or resources to develop their own energy productivity policies and programs. The Department of Energy has experts and best practices

that can assist states in meeting their energy productivity objectives and can share innovative approaches for those looking to do even more.

Finally, the initiative does not constitute new federal energy efficiency spending—it is paid for with an offset from an existing program. Therefore, it should have no negative impact on our national debt.

Question 2. Legislative Goal—This bill has a goal of doubling electric and thermal energy productivity by the year 2030. How does that compare to the past 20 years? How close is the U.S. is projected to come to that mark—through 2030—under the current collection of codes, standards, regulations, and programs?

Answer. According to the Energy Information Agency (EIA), energy productivity improved by 47 percent between 1993 and 2013. The EIA projects a baseline improvement of only 45 percent between 2013 and 2030—leaving us less than half way toward our goal of doubling energy productivity by 2030.

Question 3. As I understand it, this bill would require States to establish a “state-wide baseline of energy use.” How, exactly, are States expected to do that? What are the practical limits on that baseline—would the private sector, not to mention private individuals, have to report their energy use?

Answer. Participation in the Race to the Top initiative is entirely voluntary, and states that don’t opt to participate will not be required to establish a baseline or do anything different from what they are doing right now. In order to ensure that energy efficiency programs stimulated by the Race to the Top initiative actually move the needle on energy productivity, states that do choose to participate will have to establish the a baseline consisting of the energy use and potential resources for calendar year 2010.

Most state public utility commissions/ regulators will already have the data necessary to determine the baseline energy use in 2010. In the unlikely event they do not, there will be no need for the private sector or private individuals to report energy use, because aggregate statewide energy use can be easily determined entirely from the supply side.

States must also develop a plan to determine potential resources as of 2010. This is important because it will allow states to identify opportunities to cost effectively replace energy generation with energy savings. The initiative encourages states to view energy efficiency and improvements in energy productivity as an alternative to increased energy generation.

RESPONSES OF STEVEN NADEL TO QUESTIONS FROM SENATOR MURKOWSKI, ON
S.1084, S.1199

Question 1. This bill seeks to coordinate and streamline efficiency programs for schools across federal agencies. It’s an admirable goal, and something I think we should do more of. But while I am supportive of the effort to streamline, it concerns me that we have an authorization of “such sums”. What do you consider to be an appropriate level of funding for this legislation? How exactly would any appropriated funds be used?

Answer. ACEEE was not involved in drafting this bill so I would suggest you address your question to the bill authors. This said, my take is that the funding would be used for staff time and outreach and meeting expenses to coordinate among agencies and identify productive paths forward. My guess is this might cost a million dollars per year or perhaps a little more. S. 1199—The Better Buildings Act— Steve Nadel, ACEEE

Question 2. In your testimony, you said that the enhanced efficiency provisions in S. 1199 would actually save more energy than the original Energy Independence and Security Act provision it will replace (Sec. 433). Can you elaborate on this point?

Answer. Through our analysis we found that Sec. 433 would not yield as much energy savings as we had expected due to the extent of overlap between Sec. 433 and existing provisions already on the books. The 30 percent below code requirement for new federal buildings set forth in Sec. 305 of the Energy Conservation and Production Act as amended, coupled with Sec. 431 of the Energy Independence and Security Act of 2007 which lays out the current energy intensity reduction goals of all federal buildings (30 percent below 2003 levels for a similar building, as measured by CBECS, by 2015), would significantly limit the standalone consumption reductions attributable to Sec. 433. Additionally, we assume only 75 percent compliance will be achieved because of the challenges associated with implementation that have arisen due to of the ambiguous language of Sec. 433.

When comparing the savings we anticipate would be attributable to Sec. 433 with the savings likely to be achieved by S. 1199 we found that subjecting major renova-

tions to the same energy consumption requirement that new buildings are already subjected to (energy consumption 30 percent below model code) by itself results in greater cumulative energy savings than what we might expect from Sec. 433 alone. Our analysis is based on current model codes and does not assume future code upgrades. When you add in the even greater savings that result from an additional 15 percent improvement in the energy intensity of the federal building stock from 2015-2020 we found that S. 1199 savings would significantly exceed what we would have expected to achieve under Sec. 433.

RESPONSES OF MARK SPURR TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. Many of the members of this panel have significant concerns about the Department's loan guarantee program, including poor funding decisions that have been made in the not-too-distant past. This bill would create a new program for local energy infrastructure, and reserves \$4 billion of the existing loan volume limitation for it. Is it really necessary to expand the loan guarantee program? What types of local energy infrastructure are not covered by current statutory authorities?

Answer. Rather than expand the program, S.1205 would reform and redirect a portion of the existing program. S.1205 represents a reform because it focuses on demonstrated, commercial technologies backed by long-term contracts, in contrast to innovative businesses which have business risks associated with project revenues and expenses. Without S.1205, loans can't be made to less-risky commercial projects.

Congress has provided a total of \$60 billion in loan or loan guarantee authority (\$34.8 billion in loan guarantees for 1703 and \$25 billion for the Advanced Technology Vehicles Manufacturing (ATVM) loan program. No loan guarantees have been made under the 1703 program and only \$8.4 billion in loans have been made in the ATVM program. Of the total \$51.4 billion in remaining authority, S.1205 would redirect less than 8 percent to the S.1205 loan guarantee program.

The purpose of the proposed S.1205 loan guarantees is to reduce the interest rate on loans for local energy infrastructure projects. Reducing interest costs is the key to implementing highly efficient and resilient energy infrastructure because these technologies, although they reduce energy consumption, reduce emissions and increase resiliency, tend to have relatively high capital costs.

Following are some examples of commercial local energy infrastructure technologies that are not covered by the statutory authority:

Natural gas combined heat and power (CHP)

CHP provides both electricity and thermal energy in one highly efficient integrated fuel combustion system. There are three main types of commercial natural gas CHP systems: combustion turbines, steam turbines and reciprocating engines.

CHP can be added to many existing industrial and district energy systems. For example:

- The Texas Medical Center in Houston recently added a 48 MegaWatt (MW) natural gas CHP system as well as thermal energy storage (TES) to its existing district heating and cooling systems.
- Broshco Fabricating Products, a ferrous metal fabricator in Mansfield, OH, operates a 4.6 MW natural gas CHP system that generates electricity and hot water to meet building and process heat loads.
- The Medical Center Co. in Cleveland OH wants to add natural gas CHP to supply heat and power as it seeks to phase out use of coal and boost the resilience of its heating, cooling and power supply to educational, cultural and health care institutional customers.
- Arlington County VA, in partnership with a major real estate company and Washington Gas, recently completed a feasibility study and is evaluating financing options for a natural gas CHP district heating and cooling system to serve Crystal City.

Thermal energy storage systems (TES)

In TES systems, chilled water or ice is produced at night (when power load is low and power is cheaper and cleaner) and stored for use during the following day, thereby reducing peak power demand. TES reduces power demand because it allows cooling to be provided from stored cooling energy rather than running power-intensive chillers.

TES can be much more extensively deployed, thereby helping manage peak demands on power generation, transmission and distribution.

Biomass

Biomass CHP or heat-only boilers can convert a wide variety of biomass materials to thermal energy and/or power. Common biomass fuels include urban waste wood (tree trimmings), sawmill wastes, agricultural residues and food processing wastes. Examples include:

- In downtown St. Paul MN a 25 MW CHP system fueled with urban waste wood generates electricity, heating and cooling for most of the downtown.
- Urban waste wood is also the primary fuel for Seattle Steam Co., which supplies steam heating for downtown Seattle.
- University district energy systems are evaluating use of biomass in place of coal as a major heating fuel.
- Many small communities throughout the country which lack natural gas service are considering biomass district heating in order to reduce and stabilize fuel costs, boost local employment and productively use ageing forest resources which have become a significant fire hazard. The heating cost predicament is especially acute in the more than 100 communities in Alaska that are only accessible by air or water. Heating oil prices in these communities are among the highest in the nation, exceeding \$10 per gallon in 2012.

Industrial waste heat recovery

Oil refineries, natural gas compressor stations, chemical facilities, paper plants, steel mills, cement plants and glass manufacturers and other energy intensive industries generate large quantities of waste heat.

- Industrial exhaust gases or liquids are no longer useful for the industrial process but are hot enough to provide building space heating and domestic hot water. Recovery of this waste heat requires installation of heat exchangers in the manufacturing plant as well as hot water piping to transport the heat to users.
- Waste heat can also be converted into electricity through backpressure steam turbines or organic rankine cycle generation systems.

Heat recovery chillers

This equipment, sometimes called heat pump chillers, enables the heat that is produced by air conditioning to be recovered and used for heating. This saves energy by reducing the need to burn fuel for heating. It also saves water because with conventional systems water is consumed to dissipate the heat that is extracted from buildings by air conditioning systems. Particularly large quantities of heat are produced by data centers.

Geothermal direct use

Over 270 communities, primarily in the western states of ID, NV, NM, CA, OR and WA, have been identified with geothermal resources located nearby. Directly using geothermal hot water for district heating reduces the use of fossil fuels, improves air quality and increases energy supply reliability. Downtown Boise ID and the Oregon Institute of Technology are among the current users of geothermal district heating.

District heating piping to distribute hot water or steam to users

Although in many circumstances the district heating piping is already installed, in some projects it will be necessary to install an underground closed loop piping system to supply hot water to buildings and return the cooled water to the plant to be re-heated. In expansion of an existing steam district heating system, steam supply piping would be installed with a return piping system for condensate.

District cooling piping to distribute chilled water to users

Similarly, in a district cooling system, chilled water is pumped through supply piping to absorb heat from buildings. The water is then returned to the plant to be re-chilled.

Question 2. In the wake of high-profile failures like Solyndra, Abound Solar, and Beacon Power, many people believe that the Loan Guarantee Program should be abolished, or at the very least, significantly reformed. Do you agree that reforms are needed so that taxpayers are not left on the hook for business failures? Please explain your answer.

Answer. As the committee is aware, the Solyndra loan guarantee was made under Section 1705, a temporary loan guarantee program for rapid deployment of projects as part of the American Recovery and Reinvestment Act of 2009. The 1705 authority is now expired. S.1205 will better protect taxpayer dollars because unlike 1703 or 1705 it is focused on proven technologies that have been tested and are commer-

cially available. As discussed above, S.1205 would reform and re-direct less than 8 percent of the authorized loan guarantee authority to proven, commercial technologies backed by long-term contracts for the thermal and/or electric energy produced.

With S.1205, the federal government can play an important and appropriate role in reducing energy waste and increasing energy supply resiliency: leveraging the credit of the federal government to reduce interest costs and thereby facilitate the implementation of energy infrastructure that captures and productively uses otherwise-wasted heat or other local sources of energy.

Question 3. This bill appears to continue the practice of using taxpayer dollars to cover the credit subsidy for loan guarantees. Do you believe it is appropriate to ask taxpayers to foot the bill for credit subsidy for these projects?

Answer. S.1205 provides the opportunity to use funds that have already been appropriated to facilitate implementation of less-risky projects, thereby reducing risks for taxpayers. S.1205 would use funds already appropriated for 1703 to the extent that they are available. To the extent that such already-appropriated funds are not available, the costs of guarantees under S.1205 would be covered through fees assessed to borrowers. We believe that the use of a limited amount of already-appropriated funds can make a crucial difference in reducing borrowing costs, particularly for smaller projects being undertaken by cities and universities. In these smaller projects, loan guarantee transaction costs are relatively higher than for large projects, such as nuclear power plants or carbon sequestration projects.

Question 4. This bill has an authorization for “technical assistance,” including assistance with utility interconnection, negotiation of power and fuel contracts, permitting and siting issues, marketing and contract negotiation, business planning and financial analysis and engineering design. It seems to me that these services would be better handled by the private sector. Even so, it’s my understanding that the Clean Energy Application Center within DOE already offers some of these services. Is a new authorization necessary? Why would we need the additional technical assistance? What is needed that the existing center does not already provide?

Answer. We anticipate that most of the technical assistance would be provided by the private sector. What is needed is additional funding to provide the assistance called for in S.1205. The DOE can then procure the appropriate support from the private sector and/or the Clean Energy Application Centers (CEACs) (which we understand will be rebranded the Technical Assistance Program next year). The CEACs have developed expertise in screening tools to assist in the early stage evaluation of the economic viability of CHP/district energy projects. If a project is feasible based on an initial assessment, in-depth feasibility studies, engineering, business assessment and financial analysis is required before capital financing can be sought. It is in these next stages of more robust technical assistance that private sector support would be facilitated by the technical assistance program established by S.1205.

An example of a situation where S.1205 technical assistance would be important is in Ely, MN. Preliminary studies have been done which have identified a range of opportunities to use biomass for district heating in this small community. Ely is representative of the types of communities described above: they lack natural gas service and are considering biomass district heating in order to reduce and stabilize fuel costs, boost local employment and productively use ageing forest resources which have become a significant fire hazard. However, they lack the funds to carry out the additional studies and engineering work necessary to make the project ready for financing. S.1205 technical assistance would make the crucial difference.

RESPONSES OF MARK SYLVIA TO QUESTIONS FROM SENATOR MURKOWSKI

Question 1. As I understand it, these programs currently exist and are functioning successfully on the state or even the local level. Is this accurate? If so, why shouldn’t they remain state or local level programs? Is there anything stopping states, many of which have budget situations that are less dire than what we face here, from doing this on their own? If state programs are working, why is there a need for legislation to authorize a new program at the Department of Energy?

Production of energy is not the same as energy efficiency, yet the definition of an “energy-efficient upgrade” includes the “installation or improvement of renewable energy for heating or electricity generation serving a residential building carried out in conjunction with an energy efficiency project or activity.” Why is this?

Answer. While state and local programs are successful in the area, there is always room for improvement as programs evolve over time. As discussed in the testimony,

there are examples of programs and policies that work across the United States. We provided a number of examples in the testimony and would be happy to provide other examples for the record.

This does not mean that there is not a role for federal legislation or the federal government in encouraging energy efficiency financing programs through the loan vehicle propounded in the bill. There remain a wide variety of barriers to successful implementation of energy efficiency financing programs. Reducing the costs of borrowing, using limited federal funds as a “seed” fund to leverage private and state funding, and expanding consumer-friendly financing options are all areas where a state-federal partnership can be useful. The State Energy Program is a flexible model, which utilizes this type of approach. S. 1200 is a vehicle to address the barriers identified and provides limited federal funding for stated objectives.

Many state and local governments (in addition to utilities and other entities) are running effective programs designed to make it easier for homeowners and tenants to finance energy efficiency upgrades. S.1200 is designed to support those programs by providing funding that states, local governments, and others can use to re-capitalize an existing, successful program that has depleted its initial capital, to capitalize the expansion of existing, successful programs, and to capitalize new programs that states and local governments believe will effectively meet the needs of their own communities.

The federal program should accommodate the reality on the ground, which is that many homeowners integrate energy efficiency and renewable energy projects. The core of S.1200 is energy efficiency, but it can accommodate homeowners and residents that are integrating energy efficiency and renewable energy upgrades. We are happy to answer any further questions on this important legislation.

Question 2. Of all the topics the Department of Energy’s Inspector General has written about in the wake of the 2009 stimulus, weatherization has to be one of the most frequent. We’ve seen report after report about waste, fraud, and abuse within the program, after \$5 billion was awarded to it. Does this bill take any concrete steps—aside from new “standards”—to ensure that taxpayer dollars aren’t wasted like we’ve seen in recent years?

Answer. The Weatherization Assistance Program has been, and remains, a very successful state-federal initiative targeting a specific population of low-income Americans, as well as veterans, the disabled, and the elderly, who fit defined economic criteria. While the Inspector General for DOE and other agencies perform an important function, we would expect that any federal or state program, no matter how well run or well intentioned, will have some degree of waste. This is not a rationale for eliminating the programs, but another reason for continuous improvements and updates. The proposed legislation helps to address these issues.

The states, the federal government, local delivery providers, and others, have learned from mistakes and made positive changes in order to ensure that Weatherization is improving over time. In fact, many of the shortcomings identified by the IG, however limited, were found through the regular post-project audit process conducted by the state and the providers. These problems were later “identified” by the IG; though they had already been corrected. The states and DOE take their responsibilities to be good stewards of funding very seriously. In our experience, this has not been a partisan issue. To the extent that problems are found, we have worked to correct them. In addition to the changes included in the reauthorization bill, if the committee has additional suggestions or recommendations, we would certainly attempt to address them as expeditiously as possible. Overall, the program is making a significant difference in Americans lives.

APPENDIX II

Additional Material Submitted for the Record

STATEMENT OF STEVEN NADEL, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (ACEEE), (REVISED VERSION)

Summary

This hearing is on nine energy efficiency bills that are potential amendments to S. 761, a bill endorsed by the full Senate Energy Committee that may soon reach the Senate floor. ACEEE strongly supports S. 761 and also supports the nine bills before us, although for one bill our support is contingent on a few modifications. In addition, I discuss several other possible amendments, most of which we support but one of which could be a backward step.

ACEEE has conducted a preliminary energy savings analysis of S. 761 and many of the potential amendments. Overall, we estimate that S. 761, together with all the amendments we support, will reduce U.S. energy use by over 15 quadrillion Btu's over the 2014-2030 period. This is nearly as much energy as will be used by the state of Oregon over this period. Saving this much energy will benefit our economy and our environment and we urge the Senate to adopt S. 761 and the other bills I discuss, but to avoid "backward steps" that lack broad support.

Introduction

My name is Steven Nadel and I am the Executive Director of the American Council for an Energy-Efficient Economy (ACEEE), a non-profit organization that acts as a catalyst to advance energy efficiency policies, programs, technologies, investments, and behavior. We were formed in 1980 by energy researchers and celebrated our 30th anniversary in 2010. Personally I have been involved in energy efficiency issues since the late-1970s and have testified multiple times before this Committee and its Subcommittees as well as before the House Energy and Commerce Committee.

Today's hearing is on nine bills that are potential amendments to the Energy Savings and Industrial Competitiveness Act of 2013 (S. 761) that was previously reported out of the Senate Energy and Natural Resources Committee on a 19-3 vote. ACEEE strongly supports S. 761 and urges the Senate leadership to schedule this bill for floor time as soon as possible.

ACEEE has a long history of estimating the energy and economic impacts of energy efficiency legislation, going back to the 1980s. For example, last year we prepared an analysis on the 2012 Shaheen-Portman bill.¹ We have begun an analysis of this year's Shaheen-Portman bill as well as an analysis of most of the amendments, which I discuss later in my testimony. At this point we have preliminary estimates of energy savings, but are only just starting our analysis of micro- or macro-economic impacts. Our preliminary analysis finds that the 2013 Shaheen-Portman bill, as it is currently drafted, would save about 9.5 quadrillion Btu's ("quads") of energy over the 2014-2030 period. As a point of reference, the United States uses about 100 quads annually. The amendments we support and that I discuss below could add 6.3 additional quads of energy savings, for a combined total of 15.8 quads. This is more energy than would be used by the state of Utah or Nebraska over this period, and nearly as much energy as would be used by the state of Oregon (assuming annual use stays constant at current levels). Savings start modestly and grow steadily over time, as illustrated in Figure 1.* Near the end of my testimony I will

¹Farley et al. 2012. Impacts of Energy Efficiency Provisions in Pending Senate Energy Efficiency Bills. American Council for an Energy-Efficient Economy. <http://aceee.org/files/pdf/white-paper/shaheen-portman.pdf>

*All Figures have been retained in subcommittee files.

provide additional information on our analysis including energy savings by provision.

Of the nine bills before us today, ACEEE supports all of these bills, although in one case our support is contingent on a few modifications. In the next section of my testimony I discuss each of these bills, and then touch on several additional potential amendments that may be introduced when S. 761 reaches the Senate floor.

Bills We Supports

S. 1206—Benchmarking

S. 1206, introduced by Senator Franken, would promote benchmarking of large commercial and multifamily buildings. Building benchmarking is a process that allows building owners to assess the energy use of their buildings and compare them to otherwise similar buildings. This process helps to identify buildings that would most benefit from building upgrades. The federal ENERGY STAR Buildings program has encouraged benchmarking for many years and U.S. Environmental Protection Agency estimates that this program has benchmarked more than 185 million square feet of U.S. commercial building floor area, and resulted in average energy savings of about 7 percent in these buildings each year. However, the vast majority of the existing commercial building stock has not been benchmarked. This provision would encourage benchmarking of additional buildings by making whole building energy use data more readily available to building owners and promoting benchmarking in a variety of ways. This provision only applies to commercial buildings and multifamily residential buildings. Single-family homes and small buildings that house several families are not included.

Specific provisions in the bill call for:

1. Benchmarking additional federal buildings. Under existing federal law, federally-owned buildings must be benchmarked but most federally-leased buildings are not included in this requirement. This provision requires benchmarking of leased buildings where practical, addressing a gap in current law.
2. A study by the U.S. Department of Energy (DOE) on best practices for benchmarking, energy use data aggregation, and energy use disclosure. Many cities and some states are considering policies in these areas and this study would provide guidance on approaches that work and those that have been problematic so that new policies can take advantage of these lessons.
3. Combining existing public federal buildings databases and facilitating consolidation of other existing public buildings databases to make reporting easier for building owners and identification of best practices easier for analysts.
4. Establishing a small competitive grant program for utilities, their partners, and utility regulators to make whole building energy use data available to building owners. This includes aggregated tenant consumption so that whole buildings can be benchmarked. Data on individual tenants would not be provided in order to protect privacy. This provision has been extensively vetted with the real estate industry and has been significantly modified to address their views.

S. 1191—Better Buildings Act (Tenant Star)

S. 1191, introduced by Senators Bennet and Ayotte, would encourage landlords and tenants to cooperate on energy efficiency. Presently most leased buildings suffer from a “split incentive” problem. Tenants pay energy bills but are usually not in buildings long enough to justify making energy-saving capital investments. Building owners make capital investments but since tenants pay the energy costs, they have little incentive to invest in energy efficiency upgrades. This bill would help address these problems by:

1. Identifying best practices for energy efficiency during tenant “fit-outs”—the improvements to a space tenants make between when they sign a lease and when they move in.
2. Establishing a new voluntary “Tenant Star” program to recognize tenants whose energy performance is substantially above average, complementing the existing whole building ENERGY STAR Buildings program.
3. Encouraging “energy-aligned” federal leasing by having the General Services Administration develop model leasing provisions that would spur cooperation on energy savings between federal tenants and building owners. Such leases can reduce costs to federal agencies and also serve as a model for leases by non-federal tenants.

Another witness at this hearing will be discussing this bill in depth so I will keep my comments brief.

S. 1200—Residential Energy Savings Act of 2013 (Residential Financing)

S. 1200, introduced by Senators Sanders and Wyden, would establish a pilot program for state loans for residential building energy efficiency upgrades. Many homeowners lack the capital to make energy efficiency investments and this bill would assist states and other eligible entities in providing this capital at attractive terms, often working with banks and other financial institutions. The bill would have DOE make loans to states, local governments, utilities, and other eligible entities who would use the funds to recapitalize, expand, or begin energy efficiency loan programs. The loans would be repaid with interest, providing for a high degree of cost recovery. States and other eligible entities would apply for funding and DOE would evaluate these applications based on a variety of criteria in the bill designed to encourage best practice program design. For example, the bill calls for consumer repayments to be “consumer friendly” and would encourage innovative approaches such as on-bill repayment. Since the federal cost of capital is lower than the cost of capital for many eligible entities, the program could provide a moderate-cost source of loan capital. To the extent states and other eligible entities could provide or raise additional funds for such activities as loan loss reserves, interest rates that are very attractive to consumers may be possible. This provision is a useful complement to the commercial building loan program now in S. 761.

S. 1209—Race to the Top

S. 1209, introduced by Senators Warner and Manchin, would establish a “race-to-the-top” program for states to spur innovative energy efficiency efforts, just as the program by the same name at the Department of Education has spurred innovation in that field. The Race to the Top initiative was a top recommendation of the Energy 2030 initiative led by the Alliance to Save Energy, so I will leave it to their witness to provide more details on this bill.

S. 1084—School Retrofits

S. 1084, introduced by Senators Udall and Collins, would have DOE coordinate federal efforts to help school systems, including K-12 and higher education, make their buildings more efficient. Currently there is a patchwork of efforts by various departments that are not well coordinated. We believe this is a useful objective that will make it easier for school systems to retrofit their buildings.

S. 1020—All of the Above Federal Energy Conservation Act

S. 1020, introduced by Senators Hoeven and Manchin, would repeal Section 433 of the Energy Independence and Security Act of 2007 and replace it with two new provisions that would:

1. Extend and improve energy performance requirements for federal buildings. Under current law these requirements call for reducing energy use of federal buildings by 30 percent by 2015 relative to a fiscal year 2003 base. The new provision would extend this requirement to a 45 percent reduction by 2020.
2. Extend the federal energy efficiency performance standards that now apply to new construction to also include alterations. These standards call for performance levels 30 percent better than those in the most recent model building code for commercial buildings established by the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE).

We support this bill because, as currently written, Section 433 is not workable and because, according to our analysis, the two new provisions would result in larger energy savings than repeal of Section 433 would lose. The current Section 433 is not very workable because in its present form it discourages investments in long-term energy savings contracts and in combined heat and power systems. This was not its intent. Regarding energy savings, our analysis is summarized near the end of my testimony. We believe that Section 433 had a laudable goal—to reduce dependence on fossil fuels. We would prefer that Section 433 be rewritten to be more workable rather than outright repealed, but the legislative process requires compromise and we believe that S. 1020 is a workable compromise.

We also support the following two bills but recognize that they have significant costs and therefore to move forward will likely need reasonable funding offsets.

S. 1213—WAP and SEP Reauthorization

S. 1213, introduced by Senators Coons, Collins and Reed, reauthorizes the low-income Weatherization Assistance Program (WAP) and the State Energy Program (SEP). WAP has been the key federal program to help low-income households to reduce their energy bills. It makes sense to help these households reduce their energy bills on an on-going basis, rather than just help to pay bills through the federal Fuel Assistance program (e.g., recall the old proverb, “Give a man a fish, and you feed

him for a day; show him how to catch fish, and you feed him for a lifetime”). The WAP program has been very successful—the last “meta-evaluation” on the program found average energy savings of more than 20 percent.² The new legislation includes several useful improvements to the current program—a requirement that DOE develop minimum professional standards for WAP contractors and workers, a requirement for an independent quality assurance program, and a new competitive leveraged grant program for non-profit agencies that have a track record of success in serving low-income communities. This bill will also reauthorize the SEP program, which has been a key program funding State Energy Offices in all states, including some states where this is the only funding. Another witness at this hearing will discuss these programs in more depth.

S. 1205—Local Energy Supply and Resiliency Act

S. 1205, proposed by Senator Franken, is intended to enable energy efficiency and renewable energy projects by addressing market barriers for both the planning and financing of district energy and waste energy recovery projects. From an efficiency perspective, promoting district energy projects is important in that the aggregation of thermal loads creates opportunities for expanded combined heat and power, and implementing thermal systems at scale can improve efficiency and be responsive to electric system demands. In addition, waste energy recovery projects offer the opportunity to reduce electricity and fossil fuel requirements needed to meet local energy needs. The focus of this provision on the valuation of thermal energy represents an important precedent. ACEEE has not yet estimated the energy savings opportunities from this provision, but intends to analyze the provision in the coming weeks.

Bill We Support with Modifications

S. 717—Non-Profit Energy Efficiency Act

S. 717, introduced by Senators Klobuchar and Hoeven, would help non-profit organizations save energy, a laudable goal. It provides matching grants, up to a cap, so that the non-profit organizations themselves will have to provide a significant contribution. In general we find this a useful bill. We are troubled, however, by the proposal to offset this bill with funding from the Building Technologies Program at DOE, an important program with a budget of only \$220 million for this fiscal year. The Buildings Technology Program is working on developing and popularizing a variety of new and cost-effective energy-saving technologies and practices. A cut of \$50 million in this program would be devastating. From our research, spending \$50 million on the Building Technology Program provides a higher return on the federal investment than would be provided by spending the same money on retrofits using conventional technologies in a narrow subset of the building sector. To gain our support, this bill would need to be funded using an alternative offset.

In addition, we suggest a few other modifications. First, we suggest adding two criteria by which to prioritize grants: (1) the percentage of funds leveraged from other sources (e.g., a grant for 25 percent of the cost would receive priority over one for 50 percent of the cost); and (2) the financial need of the non-profit (e.g., poor non-profits should have priority over those with large available resources). Second, the language on eligible measures is probably too broad as it appears to include items whose primary purpose is not saving energy.³

Additional Useful Potential Amendments to S. 761

In addition to the bills that are formally part of this hearing, we wish to briefly mention several other likely amendments to S. 761 that we support as follows:

S. 1106—Sensible Accounting to Value Energy Act (SAVE)

S. 1106 was recently introduced by Senators Bennet and Isakson and has been referred to the Banking Committee. The bill would encourage energy efficiency upgrades to homes by: (1) encouraging efficiency improvements at the time of purchase; and (2) recognizing the value of efficiency upgrades, and the operating cost savings they provide, when buildings are assessed and qualification for mortgages determined. Specifically, this bill instructs the Department of Housing and Urban Development (HUD) to issue updated underwriting and appraisal guidelines for bor-

² See Schweitzer, Martin. 2005. Estimating the National Effects of the U.S. Department of Energy’s Weatherization Assistance Program with State Level Data: A Meta-Evaluation Using Data from 1993-2005. Oak Ridge National Laboratory. http://weatherization.ornl.gov/pdfs/ORNL_CON-493.pdf.

³Specifically, on page 2, lines 17-20, we recommend deleting “electrical wiring” (on lines 17 and 19) and “plumbing, sewage” (on line 18). Likewise, on page 3, lines 9-10, “modernize” should be deleted. If the primary purpose of a measure is improving energy efficiency, the remaining language on p. 3, lines 9-12 should be sufficient.

rowers who submit a qualified home energy report. The bill would cover any loan issued, insured, purchased, or securitized by the Federal Housing Administration and other federal mortgage loan insurance agencies or their successors. These agencies collectively guarantee more than 90 percent of all new loans. The bill has three components:

- Debt-to-Income Adjustment—Instructs lenders to account for expected energy cost savings as an offset to other expenses in the debt-to-income qualifying ratio, which tests the borrower’s ability to afford monthly mortgage payments. If no qualified energy report is provided, the DTI will not be adjusted.
- Loan-to-Value Adjustment—Instructs lenders to add the present value of expected energy savings when calculating the loan-to-value ratio, where not already accounted for in the home’s appraisal report. If no qualified energy report is provided, the valuation will not be adjusted.
- Consumer Information—Instructs lenders to inform loan applicants of the costs and benefits of energy efficiency and resources for improving the energy efficiency of a home.

The bill does not add to the current deficit or rely on taxes or fees; instead it removes current obstacles holding back more efficient building and remodeling of our homes. A recent study of more than 70,000 mortgages found that mortgages on energy-efficient homes were 32 percent less likely to be in default.⁴ This study provides strong evidence that the SAVE Act is good credit policy and would help protect lenders and taxpayers from the risk of mortgage default. The bill removes an impediment to home energy efficiency from federal mortgage policy by recognizing how energy efficiency can increase home value and reduce operating costs, freeing up more income to pay a mortgage. In addition, the bill would allow American homeowners to finance cost-effective home energy upgrades as part of a traditional mortgage, improving access to the comfort and money-saving benefits of efficiency without increasing the cost of homeownership. The result is improved and lower cost access to capital to invest in making homes better.

The SAVE Act has support from a broad, diverse coalition including the National Association of Manufacturers, U.S. Chamber of Commerce, National Association of Realtors, National Association of Home Builders, ACEEE, the Institute for Market Transformation, the Alliance to Save Energy, and the Natural Resources Defense Council.

Manchin Power Plant Efficiency

This bill has not been introduced yet but would direct DOE to conduct a study on opportunities to improve the efficiency of existing electrical generation plants. There are significant opportunities to improve existing power plants⁵ and this bill would help identify the most promising approaches, helping power plant owners and regulators to identify cost-effective opportunities to improve their plants.

H.R. 540—Energy Efficient Government Technology Act

This bill was introduced in the House by Representatives Eshoo and Rogers. We are aware of several senators who plan to shortly introduce a similar bill. The bill would encourage the use of information and communication technologies to save energy and would also assist efforts to improve the energy efficiency of data centers. The bill would expand upon the guidance in section 401 of S. 761 and also “turbocharge” section 453 of the Energy Independence and Security Act of 2007, dealing with energy-efficient data centers and cloud computing. Both of these provisions would take advantage of recent advances in information and communications technologies to increase opportunities for saving energy, including reducing energy required to run data centers. To provide one example of these opportunities, the Natural Resources Defense Council and an “intelligent efficiency” service provider worked with the owner of several already-efficient Washington, D.C. office buildings and achieved 13 percent average energy savings in the first year by monitoring building meter data, identifying problems, and making actionable suggestions to building operations staff.⁶

⁴ Sahadi et al. 2013. Home Energy Efficiency and Mortgage Risks. Institute for Market Transformation. <http://www.imt.org/resources/detail/home-energy-efficiency-and-mortgage-risks>.

⁵ For example, the Electric Power Research Institute hosted a conference on this topic in February, 2013. See http://mydocs.epri.com/docs/PublicMeetingMaterials/1202/epri_call_to_papers.pdf.

⁶ Report forthcoming shortly.

Use of Federal Disaster Relief and Emergency Assistance for Energy-Efficient Products and Services

Senator Gillibrand is now developing a bill to authorize and encourage the use of efficient products and services when buildings and other structures need to be replaced following a disaster. Under current law, if the old building was inefficient, disaster funds cannot be used to replace it with a more efficient building, which just perpetuates inefficiency. The proposed bill will specifically authorize acquisition of efficient equipment that has been screened by the ENERGY STAR or Federal Energy Management Program, or efficient buildings that meet national model building codes.

Water Efficiency

S. 761 is focused on energy efficiency, but in a number of places the term “and water” can and should be added to also encourage water efficiency. Using water more efficiently saves energy by reducing energy used for water and waste water pumping and treatment. Specific suggestions have been forwarded to Senators Shaheen and Portman by the Alliance for Water Efficiency and we hope that some of these suggestions can be included in a managers’ amendment to S. 761.

Potential “Backward Steps” on Energy Efficiency

In addition to all of the above amendments which we generally support, we have heard about a few amendments that have been drafted but not introduced that could reduce energy efficiency and increase energy use.

First, we are concerned about a provision developed by the National Rural Electric Cooperative Association (NRECA) to establish new efficiency standards for “grid-enabled” electric water heaters that will use substantially more energy than water heaters that meet a federal efficiency standard that will go into effect in 2015. NRECA wants to allow electric coops to promote off-peak electric water heating and to use other demand response techniques. While we are hopeful we can work something out with them, their initial draft has multiple problems and we strongly oppose its adoption. DOE also understands NRECA’s concern and is working on a waiver to the standard for the appropriate use of electric water heaters in demand response programs. DOE’s initial proposal had some problems, but NRECA and others heavily commented on the DOE proposal and DOE is now working to address these comments. While we will work hard to reach an agreement with NRECA, if those discussions do not succeed, we recommend that instead of dictating a solution that has the support of only one set of parties to this proceeding, Congress should instead include a provision to direct DOE to make a decision and provide a deadline for DOE to make such a decision.

There is also a potentially troubling amendment dealing with the Leadership in Energy and Environmental Design program (LEED), a voluntary “green building” certification program. Fortunately, we understand that negotiations are ongoing between the interested parties and we hope that a reasonable compromise can be found.

Energy Savings from these Provisions

As discussed at the beginning of my testimony, ACEEE has conducted a preliminary analysis of the energy savings from S. 761 and most of the bills and provisions discussed in my testimony. In compiling these estimates, we have made informed assumptions on their impacts. For example, where appropriations are required, given the tight federal budget, we assume that full authorizations will not be funded and instead we assume that the appropriation is half of the authorization. Our savings estimates are summarized in Table 1. Table 1 lists annual savings in 2020 and 2030 as well as cumulative savings over the 2014-2030 period (e.g., the sum of annual savings for each year over this period). The largest savings, in order, come from Section 101 of S. 761 (on building codes), S. 1106 (the SAVE Act), improving the efficiency of existing power plants (Manchin), and Section 311 of S. 761 (industrial efficiency).

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

- According to a report⁶ released 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.

⁴ 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-reports/0922>.

⁵ Costs 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/aes/elec/genrty_generation.html (provides “Total System Levelized Cost” for various “Plant Types”) in dollars per megawatt hour (“MWh”). For purposes of table conversion: MWh / 1000 = kWh

⁶ “Where America Goes to Work: The Contribution of Office Building Operations to the Economy” (2012), available at http://www.boma.org/industry-issues/state-local-issues2/Document%2011_BOMA_Fewer_Innet_FINAL%20Proc%20for%20print.pdf

Overall, the savings from the provisions we support are roughly the same as those from last year's version of Shaheen-Portman. Some sections that were included in last year's version of this bill have changed or been dropped, and we now have one year less to accrue savings before the 2030 end-point in our analysis. Also, we revised some of our earlier estimates based on updated data. Furthermore, none of the amendments we analyzed this year were in last year's bill.

In last year's analysis we estimated that the Shaheen-Portman bill would generate nearly \$60 billion in net consumer savings (i.e., savings minus costs) and would support nearly 160,000 net jobs by 2030. Since the energy savings from the new bill with amendments are nearly the same, we would expect similar economic impacts in the new bill as in the old. We will publish a detailed report when we complete our analysis.

We are aware that S. 1020 ("repeal and replace") has attracted much attention so we paid special attention in our preliminary analysis to that section of that bill. We found that the fossil fuel energy savings achieved as a result of the implementation of Section 433 of the Energy Independence and Security Act of 2007 (EISA) would be less than intended when accounting for other, existing requirements applicable to new and renovated federal buildings. New federal buildings are already required by Section 305 of the Energy Conservation and Production Act to operate at 30 percent below the energy consumption levels of applicable building code. In addition, there is an existing requirement in Section 431 of EISA for a reduction of overall energy intensity of federal buildings by 30 percent in 2015. The benefit to new and renovated federal buildings from these two requirements effectively reduces the impact of Section 433 by roughly 50-80 percent annually. It is also important to note that these reduced impacts are also due to some drafting problems with Section 433 that has hindered its implementation; recognizing this, we assume that Section 433 would ultimately only achieve 75 percent of its objective and not 100 percent. If S. 1020 is adopted, it would extend the existing 30 percent below code requirement for new buildings to all buildings undergoing major renovations. The energy savings from this provision, when paired with energy savings from a proposed increase in the energy intensity target for all federal buildings to 45 percent by 2020, would exceed any savings gap from repeal of Section 433. Together these two provisions could save approximately 0.03 quads more than Section 433 would have in both 2020 and 2030, with an estimated total cumulative additional savings of about 0.4 quads over the 2014-2030 period.

Conclusion

ACEEE believes that Energy Savings and Industrial Competitiveness Act of 2013 (S. 761) would be an important step toward improving the energy efficiency of the U.S. economy. All of the bills before us today, as well as many of the additional amendments that may be considered, would add to the energy efficiency savings achieved. We support:

- S. 1206—Benchmarking
- S. 1191—Better Buildings Act (Tenant Star)
- S. 1200—Residential Energy Savings Act of 2013 (Residential Financing)
- S. 1209—Race to the Top
- S. 1084—School Retrofits
- S. 1020—All of the Above Federal Energy Conservation Act
- S. 1213—WAP and SEP Reauthorization
- S. 1205—Local Energy Supply and Resiliency Act
- S. 717—Non-Profit Energy Efficiency Act provided our recommended modifications are made
- S. 1106—Sensible Accounting to Value Energy Act (SAVE)
- Senator Manchin's Power Plant Efficiency provision
- H.R. 540—Energy Efficient Government Technology Act
- Senator Gillibrand's provision on Use of Federal Disaster Relief and Emergency Assistance for Energy-Efficient Products and Services
- Adding Water Efficiency to S. 761 in appropriate places

On the other hand, a potential amendment supported by NRECA on water heater efficiency standards is a potential "backward step" that could make enactment of energy efficiency legislation difficult.

Overall, we estimate that S. 761, together with all the amendments we support, will reduce U.S. energy use by more than 15 quadrillion Btu's over the 2014-2030 period. This is nearly as much energy as will be used by the state of Oregon over this period. Saving this much energy will benefit our economy and our environment and we urge the Senate to adopt S. 761 and the other bills I have discussed, but to avoid "backward steps" that lack broad support.

This concludes my testimony. Thank you for the opportunity to present these views.

AMERICAN CIVIL LIBERTIES,
June 25, 2013.

Hon. AL FRANKEN
Chairman, Subcommittee on Energy and Natural Resources, 304 Dirksen Senate Office Building, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Subcommittee on Energy, Committee on Energy and Natural Resources, 304 Dirksen Senate Office Building, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

We, the undersigned organizations, write to express our concerns about S. 717, “the Nonprofit Energy Efficiency Act,” as it is currently written. Although we do not object to the creation of a program that awards grants to nonprofit organizations for the purpose of retrofitting nonprofit buildings with energy-efficiency improvements—indeed some of us would actively support such a program—we do object to providing those grants to “houses of worship.” All programs funded by Congress must adhere to the Establishment Clause of the U.S. Constitution, which has been the foundation of religious liberty in our country for over two hundred years. S. 717, in its current form, however, cannot meet that demand.

Longstanding Supreme Court precedent¹ firmly establishes that “the State may not erect buildings in which religious activities are to take place” and “it may not maintain such buildings or renovate them.”² This bedrock constitutional principle remains controlling law. The Supreme Court has long maintained that direct money grants create “special Establishment Clause dangers.”³

For nearly four decades, Congress has also consistently recognized this constitutional principle. Statutory prohibitions on using taxpayer funds to construct, renovate, or improve sanctuaries and buildings used primarily for religious purposes exist throughout the U.S. Code.⁴ Most recently, Congress recognized the applicability of this precedent when it limited green construction funding in the Recovery Act to buildings in which secular activities take place.⁵

Religious liberty is one of our Nation’s most cherished values and it is best protected when the institutions of religion and government are kept separate. The core constitutional rule prohibiting taxpayer funds from being used to construct or renovate houses of worship is not hostile to religion, but rather is a fundamental protection for religious liberty.

Houses of worship are fundamentally religious, and as such, may and sometimes must receive certain rights and protections that are different from other nonprofits. When it comes to taxpayer funds, for instance, there are certain limitations that serve to protect their autonomy and independence from the government—the strings that come attached to government funding ultimately weaken religion. Treating houses of worship just like other nonprofits undermines the very foundation underlying many of their special rights and protections.

Moreover, funding houses of worship would defy the fundamental principle that no taxpayer should be forced to fund a religion with which he or she disagrees and would open the door to government favoring, or creating the perception that it favors, certain religions over others.

Encouraging energy efficiency is a worthy goal, but cannot be done in a way that jeopardizes the religious freedom for which our country stands. We request that the

¹ *Tilton v. Richardson*, 403 U.S. 672 (1971) (holding unanimously that a government subsidy used to construct buildings at colleges and universities was constitutional only if the buildings could never be used for religious activities); *Hunt v. McNair*, 413 U.S. 734 (1973) (upholding issuance of revenue bonds to finance the construction and renovation of facilities because the law included a condition barring government-financed buildings from being used for religious worship or instruction); *Committee for Public Education v. Nyquist*, 413 U.S. 756 (1973).

² *Nyquist*, 413 U.S. at 777 (emphasis added).

³ *Mitchell v. Helms*, 530 U.S. 793, 819 (1999) (quoting *Rosenberger v. Rector and Visitors of Univ. of Va.*, 515 U.S. 819, 842 (1995)) (Thomas, J., plurality opinion); see also *id.* at 856 (O’Connor, J., controlling and concurring opinion) (describing *Tilton* as striking down the grant statute because it lacked a “secular content requirement”).

⁴ See, e.g., 20 U.S.C. § 1066c; 20 U.S.C. § 1062; 20 U.S.C. § 1103e; 25 U.S.C. § 1813; 20 U.S.C. § 1068e; 25 U.S.C. § 3306; 20 U.S.C. § 1011k; & 29 U.S.C. § 2938.

⁵ Section 14004(c)(3) of the Americans Recovery and Reinvestment Act of 2009 prohibited renovation of buildings used for religious worship or instruction.

bill be amended to reflect the constitutional prohibition on providing direct government funds to houses of worship and align with existing statutes.

Sincerely,

AMERICAN CIVIL LIBERTIES UNION,
 AMERICANS UNITED FOR SEPARATION OF CHURCH AND STATE,
 BAPTIST JOINT COMMITTEE FOR RELIGIOUS LIBERTY,
 HINDU AMERICAN FOUNDATION,
 INTERFAITH ALLIANCE,
 UNION FOR REFORM JUDAISM,

STATEMENT OF MAGGIE GARRETT, LEGISLATIVE DIRECTOR, AMERICANS UNITED FOR SEPARATION OF CHURCH AND STATE

Americans United offers this written statement to the Energy Subcommittee of the Senate Committee on Energy and Natural Resources to express our strong concerns regarding S. 717, “the Nonprofit Energy Efficiency Act,” as it is currently written. Although we take no position on the underlying purpose of the bill—the creation of a program that awards grants to nonprofit organizations for the purpose of retrofitting nonprofit buildings with energy-efficiency improvements—we oppose the language in the bill that explicitly authorizes these grants to “houses of worship.” Providing taxpayer funded retrofitting grants to houses of worship threatens religious liberty and creates serious Establishment Clause concerns. Regardless of the value of the proposed grant program, it should not be implemented in a manner that violates cherished religious freedom protections.

Founded in 1947, Americans United is a nonpartisan educational organization dedicated to preserving the constitutional principle of church-state separation as the only way to ensure true religious freedom for all Americans. We fight to protect the right of individuals and religious communities to worship as they see fit without government interference, compulsion, support, or disparagement. Americans United has more than 120,000 members and supporters across the country.

The Bar on Providing These Grants to Houses of Worship Protects Religious Freedom

The bar on the government grants to retrofit houses of worship is an important limitation that exists to protect religious freedom for all. First, it protects religion and houses of worship. Houses of worship are special in our country and our constitution. They are both the place where worship takes place and are themselves expressions of worship. Accordingly, they are accorded special protections—exemptions, accommodations, and tax deductions. Restrictions on government funding of religion is also a special protection—they protect the conscience of the individual taxpayer, safeguard the autonomy of the religious institution, and ensure an equal playing field for all religions by prohibiting the government from playing favorites.

Such a bar also upholds the fundamental principle that no taxpayer should be forced to fund a religion with whom he or she disagrees and that the government should never support building (“establishing” religion in its most basic form) religious sanctuaries. It protects against the government favoring, or creating the perception of favoritism for, certain religions over others.

The Tilton and Nyquist Line of Supreme Court Cases Prohibits Such Grants for Houses of Worship

In order to further religious freedom, the U.S. Constitution places certain limits on the government’s ability to fund houses of worship. The Tilton and Nyquist¹ line of Supreme Court cases firmly establish that the constitution prohibits the government from providing aid for the construction, repair, and maintenance of houses of worship. These cases stand for the proposition that “the State may not erect buildings in which religious activities are to take place” and “it may not maintain such buildings or renovate them when they fall into disrepair.”²

Tilton v. Richardson³ the first in the line of cases, involved a challenge to the constitutionality of a federal law under which federal funds were used by secular and religious institutions of higher education for the construction of libraries and other campus buildings. The law allowed money to go to religious institutions, but it also contained a provision that expressly prohibited funds from being spent on buildings that would be used for worship or sectarian instruction. Although the Court upheld the program, it unanimously held that the provision was constitutionally required

¹ Tilton v. Richardson, 403 U.S. 672 (1971); Hunt v. McNair, 413 U.S. 734 (1973); Committee for Public Education v. Nyquist, 413 U.S. 756 (1973).

² Nyquist, 413 U.S. at 777.

³ 403 U.S. 672 (1971).

and unanimously invalidated part of the statute that would have allowed religious schools to convert the federally-funded facilities for worship or sectarian instruction after twenty years had passed. The court explained: “If at the end of 20 years, the building is, for example, converted into a chapel or otherwise used to promote religious interests, the original federal grant will in part have the effect of advancing religion.”⁴ Tilton stands for the proposition that no building constructed with federal funds can ever be used for worship or sectarian instruction.⁵

The Supreme Court reaffirmed this principle two years later in *Hunt v. McNair*,⁶ when it upheld the South Carolina Educational Facilities Authority Act, which established an “Educational Facilities Authority,” through which educational facilities could borrow money for the construction and renovation of their facilities at favorable interest rates. The Act, however, required each lease agreement to contain a clause forbidding religious use in such facilities and allowing inspections to enforce that requirement.⁷ The Court upheld the Act, including the condition that government-funded physical structures could never be used for religious worship or instruction.

Finally, in *Committee for Public Education v. Nyquist*,⁸ the Supreme Court struck down New York’s program of providing grants to nonpublic schools for the maintenance and repair of “school facilities and equipment to ensure health, welfare, and safety of enrolled students.” The Court summarized its previous holdings as “simply recogniz[ing] that sectarian schools perform secular, educational functions as well as religious functions, and that some forms of aid may be channeled to the secular without providing direct aid to the sectarian. But the channel is a narrow one.”⁹ The Court then held that “[i]f the State may not erect buildings in which religious activities are to take place, it may not maintain such buildings or renovate them when they fall into disrepair.”¹⁰ In other words, government funding for the construction, maintenance, or repair of physical structures is unconstitutional unless there is no possibility that the structures will be used for sectarian worship or instruction.

This line of cases clearly holds that, in accordance with the constitution, the federal government may not provide direct grants to renovate and green houses of worship.

The Tilton and Nyquist Line of Cases Remains Good Law and Is Applicable

The rule set down by the Supreme Court in the Tilton/Nyquist line of cases remains controlling law, as it has never been overruled in any subsequent Supreme Court decision. Indeed, in its more recent cases examining the constitutionality of government aid under the Establishment Clause, the Supreme Court has maintained that direct money grants create “special Establishment Clause dangers.”¹¹

Proponents of this provision may try to argue that the Sixth Circuit case, *American Atheists v. City of Detroit Downtown Dev. Auth.*,¹² limits Tilton and Nyquist and justifies these grants. This case involved a challenge to a downtown revitalization project that issued grants to organizations, including houses of worship. The decision, which upheld the grants, is an outlier in this area of the law¹³ and, nonetheless, cannot overturn a Supreme Court decision. Furthermore, the court considered only “neutrality” to uphold the program even though Mitchell states that the Supreme Court has “never held that a government-aid program passes constitu-

⁴ *Id.* at 683.

⁵ *Id.* at 692 (Douglas, J., concurring in part and dissenting in part).

⁶ 413 U.S. 734 (1973).

⁷ *Id.* at 744.

⁸ 413 U.S. 756, 762 (1973),

⁹ *Id.* at 775.

¹⁰ *Id.* at 777.

¹¹ Even though Mitchell was a fractured opinion, justices agreed that direct money grants are different than in-kind aid. *Mitchell v. Helms*, 530 U.S. 793, 819 (1999) (quoting *Rosenberger v. Rector and Visitors of Univ. of Va.*, 515 U.S. 819, 842 (1995)) (Thomas, J.,); see also *id.* at 856 (O’Connor, J., concurring) (describing Tilton as striking down the grant statute because it lacked a “secular content requirement”).

¹² 567 F. 3d 278 (6th Cir. 2009).

¹³ See, e.g., *Community House v. Boise*, 490 F.3d 1041, 1059 (9th Cir. 2007) (enjoining a private company that leased a government built and owned building from conducting religious services and other religious activities at a homeless shelter, even though the religious activities were voluntary); *FFRF v. Bugher*, 249 F.3d 606, 614 (7th Cir. 2001) (striking down cash grants for telecommunications access for both public and private schools because the grants “provide[] a direct subsidy to participating religious schools.”); *Foremaster v. City of St. George*, 882 F. 2d 1485 (1989) (striking down a grant of free electricity to a house of worship).

tional muster solely because of the neutral criteria it employs as a basis for distributing aid.”¹⁴ Neutrality alone cannot not save a grant program.

Proponents of providing government construction grants to houses of worship also try to distinguish Tilton and Nyquist by pointing to free speech cases. But in *Locke v. Davey*,¹⁵ the Supreme Court explained that the speech-forum cases do not apply to government grant cases: A government-funded scholarship program “is not a forum for speech. . . . Our cases dealing with speech forums are simply inapplicable.”¹⁶

Congress Has Consistently Followed the Principle of Tilton and Nyquist

Congress has consistently recognized that the constitution bars direct funding for the building, renovating, and repairing of buildings used primarily for religious purposes. Such provisions exist throughout the U.S. Code¹⁷ Most recently, Congress recognized the applicability of this precedent when it limited green construction funding in the Recovery Act to buildings in which secular activities take place.¹⁸ We urge Congress to continue following Supreme Court precedent and the principles of religious liberty.

For all of the reasons listed above, we object to S. 717 as written and urge this subcommittee to fix this Constitutional infirmity. We urge that the subcommittee remove “houses of worship” from the list of eligible entities and include language, similar to the language in so many other statutory provisions, that restricts the grants from funding the renovation of buildings in which primarily religious activities take place. 18

ART MUSEUM DIRECTORS,
Washington, DC, June 24, 2013.

Hon. AL FRANKEN,
Chairman, Senate Subcommittee on Energy, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Senate Subcommittee on Energy, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH,

On behalf of 200 leading art museums in the United States, I am writing to ask you to support S. 717, the Nonprofit Energy Efficiency Act.

Given their prominence as civic institutions and their importance to public education, museums have generally been built to high architectural standards. That tradition continues today, with energy efficiency now being a priority for new museum buildings. For example, the Barnes Foundation’s facility in Philadelphia, opened to the public in 2012, was certified as Platinum under the US Green Business Council’s LEED (Leadership in Energy and Environmental Design) rating system. The Grand Rapids Art Museum, built in 2008, received a Gold LEED certification.

However, about half of America’s leading art museums were opened to the public before 1950. If you think of the word “museum” and try to form a mental picture, chances are you’ll see a grand colonnaded building, vintage about 1920.

These building are often energy-inefficient and extraordinarily expensive to maintain. In fact, building maintenance and utilities comprise about fifteen percent of art museum operating expenses. The problem is exacerbated considering that standards for climate control are extraordinarily strict, with objects needing to be kept at nearly uniform temperature and humidity regardless of external and internal conditions. The director of the Boise Art Museum succinctly stated the challenge:

The building has been added onto several times so that the HVAC systems don’t all function well together. The building is fitted with a geothermal system, but using it could pose a potential threat to the artwork.

¹⁴ Mitchell, 530 U.S. at 840 (emphasis in original).

¹⁵ 540 U.S. 712 (2004).

¹⁶ Id. at 720 n.3 (2004); accord *Teen Ranch v. Udow*, 389 F. Supp. 2d 827, 839 (W.D. Mich. 2005), aff’d 479 F. 3d 403, 410 (6th Cir.2007) (“the unconstitutional viewpoint restriction discussed in *Rosenberger* is limited to cases involving speech in a public forum”); see also *Freedom from Religion Foundation v. McCallum*, 179 F. Supp. 2d 950, 980 (W.D. Wis. 2002) (This “interpretation of the free speech clause would require the state government to recognize a forum for private expression with regard to each of its fiscal decisions.”)

¹⁷ See, e.g., 20 U.S.C.A. § 1066c; 20 U.S.C.A. § 1062; 20 U.S.C.A. § 1103e; 25 U.S.C.A. § 1813; 20 U.S.C.A. § 1068e; 25 U.S.C.A. § 3306; 20 U.S.C.A. § 1011k; & 29 U.S.C.A. § 2938.

¹⁸ Section 14004(c)(3) of the Americans Recovery and Reinvestment Act of 2009 prohibited renovation of buildings used for religious worship or instruction.

The effort to achieve efficiency is time-consuming and expensive. To cite one example, the Toledo Museum of Art has worked for twenty years to reduce consumption in its 101-year-old Beaux Arts main building.

Museums that are able to undertake retrofitting will serve as highly visible public examples of the importance of energy-efficiency. Most museums also have extensive outreach and education programs focused on students, providing an excellent opportunity to help foster greater awareness of the importance of energy sustainability, involve young people in museum projects, and facilitate their discussion of current energy issues.

Simply put, money saved by museums on utilities and maintenance will be put back into the community in the form of exhibitions, programming, education services to schools and families, and jobs.

For these reasons, the art museum community strongly supports the bi-partisan Klobuchar-Hoeven legislation.

Sincerely,

CHRISTINE ANAGNOS,
Executive Director.

COMMITTEE ON DOMESTIC JUSTICE AND HUMAN DEVELOPMENT,
Washington DC, June 24, 2013.

Hon. AL FRANKEN,
Chairman, Senate Subcommittee on Energy, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Senate Subcommittee on Energy, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

On behalf of the Committee on Domestic Justice and Human Development of the United States Conference of Catholic Bishops (USCCB), I write to express our support of The Nonprofit Energy Efficiency Act (S. 717) to be heard before the Energy Subcommittee of the U.S. Senate Committee on Energy and Natural Resources on Tuesday, June 25, 2013.

Introduced by Senators Amy Klobuchar (D-MN) and John Hoeven (R-ND), the Nonprofit Energy Efficiency Act will establish a pilot program at the U.S. Department of Energy to provide financial grants to non-profit organizations to help make the buildings they own and operate more energy efficient. Under the proposal, \$50 million would be authorized for Fiscal Years 2014-2017 with non-profits eligible to apply for grants up to 50 percent of the total cost of the energy efficiency program up to \$200,000 per project.

The breadth of the Catholic Church's institutions includes thousands of schools, parishes, hospitals and other organizations that serve people and communities in need. Our institutions would benefit greatly from this important pilot program meant to assist non-profits to become more energy-efficient and environmentally responsible.

As Catholics, we are called to care for God's creation and to be stewards of the environment and the earth's resources. As the U.S. bishops insist in their statement *Renewing the Earth*, "As individuals, as institutions, as a people, we need a change of heart to preserve and protect the planet for our children and for generations yet unborn."

Currently there are no programs to incentivize the non-profit community to invest in the energy efficiency of their hundreds-of-thousands of buildings across the country. If enacted, S. 717 will enable America's schools, youth centers, houses of worship, hospitals, museums, community centers, and more to reduce operating costs, invest more in the communities they serve and lessen their impact on the environment, all while helping to conserve energy.

We thank you for your thoughtful consideration of this necessary pilot program that will provide an important pathway for nonprofits serving our communities to become more energy-efficient. We hope you will join us in supporting S. 717, The Nonprofit Energy Efficiency Act.

Sincerely,

MOST REVEREND STEPHEN E. BLAIRE,
Bishop of Stockton, Chairman, Committee on Domestic Justice and Human Development.

STATEMENT OF ELIZABETH THOMPSON, PRESIDENT, ENVIRONMENTAL DEFENSE ACTION FUND, ON S. 1218

I would like to thank Chairman Franken and Ranking Member Risch for this opportunity to provide written testimony to the Committee on Energy and Natural Resources and the Subcommittee on Energy. On behalf of the Environmental Defense Action Fund (EDAF) I urge your support for an important piece of legislation that would advance energy efficiency policies and measures to dramatically reduce America's energy waste. Please support the Warner-Manchin bill, S. 1218, to establish a State Energy Race to the Top Initiative.

EDF's mission is to preserve the natural systems on which all life depends. Guided by science and economics, we find practical and lasting solutions to the most serious environmental problems—including America's wasteful energy consumption. We believe the State Energy Race to the Top Initiative is one of those solutions.

This idea of a Race to the Top program for energy productivity has been emerging over the last several months. The Alliance Commission on National Energy Efficiency Policy published a set of policy recommendations aimed at doubling U.S. energy productivity by 2030, a goal that has also been echoed by President Obama. Within this set of recommendations was the idea of a Race to the Top program. Senators Warner and Manchin took this idea and created a workable solution that could provide real energy and cost savings across the Nation. Modeled after the successful Education Race to the Top, the initiative created under their bill will challenge states and utilities to develop innovative new policies that would advance energy productivity. This voluntary initiative allows states the flexibility to pursue ideas that make sense for their circumstances and economic conditions. By allowing states the opportunity address their energy needs by their unique design, the programs will encourage the states to be the nursery of new ideas which can then be shared with other states to further energy savings.

Under a Race to the Top Initiative, states, public power utilities, electric cooperatives and Indian tribes would be eligible to apply for funding. Applicants would be judged on their plans to implement policies and programs aimed at improving the state's energy productivity—this could include policies related to building efficiency, combined heat and power, demand response, and smart grid.

As an example, because they deliver cleaner air, better health, more reliable electricity and greater consumer control over electric power and costs, programs and policies related to the advancement of smart grid technologies could be incentivized under a State Energy Race to the Top Initiative. The Federal Energy Regulatory Commission (FERC) estimates that the installation of smart meters, programmable thermostats and other technologies, along with Time-Of-Use (TOU) pricing and full use of potential demand response, could reduce the Nation's peak demand by 150GW by 2020—this reduction equates to the output of about 2,000 power plants¹. Implementation of smart grid technologies not only reduces energy consumption and associated carbon pollution, but also creates opportunities for American households and businesses to save money. A number of states and localities are already putting such programs and policies in place— and these efforts would be rewarded and potentially expanded to other cities and states under a Race to the Top Initiative.

We recognize that the federal government faces significant budget challenges. For this reason the State Energy Race to the Top Initiative would provide merely the seed money for innovative thinking, pushing policymakers and program managers in the states to design new policies that will drive energy efficiency, smart grid, and demand response. These modest funds will drive innovative policies that will help states best use their program dollars—further leveraging these funds. By providing the initial funding for innovation, and additional support to those with winning proposals, the Initiative will be able to drive innovation at minimal cost, sending resources to the states who know best how to save energy within their borders.

EDF believes that energy efficiency is vital to our economic growth and international competitiveness. Thank you for providing this opportunity to submit testimony. We look forward to working with you.

¹ 1) Federal Energy Regulatory Commission, A National Assessment of Demand Response Potential, June 2009, p. x, ferc.gov/legal/staff-reports/06-09-demand-response.pdf

FRIENDS COMMITTEE ON NATIONAL LEGISLATION,
Washington, DC, June 21, 2013.

Hon. AL FRANKEN,
Chairman, Senate Subcommittee on Energy, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Senate Subcommittee on Energy, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

On behalf of the Friends Committee on National Legislation (FCNL), I would like to thank you for scheduling a hearing on pending energy legislation, including the Klobuchar-Hoeven Nonprofit Energy Efficiency Act (S. 717). FCNL is a strong supporter of S. 717 and its companion, the Shaheen-Portman energy efficiency bill (S. 761), and we thank the subcommittee for its hard work on these issues.

FCNL is a Quaker lobby in the public interest, established in 1943. We have been on Capitol Hill, across from what is now the Senate Hart Office Building, since our founding. In 2005, following a renovation, we became Capitol Hill's first LEED-certified green building. Our reflective and anti-leak windows, green roof and rain-capture system; and geothermal heating and cooling system are all features of the building that reduce our carbon footprint and save money.

With experience in energy efficiency, FCNL believes that S. 717 is a common-sense measure that will help non-profits around the country advance to the new standard in energy efficiency. Hospitals, schools, and community centers-t a few institutions that will benefit from S. 717-will be able to devote resources to their constituents rather than to energy bills. It will also help all of us become more environmentally responsible.

FCNL is proud to support the Shaheen-Portman bill (S. 761) which passed out of committee in early May. We know, however, that the maximum impact from energy efficiency initiatives comes from full participation: it is not sufficient to have only the for-profit or private sectors taking advantage of the opportunity afforded by S. 761. With its pair, S. 717, the non-profit sector can also become more efficient and we are able to maximize our impact. Therefore, we are also proud to support S. 717 on its own merits, but also as an effort to extend the benefits of energy efficiency to the other half of the institutions in the United States.

We thank you for your consideration of our support and for holding this hearing on S. 717. We look forward to working with you in the months to come to secure passage of both S. 717 and the broader Shaheen-Portman bill.

Sincerely,

JOSE AGUTO,
Legislative Secretary, Energy and Environment.

STATEMENT OF REV. DR. C. WELTON GADDY, PRESIDENT OF INTERFAITH ALLIANCE,
 ON S. 1084

On behalf of Interfaith Alliance, whose members across the country belong to more than 75 different faith traditions, I write to express our religious freedom concerns with the Non-Profit Energy Efficiency Act (S. 717) as it is currently written. As an organization who works to protect the proper boundaries between institutions of religion and government-in the best interests of both-Interfaith Alliance strongly opposes grants to houses of worship to retrofit their facilities.

By including "houses of worship" in the list of non-profit organizations eligible to receive government grants, this legislation sets in motion a violation of religious liberty that ultimately hurts a house of worship more than helps it. To steer such money to religious institutions opens the door to government intrusion into the affairs of houses of worship. Making an exception in this case will only result in damaging a principle that has ensured the ability of diverse faiths and beliefs to flourish in this country for centuries. Interfaith Alliance has long been critical of efforts to funnel tax dollars to religious institutions because of reverence and respect for these important institutions in our society.

As a Baptist minister to a congregation in Monroe, Louisiana, I saw first-hand the attempts of state and national officials to provide houses of worship with rebuilding aid after Hurricane Katrina. Indeed, just this year in the wake of Superstorm Sandy such attempts were made-and continue to be made-to change existing Federal Emergency Management Agency policies to enable houses of worship to receive direct rebuilding grants. Though there is an understandable, compassion-based temptation to steer federal funds to help houses of worship that have been damaged or could become greener, I continue to believe it a temptation we must resist. An act of compassion must not be allowed to erode our Constitution.

The independence of houses of worship from the government regulations which accompany government funds is more important than a few federal dollars with which to rebuild or renovate. Becoming dependent on or indebted to our government's financial benevolence is far from being in a house of worship's best interest. The autonomy of religious institutions and religious leaders from the government coffers and the government's regulation is what enables religion to flourish, enabling clergy to speak truth to power and be a prophetic voice to our government.

I urge you to strike "houses of worship" from the language of the bill and to add language to clarify that the funds authorized cannot be used to retrofit buildings and spaces used for primarily religious purposes. Government can do so much to help communities live greener lives and build more energy efficient buildings. But to violate a principle inherent in the foundation of our religious freedom would be a disservice to all Americans.

Thank you for your consideration.

INTERFAITH POWER & LIGHT,
San Francisco, CA, June 21, 2013.

Hon. AL FRANKEN,
Chairman, Senate Subcommittee on Energy, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Senate Subcommittee on Energy, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

Interfaith Power & Light (IPL) strongly urges your support for S.717, the Non-profit Efficiency Act, to be heard before the Energy Subcommittee of the US Senate Committee on Energy and the Environment on June 25, 2013.

With bipartisan support from its sponsors, Senators Amy Klobuchar and John Hoeven, the Nonprofit Energy Efficiency Act will establish a new pilot program at the U.S. Department of Energy to provide financial grants to nonprofit organizations to help make buildings they own and operate more energy efficient.

IPL and our 40 state affiliates are reaching over 15,000 congregations around the country, educating them about energy stewardship, and inspiring them to utilize energy efficiency and renewable energy in their facilities. However, as nonprofits with limited resources and no access to tax credits, there is a cost barrier for many of our faith communities. Grants for energy efficiency would make a big difference and expedite adoption of these cost saving, pollution reducing solutions while providing the added benefit of demonstrating energy efficiency to congregational and community members who visit the facilities.

Thank you and please let me know if you would like any more information about our organization. I hope you will support S. 717.

Best regards,

SUSAN STEPHENSON,
Executive Director.

NATIONAL RURAL ELECTRIC COOPERATIVE ASSOCIATION,
Arlington, VA, July 10, 2013.

Hon. AL FRANKEN,
309 Hart Senate Office Building, Washington, DC.

Hon. JAMES RISCH,
483 Russell Senate Office Building, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

The Energy Subcommittee recently held a hearing on energy efficiency, and the Energy Savings and Industrial Competitiveness Act of 2013 (S. 761), and we wanted to make the subcommittee aware of the important work electric cooperatives have done and will continue to do in the area of energy efficiency. Additionally, we would like to clarify the importance of both energy efficiency and demand response programs for cooperative consumer-members.

The National Rural Electric Cooperative Association (NRECA) is the not-for-profit, national service organization representing over 900 not-for-profit, member-owned, rural electric cooperative systems, which serve 42 million customers in 47 states. NRECA estimates that cooperatives own and maintain 2.5 million miles or 42 percent of the nation's electric distribution lines covering three-quarters of the nation's landmass. Cooperatives serve approximately 18 million businesses, homes, farms, schools and other establishments in 2,500 of the nation's 3,141 counties. Our mem-

ber cooperatives serve over 13 million member owners in states represented on the Senate Energy & Natural Resources Committee.

Rural electric cooperatives have a straightforward mission: to provide safe and reliable electric service at the lowest possible cost. Electric cooperatives believe energy efficiency, conservation and demand response play an important role in helping to lower consumers' energy costs, shift peak demand, and meet power supply goals all while maintaining positive consumer member relationships. In fact, 96 percent of electric cooperatives nationwide operate efficiency programs while 70 percent of co-ops offer financial incentives to promote greater efficiency.

A recent nationwide American Customer Satisfaction Index (ACSI) survey confirmed what cooperative consumer-members already know—that the electric coops are unmatched in their service compared with other industries. In the third quarter of 2012, Touchstone Energy co-ops tied their all-time high showing in the ACSI, scoring an 83. That compares to an average of 76 for investor-owned utilities.

This responsiveness to membership and high quality of service is exhibited by the fact that electric cooperatives across the country have long provided information and advice to consumers to help them manage their energy bills. This includes programs and incentives for their member-owners to use electricity in an efficient and cost-effective manner. The wide range of assistance includes rebates for energy-efficient appliances, the replacement of compact fluorescent light bulbs, and time of day rates to encourage off-peak usage.

Further, many co-ops across the country have voluntary programs called “Beat the Peak” that are designed to provide consumer-members with information on the amount of energy they use, and ways to take additional steps at home that will save money and energy by reducing energy use during peak periods.

Midwest Energy, in Hays, Kansas, has saved almost 1.4 million kilowatt hours per year through the cooperative's “How\$mart” program, a ground-breaking on-bill financing initiative that aims to help consumer-members overcome the cost hurdles standing in the way of energy efficiency improvements.

Accordingly, NRECA supports legislative proposals such as The Rural Energy Savings Program Act (RESPA) that would assist rural electric co-operatives in offering or expanding efficiency programs like the “How\$mart” program that offer of low-interest loans to their consumer-members for efficiency improvements, while allowing repayment of the loan through savings on monthly electric bills.

NRECA believes that RESPA would be a powerful tool that electric co-ops can use to enable their member-owners to maximize energy efficiency. The RESPA program would provide an “on-bill financing” mechanism that allows co-op members to borrow money from the co-op for energy efficiency improvements at their homes and businesses and to pay back those loans through their monthly electric bills. In most cases, it is anticipated that even after adding the loan repayment on their bill, consumer members' bills will still be lower than before the efficiency improvements were made. This will improve consumer-members quality of life and economic circumstances, while saving energy and delaying or avoiding costly new investments in generation facilities.

Central Electric Power Cooperative (Central) and The Electric Cooperatives of South Carolina (ECSC) commissioned a report on their “Help My House” Loan Pilot Program. This cutting-edge pilot program provided on-bill financing through the South Carolina co-ops for consumer-owners to make energy efficiency improvements to their homes. For the 125 participating South Carolina homes, there was a 34 percent reduction in total energy use (or 1.35 million kWh) in the year following the completed improvements, with an average savings of \$288 per home per year even while making the loan payment.

This report provides further evidence that on-bill financing for energy efficiency improvements is a success, and should be expanded to all electric cooperatives who wish to establish such an efficiency program.

The prospects for these programs expanding in rural areas is improving with the inclusion of language in both the House and Senate Farm Bill reauthorizations that would provide for or expand co-op relending to consumer-members for efficiency improvements.

The South Carolina co-ops have an existing load control program with 120,000 switches for water heaters and air conditioners that also allowed a comprehensive view of the benefits of both an on-bill financing program and a demand response program. Importantly, the study also concluded that load control devices coupled with energy efficiency measures provided added value to efficiency retrofit programs. The study determined that on-bill financing programs “should deploy load control devices and energy efficiency measures simultaneously, which will improve load factor and benefit the system, the power purchaser, and even the non-participants.” This is a critical finding for electric cooperatives that also provide leadership

in load control programs that save at least 500 MW of demand and hundreds of millions of dollars per year for consumers.

In numerous major energy bills (including the Public Utility Regulatory Policies Act (PURPA) of 1978; the Energy Policy Act of 1992; the Energy Policy Act of 2005; and the Energy Independence and Security Act (EISA) of 2007) Congress has declared the promotion of demand response an important federal policy. A 2012 report by the Federal Energy Regulatory Commission (FERC) based on the 2007 energy bill recognized co-ops' leadership in demand response. It is through the use of large capacity electric resistance water heaters that co-ops are able to meet such federal goals.

Approximately 250 co-ops in 34 states have voluntary demand response programs using large capacity electric resistance water heaters that allow co-ops to reduce demand for electricity during peak hours. In parts of the country, large capacity electric water heaters also allow co-ops to integrate renewable energy like wind and store it for use during daytime on-peak hours. Because the wind blows as much or even more in the evening, generating energy at a time when consumers least need it, large capacity electric resistance water heaters act as a battery that stores wind energy at night that can be discharged during the day in the form of hot water. This results in energy efficiency benefits that offset the need to build new peaking generation and transmission lines, not to mention cost benefits for co-ops and consumers.

Great River Energy a generation and transmission cooperative in Minnesota estimates that their 70,000 large capacity electric resistance water heaters that are "charged" in the off-peak hours each night each store approximately 14 Kilowatthours per water heater per evening, totaling nearly one Gigawatthour of energy stored each night. This could be considered the largest battery in the Midwest, and a significant way to store renewable energy.

On April 16, 2010, the Department of Energy (DOE) issued a new standard requiring 200 percent efficiency for large electric resistance water heaters, which was a much higher standard than was expected. This standard, which applies to manufacturers, is set to take effect in April 2015. The new standard will require the use of heat pump water heaters for electric water heaters larger than 55 gallons. However, heat pump water heaters are more expensive, not considered as effective in colder climates, and do not currently work with our co-ops' demand response programs.

While NRECA continues to push DOE to find a common sense solution, we believe a legislative fix would provide the clearest direction. We also believe that the Energy Savings and Industrial Competitiveness Act of 2013 (S. 761) sponsored by Senators Shaheen and Portman provides the most appropriate vehicle to provide such a solution.

NRECA continues to work diligently to seek common ground with energy efficiency and environmental advocacy groups who we believe see the value in co-ops' demand response programs. We also continue to solidify our coalition of stakeholders, including manufacturers of both electric resistance and heat pump water heaters, as well as Regional Transmission Organizations (RTOs) to find the best way to continue the beneficial use of electric resistance water heaters.

We appreciate the Committee's leadership in the area of energy efficiency, and look forward to continue to work with you minimizing the impact of DOE's water heater efficiency standard on co-ops' demand response programs. Also, even though RESPA is under the jurisdiction of the Agriculture Committee, we will continue to update the Energy Committee on its progress. Further, we believe that the notion of combining demand response in conjunction with other energy efficiency measures to achieve maximum impact, as concluded in the EESI study, is something the Subcommittee should explore further. Again, we appreciate the opportunity to provide information on the co-ops' work in the area of energy efficiency and would be happy to answer any questions.

Sincerely,

KIRK JOHNSON,
Sr. Vice President, Government Relations.

STATEMENT OF RABBI DAVID SAPERSTEIN, DIRECTOR AND COUNSEL, RELIGIOUS
ACTION CENTER OF REFORM JUDAISM

On behalf of the Union for Reform Judaism, whose more than 900 congregations across North America encompass 1.5 million Reform Jews, and the Central Conference of American Rabbis, whose membership includes over 2000 Reform Rabbis, I write to express our concerns about the Nonprofit Energy Efficiency Act (S. 717)

as it is currently written. In its current form, the Nonprofit Energy Efficiency Act threatens our nation's founding principle of separation of church and state. We are asking that "houses of worship" be struck from section (3)(B) and that protective language be added clarifying prohibited uses of the funds. Leaving this section as is not only begs a lawsuit if that provision remains in the enacted bill, but can hurt support for the bill and make it needlessly controversial.

We believe that retrofitting buildings for increased efficiency is one important way to meet emissions reductions targets. However, we are deeply troubled by the language that explicitly makes houses of worship eligible to receive funding for building retrofits. The Reform Jewish Movement has a long history of strong opposition to government funds flowing directly to houses of worship as it is both unconstitutional and bad public policy (raising serious concerns for "church autonomy" and religious liberty). Indeed, direct cash funding of houses of worship has never been upheld by the Supreme Court.

We are inspired by our tradition to fight for a climate and energy future that protects our earth and all of its inhabitants. The Book of Genesis tells us that God placed men and women on earth to till and tend creation, and our sages remind us to "Take care, lest you spoil and destroy my world, because if you do, there is no one after you to make it right again." (Kohelet Rabbah 7:13). As people of faith, we are responsible for seeking justice as we work for a healthier and safer environment for all. At the same time, we remain committed to our long-established position that the principle of separation of church and state is best for both church and state and is indispensable for the preservation of that spirit of religious liberty which is a unique blessing of American democracy.

The Supreme Court (in *Tilton v. Richardson and Committee for Public Education v. Nyquist*, among other cases) has long held that taxpayer dollars cannot go to construct, rebuild or repair buildings used for religious activities. As written, without language prohibiting use of these funds in sectarian settings, this bill would allow government money to do just that. No taxpayer should be forced to support a faith in which he or she does not believe. In addition, these funds would risk government entanglement with religion, from which neither party benefits. With government money come government rules and regulations, which threaten the prophetic voice and autonomy that are central to our country's diverse religious institutions.

The Reform Movement is deeply committed to putting our nation and our world on the path to a clean, sustainable, and equitable climate and energy future. In doing so, however, we must not compromise the wall separating church and state, which has been a bedrock of democracy and the foundation of religious liberty in our country for over two hundred years.

THE JEWISH FEDERATIONS OF NORTH AMERICA,
Washington, DC, June 20, 2013.

Hon. AL FRANKEN
Chairman, Senate Subcommittee on Energy, Washington, DC.

Hon. JAMES E. RISCH,
Ranking Member, Senate Subcommittee on Energy, Washington, DC.

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

We understand that the Subcommittee will be conducting an oversight hearing on June 25, 2013, pertaining to pending energy efficiency legislation, including the bipartisan Klobuchar-Hoeven Nonprofit Energy Efficiency Act (S. 717). On behalf of The Jewish Federations of North America (JFNA), I want to share our strong support for S. 717, for the following reasons:

JFNA has a long history of public private partnerships, and with working with Congress to promote innovations and efficiencies in nonprofit human services delivery. In this regard, we endorse S. 717 as a timely and necessary pilot program to assist nonprofits to become more energy efficient and environmentally responsible.

JFNA represents one of the largest philanthropic health and social services systems in North America. We are comprised of 153 Jewish Federations and 300 independent Jewish communities. Within our umbrella, we support and operate thousands of agencies (i.e., schools, community centers, hospitals, health centers, day care facilities, and more) that serve millions of individuals and families within most major population centers across the country. Many of our institutions are several decades old, and some more than a century. Their needs to upgrade and retrofit antiquated and unreliable operating systems are great.

We know only too well the importance of creating energy efficiencies to our bottom line— to ensure that we maximize the use of philanthropic dollars to best serve the most vulnerable populations and to maintain healthy and vibrant communities across the country. We also know the power and opportunity that is created through congressionally-derived pilot projects. They help to shed needed light on issues of importance to the country. They help to galvanize support for needed public policy shifts. They help to bolster and promote positive change within the nonprofit sector. In this regard, S. 717 would provide an important catalyst for energy improvements and modernization within the nonprofit sector.

Comprehensive energy efficiency reform cannot succeed without Congress also addressing the issues facing the nonprofit sector. Senate inclusion of S. 717 within the greater Shaheen-Portman Energy Savings and Industrial Competitiveness Act would be a non-controversial, bi-partisan improvement to the bill.

We commend you for holding this important hearing and thank you for your consideration of our strong support for S. 717

Sincerely,

ROBERT B. GOLDBERG,
Senior Director, Legislative Affairs.

THE YMCA,
Chicago, IL, June 21, 2013.

Hon. AL FRANKEN,
Chairman, Senate Subcommittee on Energy Washington DC.,

DEAR CHAIRMAN FRANKEN AND RANKING MEMBER RISCH:

The YMCA of the USA is the national resource office for the 2,700 YMCAs across the U.S. The nation's YMCAs engage 21 million men, women and children—of all ages, incomes and backgrounds—with a focus on strengthening communities in youth development, healthy living, and social responsibility.

We understand that the Subcommittee will hold an oversight hearing on June 25 on the pending energy efficiency legislation, including the bi-partisan Klobuchar-Hoeven Nonprofit Energy Efficiency Act (S. 717). The YMCA of the USA strongly supports S. 717.

This is a timely and necessary pilot program to assist nonprofits to become more energy efficient and environmentally responsible.

Many of our Ys are several decades old, and some even older. Their need to upgrade and retrofit antiquated and unreliable operating systems is great.

We want to ensure that we maximize the use of philanthropic dollars to best serve the most vulnerable populations and to maintain healthy and vibrant communities across the country.

S. 717 would provide an important catalyst for energy improvements and modernization within the nonprofit sector.

Comprehensive energy efficiency reform cannot succeed without Congress also addressing the issues facing the nonprofit sector. Senate inclusion of S. 717 within the greater Shaheen-Portman Energy Savings and Industrial Competitiveness Act would be a non-controversial, bi-partisan improvement to the bill.

We commend you for holding this important hearing and thank you for your consideration of our strong support for S. 717.

Sincerely,

NEAL DENTON,
Senior Vice President and Chief Government Affairs Officer.