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REDUCING GOVERNMENT BUILDING OPERATIONAL COSTS THROUGH INNOVATION AND EFFICIENCY: LEGISLATIVE SOLUTIONS

HEARING

BEFORE THE

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE

ONE HUNDRED TENTH CONGRESS

FIRST SESSION

MARCH 28, 2007

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ONE HUNDRED TENTH CONGRESS
FIRST SESSION

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REDUCING GOVERNMENT BUILDING OPERATIONAL COSTS THROUGH INNOVATION AND EFFICIENCY: LEGISLATIVE SOLUTIONS

WEDNESDAY, MARCH 28, 2007

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The committee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Office Building, the Hon. Barbara Boxer (chairman of the committee) presiding.

Present: Senators Boxer, Alexander, Carper, Inhofe, Klobuchar, and Sanders.

Senator BOXER. The committee will come to order.

I am very pleased to be here and to welcome our guests. They can take their seats at the table: David Winstead, Commissioner of the Public Buildings Services, GSA; Kateri Callahan, president, Alliance to Save Energy on the second panel; and Melanie Townshend, project executive, Gilbane Building.

So just Panel 1, David, and then whoever you brought with you if you want to.

This is going to be a very painless and quick hearing because there is such broad agreement on the committee about the bill we are going to talk about. We are very pleased that the White House has been very supportive of our efforts. We have worked with them very, very closely, Senator Inhofe and I.

I particularly would like to mention, and we really did save paper by doing this. OK.

[Laughter.]

Senator BOXER. Mr. Connaughton, who we worked with very closely, and Marty Hall, who I think the Ranking Member knows really well. I just wanted to mention the work that we all did together. I am going to put my statement in the record, so as to save time. I just want to stress a few things.

OPENING STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM THE STATE OF CALIFORNIA

Senator BOXER. We have the capability to save a lot of money for taxpayers if we put in energy efficient lighting and energy efficient technologies. Since this committee does have the authority over the GSA and government buildings, it seemed to us that this was a way to go. We should be a model of energy efficiency.

The way we did this bill, I am very pleased that we have cut through a lot of bureaucracy, because we say to GSA, in every sin-

gle building, every single GSA building, and I will tell you how many buildings we have, and I will have to find that in here. It will take me a second. OK, here it is, 1,550 buildings are owned by the GSA, and 7,000 buildings are leased. When this bill becomes law, each building will have a manager, so that we will have one person in every building responsible. It is not an add-on person. We are assigning it to someone who is there, and they will be responsible. In essence, the buck will stop with that individual.

The bill requires that we have GSA quickly review available highly efficient lighting technologies, replace the old inefficient lighting with highly efficient lighting as quickly as they can. Within 5 years, they have to finish the test and the bill requires that every improvement we make have a payback period of no more than 5 years, and after that, the taxpayers really start to see savings.

The bill also requires GSA to complete a broader plan to achieve a 20 percent reduction in operating costs in the buildings, and they have to do that within 5 years using energy efficient technologies and practices.

Finally, and I think very importantly, our bill creates a $20 million per year EPA demonstration grant program to help local governments make their buildings 40 percent more efficient.

Now, here is what I want to tell the committee. It seems like this is a small bill, but it does have a broad impact because there are over 19,000 municipalities in the United States and over 3,000 counties. We know many of them have many, many buildings. But let's just say for purposes of debate is we don't know the exact number, and maybe, Commissioner, you will be able to find us a number because I know you are interested in this.

If every entity, city and county, just had two buildings, that would be over 44,000 buildings. So you have 44,000 buildings there and you have thousands of buildings run by the GSA, let's say 9,000. You are really talking about a lot of buildings. The communities that receive the grant could install insulation in addition to making the lighting improvements. If it turns out that shade trees will cut down the air conditioning bills, they can use the money for that, and so on.

The last point I want to make is that buildings contribute 38 percent to the emission of greenhouse gases. So that is important, and that is mentioned by the Administration, that that is a real spinoff effect of what we are doing. So I think we have shown that Senator Inhofe and I, and Senator Alexander has been extremely helpful on this, Senator Lautenberg as well.

As a matter of fact, we have is it nine cosponsors? Nine cosponsors of this bill, so we are really proving that we can work in a bipartisan way. I look at this bill as a confidence-building measure for this committee. I am very pleased that Senator Inhofe and I have been able to reach agreement on this. These things are not as easy as they seem, and we were able to work together on this.

So we are ready to have a hearing on this bill, and then tomorrow, we are going to mark up this bill, and we are going to mark up WRDA. For that, I want to give a special thanks in advance to Senator Inhofe, Senator Isakson, Senator Baucus, Senator Alexander, as well as others who really helped us.

So thank you very much.

Senator BOXER. Senator Inhofe, if you would like to make an opening statement, we would love to hear from you.

OPENING STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Senator INHOFE. Thank you, Madam Chair. [Remarks off mic.]

I recall back when we were both serving in the House. I was the Ranking Member on the subcommittee that dealt with GSA for, I guess, 6 of the 8 years that I was there. One of the things that I always wanted to be sure is that we didn't impose upon the private sector, on the contractors some of the things that would end up being a mandate, that would not be to their benefit.

So I think the fact that we have on our panel today Ms. Townshend who is going to be testifying that it isn't a problem now, but I wouldn't want this to be a predicate to something we do in the future that is not in this bill that would perhaps be a hardship on the private sector. I don't see that that is happening.

So I look forward to going ahead and getting this done, and with this great relationship that we have that we agree so much more than people realize.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR FROM THE STATE OF OKLAHOMA

Thank you, Madam Chairman. I appreciate you holding this hearing to discuss ways to increase efficiency in building operations.

Innovation and efficiency have been cornerstones of American industry and society, from post-Revolution industrialization, to Henry Ford's assembly line, to the post-World War II boom, right up through today's continued economic growth. Using less to do more has long been a principle that has helped the United States become the most prosperous Nation the world has ever seen. And along with developing new domestic sources of energy and ensuring a diverse energy supply, increasing efficiency is an important part of enhancing our overall energy security.

Recent years have seen great strides in the area of energy efficiency. Out of 105 recommendations in President Bush's 2001 National Energy Policy, more than half specifically address efforts to improve energy efficiency and to improve the performance and lower the cost of alternative forms of energy. Additionally, the President recently signed Executive Order 13423, which directs Federal agencies to implement sustainable practices for energy efficiency as well as high-performance buildings, recycling, and renewables, among others.

In 2006, 20 Federal agencies and the White House Counsel on Environmental Quality signed a Memorandum of Understanding titled "Federal Leadership in High Performance and Sustainable Buildings." In signing on to the Memorandum, these Agencies committed to optimizing energy performance and conserving water in their buildings, as well as enhancing indoor environmental quality and reducing the environmental impact of building materials. The General Services Administration is one of the signatories of that Memorandum—welcome, Commissioner Winstead, and I look forward to your testimony.

And the Energy Policy Act of 2005 contains numerous provisions pertaining to energy efficiency. There are standards and incentives that address private homes, commercial buildings, and Federal facilities. There are tax credits available for homeowners and home-builders who meet energy efficiency requirements, and deductions for commercial buildings that meet a 50-percent energy reduction standard. New Federal standards include a 30-percent reduction below ASHRAE standards in energy use for new buildings, and new standards for 15 large appliances. According to the Senate Energy Committee, the energy savings from the new efficiency standards put forward in the Energy Policy Act will be equal to eighty (80) 600-megawatt power plants by the year 2020.

Madam Chairman, I am glad that Democrats in leadership positions, such as yourself, are ready to embrace this Administration's stance on energy efficiency

measures, and I am glad to cosponsor the "Public Buildings Cost Reduction Act of 2007" with you, although I still have some questions about how the program would work. However, in considering legislation, we should always be cautious of any new mandates we are creating. I welcome today Ms. Melanie Townshend, who is testifying on behalf of the Associated General Contractors of America. In her testimony, Ms. Townsend will discuss concerns that I have heard expressed by many others about favoring one green building standard over others in legislation—what would essentially be brand endorsement by law.

I look forward to hearing from each of our witnesses today. Thank you, Madam Chairman.

Senator BOXER. Thank you, Senator.

I always want to make you feel better.

Senator INHOFE. I feel pretty good anyway.

Senator BOXER. But I will make you feel even better because you had a little bit of angst over where I might be headed, and I want you to know that I served on the Board of Supervisors and I believe that planning decisions reside with the local people. I do think, though, that what we are doing here will make people take a look and see that it makes sense to do this for them, because they save money at the end of the day.

Senator INHOFE. I was Mayor of a major city for three terms, four terms I guess, and we looked for things like this coming out of Washington, with some skepticism. In this case, I think it has passed the test.

Senator BOXER. Very good. I am very happy.

With that, Commissioner, please.

Mr. WINSTEAD. Thank you, Madam Chairman.

Senator BOXER. I wanted to not bypass Senator Alexander, who was so key to us in this.

I am so sorry. Senator, please?

OPENING STATEMENT OF HON. LAMAR ALEXANDER, U.S. SENATOR FROM THE STATE OF TENNESSEE

Senator ALEXANDER. Thank you for the courtesy. I will be short, but I would like to say two things. One is, I wanted to thank you and Senator Inhofe for your leadership on this, and not only on the substance of it, but in the way you have worked on, including other members of the committee on both sides. I thank you very much. It is the way I hope the committee can work.

Second, it builds on the Energy Policy Act of 2005 that we passed. I was on that committee for the last 4 years, and we found on that committee that we had some pretty big differences on some issues, but a consensus emerged pretty quickly on the value of conservation and efficiency. It was the easiest thing to do and the first thing to do.

We Americans have big appetites, and so we sometimes want to use all the energy that we can use. I know I have been guilty of that, and we are a big wide open country. But I think more and more we are seeing that nuclear powerplants are expensive, gas plants are expensive and the gas is getting more expensive. Carbon for coal recapture is still a technology we have to work on. Energy independence is a problem. Giant wind turbines are unsightly.

So the best option, when we can do it, is conservation and efficiency. This is a wonderful way to do it, setting a good example so that Mayors and Supervisors and Governors across the Country can follow our example.

The John J. Duncan Building in Knoxville, TN has done an aggressive lighting retrofit of the kind in this does. It is a Federal building and they have great savings.

So I thank you for your leadership and allowing me to be a part of it.

Senator BOXER. Thanks so much, Senator.

Commissioner.

STATEMENT OF DAVID L. WINSTEAD, COMMISSIONER, PUBLIC BUILDINGS SERVICE, U.S. GENERAL SERVICES ADMINISTRATION

Mr. WINSTEAD. Thank you.

Madam Chair, Senators, it is nice to be here today. I am David Winstead, Commissioner of the Public Buildings Service. I was appointed in October 2005. Prior to that, I was with a law firm here in Washington that did a lot of real estate work, so I have had many, many years background in real estate.

I am very proud to be here on behalf of GSA and representing the Public Buildings Service, and talking to this bill and its objectives. As you know, we have some 6,000 professionals around the Country in 11 regions dealing with our real estate portfolio and managing our energy conservation, energy efficiency programs.

I am pleased to discuss some of the activities. You have a statement from me in the record that covers a lot of what we have done, a lot of the issues that are moving forward on the objectives of this bill. I am pleased about the activities that we have done to date at GSA to reduce operating costs through efficiency and innovation.

First, I obviously want to thank the committee and you for the leadership of not only pushing this bill, but also the accommodations in drafting it based upon our experience, both with our building operations and our energy efficiency initiatives.

Also the goals are achievable. I agree with the chairman of the Council on Environmental Quality who has submitted a letter in support of this proposed bill, so we are in concurrence. My full statement supports this legislation.

Today, I would like to just do some brief introductory remarks. I would like to focus in on our energy management activities, addressing three basic areas. First starting with a synopsis of things that we have done at GSA to date. Madam Chair, we chatted about that a little bit before the hearing. Then discuss some of the new directions that we are taking, both in our building program, new buildings underway. We have built over 50 new courthouses since 1992, as well as finish with some suggestions as to how we would deal with this legislation and implement it.

Your statement was accurate in terms of the consumption buildings take. Some 40 percent of total energy used is consumed by buildings around the United States, and about 70 percent of that consumption is in electricity. At GSA, we are demonstrating energy reduction and cost savings through both integrated design of our new buildings. We have a Design Excellence Program that I know this committee is well aware of, that currently has 15 courthouses in the pipeline and many ports of entry. We are looking for energy reduction, cost savings, and design implementation to save money

and to have more efficient lighting and heating and cooling systems.

What we have done to date is between 1985 and 2005, we actually had reduced our energy consumption by 30 percent. In 2006, we achieved about a 4.7 percent reduction from a 2003 baseline, compared to the Energy Policy Act requirement of 2 percent. So we essentially are exceeding that benchmark of the 2005 Energy Policy Act by about 2.7 percent.

Since nearly 30 percent of the energy used in buildings is for lighting and office equipment, we have targeted lighting early on. Our goal of 10 percent reduction between 1985 and 2000 was largely achieved through lighting retrofits. Today, we are welcoming a new generation of lighting systems and controls.

I would mention that Kevin Kampshire is here today. He is our Director of Research and our energy expert. If you have any additional questions you might like on technology, I would be happy to have him address that.

During the 1990s, as my statement mentioned, we basically were changing from T8 bulbs to 2T8 bulbs, which essentially used electronic ballast. This was a major initiative during that period of time. For example, in the new Arraj Courthouse, which we do have brochures for the committee today, and we do develop these for all of our buildings, portraying their energy efficiency and systems in place.

In that building, we actually incorporated energy and lighting efficiency in designed structures. I actually toured it not too long ago. Natural light is available through 75 percent of that courthouse, which is amazing when you are walking through the corridors going to the courtrooms. We have taken maximum use of the exposure of the light and the positioning of the building. We are leaders in the purchase and use of renewable power, with about 3.285 million BTUs in 2006. In 2006 alone, 2.5 percent of our energy was attributable to renewable power, versus the national average of about 2.3 percent. So then we exceeded by 2.2 percent the national average.

This includes buildings, for example, the Binghamton Federal Building in New York, which is the first Federal facility powered 100 percent by renewable energy. This power flows from a new wind turbine in Fenner, NY. We are under 100 percent wind-powered purchase for the National Park Service. As you know, we service 50 to 60 agencies to provide electricity for the Statue of Liberty. So the Statue of Liberty is now powered by wind power.

In fiscal year 2006, we generated renewable energy from solar and geothermal projects. We also funded photovoltaic projects. For example, at the NARA facility for the archives in Waltham, MA, we incorporated a photovoltaic panel on the roof. I do have a copy of this. This is essentially the paneling that we put on the roof of the building that is actually the surface material for the building roof and incorporates the photovoltaic panels, so no longer do you have those very burdened, big panels, but it is actually incorporated into the materials of the structure. There is a picture of that that I think we have distributed to the committee.

In addition, we are funding a large photovoltaic PV system at the Denver Federal Center, which is a very exciting project, about 6.6

acres incorporated in that Energy Center. But the Denver Federal Center is over 200 acres that we are redeveloping for Federal tenants to use, and actually incorporating transit. There is a new transit line going out to Lakewood, CO that we are actually looking to build off densities in the location of Federal workers in order to take and foster new public transit.

Through the Denver Federal Center, we are saving about $65,000 per year on electricity, while generating about $340,000 in revenue through renewable energy credits. We are both saving money as well as generating energy credits.

In our ongoing operations, we actively manage our energy use through good management practices, including monthly tracking of energy consumption, ongoing energy audits of our buildings, as well as investments obviously authorized by this committee and Congress through our new prospectuses. Our operating costs are basically 5 percent less than similar buildings. You will hear from some industry people today, but we benchmark against BOMA operating costs and we are basically 5 percent below their operating costs.

We also pay 12 percent less for our utilities thanks to GSA's energy experts that compete competitively natural gas and electricity and green power. As I mentioned earlier, this is a service to all our Federal agencies who wish to be included.

To talk about some of the new directions, the President challenges all Federal agencies in his recent Executive Order 13423 to reduce energy consumption, increase the use of renewable energy, and continue to find new technology. Our initiatives have included new monitoring systems to help power down computers when people forget to turn them off.

You have pictures of the new NOAA facility. I think it is right here. This is this wonderful new structure in Suitland, MD. Madam Chairman I invited earlier, and I would like to extend it to all the committee to come out and view both this facility and our new White Oak Campus for the FDA. This green roof, which has been incorporated in the NOAA building in Suitland, is not only saving us energy, but also is aesthetically very, very pleasing in terms of a promenade where employees of NOAA can actually walk out onto the paths, onto the roof.

A new innovative building, as you might know, in San Francisco will be dedicated this summer. It is designed to use natural ventilation. The multi-stories office tower portion of this relies on low humidity and moderate temperatures of the San Francisco Bay Area, rather than mechanical air conditioning. This rendering shows the San Francisco office building that is largely completed. It will have a dedication in the summer, as I mentioned.

Yes, Senator?

Senator INHOFE. Did I understand that you said this is without refrigeration? Is this what you are talking about?

Mr. WINSTEAD. Senator, it is. The tower portion of this building is essentially naturally cooled by the air flows that are coming from the San Francisco Bay Area, both by the positioning of the building. There is a portion of the building on the left side that for security reasons we had to have enclosed, and that does have an HVAC

system. But the large part that you are viewing here is essentially cooled by natural air flow.

Senator INHOFE. How many stories is that?

Mr. WINSTEAD. Sorry, sir?

Senator INHOFE. How tall?

Mr. WINSTEAD. I think it is eight stories, Senator.

Also, and I mentioned the FDA campus. We have a combined heating and power system at the FDA campus which we are now relocating from leased facilities in another part of Montgomery County. It uses heat from electricity production to both heat water, as well as the building air conditioning system.

I think GSA and the Federal Government needs to continue to be a leader in all this, and by continuing to demonstrate and test these new technologies, we can select strategies for a wide variety of buildings in our inventory. But some of the best opportunities we think for improving energy efficiency lie in building modernization. As you know, out of our 1,500-odd buildings, a lot of them are in the 1970s and 1980s and do require enormous renovation. We devote $1 billion a year more into renovation than capital programs.

We have actually realized a 60 percent drop in energy consumption, for example, following the modernization of the Bennett Federal Building in Jacksonville, FL. In Knoxville, TN, the John J. Duncan Federal Building in Knoxville attained an energy STAR rating of 94 and qualified for LEED certification, which is a certification for energy efficiency. We saved approximately 1.7 billion BTU in fiscal year 2005, and saved about 400,000 gallons of water every year as a result of this energy efficient technology.

To move on to some conclusions and suggestions, I would mention——

Senator BOXER. I am going to have to ask you to summarize.

Mr. WINSTEAD. Yes, ma'am.

Basically, just to conclude, we very much appreciate your support and the authorization that we get about $30 million a year for energy retrofitting because of our modernization program. For our capital programs, you will be seeing in the prospectuses coming to this committee what is intended in the building systems for new courthouses, ports of entry and others that we are building. With regard to renewable energy, we do have a suggestion in terms of basically lengthening the time that we have for current the current statute of limitations from 10 years to 20 years, that we think will create more economics in renewable energy, and allow us to purchase more of that.

Madam Chair, that will conclude my remarks. I appreciate this opportunity. I hope some of these projects—it is an 18-story building, Senator, the San Francisco building, 18 stories—and we hope that these brochures that we will submit with our testimony are helpful. We do have the NOAA facility which talks about the energy systems there. We do have the Arraj Building brochure that I mentioned, and also a state of our portfolio that overviews all of our 1,500 buildings around the Country.

[The prepared statement of Mr. Winstead follows:]

STATEMENT OF DAVID L. WINSTEAD, COMMISSIONER, PUBLIC BUILDINGS SERVICE, U.S. GENERAL SERVICES ADMINISTRATION

Good morning, Chairman Boxer, Ranking Minority Member Inhofe and Members of the Committee. My name is David Winstead and I am the Commissioner of the Public Buildings Service in the U.S. General Services Administration (GSA). Thank you for inviting me here today to discuss GSA's activities to reduce Government building operating costs through efficiency and innovation. Today, I will concentrate my remarks on the areas that affect energy consumption. I will start with a synopsis of things we have done, discuss the new work we are undertaking, and finish with a couple of ideas that may aid this Committee, or others, in addressing this important issue. But first, I must thank the Committee and staff for the consideration and accommodation in drafting proposed legislation about lighting and energy conservation. We believe that working together, the bill as it now stands is achievable and provides GSA an opportunity—which we welcome—to demonstrate practical ways that the government can improve operations, save energy, and improve the work environment. I also understand that the Chair of the Council on Environmental Quality has submitted a letter to the Committee; I have read the draft of that letter and concur with the support it expresses for this proposed bill. We recognize that buildings in this country consume about 40 percent of the total energy used in the United States and as much as 70 percent of the electricity. GSA has an opportunity—and a responsibility—to lead by example and to demonstrate how we can reduce energy consumption by intelligently integrating energy efficiency in building design and still create places where people can work effectively.

PAST ENERGY CONSERVATION EFFORTS

GSA has always made significant investments in energy saving solutions. In fact, between 1985 and 2005, GSA achieved a 30 percent reduction in energy consumption. Our utility costs are consistently lower than those in the private sector. In 2006, GSA reduced the overall energy consumption of its Federal inventory by 4.7 percent compared to 2003 in response to the goals set in the Energy Policy Act of 2005. We achieved this reduction by direct investment in energy and water conservation opportunities coupled with the concerted efforts of our property managers working together with our tenants.

Lighting

Nearly 30 percent of the energy used in buildings is for lighting and office equipment. During the early 1990s, GSA extensively retrofitted existing building lighting systems—this was the "low hanging fruit"—by changing from T–12 lamps with magnetic ballasts to T–8 lamps with electronic ballasts, coupled with motion sensors and new combinations of reflectors and prismatic lenses. In fact, GSA met its early energy reduction goals of 10 percent between 1985 and 2000 primarily through these retrofits. Since then, GSA has moved towards a combination of alternative and direct financing of a new generation of integrated lighting controls. While these are initially more costly and more technologically challenging, they provide greater energy savings in the long run. Interestingly, many projects were done in conjunction with GSA's Chlorofluorocarbon (CFC) chiller replacement initiative. As we replaced old chillers that used ozone-depleting CFCs, we sought to reduce the size of the new chillers by reducing the heat created by the older, less efficient lighting systems.

It is interesting to note that today there is nearly 400 times as much artificial lighting in buildings than there was a century ago—and research is showing that the standards of even ten (10) years ago put more light than we need in offices.

As we move toward the future, GSA is incorporating numerous lighting initiatives in our workplaces that take advantage of sophisticated strategies, such as daylight harvesting, and commercial products that differentiate between task specific and ambient lighting requirements.

The Alfred A. Arraj U.S. Courthouse in Denver is an excellent example of how a variety of sustainable design strategies can work together for energy and lighting efficiency. The public corridors of the building are oriented to the southeast to maximize solar exposure. Oversized windows provide visitors with a connection to the outdoors and magnificent views of downtown Denver. High efficiency triple-glazed windows minimize the need for heating and cooling. Internal light shelves bounce daylight onto light-colored surfaces so that it is then reflected deep into the interior. Even the light-colored limestone floors contribute to the daylighting. Fluted glass panels bring diffused daylight into the interior courtrooms and other spaces. Overall, natural light is available throughout 75 percent of the building.

Our regional offices in Atlanta and San Francisco are piloting several types of advanced energy efficient lighting systems for offices:

(1) "Intelligent Lighting" using light ballasts that can be individually controlled by each person's computer, and are tied into advanced controls that monitor activity
(2) Task-Ambient Lighting for Low Ceilings
(3) Fixture retrofit that provides individual light control and that does not require re-wiring

By demonstrating and testing these new technologies, GSA gathers the information necessary to select the strategy appropriate for the different building conditions in its diverse inventory. For instance, intelligent lighting is initially more expensive and more complex, but offers an unprecedented energy savings, while task/ambient lighting for low ceilings provides an energy effective solution for a lower budget and is simpler to install and maintain.

Major challenges to future improvements in lighting efficiency are the old suspended ceilings. At this point, newer, high efficiency fixtures do not fit in old suspended ceilings. In the meantime, we are working with our customers to find ways to reduce our energy consumption. This can be as simple as remembering to turn off the lights!

Renewable Energy

GSA is one of the nation-wide leaders in the purchase and use of renewable power. We also consider opportunities for solar and other renewable energy in our building design and retrofit programs. In 2006, 4.5 percent of our electricity was generated from renewable power or bought through renewable energy certificates, compared with the national average of 2.3 percent. And, as the cost for electricity and natural gas has increased, we have found more opportunities to buy renewable power at competitive prices.

Over the last 4 years, GSA has purchased a total of 949,984 Mega Watt Hours (MWH) of energy from renewable sources through competitive power contracts and through the use of green power programs offered by local distribution companies.

- The Binghamton Federal Building in New York State is the first Federal facility in the Nation powered by 100 percent renewable energy. The power flows from a new wind turbine installed at the Fenner Wind Farm in the town of Fenner, New York. This project not only demonstrated GSA's commitment to energy independence and environmental stewardship but also helped to spur economic growth of a new industry in a small community economy.
- GSA awarded a contract to supply the National Park Service's Statue of Liberty and Ellis Island with electricity generated from 100 percent wind resources. The 3-year contract will supply approximately 28 million kilowatt hours of renewable energy to the two landmark sites. The Statue of Liberty is not only a beacon of freedom to the rest of the world, but also a welcome sign of the future in renewable energy.

In Fiscal Year 2006, GSA received an estimated 3,285 Million British Thermal Units (MMBtu) in energy from self-generated renewable projects. We estimate that:

- 543.7 Megawatt Hours (MWH) of the total came from GSA's 12 Solar Photovoltaic installations,
- 600 million btus came from GSA's two solar thermal projects, and
- 830 million btus came from the one completed geothermal project.

In Fiscal Year 2006, GSA funded two new photovoltaic (PV) systems: The first is a 40 kilowatt array at the Trenton Courthouse Annex. The 2nd is a 300 kilowatt Building-Integrated PV system at the National Archives and Records Administration (NARA) facility in Waltham, Massachusetts (near Boston). The NARA facility demonstrates a completely integrated roof and solar system—the solar panels are the roof. The flexible, flat panel photovoltaic array is heat-welded into the roofing material and qualifies as a "Cool Roof" under the U.S. Environmental Protection Agency's EnergyStar program. The project is estimated to save approximately $204,000 and 5,550 million btus annually.

Just this year, we funded a project at the Denver Federal Center (DFC) that will provide one megawatt solar photovoltaic facility on 6.5 acres. The array will save $65,000 per year in electrical charges while generating $340,000 per year in revenue through the sale of renewable energy credits. The energy obtained from the solar park will be fed directly into the electrical grid and used at the DFC.

ON-GOING OPERATIONS

GSA actively manages its buildings. We currently operate our buildings at costs 5 percent below private sector comparable buildings, and for utilities we pay 12 percent less. Some of this lower cost is directly attributable to the investments the Congress authorized and GSA executed in energy conservation projects over the past 15 years.

Competitive Energy Procurements.—GSA's energy experts develop procurement strategies for natural gas, electricity and green power to achieve the best competitive price, taking into account the facility's organizational goals—which may include budget stability, energy reliability and security. We provide this service to all Federal agencies—it is part of our mission.

Public Utilities.—To negotiate the best rates, GSA awards large public utility area wide contracts for electricity, natural gas, steam, chilled water, and water and sewage services that are regulated by public utility commissions, utility cooperatives or municipal utility companies. In many cases, these contracts allow for demand side management services, which include alternative financing for energy projects. In addition, GSA provides leadership in developing contracting vehicles, allowing end-users to meet multiple Federal energy requirements in both public law and executive orders.

Energy Tracking.—We track energy consumption monthly at every GSA facility. Our system provides the status of energy trends as they relate to past or future building actions.

Energy Audits.—GSA continuously conducts energy audits and retro-commissioning studies of its inventory to identify life-cycle cost effective energy conservation measures. Approximately 10 percent of our space inventory is audited in any given year.

New Directions

GSA is piloting a new chiller efficiency monitoring and analysis tool in 14 buildings with 34 plant chillers of varying sizes. If successful this operational tool will:

- Serve as a specific indicator of problems in chiller plant equipment and operations.
- Improve the efficiency and extend the life of existing chillers and related equipment.
- Provide optimal cost effective and efficient remedial action to repair, replace, and enhance chiller plant operations
- Provide energy savings, lower carbon emissions
- Reduce future capital expenses
- Reduce equipment down time resulting in reliable service to customers

We are working with one of our large customers to integrate power controls into their IT operations—establishing a monitoring system that will reduce the electricity consumed by computers when people forget to power down as they leave—no work gets lost, but substantial electricity is saved. And speaking of computers, our customers can help us dramatically reduce the energy they consume by replacing old TV-like monitors with flat screens. Flat screen (LCD) monitors use only one-third the amount of electricity as the old TV monitors, are better for the worker—less eye strain—and produce less heat that we have to dissipate with air conditioning.

FUTURE

The President has challenged all Federal agencies in his recent Executive Order 13423 to reduce our energy consumption, to increase the use of renewable energy and continue to find new technologies. We will continue to use existing energy reduction measures, but we are also researching new technologies that can help us reduce energy consumption and reduce overall costs to the Government.

Currently, GSA is increasing its participation in load curtailment and demand management programs sanctioned by utility companies and/or system grid operators to further refine its lighting use. As energy use generally peaks in the late afternoon for a short period of time, we try to quickly reduce the major consumer of electricity in our buildings: lights. We are looking at sophisticated lighting systems that reduce illumination levels significantly enough to reduce total building demand and still leave enough light for building occupants to perform their work. In addition, GSA is strategically issuing competitive electricity contracts in deregulated markets with contract language that optimizes our demand limiting capability, thus resulting in lower rates.

As I speak, we are changing our design guidance to reflect the new legislative and Executive Order requirements. I should point out, even without these revisions, our current version sets high standards for lighting efficiency. This does not, however, diminish the need for major improvements. For example, our latest standard—not published yet—is to design for interior lighting at or below 0.9 watts per square foot. In the 1970s, a typical installation would have been as much as seven times as high, typically between 4 and 7 watts per square foot.

Newer, more efficient lighting systems not only allow us to reduce energy used for lighting, it also reduces the amount of heat produced by the lights themselves.

In turn, this will reduce the air conditioning needed to cool a building, reduce the size of the mechanical system and result in even greater energy savings. Although a simple concept to understand, this approach demands an integrated, whole building approach using recognized sustainable design principles. To help us measure how well we are achieving an integrated, whole building approach, GSA uses the LEED (Leadership in Energy and Environmental Design) rating system in the design of New Construction and Major Alteration projects.

GSA has incorporated the sustainable design practice of Green (planted) roofs in some of our projects. These roofs range from small tray systems to entire garden roofs. In Suitland, Maryland, we have built one of the largest green roofs in the country, covering 170,000 square feet—nearly four acres. Green roofs reduce energy costs by insulating the building and they also serve to reduce the "heat island" effect that is produced by large buildings in urban areas. Green roofs are also beneficial because they capture rainwater, which serves to reduce water runoff into our sewer drains and in this area, into the Chesapeake Bay.

In San Francisco, GSA is constructing a remarkable new Federal building that minimizes its energy consumption by taking advantage of favorable local conditions. This building is designed to self-ventilate its occupants through a rather simple movement of airflow not from air handling and cooling coils units but natural ventilation. That is a great example of avoiding energy use. In the tower, there is no air conditioning. The design of this building takes advantage of, and is very sensitive, to the low humidity and moderate temperatures of the Bay area. Simply put, its design is a good fit with its location.

The Energy Policy Act directs us to install advanced metering. We will be doing that over the next few years, dependent on funding. We started installing advanced meters in the Washington, DC and New York areas even before the law required us to do so. In the long run, advanced meters will save money by allowing us to manage power consumption more strategically. For example, GSA was able to contribute to the electrical management in the Washington area last summer by "shedding load" sometimes allowing buildings to get a little warmer and more humid in the late afternoon—and thus, we helped avert major brown-outs in this area. Perhaps more importantly, advanced metering will help us buy power at better prices, because we will know our use patterns in a way we just do not today.

Combined heat and power (CHP) systems can also be a source of both energy security and savings. The Food and Drug Administration Office in White Oak, Md. is a great case study. Using an energy savings performance contract (ESPC) to install a 5.8 megawatt CHP facility as part of the first phase of the campus buildout, we saved more than 37 million kilowatt-hours, $1.4 million in energy costs and $2.1 million in annual operation and maintenance costs (FY 2003 data). The plant provides reliable, uninterrupted on-site electric generation capability for three facilities on campus—a laboratory, office building and multi-use facility. Heat is recovered from the generating process to produce hot water for building use and in the absorption process to produce chilled water for air conditioning. The thermal efficiency of the plant is increased by 30 percent while significantly reducing pollution emissions. Furthermore, we plan to expand this system to support 100 percent power generation for the entire campus once the campus is complete. This will reduce the 25 megawatt load that the local utility would otherwise have to accommodate.

FUNDING

Some of the best opportunities for dramatic energy conservation are in building modernizations. This requires capital but we can realize significant pay-back. A couple of examples:

U.S. Department of Energy Federal Energy and Water Management Award recognized GSA's work on the Charles E. Bennett Federal Building in Jacksonville, Fla., for its holistic redesign effort. Post-renovation building energy consumption dropped more than 60 percent. Usage was reduced by 23,781 thousand million btus, which is enough energy to power 208 homes for one year.

The John J. Duncan Federal Building in Knoxville, Tenn., successfully attained an Energy Star rating of 94 and qualified for LEED certification. Through the execution of a comprehensive building re-commissioning and installation of a new building control system, along with lighting upgrades and motion sensors, this resulted in savings of approximately 1.7 billion btus in FY 2005, exceeding FY 2005 energy reduction goals by 33 percent. The restrooms were also retrofitted with water-saving equipment, and new secondary meters were placed on water supplies to reduce water sewage and runoff charges, saving 400,000 gallons of water on a yearly basis.

In GAO's testimony in 2003, they noted that the backlog of repair and alteration needs in GSA-controlled Federal buildings had a direct impact on the energy efficiency of the buildings, including aging and inefficient plumbing, heating, ventilation, and air conditioning systems

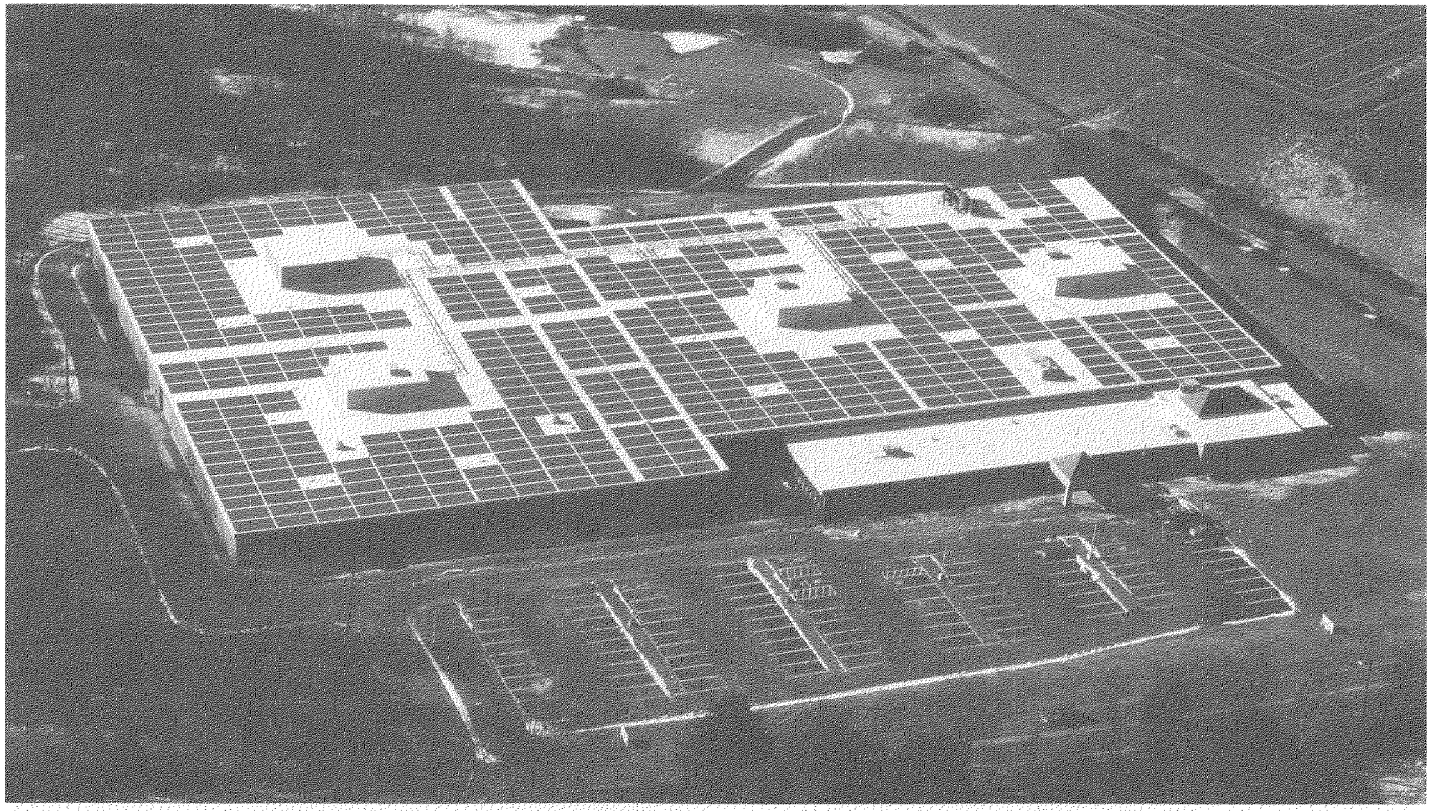
In recent years, GSA has been requesting—and Congress has been appropriating—about $30 million annually for energy retrofit projects—in addition to what is included in building modernization and new construction project budgets or funded by Energy Savings Performance Contracts (ESPCs). We anticipate that the higher conservation goals will increase that amount, and welcome the opportunity to discuss that matter in the course of future years' budget submissions.

It might be helpful if there were some flexibility in capital projects (the ones for which we submit prospectuses) for GSA to incorporate energy savings technology that was not included in the design at the time the prospectus was submitted.

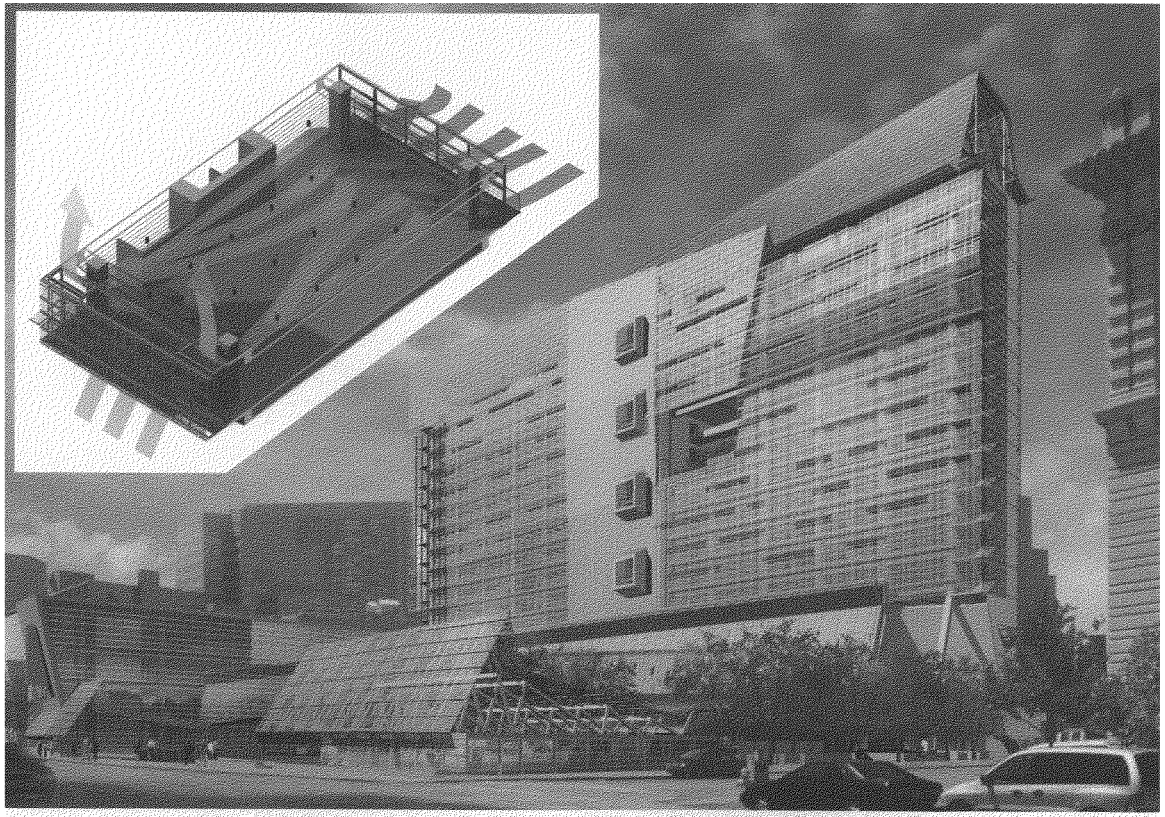
We also understand that for some renewable energy, wind power in particular, if the Government were able to purchase power for a longer period than the current statutory limit of ten (10) years, it might be possible to both obtain very good prices for the Government, and provide the financial security that would spur the development of new sources of renewable power.

CONCLUSION

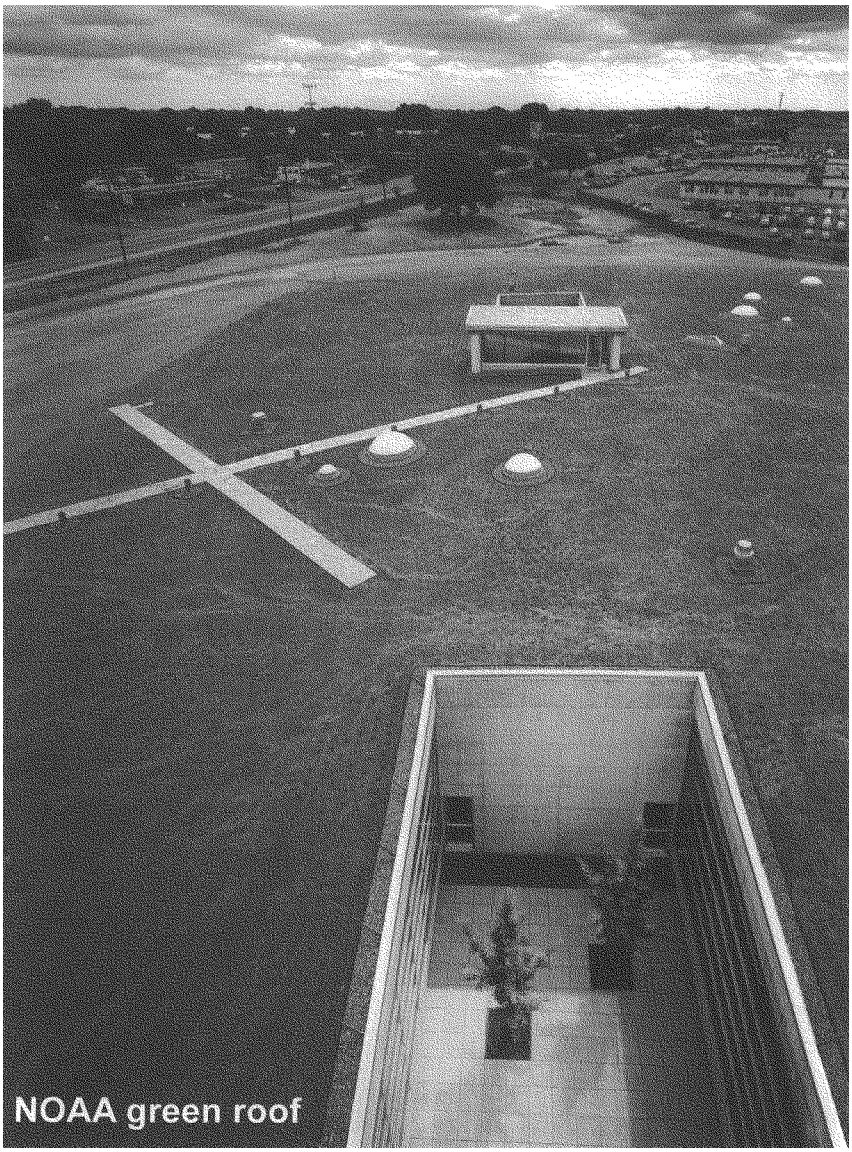
Thank you for the opportunity to talk about GSA's leadership role in this area. I look forward to working with the Committee on this matter of vital interest to our country.



Frederick C. Murphy Federal Center : photovoltaic roof panels



San Francisco Federal Building: natural ventilation scheme


NOAA green roof

Senator BOXER. Thank you very much. It was excellent testimony.

Senator Inhofe was asking about the San Francisco building. It is fascinating, but I wanted to share with him what Mark Twain once said, "The coldest winter I ever experienced was the summer in San Francisco." Because it does get chilly there, and we do have the advantage/disadvantage of having these amazing cool-downs that Mother Nature has provided. That is why it makes so much sense, and you can't have a one-size-fits-all, obviously, because weather patterns differ.

But one of my biggest gripes I have had, and it had nothing to do with, because when I was younger, I frankly wasn't thinking about energy efficiency, was that you go into a building where you really didn't want the air conditioning. You wanted to just open a window. You couldn't open a window. Even at that point in my life, I said, this can't be healthy; we just keep breathing in this air, when we could just open a window, and there was no window to open.

Simple things like that are going to make a big difference. As you say, siting buildings where they get the benefit of the sun. Just simple things are going to make a big difference.

I am very happy with your testimony. I think you just showed us that you are very aware of this. I have a few questions, but I wanted to, before I start them, and it will take about 4 minutes for my questions, ask unanimous consent to place in the record the letter from James Connaughton of the CEQ, Council on Environmental Quality, where he says he expresses his appreciation to this committee for working with them and exchanging ideas on this bipartisan legislation.

Also on the fact that the legislation will present an excellent opportunity to accelerate the GSA Lighting Retrofit Program, because at the rate we were going, colleagues, you know, this could have gone on for 9 or 10 years before it was done. Now we are frontloading the Executive order of the President, pushing it forward. As Mr. Connaughton said, the bill also provides for an acceleration of the overall energy efficiency goals in the Executive order. Then he goes on to say he is pleased the bill recognizes the benefits of local governments taking steps to improve their efficiency.

So I will put this letter in the record.

[The referenced document follows.]

EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL ON ENVIRONMENTAL QUALITY
WASHINGTON, D.C. 20503

CHAIRMAN

March 27, 2007

The Honorable Barbara Boxer
Chairman

The Honorable James M. Inhofe
Ranking Member

Senate Environment and Public Works Committee
410 Dirksen Senate Office Building
Washington, DC 20510

Dear Chairman Boxer and Ranking Member Inhofe,

Thank you for inviting me to testify on the Public Buildings Cost Reduction Act of 2007. I am sorry that I am not able to join you in person to express our support for the Committee's bipartisan effort. I also want to express my appreciation to this Committee for working with CEQ and exchanging ideas as you developed this bipartisan legislation.

This bill focuses on advancing efficient lighting technologies within General Services Administration (GSA) buildings. It encompasses and promotes a concept that is important to all – increased efficiency. This increased efficiency will save taxpayer dollars, conserve energy, reduce greenhouse gases, and provide for cleaner air. The installation of more energy efficient lighting technologies will quickly pay dividends to taxpayers, and Americans will realize both financial and environmental benefits.

This bill builds upon action taken by the President earlier this year. On January 24, 2007, President Bush signed an historic new Executive Order. Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management, integrates a number of sustainable practices into one strategic vision for the Federal government.

One pillar of the new Executive Order is energy efficiency. The US government is the largest consumer of energy in the world, and energy security is a goal that all Americans share. The Executive Order has several goals addressing energy, including: energy efficiency improvement of 3% per year or 30% by 2015 relative to 2003 levels; increase in renewable energy with at least 50% coming from new sources; and conformance with a series of guiding principles for high performance buildings that include lighting, building materials, indoor air quality, and heating and cooling. In addition, we have a goal for purchasing more efficient and environmentally sound electronics, realizing how much they contribute to our overall energy footprint. Specifically, the Executive Order requires that at least 95% of the computers it purchases

are EPEAT registered. EPEAT, or the Electronic Product Environmental Assessment Tool, is an international labeling standard that rates electronics on series of environmental and energy efficiency attributes.

Retrofitting indoor lighting for efficiency is one area of potentially immediate benefit due to the short payback period. Retrofits typically involve replacing older bulbs with new, more efficient bulbs, such as compact fluorescent bulbs. Lighting retrofits are also attractive because they are relatively less intrusive than other energy efficiency improvements that may require more invasive renovation. Realizing this significant potential benefit to the Federal government, and all Americans, GSA has already embarked on an aggressive retrofit program for all of their buildings.

The legislation that this hearing will discuss presents an excellent opportunity to accelerate the GSA lighting retrofit program. The bill also provides for an acceleration of the overall energy efficiency goal in the EO as they apply to GSA facilities, a goal which is already 50% more aggressive than EPAct 2005. This bill provides for an additional impetus and opportunity to meet the goals. It will also provide for more assurance of continuity through changes in Administrations. By accelerating the pace, Americans will realize improved efficiency and cost savings sooner. We strongly support these measures.

In addition, I am pleased that this bill recognizes the benefits of local governments taking steps to improve their efficiency. As the Committee of jurisdiction over the United States Environmental Protection Agency, you should be aware of Administrator Johnson's commitment to the Energy Star program and his aggressive efforts to increase the usage of Energy Star lighting technology.

Thank you again for providing me the opportunity to provide you with this letter. Please know that we remain willing to provide assistance as you seek to move this bill through the legislative process.

Yours Sincerely,

James L. Connaughton

Senator BOXER. I consider this a real milestone that we were able to develop this with the Administration, and all of us working together.

A couple of questions. I wanted to ask you, Commissioner, because I was the one who was very strong on having an individual in each GSA building that is responsible for this. Do you feel that is a good workable way to go?

Mr. WINSTEAD. Senator, as you know, that requirement or suggestion in the bill has been reviewed by our people, and we are comfortable with that. We do have full-time property managers that are constantly managing the operation units in the building, monitoring the energy. So I think it is sustainable to have that focus that is directed by the legislation.

Senator BOXER. Right. You can just name whoever you think is the right person, and just make sure that they are responsible, because one of the things that I have learned after all these years is what went wrong—it is this guy. You know? We just want to have that person that is responsible.

You mentioned it would be helpful, and I don't think that this issue—does this issue reside with us, the contract length of time? It resides with the Energy Committee?

Mr. WINSTEAD. It resides with Homeland Security and Governmental Affairs.

Senator BOXER. OK. I just wanted to mention, colleagues, that Mr. Winstead pointed out that flexibility in purchasing renewable energy over longer periods of time would be beneficial to GSA. So the current statutory limit of 10-year contracts, if that was increased, I understand you feel it would give you more flexibility and would help you purchase more renewable energy. Is that correct?

Mr. WINSTEAD. That is correct, Senator.

Senator BOXER. OK. So Senator Inhofe, are you still on the Energy Committee?

Senator INHOFE. No.

Senator BOXER. OK. Is anybody else on the Energy Committee? OK.

Well, why don't we talk about this because they are being hampered. They want to buy renewable energy in longer term contracts, but the law says now the most they can go out is 10 years. So Senator Sanders, if we could work together on that, it would be just great.

Mr. Winstead, you mentioned GSA has retrofitted many building lighting systems. What portion of GSA buildings still need to be retrofitted?

Mr. WINSTEAD. Senator, basically between 2000 and 2003, managed five projects with energy consumption savings of about 18 percent, so we do have a huge number that still are in the inventory. The GAO report in 2003 looked at basically 44 buildings and calculated that we needed another $20 million per building to really get them totally modernized, to incorporate both lighting as well as the HVAC in efficient systems updates.

I will tell the committee that it is a constant challenge. I know that Senator Inhofe spent some time in the real estate industry. We are managing a huge portfolio that has a state of it that does

require a lot of reinvestment. We are very focused on both the lighting efficiencies, the ceiling issues, as well as the task-oriented lighting and intelligent systems that we will be putting into the prospectuses for modernization projects. This isn't something that we are viewing as a non-core function. We are actually incorporating these new technologies in the prospectuses for these building modernization programs.

Senator BOXER. All I am interested in is knowing how much more we have to do.

Mr. WINSTEAD. I think it is probably, with some of these older buildings, we are looking at as much as $10 million to $15 million.

Senator BOXER. Per building to really get it up.

Mr. WINSTEAD. Yes. We can actually get you a breakdown.

Senator BOXER. That is what I was going to ask you.

Mr. WINSTEAD. I would be happy to do that.

Senator BOXER. If you wouldn't mind sending Senator Inhofe and I a letter, as well as the rest of the committee.

Mr. WINSTEAD. Sure.

Senator BOXER. Just tell us straightforward what is the need, then we will take a look at it and see if we can help. I think the important think is also to tell us the payback period for these improvements, because frankly if we make an investment and the taxpayers are made whole in 5 or 6 or even 7 years, especially in the GSA-owned buildings. In the leased buildings, with long-term leases, it makes sense. With shorter term leases, obviously we don't want to spend taxpayer money as a gift to some private person. We want to make sure the taxpayers receive the benefit.

Last question.

Mr. WINSTEAD. Sure.

Senator BOXER. Our second panelist, Ms. Callahan, notes in her written testimony that GSA still includes inefficient and outdated equipment such as incandescent lights, old ballast technology, and old computer systems on its procurement schedules, despite legislative mandates to the contrary.

Now, I don't know if she is right or wrong on the point, but could you tell me today you are prepared to respond to that, whether or not your procurement schedule has been updated to reflect legislation that passed here in the Energy bill and so on?

Mr. WINSTEAD. Senator, that is under the Federal supply schedules, on the FAS side of the ledger. I do believe it is fair to say that in terms of our new construction, in terms of our modernization, we are focusing on this technology. I will provide to the committee what the issues are on the FAS side that have been highlighted by industry.

Senator BOXER. I think it would be excellent because if we are still purchasing the old—you know, one of the great things about our ability to change things is the power of the purse. If we use our funding wisely and we create the demand for these products, I think that is the way to go, rather than buy the old technologies and at the end of the day, we will probably be getting rid of them soon enough.

So if you could get back to me on both of those, how much you need per building, just an honest assessment, and also if you could

look over that schedule and see if you agree with Ms. Callahan on that, and what you are going to do about it. OK?

Mr. WINSTEAD. I will do so.

Senator BOXER. Thank you.

Senator Inhofe?

Senator INHOFE. Madam Chairman, I don't have any questions. I think you asked the right questions. I did read the longest section, section 2, some six or seven pages, and I would just want your assurances that the timeline for implementing these things that are found in that section is going to be workable.

Mr. WINSTEAD. Senator, I appreciate that. Obviously, it is a challenge. It is much quicker than the Executive order was dictating, but we have reviewed it and we do think we can manage with that time schedule. As this moves forward and this legislation gets passed, we would be happy to obviously keep the committee informed about how we are doing. But we have reviewed it in terms of the requirements, 6 months, the 9 months side of it, and we are comfortable with it. This committee and the staff has been very engaged and we have been wrestling around, can we do this.

Senator INHOFE. If you find that you are wrong, you can let us know.

Mr. WINSTEAD. I am sorry, Senator. What?

Senator INHOFE. I said if you find that you are wrong, you can let us know.

Mr. WINSTEAD. Absolutely, absolutely.

Senator INHOFE. All right.

Senator BOXER. But if you find that it is working, let us know. [Laughter.]

Mr. WINSTEAD. Yes. We have also started collecting data on this, so that we are sort of moving in that direction.

Thanks, Senator.

Senator BOXER. Senator, thanks.

We are going to do the early bird rule, so Senator Alexander, and then we will go to Senator Sanders and Senator Klobuchar.

Senator ALEXANDER. Thank you.

I only have one question, which is a little different because I said earlier what I thought about the importance of this legislation and how much I appreciate the approach you are taking.

I want to ask you a question about aesthetics. Technology is a great advantage for us as we try to deal with energy. It might help us figure out carbon recapture. You have just described a way that we may through intensive lighting retrofit save huge amounts of electricity and set an example for others. But one of the problems with technology is it sometimes disturbs or destroys the great American outdoors, the American landscape.

For example, we all like to use our cell phones and Blackberries, but we have had 200,000 cell towers to up in the last few years. In Tennessee at least, I think they must enter a contest to see who can pick out the ugliest one and biggest one, and put it in the most scenic place.

Solar panels, and I have discussed this with the solar panel industry. I am the sponsor of the tax credit for more solar power. But originally, they were developed without any aesthetics in mind. I actually think it is a limit on the ability of solar power to expand

because people don't want ugly things on their roofs, just like they want their front yard to look good.

There is a place for wind power in our country, but when you said, you know, the Statue of Liberty was operating on wind power, I had a first thought that you have all these big super-sized wind turbines right around the Statue of Liberty, which is not the case.

So I wonder if, as part of your mission with these 1,500 buildings, you might help the rest of the country understand how to use renewable energy like solar, wind and other things, in aesthetically pleasing ways, because I think that is actually one of the major limits on its ability to be accepted, and that you can provide a real service on that, as well as keep our Country looking good. We sing about America the Beautiful, and whenever we start to put oil rigs on the seashores, the Chairman puts up pretty pictures of the seashores. I agree with that.

So I would like to find ways to have an aesthetically pleasing as possible with this new technology that we are developing. Do you have any comment on that?

Mr. WINSTEAD. Senator, your point is well taken. The original technology for solar panels, a lot of them were on the sides of buildings.

Senator ALEXANDER. They were functional.

Mr. WINSTEAD. Yes, but this, for example, is the one I mentioned. This is essentially the roofing for the buildings. We are incorporating the panels in the roofing, which is no different than you would see with just a rubber roof.

The issue of wind power is obviously, you are correct, there are no wind turbines around the Statue of Liberty currently, but that power is coming from wind-generated turbines. I would hate to take back to my community in Chevy Chase the concept of putting wind turbines to generate local power. There are aesthetic issues.

What I will commit to is to make sure that our reflection of both the solar use and what we are doing, and they are well portrayed in these brochures, but I think what you are asking is could we develop some more public type communication that would demonstrate——

Senator ALEXANDER. For example, even to give awards for designers and buildings that not only improve efficiency, but do it in the most aesthetically pleasing way because that will speed the acceptance of conservation and efficiency.

Mr. WINSTEAD. Yes, we will do that. I will continue. We do in fact have this week some design awards for our buildings. It is a design awards ceremony occurring on Thursday. Some of those buildings have incorporated and will be receiving awards.

We will look to see how we can communicate that more aggressively, and therefore provide leadership and encouragement of aesthetic solutions to these technologies.

Senator ALEXANDER. Thank you, Madam Chairman.

Senator BOXER. Senator Sanders, please?

OPENING STATEMENT OF HON. BERNARD SANDERS, U.S. SENATOR FROM THE STATE OF VERMONT

Senator SANDERS. Thank you, Madam Chair. Thank you for holding this hearing.

If we are serious about addressing the crisis in global warming, it seems to me that the Federal Government has to be a leader in moving us toward energy efficiency and sustainable energy. It seems to me that we are moving much, much too slowly, but it is reassuring to hear that we are making some progress.

Commissioner, if I could ask you just a few brief questions. In Australia now they are talking about phasing out incandescent light bulbs and moving to compact florescents. Are we making bold changes in lighting in our government buildings?

Mr. WINSTEAD. Senator, we are. As I mentioned before, starting way back in 1990, we were moving from——

Senator SANDERS. What does bold mean?

Mr. WINSTEAD. We are basically replacing all the old fixtures with the new electronic ballast lighting, and looking at dropping basically the lighting and reflective ceilings.

Senator SANDERS. I don't have a lot of time.

So the assumption is that in a few years' time, we will be rid of incandescent light bulbs in most government buildings?

Mr. WINSTEAD. We are working on that strategy.

Senator SANDERS. "Working on it" gets me nervous. In a few years, will we have accomplished that goal? What is "working"?

Senator BOXER. Senator, with this bill.

Senator SANDERS. We are going to do it.

Senator BOXER. That is right.

Senator SANDERS. OK.

Senator BOXER. They support the bill.

Senator SANDERS. You showed a poster——

Senator BOXER. Senator Sanders, I am giving you an additional 2 minutes, really, because you didn't make an opening statement, so just be calm and we will get you all the time you need.

Senator SANDERS. All right.

Senator BOXER. Yes.

Senator SANDERS. Solar panels, you had a building over there on which you had solar panels. What percentage of the electricity for that building is in fact being generated by the panels?

Mr. WINSTEAD. Ten percent, Senator.

Senator SANDERS. Ten percent.

Mr. WINSTEAD. Ten percent. That, I believe, this is the NARA facility and this is essentially the materials that are on that roof.

Senator SANDERS. OK.

Is there a plan now to be installing solar paneling in buildings all over the country that we own?

Mr. WINSTEAD. In a wide variety. You see it here on a facility used for storage. We are incorporating it in courthouses. We are looking at ports of entry because a lot of the ports of entry on the borders are in areas that are very remote, where this technology will augment the energy supply.

Senator SANDERS. Will that be standard operating procedure for new buildings as well?

Mr. WINSTEAD. Yes.

Senator SANDERS. OK.

Mr. WINSTEAD. Under our design guidelines, we do have these incorporated to look at in terms of incorporating these technologies in the new buildings.

Senator SANDERS. What about solar hot water heating systems? Are we installing solar hot water heating systems on Federal buildings?

Mr. WINSTEAD. Senator, we are. We have 12 of them right now, and I can get you a list of those.

Senator SANDERS. The 12 of them is not a whole lot, given the number of buildings that we have. In other words, the point that I am trying to make is that, and I think the Chairwoman shares my feeling about this, if we, (a) believe that we are in a crisis situation; and (b) if we believe that the Federal Government should be leading, and we have got to be very aggressive in going forward, and we want our buildings to be models not only in terms of saving taxpayers' money and doing the right thing for the environment, but showing the rest of America what can happen when we are using our brains in terms of sustainable energy and energy efficiency.

So if you telling me that 12 buildings have solar hot water systems, that is not all that impressive, frankly. Do you have plans to be a little bit more aggressive on that?

Mr. WINSTEAD. Senator, solar, because of that 10 percent example here, solar is not always the most economic system, but we will get back to you and the committee a list of all the new proposed pipeline buildings in terms of new construction, and a list of those that we are in fact proposing to have solar elements in it.

Senator SANDERS. One of the problems with "economic," is it has to do with how much of that system is being produced and purchased. It would seem to me that if the Federal Government were involved in purchasing the product, it would probably drive prices down.

Mr. WINSTEAD. You are absolutely correct. Our purchase power with these technologies does create economies for others to adopt them, and that is part of why I think this committee and we need to take the leadership to do this.

Senator SANDERS. The other issue, Madam Chair, that I think we should look at, as we talk about new products, we might want to encourage American producers to produce those products. To the best of my knowledge, and I may be wrong on this, it is quite hard to buy compact florescents manufactured in the United States. I would hope that in some ways, the Federal Government by saying we are going to purchase a huge amount of light bulbs or solar paneling systems, that our preference would be that they be manufactured in America so that once again we can reestablish our position on those technologies and create jobs in this country.

Mr. WINSTEAD. Senator, that is a good point. I think we have supplied this to the committee, but we actually have an example of our 18 LEED buildings so far, and to your point, in this breakpoint, it actually shows of each of these buildings' systems, what are generated by energy savings, water, and also local materials. We actually evaluate what we are buying in the local market, to your point, making sure that our purchase power is going as much as we can to buy technologies served within that region or in that marketplace. I can get you a copy of this that shows the percentage of each of these LEED buildings that has local materials purchased and the percent of local materials.

Senator SANDERS. OK, at some point I would appreciate the opportunity to chat with you. Maybe you could come by the office.

Mr. WINSTEAD. Sure. I would be happy to. I will follow up.

Senator SANDERS. OK. Thank you very much.

Mr. WINSTEAD. Thank you.

Senator SANDERS. Thank you, Madam Chair.

Senator BOXER. Senator Sanders, thank you. I just wanted you to know that I agree with everything you said. I don't know whether you were here at the time, but we are going to get back from the good Commissioner a list of the buildings that they really need to retrofit. It is going to cost them in some cases $10 million to $20 million per building. They are going to get us that information, because we are going to have to help them get the funding they need to do this.

Also, they are going to take a look at their procurement lists and make sure that they don't have these old technologies on the procurement list because the power of the purse, as you say, is key.

I will share with Senator Sanders, I wanted to buy a bulb for every member of the committee, the new kind of bulbs, and I was so excited and it was going to be a surprise I was going to give them. Every one of them was made in China. I was distressed about that fact.

If we do this kind of, and we always use the word "Manhattan Project," but it is a good image, on our Federal buildings here, it will now pay for people to really invest in America to do this, I think.

Senator Klobuchar, then Senator Carper.

OPENING STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM THE STATE OF MINNESOTA

Senator KLOBUCHAR. Thank you, Chairman Boxer. Both Senator Sanders and I are excited about replacing those bulbs right up there. They are kind of bright.

[Laughter.]

Senator KLOBUCHAR. Anyway, thank you so much, Commissioner, for being with us today, and thank you for your focus on this important issue and your understanding that not only will this be good for our Country in terms of being more energy efficient, but it also leads to the possibility that we will actually save money, which I think there always seems to be people are trying to make a poll between what is good for the environment is going to be bad for the economy. But as you pointed out, when we cost this out, we can actually save money.

I was actually surprised to learn that energy consumption, which I didn't know in the government buildings, private businesses, homes, accounts for almost two-thirds of U.S. emissions of carbon dioxide, and that is why this is so critical. When I have gotten around our State, I know that people are just yearning to be part of the solution to this. Certainly, they can do it in their own towns, but it would be very good if the Federal Government leads the way, as has been pointed out today.

My questions are just more coming from a northern State, if you could talk a little bit about solar panels and if they could be ad-

justed for more cloudy areas, and if you can get that same kind of energy efficiency.

Mr. WINSTEAD. Senator, obviously the climate issues in terms of the amount of daylight and also the temperature is a factor, and it does impact. This one, for example, is in Massachusetts, and to the Senator's question, only 10 percent is generated by those solar panels. If that were in Florida, you would get a higher percentage, obviously. So it does have an impact.

We obviously wouldn't invest in this technology if it didn't, as Senator Boxer said, have a payback that is rational from our perspective in managing these properties. We go through an extremely thorough analysis of all our building inventory. We do an analysis in terms of when that capital investment is going to payback in terms of operating savings. We actually have a benchmark of 6 percent return, what we call a hurdle rate. All the buildings need to perform to that 6 percent. If they are not, we do not invest in them, and dispose of them. We look at consolidation of Federal agencies.

So we are actually not only looking for the payback in employing these technologies, but where the building is not cost-effective for the Federal Government, we are excising or disposing of it in negotiated or public sale. Recently, I will mention just as an example, we had an old warehouse up in Baltimore County that was used by Martin Marietta to build the B–52 engines and aircraft. We went to public auction last year, with the county's support, which for economic development really wanted to see this moved. It was appraised for $28 million, and we got $38 million for it.

All that money comes back into the Federal building fund to buy new systems for the renovation, some of these solar systems and HVAC technology. So we were able to take that $40 million and to put it back into our existing inventory. So it helps us, again, to advance some of the objectives of this bill.

Senator KLOBUCHAR. Then you also talked up a New York building and how proud we are to have this 100 percent renewable energy efficient building, that is using solar and wind. Is that right in that building?

Mr. WINSTEAD. The Binghamton? That is wind.

Senator KLOBUCHAR. Wind?

Mr. WINSTEAD. Wind.

Senator KLOBUCHAR. OK. One of the issues we have had with wind, we have a lot of wind in our State, and we have been harnessing that with some good standards in place with State law. What we have seen is the transmission line issue in terms of carrying the across the Country and bringing our wind across the Country. I assume that this is a wind turbine that is right near the facility? Or how did you get it in?

Mr. WINSTEAD. It is new. It is in Fenner, NY. I think it is new, so it obviously is very efficient and built into the grid capacity. So I think we are getting it very cost effectively.

Senator KLOBUCHAR. Are there other technologies beside wind and solar that you are looking at?

Mr. WINSTEAD. We do have one or two geothermals. We have a bunch of daylight-harvesting technologies looking at how we employ shelving on the interior and exterior to reflect lighting. We are looking at light-reflective colors, ceiling surfaces, LEED lighting for

fixture. So there are bunch of them. I have a list of about 25 technologies beyond the ones we have talked about that we look to to try to address both the building renovation, as well as making sure it is cost-effective in terms of investment.

Senator KLOBUCHAR. All right. Thank you very much.

Mr. WINSTEAD. Thank you, Senator.

Senator BOXER. Senator Carper? Welcome.

OPENING STATEMENT OF HON. THOMAS CARPER, U.S. SENATOR FROM THE STATE OF DELAWARE

Senator CARPER. Madam Chairman, it is good to be here. Thanks very, very much.

Madam Chairman, to you and to my colleague, Senator Klobuchar, we don't have many school districts in my State. In fact, we only have 19, if you can believe that, but we only have three counties. But down in the southwestern part of our State, we have a town called Seaford. Seaford is famous because it was the place where the first nylon plant was built in the country, in the world, actually.

They have six schools in the Seaford School District, and the Seaford School District has decided they want to be able to put more money into their classrooms, with smaller class size, more focus on early childhood education, more after school programs. They decided that one of the ways they would come up with the money, aside from raising taxes, was to use less energy.

What they have done is attacked this challenge with a vengeance. They worked through the Energy STAR Program. They have over the last several years actually air-conditioned all of their schools. Even after air-conditioning all the schools, they now use less electricity than they used before.

They have done things like changing all the ballast in their lights, the kind of bulbs they use in their lights. They have changed out the windows, not just for better insulation, but also when the spring sun or the summer sun or the autumn sun is on those windows, it is not heating up the schools any more. They have boilers that can generate the heat for their building either if natural gas is cheaper, they use natural gas. If fuel oil is cheaper, they use that. They have done all kinds of things.

One million dollars is not a lot of money, but in the Seaford School District, it is a lot of money. What we do in Delaware is we hold them out to other school districts as an example of what a school district who wants to get behind an idea like this can do, and the good that it does for the children that are educated in the school.

What they do in the Seaford School District is they get to keep the money that they save. The State doesn't take it back. In my State, the State pays for about 75 percent of the cost of education, and maybe 15 percent or 20 percent by local school taxes. Only 5 percent or 10 percent is by the Feds. But when Seaford School District saves money, they keep the money. There is a great incentive for them to find the savings.

Which is a long way to get me to this question. I want to ask you to think about how we can incentivize, instead of just mandating to agencies that you have to reduce energy consumption,

which I think we try to do by Executive order and we are trying to figure out how we can complement that through the law. How do we incentivize them to do this, other than the fact that we want to reduce our dependence on foreign oil; we want to clean up our air; we want to combat climate change. How do we incentivize them?

I chair a Federal Financial Management Subcommittee. I lead that subcommittee along with Senator Coburn. One of the things that we focus on is surplus properties. You talked about selling one in Baltimore County. We are trying to figure out how do we incentivize agencies to sell, hopefully at a good price like the example you cited, surplus properties. How do we incent them to do that? I think over at the VA, when they sell or move a surplus property that they don't need, I think they get to keep part of the proceeds. That is an incentive for them, and they use that money to help provide service to veterans.

How do we incentivize, aside from laws or aside from Executive orders? How do we incentivize agencies to do the right thing in terms of energy and conservation?

Mr. WINSTEAD. Senator, a couple of things. I do know that OMB is working with this committee to define those incentives. From our perspective at GSA Public Buildings Service, we essentially project the rent for a 2-year period, so that all of our tenant agencies, be it the Federal courts, judiciary system, the third branch, or whether it is the IRS or the new FBI field offices we are building, anything we save in terms of operating costs reduce that rent cost to them. So they are, in fact, incentivized by our actions in taking LEEDs and all these technologies we have been talking about.

It is money that they save for their mission purpose of that Agency. It is containing the escalations in that rent. To your point about Seaford, you mentioned that those revenues came back to the schools to go to education or facility purposes. As you know, when we are making these savings as a result of this technology, be it lighting or solar or what have you, all that money that is saved not paying for energy stays in the Federal Building Fund, and we are able therefore to do another renovation project. We are therefore able to fill a new courthouse.

So we do have the same incentive. Fundamentally, the Federal Building Fund is incentivized by the rents coming in, the revenues we are achieving, and so any savings in energy actually comes back to the Federal Building Fund and therefore helps us to move to other needs, both for existing facilities and new facilities.

Senator CARPER. Do you think agencies and agency heads around here are thinking about, we have to do this because we want to return more money to the Federal Building Fund?

Mr. WINSTEAD. They are always looking at containing their costs. I had with some irony 2 months into the job, I saw the Washington Post article that the Chief Justice was talking about the rent bill that we provide them. He wanted a 50 percent relief from the rent bill. We have a lot of pressure from all the agencies as a result of the budget constraints and, what you all are approving, efforts to contain these costs, to contain the rent, the shell rent, the operating costs.

So it is really self-incentivized. They don't want to pay anything more than they have to.

Senator CARPER. OK. Madam Chair, my time has expired. Can I ask one more quick question, if you don't mind?

Senator BOXER. Yes. Go ahead. Take another couple of minutes.

Senator CARPER. Thank you.

If you were in our shoes on this side of the table, what would you do?

Mr. WINSTEAD. Senator, again, I think that because of the nature, we address some 60 agencies' needs, this legislation and our programs that I have mentioned are really targeting new energy technology, lighting and renovation schemes, that will in fact save energy costs. As I started out, 70 percent of consumption of energy goes to the building operations around this country.

So I think that anything we can do under our budget constraints, building by building and retrofitting, or new buildings where we are incorporating these technologies in design options, we are going to push that, communicate that and make sure that not only our tenants understand it in terms of a good high quality work environment at good cost to the taxpayer, but that the technologies we are using we communicate more broadly.

We have very close partnerships with BOMA.

Senator CARPER. Excuse me. What would you do if you were in our shoes?

Mr. WINSTEAD. I would do exactly what you are doing. That is, both with this legislation, Executive order; our focus, the focus that you are directing me to undertake with our actions to promote these technologies, to get energy savings, to obviously reduce the issues of energy. I think you are on the right track. I think the market, as you know, and you will hear that from the other panelists, these technologies often are not cost-effective until you get to a certain scale of deployment. We are able, fortunately, to drive them more than many people can.

The one thing that was not mentioned is that we have a huge portion of our portfolio that is a leased portfolio, leased space. What we are incorporating in our prospectuses and lease actions clauses that will incentivize new buildings being built by a landlord, not an owned building, to incorporate these technologies as well. So not only are we managing it with our owned inventory, but we are trying to incentivize actions in our leased as well.

Senator CARPER. All right. Madam Chair, a thought occurs to me in this conversation. You and I, and a lot of our colleagues are interested in reducing energy consumption by the vehicles that we drive. I always think of three roles that the Federal Government can play in that regard. One is basic R&D, whether it is in fuel cells or plug-in hybrids, or flex-fuel vehicles, battery technology, or that sort of thing. There is a major role that in basic R&D technology.

A second role for the Federal Government is to use its purchasing power on the civilian side and on the defense side to commercialize these technologies, provide for economies of scale.

The last one is to provide tax credits to incentivize people to buy more energy-efficient vehicles.

We are trying to do some or all of those things right now. One of the things in what Mr. Winstead said made me think about it. A role that they can help play, GSA, and they can help in No. 2, and that is using the Government's purchasing power to commercialize promising new technologies. I don't know that we have time to get into that today, but can I just ask you, at least for the record, if we don't have time to do that today, just to come back to us and talk about the role that GSA is playing in helping us to commercialize promising new technologies?

Mr. WINSTEAD. I will be happy to.

Senator CARPER. Thank you.

Thanks, Madam Chair.

Senator BOXER. Senator, I think that is a very good way to go. I guess what I want to say to GSA is, how grateful I am that you did do something really different. You joined with us and you helped us craft this bill. This means a lot to us because you are in a position to really lead the Nation. I hope you realize that. Nobody knows where they are going to be when certain things happen and certain challenges occur. You are in a position at a time where we have to get energy independent. We have to save the planet and all the other things. Buildings are a very important piece of the puzzle.

Now, the Commissioner told us before you came that it would help him if he was able to enter into longer term contracts for renewable energy. Right now, he is limited to 10 years out. That is not under our discretion here, but we are going to talk. Senator Sanders is on the Energy Committee. We should talk to our colleagues and give them that chance to do even better.

Just along that line, and this will be the last question, one of the things that Al Gore talked about when he talked about the future, and he is very good about looking ahead. By the way, I am not a really good futurist. I have enough trouble just dealing day to day, but I listen to him. He is talking about the electranet. He is talking about that as the individual being able to figure out how to get off the grid.

Coincidentally, that very day I met with an inventor who is being backed by venture capitalists in the Silicon Valley, who has come up with this idea of creating a generator—and help me out with this, Bettina or Eric or whoever, Michael, whoever was with me at this meeting—this generator is going to be put in your own home, and I guess it functions off solar, but I am not exactly sure. It can function off anything, any renewable fuel, and you take your home right off the grid. That they are piloting this idea.

So going along with Senator Carper, how you could be a laboratory without any risk to anybody, if you would be willing to sit down with some of these people, not necessarily this individual, but just to see whether there are ways. Imagine if we could make our buildings, take them off the grid, or at least have one example of a building where we took it off the grid. Would you be willing to try out these new technologies, assuming that there wasn't a cost to it that was any more than what you are currently paying. Would you be willing to work with us on those kind of things?

Mr. WINSTEAD. Senator, we would be happy to. I would be happy to meet with anybody that has a new technology. We do have a

border station in Alexandria Bay that apparently, and we can get you more information, is using this kind of technology of self-generation. We will provide the committee with that as a LEED again.

Senator BOXER. Would you?

Mr. WINSTEAD. If it works in these remote areas and is cost-effective there, because there is no major grid, there could be ways to expand it. So we would be happy to meet with whoever contacted you.

Senator BOXER. That would be excellent. The whole idea, of course, is to make these run off renewables. I just think that we are so much on the edge here, and I think a lot of us here know that with a little bit of enthusiasm, which I think you are showing us today, we can actually move out.

I will just speak on behalf of the full committee, because I feel everyone agrees that this is a good thing. I know that Larry Craig is in an energy efficiency caucus, even, and he is on our bill. So we have broad support for our bill. I know you mentioned us going out and looking at some of the green buildings, which I would really love to do, to look at a green building in this area, bring the committee and the staff with us, because we are going to take up a green buildings bill. This bill today is looking back to how to retrofit, which are serious issues for us. As you said, so serious that sometimes you are going to sell a building off because you can't even fix it.

So we will meet with you again, and we will take a tour of one of your prize buildings here. We will talk about other ways that we can make the Federal Government really on the cutting edge. I mean, that is what we should be doing, and that is what we used to do a long time ago when these issues were bipartisan.

I get a sense, because of the cooperation we had on this bill, that this is an area we have bipartisan support in, and that makes me very, very happy. I will introduce you to this fellow and have him give you his pitch. Sometimes in these inventions, they will say, here, take it, use it, let us know how it works. It would be worth having that type of feedback. So we will get together soon again.

I just want to thank you so much for your testimony, and most of all for your can-do spirit, because we don't have enough of it in the Federal Government today, and when we do see it, we appreciate it.

Mr. WINSTEAD. Thanks, Senator. I really appreciate it. We are doing great things and we continue to partner with this committee on your legislation. I will look forward. Whenever the tour of these facilities is appropriate, we will be happy to get that underway.

Senator BOXER. Yes. We will do that soon. Thank you, Commissioner.

Mr. WINSTEAD. Thank you.

Senator BOXER. Thank you to the staff.

Now we will ask our second panel to come forward, Ms. Callahan and Ms. Townshend. The first is from the Alliance to Save Energy. The second is from the Associated General Contractors of America.

We welcome both of you here. If you could put your statements in the record, and see if you can summarize in 5 to 7 minutes, that would be great. We will put 5 minutes up, and we will go over an-

other 2 minutes, because we have votes coming not too soon, but in the near future.

Ms. Callahan, of course, go ahead.

STATEMENT OF KATERI CALLAHAN, PRESIDENT, ALLIANCE TO SAVE ENERGY

Ms. CALLAHAN. I am Kateri Callahan. I serve as the president of the Alliance to Save Energy, which is a bipartisan and nonprofit coalition of about 120 business leaders, government leaders, consumer and environmental leaders. Our mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and enhanced energy security.

We are celebrating our 30th anniversary this year. We were formed in 1977 by then-Senators Chuck Percy and Hubert Humphrey. We are pleased that we continue to this day to enjoy leadership from the Congress. Our current Chair is Senator Mark Pryor, and you mentioned Senator Larry Craig is also one of our Vice Chairs, along with Jeff Bingaman, Susan Collins and Byron Dorgan.

I very much appreciate the opportunity to be here today to talk to you about your new and exciting bill that you are putting forward, and also to explore other opportunities to advance energy efficiency in the Federal Government.

I think just as a start, just a threshold, you may be aware of this, but the U.S. Federal Government is the single largest energy consumer and energy waster in the world. In 2005, the Federal Government represented fully 2 percent of the energy used in the United States, and that was at a cost to taxpayers of $14.5 billion. Out of that, fully $5 billion went into buildings, to heating, cooling, lighting buildings. So it is an area ripe for what you are doing here in this Congress.

I also wanted to mention that as we look at new legislation that a lot has been done throughout the years. From 1985 to 2005, we managed to cut Federal energy consumption by 13 percent. What that has meant is we have been able to lower the taxpayers' bill for energy by 25 percent. So we have had dramatic savings, but notwithstanding that, as you have identified, there is still much, much more that we have to do.

So how do we go about that? I want to talk just really about three things. Senator Carper, to answer your questions, I am going to tell you what I would do if I were sitting behind the dais and looking out.

The first thing is that we have, as mentioned by Senator Alexander, a body of targets and goals that are set in place already through EPAct, through the new Executive order. These requirements are intended to reduce the energy use by the Federal Government. We look at that and say, taken together, it is a pretty aggressive agenda. It represents a good target. However, meeting it is very problematic and is going to require your concerted attention and effort.

The first thing that we think needs to be done is to fully implement what is already out there. The way that the Congress can help with that is to do exactly what you are doing here today. Careful oversight and making sure that folks understand that this

is a priority for you will help these Federal officials understand that it should be a focus and priority area for them, and that they are going to be held accountable for making the targets that have been set.

The second important role is something that you mentioned, Senator Boxer, and that is to make sure that we have adequate funding to do this. To actually improve the Government energy use is going to cost billions of dollars. Right now, the appropriations are running between $100 million to $300 million a year for efficiency improvements in buildings. That is simply not enough.

Another area, besides direct appropriations, is to work with the Federal agencies to ensure that we more fully use innovative financing tools that are allowing Federal agencies to make efficiency improvements with no up-front costs. These are done through something called energy savings performance contracts and utility energy savings contracts.

At their heyday, they were delivering about $500 million a year in the efficiency upgrades, but the authorities lapsed in 2003. When that happened, there was a precipitous drop in their use by agencies, and in 2005, we saw the level of investment only at $175 million. So we need to be able to use those again.

Senator BOXER. Before you leave that, why did that lapse?

Ms. CALLAHAN. Because the congressional authority ran out. It was authorized for 10 years and the authority ran out in 2003. There was a temporary reestablishment of the authority for a year, and then in 2005 it was reauthorized again.

Senator BOXER. What committee has jurisdiction over that?

Ms. CALLAHAN. The Energy Committee, ma'am.

Senator BOXER. OK. Thank you. I will talk to Senator Bingaman and Senator Domenici.

Ms. CALLAHAN. Yes, I think they are very interested actually. They are looking at it. It has been considered even looking for a permanent reauthorization, which would help tremendously. However, and I will stop here and just improvise a little bit, there are other problems with it as well. It is not just the authorities lapsing. It is the risk factor, either perceived or real, of agencies in using this.

Right now, people aren't penalized for the energy waste in their buildings and for doing nothing, but they are scrutinized heavily for using this innovative and a bit difference financing tool. So at the risk of making sure that everything is done properly and that they are in no trouble, they would rather do nothing than move forward on these.

So again, oversight, working with the agencies, will be very important and we would like to work with you all on that.

Senator BOXER. I will buy you another 2 minutes.

Ms. CALLAHAN. OK. Thank you.

Senator BOXER. Because I interrupted you.

Ms. CALLAHAN. Thank you.

The final area, and the critical role, is new legislation, like you are considering today. The Alliance applauds you and the Ranking Member particularly for doing this in a bipartisan way and with the Administration. That is what we need is everyone working together if we are going to maximize our opportunities.

What we like about the bill is that it expands the scope. It identifies new approaches. It makes people within the agencies accountable. We think that that is very, very important.

The other element that we very much like is the money that is being put out by the Federal Government to encourage other levels of government to do the same. We think there are great leadership opportunities, as I know you do.

Perhaps the most important thing about the bill is something that Senator Alexander brought up. From our perspective, it complements what is already there and adds to it. We think that it is very important as you move forward and consider other ideas and ways to really beef up and take to the next level what you are doing with the Federal Government, we need consistency. We cannot turn funding away or attention away from those activities that have already delivered us the 13 percent savings that we have achieved. We need to keep a focus on those as we expand and go further.

The last thing I would say is that Federal energy management, as important as it is, is just one of many things that have to be done if we are going to tackle the social, the economic, and the environmental problems associated with our overuse of energy in this country.

So we think that what you are doing here in making the Federal Government a leader is particularly important in making them worldwide, but we would like to work with you all on other things that can be done in that area to make sure that the Federal Government really takes on the leadership mantle of turning around the problem that we have with energy and making it a solution so that we have a sustainable energy future.

Thank you for your time.

[The prepared statement of Ms. Callahan follows:]

STATEMENT OF KATERI CALLAHAN, PRESIDENT, ALLIANCE TO SAVE ENERGY

INTRODUCTION

The Alliance to Save Energy is a bipartisan, nonprofit coalition of more than 120 business, government, environmental and consumer leaders. The Alliance's mission is to promote energy efficiency worldwide to achieve a healthier economy, a cleaner environment, and greater energy security. The Alliance, founded in 1977 by Senators Charles Percy and Hubert Humphrey, currently enjoys the leadership of Senator Mark Pryor as Chairman; Duke Energy CEO James E. Rogers as Co-Chairman; and Senators Jeff Bingaman, Susan Collins, Larry Craig, and Byron Dorgan along with Representatives Ralph Hall, Edward J. Markey, and Zach Wamp as its Vice-Chairs. Attached to this testimony are lists of the Alliance's Board of Directors and its Associate members.

The Alliance has promoted effective federal energy management for many years. Our Federal Energy Productivity (FEP) Task Force will soon be joined by a new Board committee dedicated to fostering dramatic energy savings throughout the federal government. Thus the Alliance is pleased to testify at a hearing on energy use in government buildings.

FEDERAL ENERGY USE AND WASTE

The United States Federal Government is the single largest consumer, and the single largest waster, of energy in the world. In 2005 the federal government overall used 1.6 quadrillion Btu of "primary" energy (including the fuel used to make the electricity it consumed), or 1.6 percent of total energy use in the United States. Taxpayers in this country paid $14.5 billion for that energy.

Almost half of that energy, and more than half of the cost, was for vehicles and equipment, primarily for military planes, ships, and land vehicles. The rest, 0.9

quadrillion Btu at a cost of $5.6 billion, was for heating, cooling, and powering more than 500,000 federal buildings around the country. Roughly 5 percent of the building energy use is at General Services Administration buildings, of particular interest to this committee.

Repeated efforts over the last two decades have resulted in dramatic savings, but large cost-effective savings remain available. Overall federal primary energy use decreased by 13 percent from 1985 to 2005, and the federal energy bill decreased by 25 percent in real terms, an accomplishment made even more impressive and important given the 27 percent jump in fuel prices in the United States in 2005. Federal "standard" buildings reduced their primary energy intensity (Btu per square foot of building space) by about 13 percent, while "site" energy (measured at the point of use, excluding electricity system losses) declined by 30 percent ("Standard" buildings are those not exempted due to industrial uses or national security needs). Congress and the president have set even more aggressive targets for future savings that could yield well over $1 billion in energy cost savings each year from buildings alone.

It is important to place this savings potential in context. The federal government is the largest energy consumer, and it could play a unique role as a market transformer through the early adoption of new efficient technologies and practices. Unfortunately, addressing federal energy use is but one of many congressional actions that are necessary to solve the many critical energy issues facing our country. The federal government accounts for just 2 percent of U.S. oil use and a similar portion of greenhouse gas emissions. This is a small percentage of the overall contribution of the United States to energy consumption and greenhouse gas emissions, but is significant when you consider that the U.S. accounts for one quarter of the total energy used and one quarter of the total loadings of CO_2 emitted by the world. A number of federal policies and funding decisions, such as appliance efficiency standards, tax incentives, and energy-efficiency research and development must be undertaken—in addition to ending federal energy waste—if we are to ensure Americans a sustainable energy future.

Notwithstanding the need to do more, the federal government's own potential is significant, the potential taxpayer savings are worth pursuing, and it is valuable to establish the government as a successful role model for state and local governments as well as the private sector. There is extraordinary interest in Congress right now in addressing federal energy use, from greening the Capitol buildings to reducing the need for fuel supply convoys in Iraq. I will talk first about implementing, overseeing, and funding the policies that are already in place, and then about new initiatives to make the government even more efficient.

MEETING CURRENT FEDERAL REQUIREMENTS AND TARGETS

There already are a number of targets, standards, and requirements intended to reduce energy use by federal agencies. Together they already set a reasonably ambitious agenda for reducing energy use, at least in standard federal buildings, but achieving that agenda remains problematic. Among the more important of these are:

- Agencies are required to install in federal buildings all energy and water conservation measures with payback periods of less than 10 years by 2005 (Energy Policy Act of 1992, Sec. 152). This has not been fully accomplished.
- All new federal buildings must be designed to achieve energy use at least 30 percent below the national model building energy codes (EPAct 2005, Sec. 109), if such improvements are cost-effective. The Department of Energy (DOE) just issued interim final rules in December 2006.
- Agencies must purchase efficient Energy Star or FEMP-designated products unless not available or not cost-effective (EPAct 2005, Sec. 104). DOE has not yet issued final regulations to implement this provision.
- All federal buildings should be metered for energy use by 2012, using advanced meters that record electricity use by time when practicable (EPAct 2005, Sec. 103). DOE issued guidelines in 2006, but limited the metering requirements to electricity use, excluding natural gas, steam, and hot or chilled water. Most agencies have prepared implementation plans.
- Each agency is to reduce the energy use intensity of its buildings by 3 percent per annum, or 30 percent by 2015 (Executive Order 13423). Agencies mostly met earlier targets culminating in a 30 percent reduction between 1985 and 2005; however, total energy use reductions have been smaller as energy-intensive facilities are excluded from these targets and as the savings targets are interpreted as applying to site energy and thus exclude losses from the growing use of electricity.

• Each agency is to reduce the water use intensity of its buildings by 2 percent per year or 16 percent by 2015 (EO 13423). This is the first water efficiency quantitative target for federal buildings.

• Each agency is to reduce the petroleum-based fuel use by its vehicle fleet by 2 percent per year through 2015 (EO 13423).

The most important issue for reducing federal energy use is to implement fully the policies that are already in place, like those listed above, for federal building standards, procurement requirements, savings targets, cost-effectiveness guidelines, and others. Energy use and decision-making are dispersed among many people at dozens of federal agencies. Agency leaders, of course, have many mission responsibilities, financial constraints, legal requirements, stakeholder demands, and impending crises that compete for attention. Energy efficiency must be adopted as a primary goal and embodied in action throughout the government if we are to meet the targets already established.

For example, while procurement of energy-efficient products has been required since a 1991 Executive Order and by law in EPAct 1992, that requirement has never been fully implemented in the Byzantine process of federal procurement. Product specifications in competitive solicitations and negotiations for GSA schedules often do not include the efficiency requirements. GSA product schedules still include inefficient and outdated equipment, including inefficient air conditioners, refrigerators, lighting, and other products.

The requirement in the new Executive Order 13423 that each agency appoint a senior civilian officer to be in charge of implementing the Order may help focus attention on energy efficiency. However, government officials may be held responsible for an energy-efficiency project gone awry, but no one is ever held responsible for wasted energy or for inaction; the amount of project savings may be debated, but no one ever measures the energy not saved by failing to make new buildings "green" or replace old equipment with the best new technologies.

We believe Congress's first duty and most important role in improving federal energy management is effective and sustained oversight. Through requiring regular reports as called for in the legislation discussed below, questioning agency heads at hearings, sending letters to agencies in committee jurisdictions, and/or initiating Government Accountability Office studies, Congress can focus the attention of key officials at all agencies on energy use, and demand accountability for meeting energy savings and cost-effectiveness targets.

FUNDING FOR FEDERAL ENERGY-EFFICIENCY MEASURES

Energy-efficiency measures save taxpayers money in lower federal energy bills, but usually require an up-front cost. The government should look at total life-cycle cost, i.e., equipment/product purchase price plus estimated costs of energy use over the life of the product, not just first cost, when making decisions on new buildings, retrofits, equipment and vehicle purchases, weapon design, and more. This life-cycle-cost perspective is used for some large capital and military systems procurements, but not all. And agencies trying to use this approach face hard limits on the availability of appropriated funds to pay the up-front costs for energy efficiency, and many competing priorities.

Billions of dollars of investment will be needed to meet the current energy targets and reap the associated energy savings. However, in recent years annual appropriations for energy efficiency, water conservation, and renewable energy projects in existing federal buildings have ranged from only about $100 million to $300 million. Funding for energy efficiency through appropriations must be increased. If we do not provide more funding for energy-efficiency measures, not only will we risk not meeting the energy targets, but also agencies will spend even more money on energy bills. We must invest more to save more.

Increased funding also is needed for DOE's Federal Energy Management Program (FEMP), the primary expert resource and coordinator for energy managers throughout the federal agencies, and the office responsible for rules, guidelines, and reports to implement the many legal mandates. FEMP funding has been cut for years, despite increasing responsibilities, and its technical resource base of expert contractors has been greatly curtailed. More funding and more management attention are needed to restore this vital program.

But if we focus only on increasing appropriations, while we wait we will be letting money escape out the windows (and the poorly insulated walls). That's why Congress has allowed private, third-party financing so agencies can upgrade buildings with no up-front cost to the government. Energy Service Companies (ESCOs) finance and help implement energy-saving projects through Energy Savings Performance Contracts (ESPCs). The contractor is paid out of the resulting stream of energy

bill savings. By law, the savings must be at least as great as the contractor payments—if the savings are not realized, the contractor does not get paid. Many electric and gas utilities also offer financing for energy-efficiency projects through Utility Energy Service Contracts (UESCs), as well as offering rebates and technical assistance to federal agencies as part of their demand-side management (DSM) programs. Similar to ESPCs, utility investments under UESCs are repaid from the utility bill savings due to the projects.

ESPCs and UESCs used to provide more than $500 million per year for energy-efficiency investments in federal buildings. But in September 2003 authority to enter into new ESPCs lapsed, and despite being re-authorized by Congress in 2004 and 2005, the use of these innovative and effective financing tools has not recovered to these levels. In fiscal year 2005 ESPCs provided $97 million, and UESCs $76 million.

There are a number of barriers that have prevented ESPCs and UESCs from reaching their full potential. Ultimately, successful use of such instruments now requires a champion—a committed official who is willing to "stick his neck out"—to overcome bureaucratic bottlenecks; lack of support; and the threat of audits and/or other scrutiny. If the projects fall short of goals at all, they are criticized. In contrast, appropriated projects receive comparatively little oversight. And, as I said before, there is no systematic process of oversight for facilities in which the improvements are never made and that are allowed to simply go on wasting energy. In short, government energy managers are neither financially nor professionally rewarded for energy savings, nor is there much risk in failing to seize energy-saving opportunities. Proper oversight of ESPC and UESC contracts is needed, but there must also be recognition of the major costs of inaction, with a focus on maximizing savings rather than on requiring perfection in all activities.

NEW FEDERAL ENERGY SAVINGS INITIATIVES

Clearly, the greatest need right now is oversight and funding of existing federal energy management policies and programs, many of which have been initiated within the last 2 years and not yet fully implemented. At the same time, new legislation to expand the scope of federal energy management and to make the federal government a true example of leadership in energy efficiency would certainly help to stop energy waste and to set an example that will encourage savings by other levels of government and the private sector. In addition, some clarification of existing policies could be helpful. It is important that any new initiatives not reduce attention and funding for existing activities, but complement these activities. And, of course, in order to be effective, Congress must also carefully oversee implementation of any new bills it may enact.

The Public Buildings Cost Reduction Act of 2007 would be an excellent start and would meet the criteria outlined above, i.e., expand the scope of the current policies; establish the federal government as a successful model for others to emulate, and complement rather than compete with existing funding and activities. The Alliance to Save Energy Board, Associates and staff applaud Senators Boxer and Inhofe for their bipartisan work to design a meaningful bill that could expedite and expand energy savings by the federal and local governments.

The bill proposes to "front-load" energy savings (i.e., require most of the savings to occur in the first 5 years) from the 8-year targets established in the new executive order for the small but important segment of federal buildings managed by the GSA. It facilitates the attainment of the proposed goals by identifying approaches to achieving the necessary savings, including a manager for each facility, an overall plan, and lighting standards and replacement program. The bill also would authorize the Environmental Protection Agency to implement a $120 million grants program to assist local governments in achieving energy savings in their own buildings.

The Alliance believes that additional measures would greatly enhance the potential of wringing out energy waste by the government. For example, almost all of the current federal requirements and programs address energy use in federally owned buildings, but most exclude "energy intensive" facilities that house industrial processes, as well as other "exempt" facilities, often for national security reasons. This focus neglects more than half of all energy use by the federal government, mostly in transportation and mobile equipment. Also overlooked is the energy use and potential savings by federal contractors, many of whom perform "outsourced" functions that would alternatively be the direct responsibility of a federal agency. Among the potential ways (most of which likely are not in the jurisdiction of the Committee) for capturing these savings are:

• Establishment of a government-wide energy savings target or a savings target for all vehicles and equipment ("mobility") energy. In addition to the target for fed-

eral buildings, the latest Executive Order 13423 includes energy savings targets for fleet vehicles. However, these fleets are responsible for less than ten percent of federal oil consumption. In addition, the executive order rescinded the only target that directly addressed greenhouse gas (GHG) reductions for the federal sector: Executive Order 13123 previously called for a 30 percent GHG reduction from federal buildings, from 1990 to 2010. If Congress chooses to reinstate a similar performance target for federal agencies, it should apply to energy-related GHG emissions from all federal energy use, including buildings, vehicles, and equipment.

• Imposition of energy saving requirements for buildings leased by the federal government. The current building standards and energy-saving targets apply only to government-owned buildings. However, the government also leases a large number of buildings, many of which are built specifically for use by federal agencies based on long-term lease commitments. One way or another, the government pays for the energy used in these buildings, and it should demand that they be energy-efficient. Other buildings, such as privatized military housing, also are built for the government and often with government assistance, and should be required to be energy-efficient as well.

• Imposition of smart growth or locational efficiency requirements. In addition to the impact of building design on the actual energy use, the location of federal buildings can have a dramatic impact on the energy use of employees in commuting and other driving. The impact is often multiplied as federal buildings often attract additional residential and commercial development and infrastructure. Moving federal facilities to far suburbs or other areas outside of cities encourages sprawl, more driving, and greater oil use. A required transportation energy impact assessment could influence decisions on where to locate major new or expanded federal facilities.

• Directive to encourage federal contractors to improve their own energy efficiency. Some industry leaders, including Wal-Mart, are not only reducing their own energy use dramatically but also requiring their suppliers to improve efficiency, both to lower costs and reduce environmental impacts. Federal agencies could encourage and assist their large contractor base to reduce their own energy use thorough procurement preferences or requirements.

• Application of standards and savings targets to Congress. Congress could take an important symbolic step by applying all the agency energy savings targets and requirements to its own buildings, vehicle use, and procurement—making the Capitol complex a model for energy efficiency.

Successful federal energy management also can further vital federal goals by influencing others to use energy wisely. The federal government could:

• Challenge state and local governments and major businesses to match the federal commitment to energy efficiency. Many federal programs, including ESPCs and procurement requirements, have been models for other levels of government. The federal government should challenge other major energy users—both public and private—to commit to aggressive energy savings goals and policies at least comparable to the federal ones.

• Support state and utility energy-efficiency and demand-management programs. Many federal facilities have taken advantage of state and utility energy-efficiency programs, and the federal market has been essential to building the important infrastructure of energy service companies and other energy service providers. Utility DSM programs have been among the most effective public tools to reduce energy use, and all agencies and agents representing the federal government should strongly support cost-effective utility DSM programs and associated surcharges to pay for them.

CONCLUSION

While federal energy management is only a piece of the solution to the economic, environmental, and security challenges from energy use in this country, the federal government is the single largest energy user and could be the most influential model in the Nation and for that matter, in the world, for using advanced energy-efficient technologies and practices. Congress has an important role to play. First, sustained congressional oversight is needed to focus agencies' top management attention on maximizing energy savings. Second, sufficient funding is needed to pay for the necessary initial costs to achieve long-term savings, along with continued support for alternative financing mechanisms. Third, new legislation could expand the scope and savings of federal energy management activities. The Public Buildings Cost Reduction Act of 2007 is an important first step. These actions will save taxpayer dollars and help save the planet at the same time.

RESPONSES BY KATERI CALLAHAN TO ADDITIONAL QUESTIONS FROM SENATOR BOXER

Question 1. During the hearing, I asked GSA about the issue you raised in your testimony regarding GSA procurement schedules. Would you provide the Committee with a few examples of inefficient and outdated equipment which still appears on GSA schedules despite legislative mandates that such equipment be eliminated?

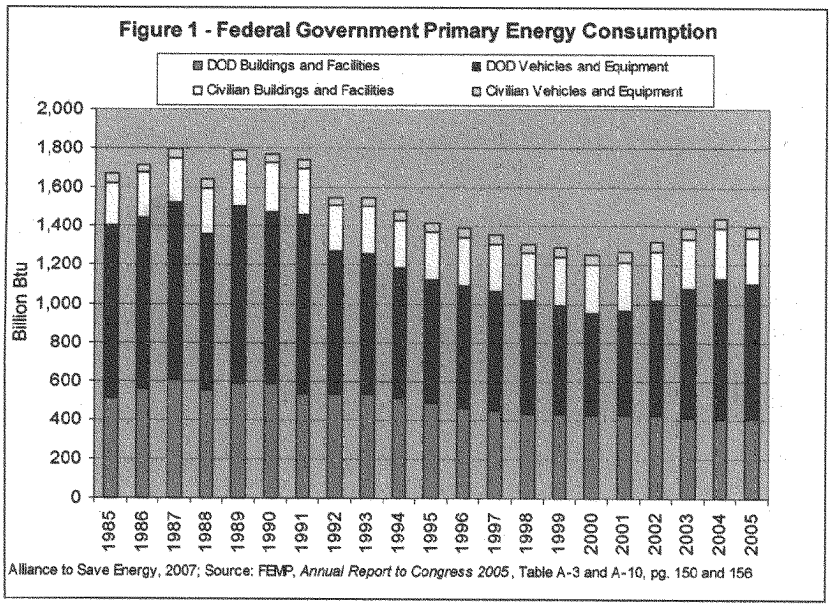
Response. Examples of non-compliant products that still appear on the GSA Advantage include incandescent exit signs (e.g., B–674041); refrigerators (e.g., CS22AFXKQ); and air conditioners (e.g., 2291615).

Question 2. You suggest that the federal government require that owners of the buildings which the government leases share in the cost of energy efficiency. Would you elaborate on that for the Committee and describe how such a system would work?

Response. New or renewed federal leases in existing buildings should be required to give preference to buildings that meet the EPA Energy Star rating requirement (efficiency in the top 25th percentile). If leased space is not available in such buildings, then the lease agreement in a non-Energy Star building should provide for installation of all lighting, equipment, and building energy-efficiency upgrades that pay for themselves through energy cost savings within the term of the lease.

Question 3. You testified that roughly five percent of the federal government's energy use is at GSA buildings. That statistic suggests other agencies, not GSA, are the big energy users. The Alliance has worked with many federal agencies. Which has the farthest to go in terms of energy efficiency?

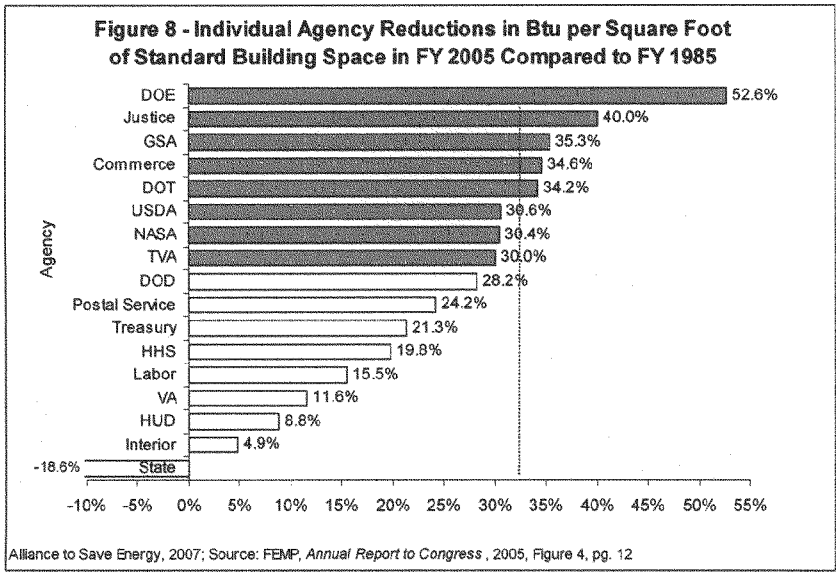
Response. The Department of Defense (DOD) is by far the largest energy user in the federal government (see Figure 1).



And while there are many ways to measure agency progress in improving energy efficiency, the most often used measure is energy use per square foot (i.e., building energy intensity). As shown in Figure 8 below, out of a total of 17 individual agencies, DOD is average in terms of progress toward meeting the 2005 intensity reduction requirement established in Executive Order 13123 (i.e., 30 percent below 1985 levels). Given that DOD represents nearly three-fourths of government primary energy consumption in 2005, it is not surprising that the federal government also fell short of its 2005 target.

As the chart also indicates, at least 9 cabinet level agencies did not meet the 2005 requirements and three of them—the State Department, the Department of the Interior, and Housing and Urban Development—had not even achieved their 1995 re-

quirements by 2005. In fact, the State Department's energy intensity actually increased during this time period.



Question 4. You talked about making the Capitol complex a model of energy efficiency, a goal I strongly support. Many of the Alliance members have worked with federal agencies and with the Architect of the Capitol. What recommendations do you have for improving energy efficiency practices at the AOC? Are there lessons to be learned from other agencies?

Response. The AOC should participate in the FEMP Interagency Task Force, led by DOE FEMP, which meets once every two months to learn more about ways to improve federal energy management.

In addition, the House Chief Administrative Officer (CAO) Dan Beard, has developed a preliminary report entitled "Green the Capitol Initiative" that was submitted to House Speaker Pelosi on April 19, 2007. This report details five areas to improve energy efficiency in Capitol complex operations and notes that the Architect of the Capitol has identified over 100 opportunities for improving the physical buildings and operations in analysis required by the Energy Policy Act of 2005 (P.L. 109–58). These areas cover interior lighting, office electronics, data center and computer servers, heating, ventilating and air conditioning, and the Capitol power plant. The Alliance to Save Energy encourages the Architect of the Capitol to review and implement the recommendations that will be made available in the final report, which should be published in the coming weeks.

Senator BOXER. Thank you so much, Ms. Callahan.

Ms. Townshend, welcome.

STATEMENT OF MELANIE TOWNSHEND, PROJECT EXECUTIVE, GILBANE BUILDING COMPANY, ON BEHALF OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

Ms. TOWNSHEND. Thank you, Madam Chair, and members and staff for conducting the hearing and inviting me to speak on behalf of the Associated General Contractors of America, commonly known as the AGC, on your proposed legislative solutions to make government buildings more efficient and reduce their operational costs through the use of innovative technologies and practices.

I am Melanie Townshend. I am a LEED-accredited project executive at Gilbane Building Company, and I serve as our company's

nationwide sustainable practices coordinator. We are one of the Nation's oldest building firms. We are an active member of the Associated General Contractors, and we consider ourselves a leader in implementing sustainable design and construction practices today. Our knowledge base has been gained through management of over 45 successful green building projects across the Country.

Additionally, we are a top builder and construction manager for the Federal Government, and our portfolio includes both the National World War II Memorial and the Department of Justice modernization, both of which I was pleased to be personally involved in.

The Associated General Contractors of America is the oldest and largest of the national trade associations in the construction industry. We were founded at the request of President Woodrow Wilson in 1918 and we now represent over 32,000 firms, 7,000 of the Nation's leading general contractors, 12,000 specialty firms, and more than 13,000 suppliers, and of course these are all major employers and so represent a huge number of stakeholders in the environment we live in.

AGC members are engaged in the construction and renovation of commercial and public facilities. We prepare the sites and the infrastructure for residential and commercial development.

Madam Chair, our members embrace green construction. We recognize green construction is not a temporary phenomenon or whim. It is here to stay. Most of our contractors are proactively educating themselves on good green construction practices. The AGC is currently preparing a contractors guide to green building construction. This will complement several existing resources on the issue. The manual will comprehensively address green construction subjects, standards, rating systems, risk management issues, subcontracting procurement, and building operations, a very comprehensive body of work.

We stand ready to facilitate and support green construction, with particular respect to the construction of Federal facilities. We simply urge that you set clear and consistent standards for the design and construction of those projects.

We do not as an organization favor any one rating system over another, but rating systems provide the common language to measure the achievement in the design and construction of a sustainable building.

We currently doubt that the benefit of any single definition of green construction for any and all purposes would work. It is important that rating systems allow for variations in regional, local, and site-specific conditions, as well as the nuances of different building types. For example, many hospital projects incorporate the Green Guide for Health Care. Many military projects incorporate SPiRiT. Many private sector projects and public sector projects have been built under the U.S. Green Building Council LEED rating system.

Private sector competition can and should be used to encourage the innovative technologies and common sense solutions to these environmental problems, and in fact that evolution has been very strong in our marketplace over the last few years.

I have attached to the written testimony summaries of two major green rating systems, Green Globes and the LEED Green Building Rating System. Based on our experience, Green Globes may be more suitable for mainstream commercial buildings. LEED may be more appropriate for high performance or top tier buildings. But again, we don't come here to endorse any one rating system, but simply the importance of setting the criteria when setting forth to do a project.

You specifically requested our comments on the bill for the Public Buildings Cost Reduction Act of 2007. The bill does not raise any serious concerns. We would note the language included in section 2(b) of the legislative document with respect to the plan for energy efficiency at GSA facilities. Specifically, that section 2(b), 2(e) requires GSA to recommend language for uniform standards for use by Federal agencies in implementing cost-effective technology and practices.

We do have some concern that this language might lead the GSA to favor one rating system over another. We support uniformity and the economies of scale that it brings, but we do suggest that GSA build language around the common elements of several rating systems currently in place in the marketplace.

While this issue may be outside the precise jurisdiction of the committee, we also encourage Congress to enact legislation to allow tax exempt financing for green construction projects. Green bonds make it easier for construction project owners to offset the costs of site remediation, sustainable design features, and environmentally friendly technologies or products.

In addition, the AGC supports legislation currently pending in the U.S. House, H.R. 539, the Buildings for the 21st Century Act, which would extend the commercial building tax deduction originally enacted as part of the Energy Policy Act of 2005, through to 2013, and increased it from $1.80 to $2.25 per square foot.

In addition to building green buildings for our owners to help them achieve their larger societal environmental sustainability goals, we understand that our own day-to-day construction activities impact the environment. AGC and its members are striving to comply with all of the environmental laws, regulations and permitting requirements to minimize our environmental impact of construction on a daily basis.

Green construction encourages contractors to discuss and put into practices the activities that will minimize the impact of their operations on the environment. Some examples are site layout to minimize site disturbance, control of erosion and runoff, minimizing the use of fossil fuel and emissions, using conservation as well as alternative fuels, reducing waste from construction through recycling and reuse, and working to improve indoor air quality during construction by low-emitting material use.

The AGC is also leading by example. We recently opened our headquarters at 2300 Wilson Boulevard in Arlington, VA, which was designed to the LEED Silver level of certification. The environmentally sensitive systems in that facility will save the occupants about $75,000 a year in energy costs, and about $5,000 a year in water use.

Senator BOXER. Could you sum up at this point please?

Ms. TOWNSHEND. Yes, ma'am.

So we appreciate the opportunity to participate. We want you to know that we stand ready to facilitate and support green construction, and we encourage you in the direction that you are already moving.

[The prepared statement of Ms. Townshend follows:]

STATEMENT OF MELANIE TOWNSHEND, GILBANE BUILDING COMPANY, ON BEHALF OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA

Thank you, Madam Chair and Ranking Member Inhofe, for conducting today's hearing and for inviting me to speak on behalf of the Associated General Contractors of America (AGC) on legislative solutions intended to make government buildings more efficient and to reduce their operational costs through the use of innovative technologies and practices.

My name is Melanie Townshend. I am a LEED Accredited Project Executive at Gilbane Building Company and am our company's Nationwide Sustainable Practices Coordinator. Gilbane is one of the Nation's oldest building firms and an active member of the Associated General Contractors. Gilbane is also among the leading firms implementing sustainable design and construction practices and strategies. Our extensive knowledge base has been acquired through management of over 45 successful Green Building related projects. Additionally, Gilbane is a top builder and Construction Manager for the federal government, with a portfolio that includes the National World War II Memorial and the Department of Justice Modernization, both of which 1 was personally involved.

The Associated General Contractors of America (AGC) is the oldest and largest of the national trade associations in the construction industry. Founded at the request of President Woodrow Wilson in 1918, AGC now represents more than 32,000 firms, including 7,000 of the Nation's leading general contractors, 12,000 specialty contractors, and more than 13,000 materials suppliers and service providers.

AGC members engage in the construction of commercial buildings and public works facilities, and they prepare the sites and install the infrastructure necessary for residential and commercial development.

Madam Chair, AGC and its members are embracing green construction. We recognize that green construction is not a temporary phenomenon; it is here to stay. Accordlingly, many contractors are proactively educating themselves on green construction practices. To assist in this effort, AGC is currently preparing an "AGC Contractor's Guide to Green Building Construction" to complement several existing resources on the issue. The manual will comprehensively address green construction subjects, describing the various green building standards and rating systems, as well as the risk management, subcontracting, procurement, and operational issues associated with green construction.

AGC stands ready to facilitate and support green construction. With respect to the construction of federal facilities, AGC would simply urge the government to set clear and consistent standard& AGC does not favor any one rating system over any other.

Indeed, AGC doubts the benefit of a single definition of green construction for any and all purposes, and would note, for example, that all ratings systems should allow for variations in regional, local, and site-specific conditions and the nuances of different building types. For example hospital projects incorporate the Green Guide for health Care as a criteria and rating mechanism, and many military construction projects incorporate SPiRiT, another Green Building rating tool. Furthermore, private sector competition should be used to encourage innovative technologies and common-sense solutions to environmental problems.

I have attached to my written testimony a one-page summary of two major green construction rating systems: Green Globes and LEED Green Building Rating System. Based on AGC members' experience, Green Globes may be more suitable for mainstream construction and LEED may be more appropriate for high performance or "top tier" buildings. But again, AGC does not endorse one system over another.

Madam Chair, you specifically requested AGC's comments on S. ——, the Public Buildings Cost Reduction An of 2007—Overall, the bill does not raise serious concerns. AGC would, however, note the language included in Section 2(b) of the legislation with respect to the plan for energy efficiency at General Services Administration (GSA) facilities. Specifically, the language contained in Section 2(b)(2)(E) requires GSA to recommend "language for uniform standards for use by Federal agencies in implementing cost-effective technology and practices." AGC has some concerns that this language would lead GSA to favor one rating system over another.

AGC supports uniformity, but would suggest that GSA build its language around the common elements of the several rating systems currently in place.

While this issue may be outside the jurisdiction of this Committee, AGC also encourages Congress to enact legislation to allow tax-exempt financing for green construction projects. Green bonds make it easier for construction project owners to offset the coast of site remediation, sustainable design features, and environmentally-friendly technologies or products. In addition, ACC supports legislation pending in the U.S. House of Representatives, it 539, the Buildings for the 2.B' Century Ace, which would extend the Commercial Building Tax Deduction originally enacted as pan of the Energy Policy Act of 2005 until 2013 and areas from $1.80 S2.25 per square foot. In addition to building green facilities for our owners to achieve larger societal environmental sustainability goals, AGC understands that construction operations also impact the environment. AGC and its members strive to comply with all applicable environmental laws, regulations, and permit requirements, and to minimize the environmental impact of construction operations on a daily basis.

Green construction further encourages contractors to discuss and put practices into place to minimize the impact of their operations on the environment. Examples include site layout to minimize site disturbance, erosion, and run off during construction; minimizing the use of fossil fuel and emissions through conservation and alternate fuels; reduced waste through material recycling and reuse; and improved indoor air quality during construction by using low-emitting materials.

AGC is also leading by example—We recently opened our new headquarters, located at 2300 Wilson Boulevard in Arlington, Virginia, which was designed to achieve a LEED Silver level of certification. Environmentally-sensitive systems in our new facility will save occupants mound $75,000 a year in energy costs and $5,000 a year in water use.

AGC again appreciates the opportunity to participate in today's hearing. AGC stands ready to facilitate and support green construction, and encourages the Committee to further promote its use in the public and private sectors. We look forward to working with you on this and other construction issues.

Thank you.

Green Globes™
Green Building Assessment and Rating System

Green Building Initiative (GBI)
www.thegbi.org

- First used in the U.S. in 2005
- ~ 7,000 associate members
- 9 Green Globes certified projects (plus ~ 91 projects in progress)
- International: Canada (as Go Green); United Kingdom (as GEM)
- A growing number of government initiatives recognize Green Globes or use language that would accept it as a credible standard.
- GBI achieved ANSI accreditation as a standards developer in September of 2005.
- GBI going through the consensus-based ANSI process to develop Green Globes as an American national standard.

Green Globes is an interactive, web-based, commercial green building self-assessment tool intended to bring green practices to mainstream construction projects. Depending on project goals and the design, Green Globes can be used in both projects with high or low budgets. Throughout the design and construction process, users receive reports and suggestions on possible improvements to integrate green principles into the building. To certify and achieve Green Globes designation, the project must undergo a post-construction, third-party verification.

Green Globes is based on a 1,000 point system. The number of points a project earns determines the level of certification the project receives. There are four progressive levels of certification:

1 Globe = 35-54% of applicable points
2 Globes = 55-69% of applicable points
3 Globes = 70-84% of applicable points
4 Globes = 85-100% of applicable points

Green Globes assesses and rates the project in the following seven categories:

- Project Management
- Site
- Energy
- Water
- Resources
- Emissions & Effluents
- Indoor Environment

According to the GBI Web site, the cost to use the online self-assessment tool is $500.00. Third-party verification typically costs about $4,000.00-$5,000.00—depending on square footage. *"Actual cost of verification is determined by the independent verifier and is subject to change."*

Quick Facts

LEED® Green Building Rating System
Leadership in Energy and Environmental Design

U.S. Green Building Council (USGBC)
www.usgbc.org

- First released for new construction (LEED-NC) in 2000
- ~ 6,900 member organizations
- ~ 484 LEED-NC certified projects (plus ~ 3,549 registered projects)
- International: LEED-certified buildings in 12 countries
- ~ 75 federal, state, and city governments in the U.S. and Canada have developed initiatives to encourage the use of LEED.
- USGBC achieved ANSI accreditation as a standards developer in November of 2006.

LEED-NC is a green rating system for high performance buildings that entails a detailed certification process. Depending on project goals and the design, LEED can be used in both projects with high or low budgets. An applicant registers a project with the USGBC with the intention to seek certification. When the project is complete, the applicant then submits the project documentation for review and final determination. Templates are available to assist with the documentation. Online submission is available. USGBC offers LEED training and resources.

LEED-NC is based on a 69 point system. The number of points a project earns determines the level of certification the project receives. There are four progressive levels of certification:

Certified = 26-32 points
Silver = 33-38 points
Gold = 39-51 points
Platinum = 52 or more points

LEED-NC organizes the available points for certification into five required categories and one optional category:

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality
- ★ *Innovation & Design Process*

USGBC has posted online its registration and certification fees. USGBC members receive a discount. The non-member rate is $600.00 for registration and the fee ranges for certification—depending on square footage and LEED product type—from $2,250.00 to $22,500.00 for the combined design and construction review for LEED-NC.

RESPONSES BY MELANIE TOWNSHEND TO ADDITIONAL QUESTIONS FROM SENATOR BOXER

Question 1. In your statement you urge "clear and consistent" standards to facilitate green construction. You also state that the Association of General Contractors does not favor one rating system over another. How can we reconcile these positions? Which of the two major ratings systems exemplifies a flexible system that maintains clear standards?

Response. As long as one of the major rating systems is specified for each individual project, the design and construction team members will have clear and consistent standards to follow in executing the project. The major ratings systems in use today are US Green Building Council LEED, SPIRIT, Green Globes, and Green Guide for Healthcare Projects. All of these systems have experienced evolution in the past few years and are expected to continue their development. LEED has evolved in such a way as to recognize how different types of buildings can be made sustainable, and has included a broad scope of industry training along with the development, so I would say that this is the most flexible of the current major systems.

Question 2. You worked both on the construction of the World War II memorial and in the retrofit of the Main Justice Department building. At the Justice Building, what kinds of energy efficient technologies did you install, and what were the payback times for those technologies?

Response. On the Main Justice Project, direct digital controls for the heating, ventilating and air conditioning system, as well as energy-efficient lighting fixtures, were installed. Many of the existing building elements were retained and the retrofit adhered to historic preservation requirements, so this project scope did not include technology upgrades which might have been possible in a more complete replacement project. We are not privy to the operating costs of the facility but our general understanding is that the implementation of these technologies would typically results in payback in a period of about 2 years. Installation at the Main Justice Project was phased over a 7-year period, so the full effects would not have been realized until the end of the entire project.

Senator BOXER. I thank both of you for very constructive comments and advice. Some of these things that you talk about are so crucial, and I wish that, frankly, the jurisdiction of this committee were a little broader than it is. We can only deal with the government buildings and that is what we are doing here today. But we will talk to our colleagues, because you both have come out with some terrific ideas in terms of how to really improve energy efficiency in general.

I do appreciate the private sector's contribution because frankly a lot of the work we do is done by the private sector. So we want to make sure you are with us and you get the importance of it, and clearly you do.

Senator Carper.

Senator CARPER. Thanks, Madam Chair.

Again to both of you, thank you for joining us today and for your testimony and responding to our questions.

I really have three questions I would like for each of you to respond to. The first would be to just ask you to react to the testimony of Commissioner Winstead. Was there anything he said that you would like to go back and just sort of underline or emphasize, that you thought was especially poignant, appropriate, timely; that we should really put an exclamation point behind it? That is my first question.

My second question is, when you look around the world to folks in other countries who share our concerns about reducing the amount of energy we are using, clean air, clean energy, the folks who share those views, what are some lessons that maybe we should look beyond our borders to take advantage of?

The third one is the same question I asked Commissioner Winstead. Ms. Callahan, I think you answered it in part, but I would ask you to answer it again. If you were in our shoes, what would you be doing?

So if you could take them one at a time, I would appreciate it. Just start off by looking back at Commissioner Winstead's testimony.

Ms. CALLAHAN. I think for the Commissioner, a couple of things ring clear. He told you that they invite and encourage the kind of oversight that you are doing. Somebody has to step up and say, we are going to hold people accountable, and this has to be a central element of your job and how you are evaluated, meaning energy management.

That hasn't happened to the level it needs to yet. So I think that in every Agency should be brought in in a good, but energetic way, the way it happened today, and be talked to about your goals and the objectives and the laws that are in place, and what they are doing to fulfill it. Give them a chance to do what the Commissioner did today, which is to be able to show you that they actually are doing a lot, but that there is more that can be done. So that is one thing he said.

The other, on lighting, lighting is just a huge opportunity for us. The Alliance to Save Energy has entered into a coalition with some other environmental groups and Phillips, which is one of the world's largest lighting manufacturers, to call for the phase-out of incandescent light bulbs, inefficient incandescent light bulbs in the United States over the next decade. We are working to bring others into that coalition.

GSA talked about how important it is and how many billions and billions and billions of dollars you can save by moving away from those inefficient lighting technologies. That I found very encouraging.

The other that I think is very important that he mentioned, he mentioned about renewables, but payback periods being long enough that the agencies can be willing to do it, and that it will make sense to them on a cost-effective basis, and to keep money coming into the funnel. Some of the ESCO projects, the Energy Savings Company projects, may have payback periods that are 10 years to 15 years. However, the Federal Government isn't paying anything on that loan, if you will. The payment is coming out of the energy savings. In fact, in some instances, the agencies begin to save from day one. They share the savings with the energy service company. So those kinds of things I think are important.

Senator CARPER. Hold it right there.

Let me go to Ms. Townshend to ask her to answer the same first question. Anything from Commissioner Winstead's comments that you would like to emphasize?

Ms. TOWNSHEND. Our industry does see GSA as a leader in the green building standards, and they have done an excellent job on the LEED-certified projects thus far. To go to Senator Alexander's point earlier, they are encouraging designers to maintain the aesthetics and the desirability of the building, as well as the energy efficiency.

I do think the Commissioner made an important point about how site-specific and purpose-specific the design or retrofit of each building has to be. That can be an expensive and time consuming process. It does require a lot of support to make that happen.

Senator CARPER. Thanks.

Second question. Go ahead, Ms. Callahan.

Ms. CALLAHAN. OK. The second one, in terms of what are the things that we would do if I could talk outside the scope of the committee, I think the things that you mentioned, research and development and putting money into that. We have systematically since 2002 cut the funds into energy efficiency research and development programs at the Department of Energy. They are down by one-third. We need to reinvest. You need to invest more to save more money.

Senator CARPER. I wonder if that reflects the President's budget request for 2008?

Ms. CALLAHAN. The President's budget request for 2008 again shows somewhat of a decrease in the funds. What we are encouraged by is that you all in the continuing resolution bumped up the energy efficiency and renewable energy budget by $300 million, and we are taking that as a sign that the appropriators will again invest more in that in 2008 and beyond, since they were willing to go at such a high level in the budget.

Senator CARPER. That is a pretty good bump.

Ms. CALLAHAN. It is a pretty good bump, and we really appreciate it. I think it will put to very good use.

I would mention that for every R&D dollar, there is a National Academy of Sciences study that shows for every dollar that the Federal Government is investing in its energy efficiency programs, there is a $17 return on that investment back into our economy in terms of energy savings and investment in new technology.

Senator CARPER. Who says it is $17 to $1?

Ms. CALLAHAN. It is $17 to $1, the National Academy of Sciences. That was a study that was done on the DOE programs.

The second area is tax credits. You mentioned that. That is something that we believe can really be a market transformer. Some were put in place in 2005 in the Energy Policy Act, but they expired too soon, particularly the commercial building tax incentives. They have already been extended for a year, but I am sure that my fellow witness can tell you that to plan, execute, and construct a building is a 5- or more year window, and those tax incentives are just simply not available long enough to have a meaningful impact. So that is another area.

Then finally, standards. In addition to putting the carrots out with tax incentives to get the better products out there, we need to make sure that we say as a Country there is a certain minimum efficiency level for our clothes washers, our air conditions, our televisions, our cell phones that we going to allow. So we need to begin to more aggressively establish minimum energy efficiency standards.

Senator CARPER. Thank you.

Ms. Townshend.

Ms. TOWNSHEND. I would agree strongly with two of those aspects. The tax credits are important in motivating building owners

and developers, and the time to develop a project is long. So they need continuing encouragement on the financial side to incorporate green building.

However, the good news about that is that the cost of green building is almost down to zero. A few years ago, we would have said it was a 10 percent premium. Now frequently it is not a premium at all. So that proves that the marketplace is working with us to make things more achievable.

I think watching the marketplace is the other key thing we all need to do. More products are coming in. We need to have standards for those products, but be aware of the technology innovations that are coming online every day.

Senator CARPER. All right. Any closing words?

Ms. CALLAHAN. Well, the third one, lessons learned from beyond. There is a lot that is out there. I would like to say, though, I have been over to Europe a couple of times talking to folks over there, and then we host international folks.

The United States is doing a lot and we are doing a lot more than we are being credited for in terms of energy efficiency. It is often overlooked what we are doing, because we are not doing it under the banner of climate change, the way so many other countries are. But I would like to just make that note that it is remarkable what we are doing, and particularly the businesses in the United States leading, and the Federal Government.

But the thing that I think strikes me, the one thing, because I know I am running out of time, they in many countries more appropriately price energy. When energy prices are high, that sends a signal and people respond accordingly. When gasoline prices went over $3 a gallon, you saw a downturn in the market for gas guzzling SUVs.

There is a reason in Europe that they are diesel. Diesel- fueled vehicles are very fuel-economic vehicles, and it is because of the government's requirement and the taxing that makes the energy prices high.

So I think that that is something that the Congress, as tough as that is, really needs to look at. Are we appropriately pricing energy when you look at the impact it is having on our environment, on our energy security, and on our economy?

Senator CARPER. Good points. Thank you.

My time has expired. The Chairman has been very generous.

Ms. TOWNSHEND. I would just say that the building trades really want to do a good job, and that is the message coming from the industry. So that cultural push is there to support what you are doing.

Senator CARPER. All right. Thanks.

Again, to our witnesses, thank you so much.

Madam Chair, maybe for most people on our committee, this is not an exciting moment. I just think this is such an exciting issue for us to be tackling, and I applaud your leadership and look forward to supporting what you put together.

Senator BOXER. Senator, thank you so much.

Let me say this. I agree with you, Ms. Callahan. A lot of things we do, we don't take the time to realize its effect. Now, this bill is going to lead to cost reductions in the running of the Federal

Government, and it is also going to lead to reductions in greenhouse gases. The beauty of this is, it is this dual impact.

So today we are taking the first step, this committee is, toward addressing the issues of both cost and the reduction of greenhouse gas emissions. The beauty of it is we have such wonderful support all across the spectrum. I think it is a confidence-builder.

I have to say Senator Carper has been encouraging me from day one that I took the gavel and we had our first talks, that we really needed to bring bipartisanship back to the issue of this environment and dealing with this environment. I am so happy that I am working with the former Chairman on this, Senator Inhofe, and working with Senator Alexander, Senator Isakson, everybody here, as well as, of course, the various Democrats on the committee.

So this is the summary. I have no more questions. I would like to submit a couple of questions to Ms. Callahan for the record because you have so much to offer us. I so appreciate the organization that you are with. You have been pounding away at this even when it wasn't popular. Now it is coming back into popularity to talk about energy savings. But you have been there since we all put our sweaters on in the 1970s—not you personally. You were too young, but your predecessors.

You know, it is wonderful to know that Senators Percy and Humphrey teamed up. So now we are teaming up across party lines here.

So let me just summarize S. 992. This hearing was about S. 992, and we received strong support for it. It is, as I say, our very first bill out of this committee that addresses the issue of both costs and reduction of greenhouse gas emissions. This bill quite simply will make Federal buildings a model of energy efficiency.

It is in fact very much in tune with what the President announced, and I see Marty has walked in, which is perfect timing. It is essentially looking at the Executive order, making it stronger, frontloading it, and working with the Administration, able to do this. This is very key.

This bill will save taxpayer dollars. It will reduce greenhouse gas emissions. We have to make the point, and we all agreed on this, that buildings are responsible for 38 percent of greenhouse gas emissions. So by making Federal buildings the model of energy efficiency, we are sending a signal to everyone: You have a responsibility, and guess what, you will save money when you do these things.

Working with the private sector, whose been right out front on this, and we appreciate so much Ms. Townshend's testimony today, we can really take much more of a leadership than we have up to this point, because we are in fact making it a priority by passing this legislation.

The other point I don't want to miss is the matching grant part of this bill. It is very important because we have cities and counties that are asking us for help. They want to go out. They want to make these capital investments. They know it is going to bring a payback within 3, 4, or 5 years, and some even sooner.

Working with Senator Inhofe, we made this program I think very efficient because we have said it is a pilot program for 5 years, $20 million a year. We are capping the grants I think at $1 million so

that we can really watch what they do. We spread the dollars around.

Now, again just looking at the number of buildings. GSA owns 1,550 buildings and they manage at least 7,137 buildings. That is a lot of buildings. Looking at, again, cities and counties, there are 22,000 cities and counties together. If they each have a couple of buildings, which we know they have at least a couple of buildings, we are talking tens of thousands more buildings.

We are saying to them, if you can prove to us that the payback is within 5 years, this grant is yours. If you need to plant trees to create shade around a very sunny building in a hot climate, you can use it for that. If you want to improve your air conditioner, you can use it for that. EPA will administer this program.

We have tried to make this bill non-bureaucratic, I would say, and I really want to thank the CEQ for their help. I really want to thank my staff and the staff of Senator Inhofe. We will name them all tomorrow, how hard they all worked. This is not easy to find agreement on these things. Every word in this bill was subjected to many hours of discussion.

So it took us a long time, but it was worth doing. We kept to our deadline.

So here we are. I promised the Senate a confidence-building bill and here it is. It is ready to go. It is bipartisan. It is our first step to addressing the costs in Federal buildings and global warming. So I am very excited about it. We have a very important markup, I say to the staff who is here, tomorrow morning at 10 o'clock. I hope everyone will be here on time.

We had a breakthrough on WRDA. We are going to mark that up. Yes, tomorrow. So we will have WRDA coming out of this committee. We will have S. 992. The Public Buildings Cost Reduction Act of 2007 will also come out of the committee, as well as a couple of nominations, a courthouse naming and so on.

So we have a busy schedule tomorrow.

Thanks again to all of the witnesses today. GSA was terrific. I think our two witnesses here were excellent.

Senator Carper, I want to thank you. I want to thank Senators Inhofe, Alexander, Klobuchar, and Sanders for all participating.

We stand adjourned.

[Whereupon, at 11:33 a.m. the committee was adjourned, to reconvene at the call of the chair.]

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