

**ENERGY EFFICIENCY AT THE
U.S. DEPARTMENT OF VETERANS AFFAIRS**

HEARING
BEFORE THE
COMMITTEE ON VETERANS' AFFAIRS
U.S. HOUSE OF REPRESENTATIVES
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ENERGY EFFICIENCY AT THE U.S. DEPARTMENT OF VETERANS AFFAIRS

WEDNESDAY, SEPTEMBER 30, 2009

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON VETERANS' AFFAIRS,
Washington, DC.

The Committee met, pursuant to notice, at 10:01 a.m., in Room 334, Cannon House Office Building, Hon. Bob Filner [Chairman of the Committee] presiding.

Present: Representatives Filner, Michaud, Hall, Perriello, Rodriguez, Donnelly, Adler, Buyer, Brown of South Carolina, Bilbray, and Roe.

OPENING STATEMENT OF CHAIRMAN FILNER

The CHAIRMAN. Good morning. If the first panel will be seated, we will introduce you.

Mr. BUYER. Good morning.

The CHAIRMAN. Good morning.

Good morning. This meeting of the Committee on Veterans' Affairs will come to order.

I ask unanimous consent that all Members may have 5 legislative days in which to revise and extend their remarks. Hearing no objection, so ordered.

I want to thank everybody for being here today.

The fact is that the U.S. Department of Veterans Affairs (VA) is the third highest energy user among agencies in the Federal Government and third highest in water consumption. So its footprint is significant and efforts to be in the forefront of conservation and reduction are necessary and important.

All Federal agencies have to make sure to set an example for energy, water, and fuel conservation. If we are asking other Members of our society, corporations and individuals, we have to set the example.

I am pleased that the VA has reported to our Committee that it is taking extraordinary efforts to not only meet the goals of the President's Executive Order, but exceed them.

For as much as the VA is accomplishing, I am equally curious to hear what our panel of industry experts have to say about the VA's progress. The experts we will hear from today will add great value to the dialog and make thoughtful recommendations for the future.

The VA was allocated \$405 million in the American Recovery and Reinvestment Act (ARRA) funds to accelerate critical programs to

reduce the environmental footprint of the Department and the VA has set some very aggressive goals in this area.

I am eager to hear how the VA plans to execute and sustain these goals of energy, water, and fuel usage reductions while constructing and renovating sustainable buildings and utilizing the \$400 million to its maximum potential.

We will continue in this Committee to monitor VA's actions as it works to increase energy efficiency and provide results for our veterans and our taxpayers.

I am looking forward to this hearing. Mr. Buyer, you are recognized for an opening statement.

[The prepared statement of Chairman Filner appears on p. 46.]

OPENING STATEMENT OF HON. STEVE BUYER

Mr. BUYER. Thank you very much.

I would like to welcome everyone to today's hearing on increasing energy efficiency and sustainability within the Department of Veterans Affairs. I greatly appreciate the opportunity for this discussion.

It is important on multiple levels. One, the need for energy independence on a national level is becoming even more critical given the political uncertainty in the world and given the bad actors of whom we, the United States, do business with.

Also compelling is the need to reduce pollutants that harm our environment. And from a more tightly focused Committee perspective, conserving energy and financial resources allows the VA to use each dollar saved directly for veterans' health care.

Shortly after the 111th Congress convened, the Health Subcommittee Chairman, Mike Michaud, and I introduced H.R. 292, the "Department of Veterans Affairs Energy Sustainability Act of 2009," to require the development and implementation of VA energy conservation plans. This legislation is a step forward enabling the VA to become more energy efficient and sustainable for the future by requiring the Secretary to develop and implement a comprehensive program on energy sustainability.

The bill would also require the creation of a firm baseline database on energy and water usage and expenditures throughout the VA and the National Cemetery Administration (NCA) upon which the VA can gauge its progress for energy sustainability and efficiency.

The bill would also provide VA with necessary tools to increase their energy conservation and sustainability programs by permitting the installation of energy efficient and renewable energy systems in the Department buildings, much of which, Mr. Sullivan, you are doing right now and I applaud you on your efforts. We will get a chance to discuss that soon.

Also, I am very interested in the development of the building envelope systems as we design these new hospitals. And that will also be important in our discussions here today.

Also using electrical submetering in the Department buildings providing for Energy Star and other energy efficient purchasing and allowing the Department to use the expertise of the National Laboratories regarding energy and water efficient technologies in order to meet the VA's sustainability goals.

It makes good business sense to reduce wasteful spending at the VA on inefficient energy systems so that this funding can be used, as I said, to better assist our veterans.

Chairman Michaud and I are pleased to have the support of other Members of the Committee. Mr. Chairman, I thank you for holding the hearing so we can further explore these very, very important issues.

I had requested a legislative hearing on the bill. While that has not been made to date, I believe that we are going to be able to work together as a Committee on this very, very important issue.

The Federal Government should be at the forefront, and the VA ranks sixth highest in energy consumption among all Federal agencies and it has an opportunity to make a significant impact. With hundreds of facilities nationwide, including hospitals, outpatient clinics, regional offices, the VA should set the example for wise use of alternative energy resources such as solar, wind, and geothermal.

And, Mr. Sullivan, you are moving out smartly to do just that and I am quite certain the Chairman and other Members of the Committee join me in congratulating you and the Secretary for that.

New VA construction and major renovation projects must be forward looking and incorporate the most cost-effective building mechanical systems as outlined in the VA's newly developed sustainability and energy reduction design guide.

With the new facilities coming online, whether it is New Orleans, Las Vegas, Orlando, we also have Denver as well as the National Cemetery plans for Bakersfield, California, and Philadelphia, these types of designs will be very fruitful.

So I want to thank the witnesses today for bringing your expertise to the table. We look forward to your testimony.

And, Mr. Chairman, I yield back.

The CHAIRMAN. Thank you, Mr. Buyer.

We welcome the first panel and we thank you for being here. Gail Vittori is the Co-Director of the Center for Maximum Potential Building Systems. Tom Hicks is the Executive Director, Building Performance Initiative of the U.S. Green Building Council (USGBC). Jane Rohde is the Principal and Founder of JSR Associates, and she is here on behalf of the Green Building Initiative (GBI). James Hoff is Director of Research for the Center of Environmental Innovation in Roofing.

Again, we thank you for joining us. Your complete statement will be made a part of the record and we ask for an oral statement of about 5 minutes.

Ms. Vittori, we will start with your testimony. Thank you again for being here.

STATEMENTS OF GAIL VITTORI, CO-DIRECTOR, CENTER FOR MAXIMUM POTENTIAL BUILDING SYSTEMS, AUSTIN, TX; THOMAS W. HICKS, EXECUTIVE DIRECTOR, BUILDING PERFORMANCE INITIATIVE, U.S. GREEN BUILDING COUNCIL; JANE M. ROHDE, AIA, FIIDA, ACHA, AAHID, PRINCIPLE AND FOUNDER, JRS ASSOCIATES, INC., ON BEHALF OF GREEN BUILDING INITIATIVE; AND JAMES L. HOFF, DBA, DIRECTOR OF RESEARCH, CENTER FOR ENVIRONMENTAL INNOVATION IN ROOFING

STATEMENT OF GAIL VITTORI

Ms. VITTORI. Thank you, Chairman Filner and Ranking Member Buyer.

I would like to take advantage of this opportunity to testify about the role that the Department of Veterans Affairs and the Federal Government can play in improving the energy efficiency and sustainability of VA facilities and, in particular, your health care facilities.

As was said, my name is Gail Vittori and I am the Co-Director of the Center for Maximum Potential Building Systems, a nonprofit organization established in 1975 and based in Austin, Texas. I also have the privilege of serving as the Board Chair of the U.S. Green Building Council.

I want to emphasize today five key elements for 21st Century, high-performance healing environments, recognizing that each of these are consistent with patient care and safety and wise stewardship of resources.

First, buildings do matter. There is ample evidence that green hospitals accelerate patient healing and enhance medical staff well-being and productivity.

Just a quick example. One study found that nurses with access to a view in their break rooms had a 40-percent reduction in medical error rate. If I were a patient, I would want to be in a hospital that provided my nurses a window with a view and wouldn't each of you?

Hospitals should fundamentally be healing environments that create a workplace where medical professionals want to work and where they do their work well and also that enhance patient healing.

Similar studies have found the same correlation that windows in a patient's room also will enhance and accelerate healing. In fact, green hospitals correlate with positive staff recruitment and retention, which is a significant bottom line benefit.

Second, opportunities to dramatically reduce hospital energy and water use are abundant, many with a rapid return on investment. Hospitals, as you know, on average are more than two times as energy intensive as commercial office buildings.

Lighting, just as one example, represents 42 percent of U.S. hospitals' electrical use. A systematic relamping program, just as one example, of existing hospitals and advanced lighting design for new hospitals can reap significant energy savings, reduce greenhouse gas and other environmental pollutants, and lower operating costs while enhancing the healing environment.

According to the U.S. Environmental Protection Agency (EPA), each dollar invested in energy efficiency in the health care sector is equivalent to generating new revenues of \$20 for hospitals and \$10 for medical office buildings. Every dollar saved through energy and water efficiency can be redirected to patient care that is important in delivering the best care possible to our Nation's veterans.

Third, I know for many of you the issue of first cost is your first and last question. A study completed earlier this year of 13 Leadership in Energy and Environmental Design (LEED)-certified health care facilities found that green health care facilities need not cost more than nongreen buildings with a zero to 5 percent first cost premium and no correlation to size or LEED certification level.

The study further established a trend toward lower first cost premiums over time and the benefits of integrated design. These findings bode well for hospitals being designed today.

Fourth, life cycle cost analysis for procurement decisions, this is extremely important. Accounting for economic and measurable performance indicators such as patient length of stay, recruitment, retention, medical error, environmental externalities, and dissolving the divide between first costs and operations and maintenance costs is a common-sense opportunity to advance best value, data-driven design decisions, and especially true for owner-occupied, long-lived buildings such as hospitals. In its absence, we often end up making well-intentioned but short-sighted decisions and bear long-term costs.

And, finally, collaborate with industry peers on research, best practices, and lessons learned. This investment avoids duplication of effort and reinventing the wheel and raises the bar across the entire sector. Not only can the VA pursue these strategies, they cannot afford not to.

Across the country, projects are demonstrating the real and significant benefits of green and energy efficient health care facilities and the VA is among the leaders in doing this.

To date, there are about 90 registered Green Guide for Health Care projects representing an estimated 70 million square feet of green health care facilities and 440 LEED-registered and certified health care projects. Sixty-five of these represent more than 6 million gross square feet.

In addition, 48 acute care and children's hospitals have earned the EPA's Energy Star designation. Fifteen of these are Department of Veterans Affairs hospitals.

The first LEED platinum certified hospital in the world, Dell Children's Medical Center, has many stories to tell. It is a great example of a truly high-performance healing environment designed to reduce direct energy use by over 17 percent and save 1.4 million gallons of water.

They also are telling a real life story every day of how much difference a building can make in supporting patient healing and staff well-being.

Just as one example, over their first year of operation, nursing turnover was about 2.4 percent compared to 10 to 15 percent as a national average. The cost to replace just one nurse at Dell is about \$70,000.

The Department of Veterans Affairs is taking note of these opportunities and currently has 18 health care facilities registered in the LEED rating system.

Chairman Filner and Ranking Member Buyer, thank you very much for your leadership in convening this critical hearing. I look forward to working with the Committee, the Department of Veterans Affairs, and other stakeholders to help improve energy efficiency and sustainability of the Department of Veterans Affairs so that patient healing can be enhanced, staff well-being can be enhanced, and to make a very key contribution to ensuring that we have healthy communities and healthy ecosystems.

[The prepared statement of Ms. Vittori appears on p. 47.]

The CHAIRMAN. Thank you so much.

Mr. Hicks.

STATEMENT OF THOMAS W. HICKS

Mr. HICKS. Thank you, Chairman Filner and Ranking Member Buyer and the Members of the Committee, for the opportunity to appear before you today to discuss energy efficiency, sustainability at the U.S. Department of Veterans Affairs.

My name is Tom Hicks and I lead the Building Performance Initiative for the U.S. Green Building Council, which is a nonprofit organization committed to a prosperous and sustainable future through cost-effective and energy saving green buildings.

With a membership of 78 local chapters, 20,000 member companies and organizations, the U.S. Green Building Council is the driving force working to advance more environmentally responsible, healthy, and profitable buildings.

The impact of and opportunities within the building sector are extraordinary. Buildings in the United States are responsible for 40 percent of the CO₂ emissions, nearly 14 percent of the potable water use, and comprise roughly 14 percent of the gross domestic product, making green building a source of significant economic and environmental opportunity to reduce the impact of these buildings while saving money.

A recent study from McKinsey and Company reports that an investment in energy efficiency, including building energy efficiency, could generate more than \$1.2 trillion in energy savings, reduce energy consumption by 23 percent, and reduce annual greenhouse gas emissions by 1.1 gigatons by 2020.

This would have the same environmental impact as taking the entire fleet of U.S. passenger vehicles and light trucks off the road.

With the short time I have today, I would like to focus my comments on two broad themes. First, the Federal Government and the Department of Veterans Affairs is and has been the leader in energy efficiency and green building. Federal agencies have a tremendous responsibility and power to continue to lead by example and move the building sector to even higher levels of achievement.

Second, the government sector, both existing buildings and new construction, is an area of great opportunity to save taxpayers money, create jobs, and save energy and water while protecting the environment.

For over a decade now, during my time at USGBC and prior to that with the EPA before that, I have been working to advance

green building and energy efficient buildings across the Nation and around the globe. I have had the opportunity to work with countless leaders and non-governmental organizations in industry and in government who have worked tirelessly to accelerate the uptake of green building in the marketplace and to ensure that this green building revolution touches everybody.

My experiences have shown me that leadership, whether it is paving a path forward, overcoming obstacles, or pioneering new best practices, has proven to be successful for shifting the market toward sustainability.

As the owner, tenant, or manager of more than 3.3 billion square feet of building space valued at more than \$700 billion, the Federal Government has the country's largest real estate portfolio, including many of the Nation's most recognized and cherished landmarks. With this vast portfolio comes the power to forge a greener, more energy efficient, healthier, and prosperous path for the Nation's buildings and communities.

By leveraging the unparalleled purchasing power of the taxpayer dollars to support green building, the Federal Government can not only reduce its significant environmental footprint but also speed the adoption of green building strategies by the private sector and save real dollars and resources through reduced utility bills and operating costs.

Recognizing the impact of the Federal building sector, 13 Federal agencies and departments have made policy commitments to use or encourage LEED certification. Some 24 million square feet of federally-owned or leased building space is currently certified under LEED and more than 400 million square feet of space is registered with LEED.

These policies, coupled with various policies referencing LEED in 34 States and more than 100 localities, are having a marked impact on the larger green building landscape. To date, more than 23,000 building projects are registered with LEED and more than 3,600 have earned LEED certification. This includes the LEED silver certified regional field office in Reno, Nevada, for the VA and VA's 18 other registered projects.

With a diverse real estate portfolio, the VA is doing more to make its portfolio energy efficient and sustainable. In recent months, VA has pursued a number of far-reaching sustainability projects through the use of funds provided by the American Recovery and Reinvestment Act. Significantly, the agency is dedicating roughly \$399 million of the \$1 billion provided for medical facilities operated by the Veterans Health Administration (VHA) to energy efficiency and renewable energy projects.

The USGBC applauds the Department's commitment to sustainability and encourages it to leverage the recovery funds to even greener ends.

As I mentioned in my written remarks, the opportunity to leverage its funding for energy and financial savings in the Federal sector is huge. Financing vehicles such as energy performance contracts allow funds spent on efficiency to go well beyond the impact of simply spending dollars on direct costs.

In addition, once efficiency measures are in place, if the Federal Government were to perform tune-ups or recommission its entire

building stock, it could achieve an estimated 15-percent reduction in energy use in each building that is commissioned and generate more than \$650 million in annual savings and eliminate roughly 2.7 million tons of carbon in 1 year.

In conclusion, I would like to thank the Veterans' Affairs Committee for the opportunity to discuss the Department of Veterans Affairs and its work in transforming our Nation's buildings. USGBC looks forward to working with the Committee and the Department to ensure that the energy savings and environmental potential of our public buildings are realized.

Thank you.

[The prepared statement of Mr. Hicks appears on p. 53.]

The CHAIRMAN. Thank you very much.

Ms. Rohde.

STATEMENT OF JANE M. ROHDE

Ms. ROHDE. Chairman Filner, Ranking Member Buyer, and Members of the Committee—

The CHAIRMAN. Could you press the button for your microphone?

Ms. ROHDE. I apologize.

Chairman Filner, Ranking Member Buyer, and Members of the Committee, thank you for the opportunity to discuss my experience evaluating the sustainability of VA hospitals using the Green Building Initiative's Green Globes Rating System.

I am the Principal and Founder of JSR Associates, Incorporated, a senior living and health care consulting firm. As an architect with more than 20 years of experience, I participate on many design Committees, including the Guidelines for Design and Construction of Healthcare Facilities which is code in at least 44 States and referenced as a guide by the VA.

Today I am speaking on behalf of the Green Building Initiative, a nonprofit organization that brought the Green Globes Building Rating System to the United States in the year 2005.

The Green Globe System is a Web-based tool being used by 21 VA hospitals to meet the Federal requirements outlined in the guiding principles. Green Globes for Continual Improvement of Existing Buildings, CIEB, was the module used.

During the process, VA energy managers were asked to complete an electronic survey of their medical center and report their findings. Important items requested during this evaluation are monthly energy and water consumption from utility bills, information on transportation practices that minimize energy consumption, and other data that describe policies related to containing emissions, promoting recycling, and monitoring indoor environmental issues.

Additionally, the Green Globe System recognizes progress in reducing energy consumption through the use of the Energy Star rating system. By evaluating operational energy and source energy through Energy Star and by using life cycle assessment tools, the Green Globes Rating System can help building owners identify a building's carbon footprint and cycles for improvement.

Once the initial Green Globe survey is completed in-house, the team is then provided with an automated report with an initial score and opportunities for improvement. This automatically gen-

erated report is based on the Green Globes protocol, which assigns a number of points to each answer based on desirable outcomes.

The report is for the internal team's use to evaluate the recommendations for improvements to the medical facility and its operations.

Following this evaluation, a third-party assessor visits the building to audit the team's documented outcomes, interview key staff, complete a walk-through, and determine if the building qualifies for Green Globe certification.

As a third-party assessor, I have visited 15 out of the 21 hospitals that are working to complete the Green Globes evaluation and certification process.

While we are still in the early stages of evaluating the VA hospitals, I can tell you that these facilities are doing extremely well in their efforts to comply with Federal sustainability requirements.

It is clear to me that in addition to receiving valuable feedback and recognition from this process, many of the VA's best practices in sustainability will provide valuable case studies to benefit the health care facilities in the private sector.

I would like to provide you with some of the creative ideas and programs that are currently proposed or being completed at VA hospitals across the country.

Richmond, Virginia, has a proposed project to complete an arboretum that would not only be a site enhancement, but will reduce heat island effect, reduce water runoff, provide a resource for the veterans and their families, and create an opportunity for engaging the community at large.

And Portland, Oregon, has a boiler chiller plant supervisor training program that is exemplary, including an educational manual and on-site training tools. They are able to share their expertise with not only trainees but other locations that need assistance with additional improvement in energy and water consumption.

Dallas, Texas, is in the process of completing an ethanol fueling station for the VA and other governmental agencies for their flexible fuel fleet vehicles.

Birmingham, Alabama, located in a tight urban block, is evaluating using an existing underground spring for recovery water for the cooling tower.

San Diego, California, has one of the strongest recycling programs across the board. This site as well as Milwaukee, Portland, and Seattle are excellent examples of systems that are working to reduce use of natural resources.

Because continual improvement is just that, continual, it is important to realize that ongoing efforts are what make a hospital sustainable. Tools and certification programs like Green Globes allow VA staff to conduct periodic assessments that then empower them to be the drivers of initiatives for improvement that can be qualified and quantified over time.

The next steps for VA, and I assume all Federal agencies, will be to do the deeper dive on their portfolios. Continuing such an assessment program will help to achieve the largest potential energy and water savings across all of VA health care facilities, not only hospitals, but the full range of VA facilities, including CBOCs, which are community-based outpatient clinics, CLCs, which are

Community Living Centers that are for long-term care residents, Hospice Palliative care, and Polytrauma Centers.

To do this, they need multiple tools like Green Globes to help make surveying, measurement, evaluation, and regular benchmarking part of their ongoing process.

It is clear that the VA hospitals that have been assessed are on a positive path for sustainability improvement. I am fortunate to be part of this groundbreaking initiative, assessing firsthand the creativity, the potential, and the amazing outcomes that are sure to manifest as a result of this ongoing evaluation and certification process.

Thank you.

[The prepared statement of Ms. Rohde appears on p. 59.]

The CHAIRMAN. Thank you very much.

Dr. Hoff.

STATEMENT OF JAMES L. HOFF, DBA

Dr. HOFF. Good morning. Thank you, Chairman Filner, Ranking Member Buyer, and Members of the Committee.

My name is Dr. James Hoff and I serve as Research Director for the Center for Environmental Innovation in Roofing in Washington.

The mission of the Center is to serve as a unified voice of the roofing industry in matters relating to the energy and environmental benefits afforded by modern roofing systems.

Our membership includes roofing contractors, roofing materials manufacturers, construction designers, and building researchers, all interested in a common goal of raising public awareness of the importance of our Nation's rooftops and their strategic value in reducing energy consumption, mitigating environmental impact, and enhancing the quality of the buildings in which we all live and work.

My mission before the Committee this morning is to raise awareness of roofing's contribution to energy efficiency and the many different ways our Nation's rooftops can be used to meet broader goals of reducing energy consumption.

In addition, I would like to express the Center's support of important energy initiatives already undertaken by the Department of Veterans Affairs. And, finally, I would like to recommend some additional actions to help assure that the important energy efficiency goals of the Department are fully realized on the rooftops of all VA facilities.

Few locations offer as many opportunities to transform our building environment as our Nation's rooftops. Occupying over 200 billion square feet of surface area, they serve as a major resource for energy efficiency, a ready platform for the production of clean energy, and a vital shield of health and safety over our homes and businesses.

In terms of energy efficiency, we estimate that if just the commercial and institutional roofs in the United States were insulated at the levels envisioned by the Energy Policy Act of 2005, annual energy cost savings would exceed \$2 billion.

In terms of clean energy production, we estimate a conservative contribution from rooftop solar and wind power would exceed the annual production of 12 Grand Coulee dams.

Given this combination of sizeable national roofing inventory and the many new energy technologies available, the roofing industry also offers an outstanding opportunity for developing a new generation of highly skilled, high-paying green jobs.

According to 2002 census data, over 225,000 Americans are employed in the roofing industry. Roofing contractors already generate \$21 billion annually in completed roofing installations. And with new energy saving and energy producing technologies that can be added to these installations, this overall economic contribution is certain to increase significantly, especially in terms of new high-paying job skills.

As stated previously, the Center would like to express its support of the important energy initiatives already undertaken by the Department of Veterans Affairs, especially as embodied in the Department's Green Building Action Plan. This plan establishes overall targets and broad operating principles consistent with the energy targets of the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007.

Since the enactment of this legislation, however, our Nation's energy standards have been revised upward and even higher levels of these consensus standards are anticipated within the year. Because building energy standards continue to evolve, the Center recommends the Department's Green Building Action Plan be revised to reflect the most recent national building energy standards as published by the American Society of Heating, Refrigerating and Air Conditioning Engineers.

In addition, because the re-roofing of existing Department facilities generally falls outside the new building or major renovation activities addressed by the Green Building Action Plan of the Department, the Center recommends that specific energy efficiency targets be established for all VA roofing projects, again based on the most recent national building energy standards.

Finally, because durability in roof system design is critical, especially if the roof is also to serve as a platform for renewable energy production, the center strongly recommends that roof condition assessment be included as a mandatory element in all renewable energy design contracts.

Additional information regarding these recommendations is included in the larger written statement provided to the Committee. And the Center would be happy to discuss or clarify any of these recommendations with Committee staff.

Thank you again for the opportunity to speak before the Committee and thank you for your continuing interest in applying sound energy policy to the management and operation of the Department's building inventory.

[The prepared statement of Mr. Hoff appears on p. 66.]

The CHAIRMAN. Thank you all very much. It was very enlightening. We will now have some questions from the Committee.

Mr. Hall, if you want to start off?

Mr. HALL. Thank you, Mr. Chairman, for acknowledging me. And I would like to identify myself with your remarks and those of the

Ranking Member, Mr. Buyer, before our panel spoke. And I appreciate your indulgence because I have a double booking as many of us do this morning.

And I have a statement I will enter into the record. I will not go into all of it, but this is indirectly connected as was mentioned by the Ranking Member.

[The prepared statement of Congressman Hall appears on p. 46.]

Mr. HALL. Our veterans right now are being created by conflicts that we are involved in in parts of the world where they happen to have large amounts of energy, oil in particular, that we, if we pull the rug out from under the Jihad as some of our friends in Israel have suggested, knowing firsthand where the funding is going, we may actually find ourselves not healing our veterans more quickly if their nurses do not make as many medical errors but defunding those who we are fighting. So it is very important.

My question, I guess, to all panelists is these ideas are really exciting. I mean, the thoughts of flat roofs like those at West Point, which I represent and I am on the Board of Directors of, being converted to reflective surfaces or solar surfaces so you do not have the heat island effect and you are reflecting the sun's energy and/or turning it into electricity or that you are collecting rainwater and using it for watering lawns or washing cars or other things instead of using potable water, so that conservation of energy and the conservation of water can be done simultaneously.

My question to all of you because we have in my district, as many of us do in our districts, we have older buildings. It is easier, I think, when you are starting out with a new design to achieve some of these things.

But when you are dealing with old VA buildings that are perhaps under the Capital Asset Realignment for Enhanced Services Commission's purview and they are trying to decide what buildings to keep, which ones to upgrade and so on, have you seen or do you have any ideas for the success, achievability of success in converting older buildings to such efficiency and energy generation or energy savings?

Ms. Vittori, perhaps you could start.

Ms. VITTORI. Sure. I would be happy to begin. Great questions.

In fact, we find that with existing buildings, which are really the largest percentage of buildings as we look forward, there are many opportunities, in particular for hospitals because they are such intensive energy users, a comprehensive audit of looking at what parts of the profile are representing the largest energy users.

As I mentioned in my comments, lighting is 42 percent of electrical use. So a comprehensive relamping program is going to dramatically drop the operating energy use budget of the hospital. That is significant. A 24/7 operating building's lighting obviously is a big percentage, so that is not surprising. And we know that there is significant advancement in lighting technology that is giving reliable lighting. It is going to last a long time, which is what you want, and also high-quality lighting which also enhances the healing environment.

A comprehensive retro-commissioning to ensure that the mechanical equipment is actually operating as it is designed is another one of those low-hanging fruit opportunities. Training facility staff so

that they understand proper operations and maintenance protocols, investing in that will reap huge returns.

And just as an example, I know that the VA has a number of these initiatives underway. There is a system in the Midwest, Gundersen Lutheran, which has taken a comprehensive view of their existing buildings and new construction with the goal to be carbon neutral by 2014, so just in 5 years, and they are doing that through a stepped process, which I have in detail laid out in my written testimony. So I encourage you to look at that.

Thank you.

Mr. HALL. Thank you.

Mr. Hicks.

Mr. HICKS. I think to answer that question specifically and to understand the opportunity, I think one of the things that is key is being able to properly manage and to properly manage, you need to properly measure.

And I think to the credit of the VA, a lot of what they have done over the past several years is to do just that, certainly on their energy use as it relates to using the EPA's Energy Star tool to be able to benchmark their energy use to understand where they are today.

And I think doing that and taking it out across their portfolio of buildings and then looking at other opportunities beyond energy use, so understanding how their water use is relative to other industry norms.

I think once that is understood, those choices as to whether a building is right for a whole building retrofit or some other solution has to come into play will bear itself out.

But regardless, there are low-cost, no-cost opportunities for these buildings to look at, whether it is commissioning and retro-commissioning, whether it is tune-ups to other parts of the building, and these are opportunities that exist throughout and should be done prior to any assessment as to whether a building is, you know, is one that should be kind of kept or whether a new building should be built.

Mr. HALL. Mr. Chairman, my time has expired.

The CHAIRMAN. Ms. Rohde, would you like to add anything?

Ms. ROHDE. I have a couple comments, if I may.

The CHAIRMAN. Please.

Ms. ROHDE. And to your point, it was a great question for me because I have been spending a lot of time inside your VA hospitals.

From the 15 hospitals that I have seen, using thermal imaging for all the hospitals to detect thermal leaks in the envelope would be an excellent recommendation overall which ties to the earlier testimony.

We have two hospitals so far that have done that for their roofing and they have actually been able to see some savings now that they have been repairing their roofs accordingly.

Create a task force to include IT departments and the energy managers, which is an established position within the VA hospital to review opportunities to reduce time that computers are turned on in nonessential areas. That is one plug load area that I think needs to be evaluated and could help a lot within the VA hospitals specifically.

Create a task force to include food service management, canteen management, and procurement and acquisitions, and to potentially localize contracts to reduce inherent energy and transportation costs of products that are made locally and are available locally.

Recommend discussion between National Science Foundation (NSF), Veterans Affairs Central Office (VACO), and the EPA to evaluate kitchen equipment for energy and water conservation compliance. We do not quite have as much information available on the commercial side of the kitchen equipment to address some of those issues that I think would be good.

Continue to monitor and benchmark water usage and energy usage comparatively to uniques. Uniques are different patient types. And what you will see is if you have an increase in unique patient types and staff increases that your energy consumption and water needs to be evaluated against that. So you want to know really what your full picture is if you are increasing staff and patient uniques and if energy consumption is really going down and you are really demonstrating something very powerful in terms of understanding your energy consumption.

Work cooperatively with GBI and other similar green building organizations to look at the Irrigation Association industry to enhance opportunities for water efficiency and site enhancement as this process is extended to other VA facilities, including cemeteries.

Relamping programs were discussed. All the hospitals that I visited thus far do have a relamping process either completed or underway. Recommissioning has been funded by some of the Veterans Integrated Services Networks (VISNs) but not all VISNs. So depending on the VISN you are in, depends on if the hospital is being recommissioned or not.

Thank you.

The CHAIRMAN. Dr. Hoff.

Dr. HOFF. Thank you.

As suggested by Ms. Rohde both now and in her testimony, improvement tends to be incremental more than dramatic at times and that is why practices of continuous improvement and practices that take a look at changes that can be made to specific building elements at specific points in time are very important.

I think it would be important for the Committee to realize that on average, the rooftops on VA facilities will be replaced at a rate of about four to five times the building or construction of new facilities.

In the United States every year, about a billion square feet of roofs are installed on new buildings. About four billion square feet are installed on existing buildings. So that means that roofing offers that opportunity.

And, secondly, these low-slope roofs that you mentioned in your district, very common both in your district and throughout the United States. It is typically the model that we utilize for our larger buildings.

And that is a model that allows easy access to the existing roofing insulation, the easy ability to use thermal scanning technology and surveys that Ms. Rohde mentioned, and the opportunity to save existing materials and then add to those materials in a very economic way at the time of re-roofing.

And so it is just that that is a probably very critical point in any kind of building management exercise to be sure that that opportunity that is four times the opportunity of new construction is fully realized.

Mr. HALL. Thank you, Mr. Chairman.

Thank you.

The CHAIRMAN. Thank you.

Mr. Rodriguez.

Mr. RODRIGUEZ. Thank you very much. And I apologize for being late.

Let me ask you because all these areas are extremely important and I know that as we dialogue about it, the importance as we move forward how much we are able to accomplish and get done, on new construction, is anybody looking at, for example, we have a polytrauma center that is supposed to be built in San Antonio. Who is on top of that making sure we try use the latest technology so that we will not have to do something to it afterwards to make it more energy efficient?

Not everybody at one time, please.

Mr. HICKS. Well, I am not sure if I can speak to that facility.

Mr. RODRIGUEZ. Okay. Can anybody?

The CHAIRMAN. Mr. Rodriguez, we will have a panel from the VA—

Mr. RODRIGUEZ. Okay.

The CHAIRMAN [continuing]. Joining us, so they could probably answer that more directly.

Mr. RODRIGUEZ. So none of you are handling new construction? No?

Mr. HICKS. Just, again, specifically the facility—

Mr. RODRIGUEZ. No. Just any new construction.

Mr. HICKS. Sure. And I think with the LEED rating system that we have, it certainly addresses the, you know, the holistic view of what a green building, sustainable building is, looking at the best and the most advanced technologies to put in those buildings that will deliver results. And so that is what the LEED rating system is about.

And the VA has used that system in their buildings. I am not sure about that specific facility, but that is something that has been used and it is a way to kind of help you deliver those results so that you are not leaving opportunities on the table.

Mr. RODRIGUEZ. Now, we was also mentioned, I think you mentioned the fact that a lot of our facilities are pretty old, in pretty bad shape in some cases in terms of cost effectiveness.

But I think that given, in terms of the amount of, you know, work that needs to be done, is there anything that we ought to be doing in that area in order to try to move forward because of the possible savings that are there in order to revitalize some of those facilities as quickly as possible?

Ms. ROHDE. I think I can speak to that. The 15 buildings that I have been through, what I have learned is that if you have been to one VA, you have been to one VA. They are completely different in every aspect.

One thing that I see that would be helpful across the board is people who have really strong boiler plant management, for exam-

ple, help those facilities who do not. And I think that if they were to integrate that education process that they would actually see an advancement across the board in efficiency.

Equipment efficiencies, each facility that I have talked to, they each have their perspective on what they think is their highest priority depending on what their goals are and what they have already achieved. It also depends on how long their manager has been in place, how long their Green Environmental Management Systems (GEMS) coordinator has been in place and a lot of other factors.

But they have different parts of the environmental footprint that they are all working on in different ways. And I think that cross-referencing and being able to learn from one another, from the other hospitals would be very appropriate.

And there are some other things that we have in terms of VACO listings, that we have kind of given a VA central listing, recommendations like the thermal imaging, for example. That is something that could benefit all the hospitals if it was funded.

So there are those types of recommendations that are coming out of the facilities as we go through them.

Mr. RODRIGUEZ. So are you also saying then each unit or each area has their own priorities? Is there a need for us to do something to force, not force, but emphasize the importance of efficiency issues when it comes to energy throughout the system?

Is there anything that we could do, or any recommendations that are out there, to help push the fact that in addition to their immediate priorities, which could be leaks in the plumbing or whatever the importance of looking at a little more long term in terms of energy efficiency?

Ms. ROHDE. One area that I would look at is other pilot programs for different renewable energy sources. You have a PV, photovoltaic, setup in Dallas that is being evaluated, potential wind, ground source heat pumps, some other areas that are being evaluated. I would continue those types of evaluations and funding those kind of evaluations because I think that that is going to help us see where things will lay.

The PVs, for example, did not demonstrate as much energy consumption savings as was anticipated, but it does give you the pilot to use it as a baseline.

And technologies, being very aware of different technologies that are available and being able to test them out at sample sites. I think that that would be very helpful as well.

Mr. RODRIGUEZ. Any major water reuse either from the roof or other forms?

Ms. ROHDE. There are a couple of plans, and that came out of recommendations. Two or three of the facilities we were looking at would benefit from keeping cisterns for rainwater collection and the rainwater collection being used not only for irrigation but for recovery water for the cooling towers.

So I think that there are some real-water savings, I would say, and recycling and waste management are the two areas that need continual work in some of the facilities that we visited. Water conservation and consumption is a little bit harder, but I think the

more creative the thought processes are in terms of developing cisterns and things, that that would be very applicable.

Mr. RODRIGUEZ. Thank you very much.

Ms. VITTORI. Just if I could make two points. One is that in addition to sharing data and information amongst the facilities overseen by the Department of Veterans Affairs, I think there is an extremely rich opportunity to also share with industry peers other large health care systems in the United States that are asking these same questions.

And so pooling research, pooling best practices, pooling lessons learned, and so that everyone has an opportunity to benefit from that shared knowledge together and raise the bar for health care overall with the VA taking a very significant lead on that.

Mr. RODRIGUEZ. How quickly can we move on that? You know, I guess that requires some dialog and collaborating among all of them?

Ms. VITTORI. I think those opportunities are very possible. Large systems like Kaiser Permanente based in California, and Partners in Massachusetts, there are systems throughout the country that are representing large numbers of facilities as well as many, you know, individual facilities owned by entities both public and non-profit.

The other point in terms of water, because it is not only a natural resource issue but it has significant energy implications, water being so energy intensive in terms of its treatment and transportation.

And you are from Texas. I am from Texas. We had just an unbelievably challenging summer with our drought. One of the opportunities to capture water in cisterns and condensate off of chillers and so on and redirect that for irrigation, but there is a real concern in health care facilities about infection, the potential that reclaimed water sources can actually challenge infection control which is of paramount importance.

And so I think a very key research area knowing that we have instability with our water resources right now is how to provide some real guidance on whether or not there is concern about directing reclaimed water, whether it is used on landscape, interior courtyards, other uses in the facilities so that we can safely understand how to use it properly. I think it is exactly where we want to go. We need research to back that up.

The CHAIRMAN. Thank you very much, Mr. Rodriguez.

Mr. Michaud.

Mr. MICHAUD. Thank you very much, Mr. Chairman, Mr. Ranking Member, for having this hearing.

Just a couple of quick questions for the panelists.

In your work with the VA system, have you ever run into any problems as it relates to procurement issues? For instance, something might not be on the Federal buying list, but it might be something that actually would be very beneficial that is my first question.

And my second question, you talk about new technologies and thinking outside the box, so to speak, what do you do to really get out there and to find out what new technology is available?

A good example is actually just earlier this week before I came back to DC, I met with a business that has this little filter that you put on your furnace before it goes into the oil burner. And what they were telling us was that if you have got an oil tank that is just sitting there, it breaks down. But when it goes through the filter, it actually requires it to burn hotter. Therefore, you need a smaller nozzle. And what they were telling us, if this actually works out, is you could save as much as ten percent because the stack temperature is hotter, therefore, you have got to use a smaller nozzle.

What type of technology are you really aggressively looking at, number one? And the other issue is on procurement as it relates to what is on the list for the VA or any Federal agency to buy?

Ms. ROHDE. I could speak to that, if I may.

The procurement issue that I have just seen as an observation is mostly that things are bought on large contract. So as a result, I will use food service as an example, so if you are using a food service company that is overall, overarching, that is providing things is probably trucking things from a lot of different distances and there is a huge distribution line.

From my conversations with the different GEMS coordinators on site, they have mentioned that, well, I would love to use local whatever the material might be. However, I am tied to the contract through procurement and acquisitions.

So in a sense, it is almost, in my mind, would be a task force recommendation of evaluating how to look at aspects of green in terms of how it relates to the acquisition process and the contracting process. So that is what I have seen in terms of that.

Your second question about new technology and how do we address that, I think one of your best resources are your own people internally. There are some guys out there and women out there that are doing amazing things.

In Portland, they actually use the elevators when it is coming down, to actually use that energy and they have figured out a way to harvest it.

One of the guys has this idea about the sewer area, which I thought was a little scary, but that you put filters in and you actually use, because they are way up on a hill, and use the downstream to create energy.

I mean, those are the kind of really creative ideas that are out there and I think they are site specific. And I think if you did a poll or a competition or whatever, you would be amazed to find out what they already know about new technologies that other facilities do not know anything about.

So I think that that is what I have seen from my conversations with the people, really amazing people who work in your different VA facilities.

Ms. VITTORI. Again, on the new technologies, I would encourage you to share information, cast the net broadly with the health care sector because why should one be reinventing the wheel that the other one has already had great success with or found a surprising outcome that maybe fell short of what the expectation was. And so by building that knowledge base collectively, the Department of

Veterans Affairs with the broader health care sector, I think you would get great return on that investment.

In terms of procurement, while I do not know the specifics about the VA practices, my general sense is that life cycle cost assessment, while it is talked about, is not often put in play because of barriers between first cost budget constraints and operations and maintenance costs.

It really is an enormous opportunity to say, particularly for an owner-occupied building, let us pull those together and so we get best value over the life of the building for something that might have an incremental first cost premium but will reap enormous return on investment over the life of the building, maybe even as quickly as within the year, but may be ruled out because it is a little bit more expensive than what is on contract.

So I would encourage you to really look at life cycle cost assessment.

Mr. HICKS. And I would like to just speak to maybe the second point on technology and how new technologies can be identified and deployed.

And I think, you know, great ideas about engaging your existing assets within the buildings, absolutely. I also think taking those people and having them engage the movement. There are, you know, hundreds of thousands of people involved in the green building movement and being able to get those folks into those various forums where those discussions are being had, where the new ideas are being put out, where the new technologies are being discussed and vetted, I think that would be an outstanding place to do that.

We have our own conference that we do, it is coming up in 6 weeks, for 30,000 people and it is a great place for people to engage in those conversations. There are other forums like that around the U.S. and around the world that would be similar great opportunities to really accelerate the best practice about what is going on and the best technologies available.

Dr. HOFF. I would like to just make a brief comment about technology, especially in terms of the building envelope, the cover around the building.

After many decades of very little research in building envelopes, there has been a resurgence and a real acceleration of research in the building envelope. The only area I would provide somewhat of a caution, though, is that many of the elements that we are talking about today, sun and water, are also the same elements that over time tend to deteriorate and attack our buildings, especially at the envelope.

I would certainly suggest to you that it is critical, although new technology can offer many new opportunities, it is important that the technology be fully evaluated in terms of durability.

Really it is just like the patients that the VA works with. The first thing they do is try to stabilize the patient. A building envelope is the same way. Unless you have a stable building envelope that is preventing water from entering and attacking a building, you can have problems in the long run. And that means with many of these technologies, there are risks there and those risks should be properly addressed.

The CHAIRMAN. Thank you.

Mr. Buyer.

Mr. BUYER. Thank you.

If you will pass these to the witnesses. This is a bill summary of H.R. 292. I would ask each of you, this is just a summary, so if you could gain access to the original text. As I mentioned in the opening statement, Congressman Mike Michaud and I had introduced this bill to assist the Department of Veterans Affairs in becoming more energy efficient and sustainable.

So I welcome you to examine the Bill that Mr. Michaud and I have introduced and please comment on it or any recommendations that you may have, please submit for the record, and I would appreciate that.

[The panel of witnesses supplied comments in response to Congress Buyer's request in the Post-Hearing Questions and Responses for the Record, which appear on p. 95.]

Dr. Hoff, one of your recommendations is that the Department establish an energy standard for roofs separate from the overall standards of the Department's green buildings action plan. Why is that important?

Dr. HOFF. Thank you, Representative Buyer.

We believe it is important for the fact that I had mentioned earlier, that the Department will be replacing many more roofs on existing buildings than installing roofs on new buildings.

And because of this high replacement rate, we believe that the overall general guidelines or the green building guidelines of the VA, although very important, are much harder to manage specifically for re-roofing projects.

And, secondly, many of those re-roofing projects are going to fall outside the broad guidelines of new facilities or major renovations. Typically roofing occurs separate from major renovations. It occurs when the roof starts to leak and not necessarily on a completely time basis.

We would just simply recommend that the same principles in those guidelines could be better refined and specifically addressed to roofing and that would then allow, provide some assurance that as major renovations proceed in the future on any building that the roofing system would be adequate to meet the broad goals of that larger renovation.

Mr. BUYER. Thank you.

Mr. Hicks, there are a number of guides available for certifying green facilities. These systems use similar principles to evaluate sites, including the evaluation of energy and water consumption, use of renewable energy, and impact on the environment.

How does the Leadership in Energy and Environmental Design, LEED, rating system compare with other assessment tools?

Mr. HICKS. Thank you, Ranking Member Buyer.

I think when you look at a variety of rating systems, and I have had the privilege of looking at rating systems around the world and talking to folks in other countries about their rating systems, the DNA of the rating systems, what they look at, the topics and how they treat those are very similar. But I think where the difference lies is in several areas.

And one of the key areas is in how they go about through the certification process, whether it is a self-certification process,

whether it is done through a third party, and so on. So I think that is a key difference that LEED brings to the table in employing through an organization we helped start up, the Green Building Certification Institute, by employing, you know, eight of the ten largest certification bodies around the world who are in the business of providing a certification to allow them to do that. So that is one key difference.

I think another area is you see these systems, what their genesis is, where they come from. And I think one of the benefits of LEED is that it was designed and built by and for the building industry. This was not USGBC working in an ivory tower coming up with these ideas and then imposing those on those who—

Mr. BUYER. Mr. Hicks, let me ask you this. Do you believe that Green Globes is a more practical and affordable than other facility assessment tools?

Mr. HICKS. I do not. I think LEED is, as we have heard before from studies, that it is for, you know, zero to 5 percent cost, premium first cost with those benefits coming back in the simple payback and the return on investment in the first 6 to 2 years.

I think, you know, I would refer to the GSA's comprehensive study on this where they found that LEED to be the preferred and superior rating system.

Mr. BUYER. Ms. Rohde, do you have a comment on that? Would you agree or disagree with his comments?

Ms. ROHDE. Well, I would say that there are a variety of rating systems that are out there and have different applications for different building types.

However, I will say that the reason I worked with Green Globes and the reason I think it is a value is that it can be utilized directly by the people who are working in the building. So, therefore, those who have the most knowledge of the building, that have the most information in terms of day-to-day operations are the ones that get to directly input into the tool.

So because of the ease of use, because of the immediate feedback that it gives you, its focus on energy, it is updatable by internal resources, basically you can update it as you go along. For the continual improvement module, I think it makes for a more affordable good solution, better solution for improvement and review of continual improvement for existing buildings.

Mr. BUYER. Are these rating systems in competition with each other, or are there cultural preferences here? Help me.

Ms. ROHDE. I do not know so much in my background because I work in both health care and senior living. One, I have had the barrier of using LEED tools. We have used the format check list information for different projects, but a lot of times it is the cost of the tool itself that has limited our usage.

So as a result, we started looking at Green Globes and I was able to pilot that with some of my senior living campus projects who are similar to a hospital campus project.

So as a result, that is why I believe that the tool is useful. There are pluses and minuses for all tools. I think that green building tools are very appropriate and very much needed, but that is my take on the Green Globes tool.

Mr. BUYER. Mr. Hicks, I know my time is over, but I will give you the last bite here.

Mr. HICKS. Sure. You know, I would agree. I mean, as I said in the opening response, you know, the rating systems or DNA is very similar to one another. And it really gets down to the cost effectiveness.

And I think, you know, there are many studies out there that are looking at the cost effectiveness of LEED buildings and what they are delivering in terms of environmental benefit, in terms of their energy savings, in terms of their cost savings.

I think, you know, again, LEED was developed by and for the building industry. It was developed in the consensus process and certifications being done by certification bodies that are in the business of certification, not individuals who are trained to perform that service.

And I think it is done by the U.S. industry and I think that is important. This is not a tool that was imported from another country, via another country into this country. This was done by and for the U.S. industry here in the United States.

Mr. BUYER. Thank you.

The CHAIRMAN. Thank you, Mr. Buyer.

I appreciate all of your insights.

What struck me is that our own employees, aside from the macro policies that we are setting have a lot of creativity, energy and expertise. I am not sure that we do, and maybe Mr. Sullivan could address it later, but we should be mobilizing our employees with some incentive awards or bonuses.

We seem to give bonuses to upper administration as our backlog of disability claims increases, but we are not giving bonuses to the people who had some of those ideas that you mentioned.

It seems to me we could mobilize our 250,000-person workforce with some real excitement and give them some of those incentives and bonuses. I assume that works in big organizations.

Do you want to say anything, Ms. Rohde?

Ms. ROHDE. Yes, I would like to.

The one thing I noticed, too, is that there is a lot of excitement going on. The Portland folks, for example, their GEMS Committee is a very active Committee and they are doing really strong outreach. So if we could take that outreach program with the "green" package, with the, you know, reusable bag and the whole deal, if you could take that type of excitement and expand that to other areas that are having issues, I think you would have a good motivator.

I know that we did talk about that in terms of how to motivate and that is something that is a little tricky because bonuses and time off and things like that are very much regulated in terms of being a governmental process. So that is something that I cannot address, but I could definitely suggest because I think that there are good ideas out there that could be honored as such.

The CHAIRMAN. We thank you all very much for your insight. You have helped us all understand and guided us to look for new solutions in energy efficiency. Thank you for your testimony today.

We will move on to the second panel. Kevin Kampschroer is the Acting Director of the Office of Federal High-Performance Green

Buildings at the U.S. General Services Administration (GSA). Richard Kidd is the Program Manager of the Federal Energy Management Program (FEMP) in the Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy (DOE).

Mr. Kidd, you win the award for the longest title for today.

Again, your written statements will be made a part of the record and we look forward to a 5-minute oral statement.

Mr. Kampschroer.

STATEMENTS OF KEVIN KAMPSCHROER, ACTING DIRECTOR, OFFICE OF FEDERAL HIGH-PERFORMANCE GREEN BUILDINGS, U.S. GENERAL SERVICES ADMINISTRATION; AND RICHARD G. KIDD IV, PROGRAM MANAGER, FEDERAL ENERGY MANAGEMENT PROGRAM, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, U.S. DEPARTMENT OF ENERGY

STATEMENT OF KEVIN KAMPSCHROER

Mr. KAMPSCHROER. Thank you, Chairman Filner, Ranking Member Buyer, and Members of this Committee.

My name is Kevin Kampschroer. I am the Acting Director of the Office of Federal High-Performance Green Buildings at the General Services Administration.

Thank you for inviting me today to discuss the goals for Federal agencies to become more energy efficient in a sustainable manner and thank you for accepting my written testimony for the record. Today I will highlight the importance of greening our buildings.

GSA collaborates with other Federal agencies in developing, implementing, and evaluating Federal green building programs. We advocate the use of interagency programs and cooperations such as Energy Star, which is jointly run by the Department of Energy and the Environmental Protection Agency and the use of the resources of the National Laboratories, also run by the Department of Energy.

We have worked with the Department of Veterans Affairs on projects such as its Veterans Benefits Office in Reno, Nevada, which was the VA's first building rated using a third-party independent rating system.

We continue to work with the VA on every new opportunity to support the VA's important mission to our country's veterans.

High-performing green buildings provide the best value for the taxpayer and the public through both life cycle cost benefits and the positive effects on human health and performance.

A recent study of GSA's 12th earliest green Federal building shows energy consumption is down 26 percent, occupant satisfaction up 26 percent compared to commercial office benchmark data.

More importantly, the top third of those studied buildings deliver significantly better results with 45 percent less energy consumption, 53 percent lower maintenance costs, and 35 percent less water use.

According to a 2008 McGraw-Hill Construction report, operating costs for green buildings are on average 8 to 9 percent lower and values are 7.5 percent higher. They have a 3.5 percent greater occupancy ratio and provide a 6.6 percent total return on investment.

The life cycle cost of green buildings is lower than the life cycle cost of those that are not. Even the initial capital costs are not necessarily higher and when they are, only marginally so.

GSA's study of the initial capital cost showed that an increase is only from zero to three percent and it is very dependent on the design and the quality of the integration of that design.

Sustainable design also offers economic, environmental, and societal benefits. If a building decreases its energy consumption, the cost of operation is less, the asset value increases, and the production of greenhouse gases decreases.

For example, a planted roof can have significant economic and environmental benefits such as lowering the roof temperature, lowering costs for neighboring buildings, reducing the city's heat island effect, and reducing storm water runoff. In cities like Washington, DC, this reduces water pollution both locally and downstream in the Chesapeake Bay.

Societal benefits include physically and aesthetically pleasing effects for building occupants and neighbors, jobs for workers to install and maintain planted roofs, and reduction in greenhouse gases caused by the building.

Careful selection and use of materials can reduce energy consumption during the manufacturing process and protect the health of occupants in the use of those materials. Careful construction techniques, the reuse of existing structures, and careful siting can reduce waste, decrease resource consumption, and improve occupants' quality of life.

The key is a holistic integrated planning that considers all factors that influence a building, including the decision whether to build at all.

However, design challenges for high-performance green buildings may vary for different building types. Given the intense use of some buildings such as hospitals, health care facilities, data centers, performance measures must be different and the benchmarks need to be adjusted to reflect the use of the building. One can still address energy efficiency hospitals. In so doing, the energy efficiency decisions will be balanced differently against air quality standards and health related factors than they would be in a normal office building.

We need to have as much emphasis on actual building performance as on the design criteria. California is contemplating a standard building performance labeling as prerequisite for every real estate transaction. Beginning in 2010, GSA will require new building leases over 10,000 square feet to have an Energy Star rating earned in the most recent year of operation.

The value of Energy Star and other similar measures is that they are ongoing performance measures, not one-time design measures.

We in the building industry and in the Federal Government also need to expand our measures. While today we typically concentrate on energy use in buildings, we need to remember that buildings are also tools for businesses and organizations.

The Energy Independence and Security Act of 2007 states that high-performance green buildings must not only perform well mechanically but must perform to improve the health and enhance the performance of the occupants. This is particularly important in

health care facilities where the importance of the work within the buildings cannot be overstated.

If we only look at the energy consumption in the building, we miss the importance of how building performance can increase the ability of people to care for the ill, reduce the transmission of disease, or create conditions for healing.

A key broad measure of environmental impact is greenhouse gas emissions. Once you measure the collective effects of greenhouse gas production by an organization with buildings as components, you can make more informed decisions and tradeoffs.

We need to look at the way we buy materials, travel to and from the building, the way we use the building, and how it is operating. In both office buildings and computer centers, integrating the occupants' operations with facility operations can increase energy savings by as much as 50 percent and also lower the tenant's cost of operations.

Health care facilities present particular difficulties and opportunities. We need to create conditions in which health care professionals can perform at their best around the clock. A health care facility is an amalgam of office, laboratory, hotel, data center, and industrial facility. The key is to make sure that the building operations integrate the hospital health care operations.

The research that the National Institutes of Health has been conducting on the way that buildings and their mechanical systems can either increase or mitigate the transmission of airborne pathogens is also beginning to change the way that health care facilities are constructed and operated.

However, more research on the unintended consequences of current building management practices is needed. There is an extensive study from 2004 by Craig Zimmering and Roger Ulrich that articulates some of the research needs that are ongoing.

The creation of jobs across the design, engineering, manufacturing, and construction operations industries will boast with a green economy and American Recovery and Reinvestment Act is a key component of doing that. This is an opportunity that is not only local but very local in the creation of jobs with new skills.

Thank you again for this opportunity to testify today and the opportunity that the Congress has provided GSA both through the American Recovery and Reinvestment Act and our continuing service to other Federal agencies. I am available to address any questions you may have. We look forward to continuing to support the VA in its mission and to help the VA reduce the environmental impact while simultaneously improving conditions for people working in its facilities and the veterans staying in those facilities.

[The prepared statement of Mr. Kampschroer appears on p. 69.]

The CHAIRMAN. Thank you.

Mr. Kidd.

STATEMENT OF RICHARD G. KIDD IV

Mr. KIDD. Good morning, Chairman Filner, Ranking Member Buyer, and other distinguished Members of the Committee. I would like to thank you for giving me the opportunity to appear here today. My intent is to highlight for you the energy management

performance of VA within the context of the overall Federal Government's efforts.

By way of background, the U.S. Federal Government is the single largest user of energy in the United States, accounting for roughly 1.6 percent of our Nation's total energy consumption. The bill to the taxpayers for the energy consumed by our government is \$24.5 billion.

Government actions in these areas are guided by the legislative and policy initiatives contained within the Energy Independence and Security Act of 2007 (EISA), Executive Orders, and the Energy Policy Acts of 1992 and 2005, which collectively establish energy management goals for all Federal agencies, the most salient of which requires the U.S. government to reduce its energy intensity by 30 percent by the year 2015, to increase the use of renewable electric energy equivalent to 7.5 percent by 2013 and thereafter, to reduce water consumption by 2 percent annually, and to reduce petroleum consumption by 2 percent in covered fleet vehicles.

In the most general terms, the total amount of facility energy use by the Federal Government has decreased by almost 30 percent since 1985, but it has only been in recent years that specific measures of performance have been in place.

Summarizing the data from fiscal year 2009, 6 Federal agencies consume 80 percent of the energy used by the Federal Government with Veterans Affairs being the third largest. Energy intensity in fiscal year 2008 was 12.4 percent lower on average than the fiscal year 2003 base year with VA having reduced its energy intensity by 11.4 percent.

Overall, the government used renewable electric energy equivalent to 3.4 percent of its electric use. This is significantly less than the 4.9 percent reported in 2007, but above the current 3 percent requirement. VA exceeded this requirement generation goal with 4.1 percent of its electric power coming from renewable sources.

Federal agencies on average reduced their water intensity by 2.9 percent. The VA achieved a 3 percent reduction. And in fiscal year 2008, the government invested almost \$935 million in building efficiency improvements, \$469 million through appropriations, with the remainder coming through energy performance and utility energy savings contracts.

An amount equivalent of 12.9 percent of the government's total energy bill was invested in energy efficiency improvements. The Office of Management and Budget (OMB) recommends 20 percent, an amount that only three agencies met. The VA invested 7.8 percent.

The VA has received a green status on the rating score card that FEMP prepares for OMB signifying overall successful energy management programs. VA's successful performance is particularly noteworthy given the unique set of challenges that the agency faces.

Veterans Affairs operates 153 medical centers. While these centers constitute 75 percent of the VA's square footage, they represent over 99 percent of its energy consumption. The VA's energy intensity is almost 66 percent above the Federal average, but below the national average for health care facilities.

Veterans Affairs is also the second largest user of water in the government on a square footage basis.

Meeting these challenges and receiving a green rating would not have occurred without the dedicated efforts led by James Sullivan, the Director of the Office of Asset Enterprise Management, and VA's entire energy management team.

The Departments of Energy and Veterans Affairs have a long history of a cooperative and productive relationship in matters of energy efficiency.

This year, FEMP restructured itself to create a customer service organization where every individual in our office is a direct liaison to a Federal agency. I placed our Deputy and senior-most engineer, Scott Richland, as our customer service representative to VA.

This May, FEMP asked all Federal agencies to submit proposals for technical assistance under the American Recovery and Reinvestment Act. Three VA projects were selected. These include a detailed renewable energy feasibility study for national cemeteries, medical center retro-commissioning specifications, and integrated site assessments and short-term diagnostic testing to retro-commission selected buildings located in Alabama, Georgia, and South Carolina.

Before I conclude, I would like to just add a personal statement that as a veteran, a third-generation Army officer, I have tremendous respect and admiration for the role Veterans Affairs plays in keeping faith with all those who have served in uniform.

As someone with extensive international experience in conflict and post-conflict zones gained through my service with the United Nations and our State Department, I have a keen appreciation for the adverse security implications generated by our country's dependence upon foreign oil. Increasing the energy efficiency of the Federal Government and by extension our country as a whole is a critical step in enhancing our Nation's security. And I am pleased to assist Veterans Affairs and all Federal agencies in this endeavor.

I would like to thank the Members of the Committee for giving me the opportunity to speak with you and to submit written testimony. I look forward to answering any additional questions that you might have.

[The prepared statement of Mr. Kidd appears on p. 72.]

The CHAIRMAN. We thank both of you or I should say 100 percent of you. That was a joke.

Mr. Rodriguez.

Mr. RODRIGUEZ. Thank you, Mr. Chairman.

Mr. Kidd, thank you very much, both of you, for being here today and for your testimony and for your work.

From your perspective, what are some of the things that we might be able to do that might help you in making your job easier in assessing in terms of what is going on?

I think it is our goal in the long term is that we felt that we could make 20 percent efficiencies issues just roughly overall. What is the goal now for the VA overall and what are some of the areas you think that we can make some improvements and maybe highlighting some of the areas where you think that they are moving on?

Would you like to comment on that, Mr. Kidd?

Mr. KIDD. Thank you very much.

As indicated, VA has some very unique challenges, unique as compared to all the other Federal agencies, given the fact that it runs health care centers. And the health care centers, as Mr. Kampschroer pointed out, have extreme demands in terms of water, air, energy, data management—all of this has to be done in an environment which is conducive to healing.

So I would commend VA and their current team for all the efforts that they have done and the good work that they have put forward to date.

The goals for VA are the same as for all the Federal agencies, a 30 percent energy intensity reduction by 2015 and a 2 percent per year annual water reduction to 16 percent by 2015.

In terms of assistance that can be provided, I do not think it is for me to say what the requirements this Committee should place on VA. But speaking for the whole Federal Government, the issue of energy management is one of increased importance. And the increased attention that you and other Members of Congress give to this issue, I believe is appreciated by all of us.

Mr. RODRIGUEZ. What are some of the gaps that you see where there might be some additional improvements that could be made with the VA?

Mr. KIDD. Well, I think Veterans Affairs like all Federal agencies, is wrestling with the challenge of a range of demands, some immediate, some long term, and how to effectively allocate their resources to succeed in meeting all of these demands.

So I do not think Veterans Affairs has challenges that are unique to just that one agency beyond the requirements of addressing the energy, water needs on the medical facilities.

Mr. RODRIGUEZ. And so from your office, a year from now, 5 years from now as you go back, what are some of the things that can help you in looking at to see if we will be able to get where we need to go? Do we need to do some additional assessments of best practices? When you come before us next year or 5 years from now, how do we get to that level that we want to get to?

Mr. KIDD. Right now in EISA, section 432, there is a requirement for Federal agencies to audit 25 percent of their goal covered buildings every year. So if I were to come back next year or the year after or the year thereafter, I would come back with data representing respectively 50, 75, and 100 percent of the Federal buildings, because of the additional auditing performed on those Federal buildings.

That data will be tracked and reported through an online, Web-based tracking system and that should be up this winter, January or February timeframe. So if I came back a year from now, you would have access to that data online FEMP could analyze it, and we could have a discussion about the results of the energy audits which have been performed on Federal facilities.

That information will give us a much clearer picture as to all the positive things that the Federal Government has done and, likewise, it will highlight for us greater areas where additional work needs to be taken. It will highlight our missed opportunities, if you will.

Mr. RODRIGUEZ. At the present time, what do you suggest we do besides going out and looking at for them to expedite what is occur-

ring to get there as quickly as possible? Any recommendations from the GAO from that perspective? How do we get there as quickly as possible? I know I can see some of the facilities moving. I can see others not moving maybe.

Mr. KIDD. Well, I would say that speed, while speed is important, it is not the most important criteria. And I would echo the comments that Mr. Kampschroer made about the requirement to take an integrated, whole systems approach to designing our new buildings and retrofitting our old buildings.

So speed is important, but quality is more important. And we are going to have better buildings if we bring all the stakeholders together at the same room at the same time, architects, engineers, occupants, managers, patients.

Mr. RODRIGUEZ. Thank you.

The CHAIRMAN. Mr. Rodriguez, thank you.

Mr. Michaud.

Mr. MICHAUD. Thank you very much, Mr. Chairman.

Just a couple of quick questions.

We heard the first panel talk about issues such as food and some of our contracting and procurement issues that are currently out there, which could be problematic if you are looking at new technology and green energy.

What have your agencies done to really look at some of the problems or do you see any problems with the procurement issues?

And I will use food, for instance. I know in Maine, I am sure a lot of other VA facilities could potentially buy local food from farmers who are probably veterans. You get fresh food, therefore, when you look at the waste that goes there as well. Any comments?

Mr. KAMPSCHROER. Thank you.

The procurement process is being systematically revised across the Federal Government to take more into account factors such as transportation of goods and materials on the way to the site, the quality of materials.

We started, for example, in the 1990s requiring not only our own operators of buildings to use green cleaning materials that were less toxic but also to require that again in the contractors. It is an ongoing issue in procurement to make sure that people who have contracts with the Federal Government are actually performing according to those specifications.

We are also examining the possibility of providing direct access to contract from, you know, contractor A to buy off of a schedule to make sure that the right materials are actually being procured so that if both are working for the government, you can make sure, and, again, I use green cleaning as an example, that the products that have already been tested and we know are qualified then are used by subcontractors who are doing cleaning of facilities. And this sort of ricochets through all manner of procurement.

I think also, as I mentioned, as we begin to use more comprehensive measures such as greenhouse gas accounting, we will begin to see those factors take a larger role in procurement that will again, I think, make an overall improvement in our procurement decisions.

Mr. BUYER. Will the gentleman yield?

Mr. MICHAUD. Yes.

Mr. BUYER. Mr. Michaud asked you about food.

Mr. KAMPSCHROER. Yes. And in the procurement of food as well about which I know somewhat less than green cleaning, we are also changing, I know in the area of procurement for GSA's own cafeterias to emphasize just exactly the kind of examples Mr. Michaud mentioned. And I would be happy to get a more complete response on the subject of food to the Committee.

[The GSA subsequently provided the following information:]

The General Services Administration (GSA) is committed to incorporating principles of sustainable design and energy efficiency into all of its procurement practices, including its building projects; we address food service in more detail below. In addition, President Obama signed Executive Order (EO) 13514, Federal Leadership in Environmental, Energy, and Economic Performance on October 5th, setting sustainability performance goals for all Federal agencies. The EO requires Federal agencies to set 2020 greenhouse gas emission reduction targets, increase energy efficiency, support sustainable communities, and leverage Federal purchasing power to promote environmentally responsible products and technologies. Specifically, section 2(h) requires agencies to ensure that 95 percent of new contract actions including task and delivery orders are energy efficient, water efficient, bio-based, environmentally preferable, non-ozone depleting, contain recycled content, or are non-toxic or less-toxic alternatives where such products and services meet agency performance requirements.

While GSA does not procure food directly, each item in GSA's Federal Supply System is assigned to a specific Source of Supply (SOS) for management. Food is in Federal Supply Class (FSC) Group 89, which is acquired by the Department of Defense, Defense Logistics Agency (DLA) Supply Center in Philadelphia, PA, through the Defense Revitalization and Marketing Service (DRMS). Information can be found at <http://www.drms.dla.mil/asset/fsclist.html>. DLA has been designated as the integrated materiel manager at the wholesale level for one or more consumable items of supply in the FSC.

GSA uses the GSA Schedules Program to acquire food service, hospitality, cleaning equipment and supplies, food service equipment and supplies, kitchen management solutions, emergency and non-emergency food service support, refrigeration, cooking, dishwashing, food preparation, storage equipment, and other miscellaneous food industry items.

GSA provides food service operations in hundreds of Federal workplaces for more than one million employees, contractors and visitors who are housed in our 354 million-square foot inventory. GSA has the authority to provide concessions in GSA-controlled buildings, with operations ranging from vending machines, snack bars, to full-service cafeterias, cafes, and food courts.

In response to President Obama's recent challenge to improve the health and wellness of Federal employees, GSA is initiating changes to its national food service template in FY 2010 to include language on wellness and sustainability. While this template is specifically for GSA actions, it will be available to all Federal agencies to use, and made available to the public. New GSA contracts will have the flexibility to be tailored to local market offerings and consumer demand, ensuring adequate competition and successful vendor operations. Food service vendors will be asked to incorporate healthy menu options and expand menu variety, including green food and sustainable services, organic, locally grown and locally sustainable products. Furthermore, GSA will ask vendors to incorporate such energy-saving practices as recycling, composting, food donation programs, and cleaning services adhering to Green Seal Environmental standards, and to align their operations with the Leadership in Energy and Environmental Design (LEED) Green Building rating system.

Mr. MICHAUD. My next question is for the Department of Energy as well as the GSA. My concern is, that everyone is talking about green energy, that we have got to be energy efficient. But when I look at what is happening in certain agencies as far as some of the standards, I will use transportation, for instance, because Maine is doing a lot of, through the University of Maine, with a bridge and a backpack which actually is stronger than steel. When you look at the CO₂ impact, it reduces the impact. The durability is great. But I do not see any real initiatives coming out from the Depart-

ment of Energy. What I see the Department of Energy doing is looking at the bigger chunks of money going to certain areas versus trying to really focus on some of the technology.

A good example and it gets right back to wind rather than import the steel from China for windmill blades they are also doing work with wood composite. And the durability, the strength is actually just as great as steel and the maintenance is low because you do not have to worry about the rusting. And the maintenance is extremely low.

And off the coast of Maine, you have got the equivalent of 40 nuclear power plants, but the Department of Energy is just sitting down here doing whatever it is doing. I do not see them being really proactive in getting back to thinking outside the box in new technology, new ideas. The only ideas I see coming are those from within the administration, which is really the driving force.

I would ask the Department of Energy to comment on what you are really doing proactively? And how are you being really aggressive out there on energy that relates to the VA facilities as well?

Mr. KIDD. Thank you.

Well, I would submit that the Department of Energy is investing significant amounts of money across the entire spectrum of technologies that are required to make energy efficiency and renewable energy less costly and more available to the American people.

Both in our standard budget and in the American Recovery and Reinvestment Act funds, you have seen tremendous increases in investment on light weighting technologies, which you mentioned because light weighting technologies are viable for vehicles. Roughly 6 percent of the energy in your car, in your gasoline powered car, goes to move the weight of the occupant. The rest goes to move the weight of the vehicle or is lost in friction or in engine inefficiencies. So light weighting is a key component for windmills, for transportation across the board. We are investing in that.

One of the key issues is energy storage, how do we get the renewable power available for a longer period of time when the wind is not blowing and the sun is not shining. We are making billions of dollars of investment in the issue of power storage.

All right. In terms of the turbine efficiency, we are investing in that. In terms of building envelope design, mechanical practices, in building controls, all of these are areas which are receiving tremendous investment across all the National Laboratories.

In terms of the National Laboratories and your question, what can we do to accelerate the deployment of this technology to the Federal agencies, that is where I come in. I am very interested in that topic.

In the American Recovery and Reinvestment Act, we had a number of requests across the Federal agencies for assistance from DOE. We were oversubscribed. In fact, we were 400 percent oversubscribed from Federal agencies asking us for what we could do in regards to the resources that we had.

And what we did is we looked out across the entire DOE lab enterprise, which is really a national asset, the great capacity that resides in our laboratories, and we said, look, we are not just going to bring one lab to this problem. It is not about building envelopes, all right, in the case of a military installation. It is about building

envelopes and renewables and grid and power storage and all these issues. And so let us bring them all together.

So in response to a requirement that originated in the State of Hawaii and the Pacific Command, we are bringing six National Laboratories to a problem that just a year ago, we probably would have only brought one lab to.

So we are making some improvements. And I am committed to trying to get that technology from the DOE labs to the Federal agencies as soon as possible and make the Federal Government a leader and a first adopter for the rest of the country.

Thank you.

Mr. MICHAUD. Thank you.

The CHAIRMAN. Mr. Bilbray.

Mr. BILBRAY. Yeah. Let me, just so I will reflect the gentleman from Maine's comment, show you how much talk is really very large out there and performance is very low.

In the mid 1970s, the Federal Government did the study to prove composite technology using wood and saturation epoxies, were much stronger, much less maintenance and much more efficient than using traditional metal. But you have old habits to break.

So this goes all the way back to like 1976, I think, when the study breakthrough flat out said, in fact, actually, if I remember right, it was a group called the Gudgeon Brothers who actually had learned the technology building boats in Michigan and applying it to wind generation. And we are still fighting this battle.

Mr. Chairman, I would like to ask a couple questions. And let me just sort of warn the panelists.

I served 6 years on the Air Resources Board for California, some of the best scientists in the world on these issues, 10 years on an air district. And, frankly, I heard a lot of talk and a lot of promises and I see very little performance.

I hate to say it. I guess when I got here, Mr. Chairman will remember when I got here and was blown out that the Capitol of the United States was being heated and cooled by coal. In California, you go to prison for burning coal. And it was stacked up outside and nobody even realized that here we were leading through example. And that is the one thing I want to get down to is this leading through example.

And I have just got to tell you it burns me every time I see our SUVs out there with E85 on it as if that is some kind of great environmental benefit to the world and taking credit for this stuff when scientists are telling us, no, but politics is saying it is much better, much more efficient to do that.

You were talking about renewables. My question to you is move the conversation. What portion or is there any mandate that your departments are buying zero emission electricity for our facilities?

And do not get into the renewable issue because wood burning is counted as renewable and it is one of the most polluting particulate problems we have in air pollution. But when it comes down to zero emission, do we have any mandate that the Federal Government and your facilities have to buy zero emission?

Mr. KIDD. Sir, the mandate for renewable power, is a 7.5 percent target by 2015. Power generated through biomass processes is classified as renewable, and that is how we track it. We could give you

a breakdown of the current percentage. With some time, I could get back to you by what the breakdown is of the——

[The DOE subsequently provided the following information:]

Currently, FEMP does not break down renewable energy generation at the agency level by source. Rather, FEMP maintains its renewable energy generation statistics as a function of the percentage of renewable energy generated relative to the total agency energy generation.

Mr. BILBRAY. Okay. So we are actually going to be buying electricity and continuing to subsidize electricity that is contributing to the greenhouse gases and polluting. We still have not required that all our electricity is off the carbon chain.

Let me ask you this. You have got about a third of your projected energy intensity reduction by buying energy credits, right?

Mr. KIDD. That is correct now, but the Department of Energy is phasing out the value of renewable energy credits (RECs) for calculating compliance with the energy intensity goal. So by 2012, RECs will no longer count as a contributing factor to the energy intensity reduction goal. They will only count for the renewable goal.

Mr. BILBRAY. Okay. And I am really sorry, Mr. Kidd. California started this whole concept of offset trading, but the history of it, especially with the Federal Government, is less than stellar.

I think you know the fiasco we had here of promising the consumers that the Capitol was going to green, bought offsets, and none of those offsets were ever—it was the biggest sham in the world.

I just really would love to see the accounting on this because I have seen nothing but bait and switch on these offsets with no enforceability, nobody coming down hard on it, nobody paying a price for setting up the shams. And I think that is one of those issues that we—when you say this, I want to see how you are going to enforce it, how you are going to mandate it.

If anybody buys, basically pays for this, and it does not happen, who is held accountable? If the farmers that you are paying do not do the stuff they claim to do, like what happened with our Capitol, our so-called green strategy, who is accountable, whose head rolls, because there is a lot of promises being made here and we are not seeing it?

The question I have on the other attitude is when we talk about location, let us not talk about building, but when we talk about resiting the facility, how much is location and the availability of mass transit and existing infrastructure determined in the siting? Is there a mandate that that priority be given by your departments?

Mr. KAMPSCHROER. There is a set of internal guidelines that GSA uses to ensure that that happens. There is a mandate in Executive Order that we apply to those. We factor that into our leasing decisions as well. It is one of the components that we evaluate in every lease that we award across the country.

Mr. BILBRAY. Why are we depending on certificates, energy certificates rather than going straight for clean technology, Mr. Kidd, the purchase of these certificates? Why are we not wheeling clean technology? With the grid the way it is now, we can go out of State and wheel clean technology into our facilities. Why are we not doing that? Why are we playing this certificate game rather than

going over and actually dealing directly and working on wheeling clean energy into our facilities?

Mr. KIDD. I think the Federal Government is making some significant investments in renewable technology and energy efficiency technologies. The way the goal setup is structured is that for agencies to get credit, they have to bring new sources online.

One of the things that we are looking for—

Mr. BILBRAY. Whoa, whoa, whoa, whoa, whoa, whoa, whoa, whoa. Wait. Excuse me. You said to get credit for what to bring new sources online?

Mr. KIDD. The goal for renewable power generation of 7.5 percent, half of that requirement has to be met through new energy sources, so new renewable power sources that are created. You cannot buy your way to goal compliance.

Mr. BILBRAY. And why? You cannot buy your way to buying clean energy. You cannot pay more for existing clean energy and wheeling that to you. You cannot do that. Is that what you are saying, 50 percent of this?

Mr. KIDD. No. I am saying that for goal compliance, the agencies get credit for renewable power, which is generated on their site or on premise. Alternatively, agencies can also get partial credit for renewable power which they purchase via RECs.

Mr. BILBRAY. Okay. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Bilbray.

Mr. Buyer.

Mr. BUYER. Thank you, Mr. Chairman.

The GSA, do you support providing the VA the same authority that the Department of Defense has to enter into long-term, 20-year commodity procurement contracts?

Mr. KAMPSCHROER. GSA supports, and has submitted a legislative proposal to, extend the authority for utility purchases for renewable power for up to 20 years. It was also a component in the earlier drafts of the Energy Independence and Security Act of 2007, but not in the final.

And where that authority granted, it would be available to every Federal agency either through delegation from GSA or by GSA's use of the procurement authority for the agencies as we do across the government.

Mr. BUYER. Thank you.

On average, can you tell me how long it takes for an interested company to complete the application process for inclusion on a GSA schedule?

Mr. KAMPSCHROER. My understanding is that it is approximately 4 months today, but I would be better served to give you the information for the record after the fact.

Mr. BUYER. If we switch chairs and you were a Member of Congress, you would get to hear the complaints about individuals and their applications and how long it takes. And it is much longer than that. Sort of the rule of thumb out there in the street is that it could take up to a year. And I just find that unacceptable.

I think it is probably some of the frustration that Mr. Michaud has with trying to do the contracting. And we are going to get into procurement issues later on, probably in October, November, and we will invite GSA to come back.

Let me ask this. If you know, what is my answer to these companies that complain about how long it takes to get on a GSA schedule? Who do I refer them to or how do you advance the process?

Mr. KAMPSCHROER. We have created a new Web site partially as a result of the intense interest in doing business with the government by new firms that the American Recovery and Reinvestment Act has caused. I would refer them to that Web site. We have a number of people, gsa.gov/recovery, and then it is pretty clear. I would certainly provide the Committee information on how best to go about it depending on the nature of the product.

[The GSA subsequently provided the following information:]

Generally speaking, it takes between 3 to 4 months from the time an offer is received until an award is made. However, there are many factors which may impact the offer processing timeframe, such as:

- Quality/completeness of the incoming offer as incomplete information requires clarification requests until the information is sufficient to support a “fair and reasonable” price determination by a Contracting Officer;
- Workload of the Contracting Officer;
- Complexity of the Offer; and
- Pre-award audits, if applicable.

GSA is making efforts to improve the process. For example, Pathways to Success is an online tutorial focused on educating the potential contractor about the Schedules program and the associated contract compliance responsibilities. The intent is to enable the contractor to make an informed decision about whether or not it is prepared to support and maintain a Federal contract.

In addition, our Supplier Management organization (within the FAS Office of Acquisition Management) conducts a New Contractor Orientation, and also visits each new contractor to assess systems capability for tracking and reporting contract sales, understanding of contract scope, and other contract compliance areas such as the Basis of Award and the Price Reduction Clause.

Various other process improvement projects, most using the Lean Six Sigma methodology, are underway to address both the new offer and the contract modification processes in the Schedules program. These process improvements should reduce the cycle time for processing offers and modifications.

Mr. KAMPSCHROER. I have worked personally with different firms that have been referred to GSA by themselves, by other people, and I know that 4 months is achievable and I understand that it used to take longer. So I am hopeful that the improvements that we are making in the process will not only take place but have a positive effect on increasing the competition for work with the Federal Government.

Mr. BUYER. The challenge here is, and we can get into this a little bit later with the VA, as we move to the renewable energy projects that are existing with the VA and then through that procurement process, they look at the GSA schedule and say, okay, with regard to photovoltaic, who are the existing companies out there. So they look at solar. You know, you come under the category of solar.

But a lot of what I have learned here is that there are a lot of large companies that are roofers who are also in the photovoltaic business, but guess what? They are not under solar under GSA. So as this new wave of contracts just went out through the VA, a lot of these very large companies here in the United States that also do solar, they are roofers. They are not electricians.

The roofers threw the electricians off the roof, rightfully so. They put all the money up there to put all that ply up, they do not like

holes in it. Now, the first person you call is not the electrician if you have got raindrops coming through, right?

And so these very large companies are very upset. Number one, they did not know that the wave of bids went out and they did not get to participate in the process. And we are feeling some wave of some complaints. I just want to let you know that. And so I am going to get into that a little bit later here with the VA.

But I will work with you if you are going to give us some recommendations on this Web site and I can refer these companies to it. If all these green jobs that we are talking about, they are new and emerging companies who also want to do business not only in the private sector but with government, but as these monies roll out and projects roll out, they are not able to bid. They are not able to bid because they are not on the GSA schedule. And they are locked out.

And so when they get locked out and if the only game in town, not the only game, but the most emergent game in town is government because of the stimulus bill, we have to deal with the wave of complaints. So I want to work with you on this. Okay?

I am going to end with a compliment to GSA. My compliment is in regard to the Public Law 106-50 and the Presidential Executive Order 13360 to establish a goal for all Federal agencies to award 3 percent of the contract dollars to service-disabled, veteran-owned businesses. And according to the SBA Web site, GSA, you are at 3.93 percent. So you have exceeded the goal set by the President and by Congress. So I congratulate you.

To the Department of Energy, you are at $\frac{1}{2}$ of 1 percent. I call that failure. I call that an embarrassment. So the next time you want to get out and you come to Congress and you want to talk about green jobs and creating all those jobs, be careful which Committee you come to. If you come to the Veterans' Committee and you talk like that, I am going to do a little research on you. And I think we can do better. So please take the message back, please, that with regard to these green jobs and these emergent jobs, go to the schedule and find out who are the veterans and disabled veteran small-owned businesses and as we seek to meet our goals, I think we can do two things at once.

Do you agree with that, Mr. Kidd? Sound like a good plan?

Mr. KIDD. Ranking Member Buyer, that sounds like a great plan. I took—

Mr. BUYER. When you take that back, tell them Mr. Buyer asked for it.

Mr. KIDD. Buyer, yes, sir. I will do that.

Mr. BUYER. All right. Thanks.

Thank you.

Mr. BILBRAY. Mr. Chairman.

The CHAIRMAN. Thank you.

Thank you both for your testimony and your help as we move forward.

And we will ask for the third panel to—

Mr. BILBRAY. Mr. Chairman, before they leave, could I just ask one quick followup?

The CHAIRMAN. Yes, sir.

Mr. BILBRAY. The renewable energy credits and the certificates, what portion of those credits are within the political subdivision of the United States and what portion could possibly be outside of the United States, the credits and the offsets?

Mr. KIDD. Sir, I do not know the specific answer to that question. On my written testimony, I have given you a breakdown by agency of how much of their renewable energy comes from on-site generation and how much comes from renewable energy credit purchases. We will check and get back to you on how much is within the United States and how much is external to the United States.

[The DOE subsequently provided the following information:]

Zero percent. The U.S. Government has not purchased any Renewable Energy Credits ("RECs") that certify any renewable energy generated outside of the territory of the United States. All REC's are associated with a point of generation inside the U.S., and fed into the U.S. grid. FEMP has confirmed with agencies that buy RECs on behalf of the U.S. Government (e.g., Defense Energy Support Center, Power Marketing Agencies), that all Federally purchased REC's are from generation inside the U.S.

Mr. KIDD. I would just also like to highlight for the Committee that FEMP has prepared a guide on how to sell green products to the Federal Government. That is available on our Web site. So when any of your constituents bring that to you, that is another resource that you have available to you and that covers all avenues of sales to the Federal Government beyond just the GSA schedules.

Mr. BILBRAY. I just want to warn you anything outside of the United States is going to be very, very heavily hit based on a whole lot of things that are coming down the pike. And the auditing and the ability to account for any credits that are outside our jurisdiction really is going to be raised into question very quickly not only by the environmental community, but a lot of the media is going to be seeing this coming down the pike. Okay? Stay away from out of country offsets.

The CHAIRMAN. Thank you, Mr. Bilbray.

We will ask the third panel to join us. From the Department of Veterans Affairs, James Sullivan is the Director of the Office of Asset Enterprise Management. He is accompanied by Edward Bradley, Director of Investment and Enterprise Development Service in the Office of Asset Enterprise Management. John Stenger is the Director of Healthcare Engineering at the VHA. John Beatty is the Director of Safety, Health, Environmental and Emergency Management at the VHA.

Thank you for being here today. You have gotten a lot of compliments, Mr. Sullivan, and we are anxious to hear if you deserve them or not.

STATEMENT OF JAMES M. SULLIVAN, DIRECTOR, OFFICE OF ASSET ENTERPRISE MANAGEMENT, U.S. DEPARTMENT OF VETERANS AFFAIRS; ACCOMPANIED BY EDWARD L. BRADLEY, III, DIRECTOR, INVESTMENT AND ENTERPRISE DEVELOPMENT SERVICE, OFFICE OF ASSET ENTERPRISE MANAGEMENT, U.S. DEPARTMENT OF VETERANS AFFAIRS; JOHN D. STENGER, EIT, BSME, DIRECTOR, HEALTHCARE ENGINEERING, OFFICE OF THE DEPUTY UNDER SECRETARY FOR HEALTH FOR OPERATIONS AND MANAGEMENT, VETERANS HEALTH ADMINISTRATION, U.S. DEPARTMENT OF VETERANS AFFAIRS; AND JOHN D. BEATTY, DIRECTOR OF SAFETY, HEALTH, ENVIRONMENTAL AND EMERGENCY MANAGEMENT, VETERANS HEALTH ADMINISTRATION, U.S. DEPARTMENT OF VETERANS AFFAIRS

Mr. SULLIVAN. Thank you, Mr. Chairman.

Mr. Chairman, Ranking Member Buyer, and Members of the Committee, thank you for the opportunity to present the Department of Veterans Affairs Green Management Program, our commitment to energy efficiency and cleaner energy and to building lasting change that reduces VA's impact on the environment.

I am accompanied here today by Mr. Ed Bradley on my right, Director of the Investment and Enterprise Development Service; John Stenger sitting next to me, Director of Healthcare Engineering; and John Beatty, Director of Safety, Health, Environment and Emergency Management from the Department's Veterans Health Administration.

From the outset, let me acknowledge and thank the witnesses from the other panels today for their assistance in helping us at VA reach our energy and sustainability goals. The Department of Energy has gone over and above to assist us in performing energy assessments—across the country, we have conducted energy assessments on all VA-owned facilities as of this year—and in supplying us educational and outreach materials and capability.

The GSA has been working with us to help curtail our energy consumption in numerous ways. The U.S. Green Building Council and the Green Building Institute have been instrumental in helping us with our certification of existing and newly constructed facilities.

Before I go on about the Green Program, I need to emphasize that our primary mission, which I am sure you would agree, is to care for and provide services to veterans and their families. Everything we do every day, that we undertake must uphold and support the sacred responsibility and trust to care for our Nation's veterans.

Our Green Program supports our core mission. It is simply, we believe, a smarter and better approach to managing our assets. We believe in acting as good stewards for the assets that the American people have entrusted to the VA.

VA is making great strides in conserving resources at our facilities across the country by proactively managing its energy, environmental, fleet, and sustainable building efforts. These four program areas are the cornerstone of our Green Program.

We have, for example, reduced the rate at which VA uses energy in its buildings by 11 percent since 2003 and we have put energy

management expertise in place at the local level through the addition of dedicated energy managers to support all VA facilities.

We have exceeded our alternative fuel vehicle acquisition mandates and we are now installing pumps to dispense alternative fuels at ten fueling stations across the country.

To date, 10 VA facilities, or about 7 million gross square feet, have earned the certification as green buildings and we are currently in the process of having an additional 11 buildings and campuses being certified as we sit here today.

To meet Federal mandates and ensure appropriate management of our utility consumption, VA has recently awarded a contract to install advanced electrical metering at all VA-owned facilities. We are also dedicating over \$400 million in the American Recovery and Reinvestment Act funds to make our facilities more efficient and to add solar, wind, and other renewable projects to our portfolio. To date, we have spent approximately \$60 million dedicated to energy efficiency projects from this money.

VA has been a leader in implementing renewable technologies. We recently awarded a wind turbine contract at our Saint Cloud, Minnesota VA facility, 18 contracts for solar photovoltaic projects, and additional contracts were awarded in August for renewably fueled cogeneration projects at 38 different sites around the country.

At the Las Vegas VA Medical Center now under construction, VA is installing solar panels that we believe will generate up to 20 percent of the electrical needs of that facility.

At the Bronx VA Medical Center, a cogeneration plant is planned and partially funded—with a projected payback in 3 years—as we install a new spinal cord injury unit in place which Congress has funded.

We have conducted renewable energy feasibility studies at other major projects that have been authorized and funded by Congress such as Denver, New Orleans, and Orlando, and we will be employing renewable energy activities at those sites based upon those studies.

Next week, we will be launching what is known as the Green Routine Initiative at VA to highlight October as energy awareness month. This initiative takes the Department's commitment to greening VA to the individual employee level through a new Web site, videotape broadcasting, instructional handbooks, and other materials designed to educate our employees on simple tips and actions that can make a difference at work to make green real and routine in every-day activities.

Going green to us means making the right investments and putting green practices in place at every level of the organization. Simply put, doing the right thing every day.

Mr. Chairman, you have my written statement. My colleagues and I will be happy to answer any questions you may have. Thank you.

[The prepared statement of Mr. Sullivan appears on p. 79.]

The CHAIRMAN. Thank you, Mr. Sullivan.

Mr. Rodriguez.

Mr. RODRIGUEZ. Thank you very much.

And you mentioned, you have a program in October that will begin to reach out to the workers and—

Mr. SULLIVAN. Yes.

Mr. RODRIGUEZ [continuing]. I think that would be a tremendous idea because I think—and especially if you also localize it to their own homes also because when we start watching what is going on at home, we are also conscious of what is happening at work. And I would hope that that is—and I do not know if that is—part of the effort that you have.

Mr. SULLIVAN. Right. Our thrust is twofold. From the top down, we are directing investments in the infrastructure that need to be made and, secondly, and probably more importantly in terms of the impact, is getting all of our employees on board in their daily activities and integrating best practices, whether it is turning off the light, whether it is looking at how they recycle, making sure that they do briefings paperless, whatever they may be, we have drafted it and we will have a tool kit that will be distributed. And we will be happy to provide a copy of it to the Committee next week for every employee in VA so that will be ingrained in their culture.

[The VA subsequently provided the following information:]

VA's Green Routine campaign was launched on Monday, October 5, 2009.

This campaign is designed to increase the awareness among VA employees of their environmental impact as individuals and as members of the Federal Government.

The newly established Web page at www.va.gov/greenroutine contains a green resources guide for managers and employees entitled *Greening Action Guide & Toolkit*. This guide provides easy lifestyle changes for employees to perform daily in their office environment to help reduce the agency's carbon footprint, and promote awareness of their environmental impact. The Web page also provides tips, facts, and governmental resources that provide information about how to enact a daily *Green Routine*. [The guide "Veterans Affairs Central Office Greening Action Guide and Toolkit," dated September 2009, and the presentation by the Office of Asset Enterprise Management, entitled "VA Green Management Program: Energy, Environment, Fleet and Sustainable Buildings," dated September 2009, are being retained in the Committee files.]

Please let us know if you have any additional questions and we would be happy to assist. Ed Bradley, Director of Investment and Enterprise Development Service, can be contacted at (202) 461-7778.

Mr. RODRIGUEZ. And I think that would great, especially now. I think people are going back to also being a little more frugal, not spending money, and the same thing applies to energy and those sources.

The earlier questions regarding energy, I guess each facility usually buys their energy from the closest facility that is available in the community. And so that data is kind of difficult to grab a hold of the type of electricity that you are using. But you did say you did an assessment also of each of the facilities.

So if I look at the facilities that, you know, like, for example, the site in San Antonio, the site in El Paso, I would see where the strengths are and the weaknesses; is that correct?

Mr. SULLIVAN. That is correct. The Federal mandate is for us to do energy assessments, 25 percent of our portfolio of owned facilities every year. We actually exceeded that. We did a third each year and we just completed the first full round of those.

And there was an outside consultant that came in and looked at the energy needs of the facility, what could be changed in terms of operation and maintenance practices, what investments needed

to be made with the idea to bring someone else in, look at it, and say what do we need to do.

We then take those energy assessments when we look at our investments and target our investments to address those priorities that are identified in those studies.

Mr. RODRIGUEZ. Can I ask you to provide that to my office, the site in El Paso and as well as the one in San Antonio—

Mr. SULLIVAN. Absolutely, sir.

Mr. RODRIGUEZ [continuing]. You know, Audie Murphy and—

Mr. SULLIVAN. Sure.

Mr. RODRIGUEZ [continuing]. I would appreciate that.

[The VA provided two reports to Congressman Rodriguez, entitled: "Phase II Energy Assessment, Department of Veterans Affairs, VA Heart of Texas Health Care Network, VISN 17," dated March 10, 2008, and "Phase II Report to Department of Veterans Affairs, VISN 18 Energy Assessment," dated February 28, 2007. The reports will be retained in the Committee files.]

Mr. RODRIGUEZ. Now, what kind of a response do you have in terms of identifying the weaknesses later on in terms of accomplishing some of those goals that you have for each of the facilities?

Mr. SULLIVAN. As I think I mentioned earlier, the struggle that we deal with every day is balancing the greenness with providing the health care and providing the cemetery services.

For example, in the cemetery area, the folks are making great strides in dryscape, looking at other alternatives to reduce our water in cemeteries. But at some point, we do reach a wall where if we take the action, it will adversely affect a service to the veteran.

And so that is the constant struggle that we deal with and the energy managers in the field deal with on a daily basis to make sure we have that right balance. That is probably our largest challenge.

Mr. RODRIGUEZ. Okay. Now, in accomplishing that, I know in some of the facilities that I have visited, they talk about the fact that there is not enough staffing and some of it has been contracted out.

Has that been looked at as to how best to make this happen? I would hope that we would have sufficient resources now at least to hire the staff that is needed?

Mr. SULLIVAN. From our perspective, I can assure you that both last year and this year we have received significant support from the Secretary in terms of funding our needs. We have put in place 112 or 118 energy managers in the field dedicated to doing this kind of work. We have also had significant funding increases from ARRA and from others.

And what we are doing is developing an in-house capability in a lot of cases and training our own people, obviously supplementing it at times with expertise outside of our realm, but primarily it is an in-house capability.

Mr. RODRIGUEZ. And the initial question that I had on the new facilities, are we on top of that in making sure that we try to be as efficient as possible in the building of the new facilities?

Mr. SULLIVAN. We are trying. All projects that were submitted to Congress for funding from 2009 and on are fully compliant with all

of the new standards. The ones prior to that, since the standard did not exist when we submitted the funding request, we are going back and trying to retrofit or make changes to any of those facilities.

You know, an example is Las Vegas. When we got the initial funding on Las Vegas, we did not have a lot of these mandates in place 3 and 4 years ago. So what we have done is we have hired someone to come in and look at the Vegas example and say what can we do, even though parts of that are fully designed and partially under construction, what can we do there to include renewables. And they have identified a significant solar capability that was not originally in the contract that we are going to put in where we believe that will take care of about 20 percent of the electricity needs of that hospital.

So we are catching up on the ones that were in the pipeline and all the new ones are fully compliant starting in fiscal year 2009.

Mr. RODRIGUEZ. Thank you.

The CHAIRMAN. Thank you.

Mr. Michaud.

Mr. MICHAUD. Thank you, Mr. Chairman.

Thank you, Mr. Sullivan, for coming here as well.

You had mentioned that the VA has sited some windmills. Is that on the VA's facilities and, if so, how has the permitting process been going?

Mr. SULLIVAN. At this point, we have identified two sites for wind turbines, one in Saint Cloud and one potentially in Bourne, Massachusetts, at the cemetery. We have also 13 studies underway to see where else we could site those. And in that process, we do go through the environmental and historic preservation processes where we bring out to the community what we are doing.

We have also had some smaller wind projects in Michigan that were not really windmills but ones that go across the top of the building, so it is less visible to the public.

Mr. MICHAUD. Okay. So there are no actual windmills that you have really sited on the VA campuses?

Mr. SULLIVAN. Well, the one in Saint Cloud is sited on the campus. We identified the parcel. The contract was awarded. The one in Bourne, I believe, is projecting an award sometime in January.

Mr. MICHAUD. Okay. Has it been built though?

Mr. SULLIVAN. No.

Mr. MICHAUD. Okay. My next question, as you heard from the other two panels, the issue about procurement, and when you look at energy whether it is food or transportation costs for energy, have you run into any problems dealing with some of the procurement issues getting what you need as far as green?

Mr. SULLIVAN. I think in terms the way we have addressed this is prior to 2 years ago, we had decentralized the procurement capability. It was fairly decentralized for energy anyway out to individual medical centers. About 3 years ago, we pulled that all together and created the National Energy Business Contracting Center. All of these contracts are done by a dedicated group of folks that just do energy contracts.

So we think that that has helped significantly. But in any contracting issue, it is always a challenge to keep moving forward and balancing how fast we move with the quality of what we are doing.

And I know a lot of folks, not so much in this forum here but other forums, have pushed so hard about why are we not doing more quicker. Part of it is to make sure we are doing it right and we are trying to do it right.

Mr. MICHAUD. Now, you had mentioned the VA meeting the standards that are out there. But my question is, do you think the standards are adequate? That is, I met with a businessowner who is working with insulation and cellulose, which is what they do. It is flame retardant. It is better than regular fiberglass insulation. And you do not have to deal with the health problems with fiberglass insulation. It is made out of trees so it is definitely green.

So can you comment on that as far as, yes, you might be meeting the standards, but are the standards up to date or can we do better improving some of the standards that are currently out there that you are meeting?

Mr. SULLIVAN. We have updated all of our standards in 2007 and 2008 for energy-related requirements for the facilities we build and the facilities we lease.

In terms of that particular technology, I am not familiar with it. Primarily we rely on GSA and DOE to give us guidance in terms of what are the breaks between research and actual useable technology. That is not to say that we do not look. If opportunities come like this, we would be happy to take a look at it and see if there is an application at VA for that.

Mr. MICHAUD. Okay. And my last question: when you talk about trying to be more energy efficient in the facilities that you own, how do you deal with facilities that you lease? Do you work directly with GSA or is that—

Mr. SULLIVAN. Most of our leasing, we have delegated leasing authority from GSA. So VA enters into all medical leases itself.

About, and I can get you the exact date, about—I want to say—a year ago, we included in all of our RFPs for leases the same requirements and standards we do in our buildings for energy improvements. So as all those new leases are put in place, they will have to adhere to those as well.

And I know, for example, I just happened to look at a CBOC the other day to check to make sure that the requirements were in the RFPs and were in the awarded contract and they were.

I can get you a date of when we started to do that. It was a little bit later than the buildings because we went after our own first.

[The VA subsequently provided the following information:]

The GSA SFO template has incorporated Energy Star language since September 2000. GSA began to include LEED language into their SFOs in December 2007. The GSA SFO template is used for all VA existing space procurements, which is most of what is done in the field.

In FY 09, VA began implementation of energy requirements as LEED Silver Certified and enhanced requirements to meet the five guiding principles and other requirements as set forth in EO 13423 (2007). Effective in FY10, leases now require LEED Silver Certification.

Mr. MICHAUD. Great. Thank you very much.
I yield back, Mr. Chairman.

The CHAIRMAN. Thank you, Mr. Michaud.

Mr. Buyer.

Mr. BUYER. Thank you.

I would like to ask the same question that I asked to the GSA. Do you support providing the VA the same authority that the Department of Defense has entering into long-term, 20-year commodity procurement contracts?

Mr. SULLIVAN. Yes, I believe that would be helpful.

Mr. BUYER. Thank you.

I am contemplating this, so I am going to ask whether or not you think this is a good idea.

Mr. SULLIVAN. Okay.

Mr. BUYER. All right. My contemplation is the gentleman that just testified on the second panel is to have him representing the GSA and you, put the two of you together and have a meeting with me. What I would like to do is figure out how we can do the next wave of contracting a little better than what was done with the first wave.

My sensing here, and please correct me if you believe that this assessment is incorrect, that I think you moved into a new space, you were under a lot of pressure. My review of the front pages, the first six, seven pages that I had gotten of the requests for procurement (RFPs) that you did a very good job in putting these together, but you were also under a lot of pressure to get these out and done with this year's moneys. Whoever looked at with regard to the—you are completely within the scope of your authority and following the statute, but you looked under the solar. You found out of those companies, you know, a lot of these companies, I hate to call it like this, but some are front companies for others of whom bid off of the schedule, and you sought to find who would be responsive in a lot of these PV projects, and you have got some awards that are about to come out, right?

Mr. SULLIVAN. That is correct. Eighteen.

Mr. BUYER. And now, as I told the second panel, we dealt with a lot of complaints. These are a lot of large companies out there of whom are on the GSA schedule, of whom are roofers who also do the PV, and that is who is doing a lot of the big PV contracts around the country, did not even know, did not even know about the bids going out. And so we are dealt with some wave of complaints.

From the taxpayer perspective and i.e. government perspective, wow, it is better to be inclusive than exclusive. And so what I am hopeful is a meeting with GSA and you as we go into the second wave. I am not going to upset the apple cart. I have not asked the Chairman to do anything. I think you did the very best you could under the time requirements that you had.

The question is, do you think we can do better? I think we can. And I would like to ask if you believe it would be fruitful to put together a meeting with you and the GSA for us to see how we can improve the process?

Mr. SULLIVAN. Absolutely. We are always looking to do better and improve what we are doing. And we are aware there were some businesses that were not on the schedules and for whatever reason did not have the opportunity.

And as we move to the second wave which is larger than the first, we had already contemplated taking a portion of those and doing full and open and not doing those on schedule.

But we would be happy to meet with you and GSA and make sure we have a strategy that the Committee is acceptable to move forward within the statutory responsibilities. Absolutely.

Mr. BUYER. Okay. All right. I think it would be helpful to do that. And I would be more than happy to invite the Chairman or any other interested Members to that meeting.

Thank you. I yield back.

The CHAIRMAN. Thank you, Mr. Buyer.

Again, thank you for your expertise and your commitment. We have come a long way, but we have a long way to go.

Just one question, Mr. Sullivan. I think you heard me earlier talk about some incentives for employees. Are we doing any of that? I know you started off by saying you are giving out the suggestions, but that is not the same as an incentive program or—

Mr. SULLIVAN. Right now our incentive program really is focused on rewarding people who put projects together and the projects themselves, we participate in the DOE's FEMP Award Program and we have several winners over the last few years. And, actually, two or three winners, we bring them into town and they go to a reception and an award ceremony. But that is one area we have identified in our action plan that we need to have more employee incentives. We know the local field managers and medical centers do some of it. But one of the areas we need to do better is to have a corporate incentive program and that is something we are working on and we will do that.

The CHAIRMAN. Thank you very much.

Again, we thank all the panelists. You have enlightened us all as we continue on our path toward energy efficiency and independence. Thank you.

The meeting is adjourned.

[Whereupon, at 12:10 p.m., the Committee was adjourned.]

A P P E N D I X

Prepared Statement of Hon. Bob Filner, Chairman, Committee on Veterans' Affairs

Good morning. I would like to thank everyone for attending the hearing today. The VA is the 6th highest agency user in energy consumption intensity and the 3rd highest agency in water consumption making its footprint significant and its efforts to be in the forefront on conservation and reduction commendable.

As Federal agencies, I firmly believe that responsibility to the public is a must, and that we—as lawmakers and executors of the Federal Government— must set the example in energy, water and fuel conservation, with the hopes of having corporate and mainstream America follow.

I am pleased that the VA has reported to our Committee that it is taking extraordinary efforts to not only meet the goals of the Executive Order, but exceed them.

For as much as the VA is accomplishing, I am equally curious to hear what our panel of industry experts have to say about the VA's progress. I believe the experts we will hear from today will add great value to this dialog and make thoughtful recommendations on the way ahead.

The VA was allocated \$405 million in American Recovery and Reinvestment Act (ARRA) funds to accelerate critical programs to reduce the environmental footprint of the department. The VA set some very aggressive goals in this arena.

I am eager to hear how it plans to execute and sustain these goals of reduction in energy, water and fuel usage while building and renovating sustainable buildings and utilizing this \$405 million to its maximum potential.

The Committee will continue to monitor VA actions as it works to increase energy efficiency and provide results for our veterans and taxpayers.

While I applaud the VA's efforts to go green, I think it's imperative that we not forget the most important mission of the VA and that is caring for veterans. We need to ensure that the very specific needs of our veterans are being met at hospitals, clinics, and nursing homes, and make certain their care is not degraded or impacted by the efforts in becoming more energy efficient.

Now is not the time to lose focus on the larger goal of providing world class health care for veterans, but the time to balance the many initiatives necessary to transform the VA into a 21st Century organization.

Prepared Statement of Hon. John J. Hall

Thank you Mr. Chairman, thank you to the witnesses, and good morning. I am very pleased that the Committee is addressing such an important issue.

Energy efficient buildings will be a critical part of this country's strategy for the future. Here are just a few statistics to show how important green building will be:

According to the Department of Energy, buildings currently use 39 percent of the total energy produced in the U.S., and 74 percent of all electricity generated.

Buildings currently emit 30 percent of America's CO₂, making them top culprits contributing to global warming and climate change.

These facts are illuminating for a few reasons.

First, they show just how consuming and wasteful our current building practices are.

Second, these facts help demonstrate that there are many ways in which we can become more energy efficient as a country; simply reforming one industry won't fix the problem.

Finally, they make us realize that green building will be necessary for the future success of our country.

I am very pleased that the VA has been on the forefront of energy efficiency initiatives.

Achieving wider LEED and Green Globe recognition, utilizing a variety of renewable energies and committing to cut emissions 30 percent over the next 10 years are all reasonable and important goals.

Understandably, the VA consumes a high amount of energy due to its network of around-the-clock hospitals and medical facilities. I hope the VA will continue to explore ways of reducing its carbon footprint while continuing to provide the world-class care it is known for.

Mr. Chairman, thank you for holding this hearing. I look forward to the testimony of the witnesses. I remain committed to helping the VA achieve its energy efficiency goals, and I submit my statement for the record.

**Prepared Statement of Gail Vittori, Co-Director,
Center for Maximum Potential Building Systems, Austin, TX**

On behalf of the Center for Maximum Potential Building Systems, a non-profit organization established in 1975 and based in Austin, Texas, I would like to thank Chairman Bob Filner and Ranking Member Steve Buyer for the opportunity to testify about energy efficiency opportunities at the U.S. Department of Veterans Affairs. My name is Gail Vittori, and I am Co-Director of the Center for Maximum Potential Building Systems (CMPBS).

As a non-profit organization active in green building and life cycle design since its founding in 1975, CMPBS has been a catalyst for resource efficient, regionally appropriate building methods and materials and associated public policy, research, education and demonstration initiatives in both the public and private sectors. Over the past 10 years, CMPBS has pioneered the integration of green building practices in the health care sector, in collaboration with other non-profit organizations, professional societies, and health care systems.

In 2001, I participated in the American Society for Health Care Engineering's first Green Building Task Force. The Task Force's work was released in 2002 as the *ASHE Green Healthcare Construction Guidance Statement*, establishing a seminal framework for shaping health care's green building opportunities, and setting the stage to connect these strategies with human health, environmental, economic and community benefits. It strategically positioned these initiatives around three scales of influence: protect the immediate health of the building occupants; protect the health of the surrounding community; and protect the health of the global community and natural resources.¹ Later in 2002, CMPBS convened the *Green Guide for Health Care*, now a project of CMPBS and Health Care Without Harm; in 2004, I was appointed Founding Chair of the LEED for Healthcare core committee, and served in that capacity through 2008.

Bolstered by these initiatives and others I'll mention through this testimony, in less than a decade resource conserving and healthy building strategies have shifted from the domain of a few early adopter health care organizations to recognized mainstreamed best practices, with measurable human health, environmental and bottom line economic benefits. The Department of Veterans Affairs has had a visible presence in supporting many of these efforts and investing in their own research to advance sustainable practices in their portfolio, including the recently released *Innovative 21st Century Building Environments for VA Healthcare Delivery*. This leadership is welcome at a time when the health care sector has much to learn from and collaborate with industry peers—and recognizes that sharing best practices and lessons learned, along with using and improving tools to measure, manage and continuously improve design decisions, operations and maintenance, is instrumental to advance the very best practices across the bottom line, embracing patient outcome, staff well-being and productivity, economic performance and community benefit. These are essential elements to shape 21st Century health care facilities, and, together, have the makings for a win-win-win agenda.

Reflecting on recent studies, measurable benefits associated with green health care facilities are compelling:

- As documented in other market sectors, LEED® certified health care facilities do not necessarily have higher first costs than “non-green” buildings; first costs are independent of building size and LEED certification level;²

¹American Society of Health Care Engineering. www.ashe.org. Accessed September 2009.

²Guenther, Houghton, Vittori. *Demystifying Green Building Premiums in Healthcare*, Summer 2009. Health Environments Research & Design Journal. Vol. 3, No. 3, Vendome Group.

- Improve patient healing thereby reducing length of stay;³
- Reduce operating costs, curbing energy and water expenses by employing resource efficient practices and installing conserving equipment and fixtures; dollars budgeted for utilities can be redirected to patient care;
- Enhance competitiveness in the marketplace—they are the hospitals where patients want to go;
- Ease recruitment and retention challenges—they are the workplaces where medical professionals want to work.

As a mission-driven sector focused on health, the maxim *first do no harm* is emerging as a defining lens reflecting patient care and, increasingly, how health care plans, designs, builds and operates its facilities. Operating one of the Nation's largest health care systems with more than 1,400 sites of care, the Department of Veterans Affairs is uniquely positioned to put the lessons of green building into practice—and to be a leader in the transformation of our healing environments.

The U.S. Health Care Sector

The U.S. health care sector is the largest service sector in the U.S. According to the U.S. Department of Commerce International Trade Administration (2008), the health care sector represents 17 percent of the Gross Domestic Product and is projected to grow to 19.5 percent by 2017. There are 33 million employees in the U.S. health care sector.^{4,5}

Health care construction represents a similarly significant share of the U.S. economy. The U.S. Census Bureau indicates a \$47.4 billion investment in health care construction between April 2007 and March 2008, with the FMI Corp. projecting annual health care construction expenditures to reach more than \$60 billion by 2010.⁶

The sector's sizable impact is not, however, without an environmental cost. Health care facilities in the U.S. are the second most energy intensive building sector, just below food service and sales,⁷ and release more than 30 pounds of CO₂ per square foot per year.⁸ In-patient facilities average 239,200 Btu/sq. ft., while overall health care facility energy intensity is calculated at 187.7 Btu/sq. ft.⁹ *On average, health care facilities are more than two times as energy intensive as commercial office buildings, and currently spend more than \$8.5 billion on energy each year.*¹⁰

We know, based on groundbreaking examples in the U.S. and abroad, this doesn't need to be the case. In contrast, U.S. hospital energy intensity is about three times the intensity for thermal energy as in Australia, and more than two times the electrical energy intensity in the U.K.¹¹ These more energy efficient health care facilities operate without compromising patient care or safety, or staff well-being or productivity.

Hospitals are also prodigious water users. An estimated 31.4 million gallons of water are used per year for process use, and another 13 million gallons per year for fixtures such as faucets, toilets and showerheads.¹² This is equivalent to more than 120,000 gallons of water per day per hospital. Through a comprehensive water conservation strategy, Kaiser Permanente has reduced water consumption to an average of 107,143 gallons of water per bed per year, compared to 135,222 gallons on average for California hospitals, and 182,699 gallons per bed per year nationally.¹³ According to a 2008 study issued by the Deloitte Center for Health Solutions, health

³ Alan Bell, *Pioneering the Platinum Path for Health Care*. Practice Greenhealth/GGHC Webinar, April 24, 2009.

⁴ http://www.deloitte.com/dtt/cda/doc/content/us_chs_Greening_Sustainability_HealthCare_1208.pdf, Accessed September 2009.

⁵ Ibid.

⁶ Environmental Construction and Management. 2007. "Health Care Construction Prognosis: Industry Appears to be in Top Form," June

⁷ Energy Information Administration, CBECS 2003, adjusted for inflation to 2009 by U.S. Environmental Protection Agency, http://www.energystar.gov/index.cfm?c=health_care.bus_health_care, Accessed September 2009.

⁸ http://www1.eere.energy.gov/buildings/energysmarthospitals/about_esh.html. Accessed September 2009.

⁹ Energy Information Administration, CBECS 2003, adjusted for inflation to 2009 by U.S. Environmental Protection Agency, http://www.energystar.gov/index.cfm?c=health_care.bus_health_care, Accessed September 2009.

¹⁰ Energy Information Administration, CBECS 2003, adjusted for inflation to 2009 by U.S. Environmental Protection Agency, http://www.energystar.gov/index.cfm?c=health_care.bus_health_care, Accessed September 2009.

¹¹ CADDET, Learning from experiences with Energy Savings in Hospitals. CADDET Centre for the Analysis and Dissemination of Demonstrated Energy Technologies Energy Efficiency Analysis Report Brochure 05, 1997.

¹² Bob Loranger...

¹³ GHSI, The Eco-Health Footprint Guide, May 2009, pg. 8.

care facilities report between 25 and 40 percent return on investment resulting from water conserving measures.¹⁴

At present, because of understandable infection control concerns, most if not all the water used inside hospitals is treated, potable water. As a result, health care's water demand represents not only an enormous draw on our Nation's potable water resources, but also imparts a substantial energy cost. Nationally, water supply and treatment represents about 4 percent of electricity use.¹⁵ For many municipalities, water treatment and transport represents their number one energy demand. Establishing hospital-specific protocols to reduce potable water use, while not compromising patient care, and putting these into practice is instrumental to ease demand on the Nation's water and energy supplies, and mitigate emissions associated with energy generation.

Another key area of health care's environmental footprint is waste. Hospitals have a unique waste profile including municipal solid waste, regulated medical waste, hazardous waste, pharmaceutical waste, electronic waste, and construction, demolition and land clearing waste associated with facility construction and renovations. In 1998, the U.S. EPA and the American Hospital Association set a goal to reduce hospital total waste volume by 50 percent by 2010.¹⁶ As one example of opportunity, a study of 9 Los Angeles hospitals found that non-contaminated paper represents more than 53 percent of a hospital's non-regulated waste.¹⁷

Pharmaceutical waste is a unique consequence of health care operations. According to the U.S. EPA, pharmaceuticals and personal care products are "being discovered in our Nation's waterways in very low concentrations."¹⁸ Recognizing the potential consequences on human health and ecosystems resulting from unintentional exposure to these chemical byproducts, the EPA is proposing to add hazardous pharmaceutical wastes to the Universal Waste Rule, providing a disposal system for these wastes that protects public health and the environment.¹⁹

A Shift in Healing Environments

Understanding *why* health care facilities are energy intensive and *how* they use energy provides a roadmap for reducing environmental impact, while generating significant financial savings and improving the working and healing environments of millions of Americans. According to the U.S. Environmental Protection Agency, each dollar invested in energy efficiency in the health care sector is equivalent to generating new revenues of \$20 for hospitals, and \$10 for medical office buildings. *Every dollar saved through energy and water efficiency can be redirected to patient care.*

And, for the 33 million Americans working in health care facilities, they deserve nothing less than a building that promotes their health and well-being so they can deliver critical health care services benefited by an optimal work environment. Just as one example, a 1996 study found that nurses with access to a breakroom with windows made 40 percent fewer medical errors and had a 25-percent reduction in stress levels than nurses with windowless breakrooms.²⁰

Hospitals are large, technically complex buildings, operating 24 hours a day, 7 days a week, 365 days a year. They require the lights to be on all the time. Thus, it is not surprising that hospitals are governed by unique regulatory requirements addressing a range of mechanical and ventilation requirements that bear significant energy demands. Diagnostic medical equipment is largely unregulated; much of it is continuously operating. This results in substantial energy use and waste heat, contributing to the building's cooling loads.

Recognizing the health care sector's unique needs and demands, a spectrum of tools and resources provide a solid foundation to deliver high performing healing environments. Two tools have emerged as principal guideposts: the health-based Green Guide for Health Care and the U.S. Green Building Council's LEED; LEED for Healthcare is in development. These metric tools focus on site, water, energy, materials, environmental quality and innovative and integrative design strategies. They reinforce that high performance and healing environments are consistent with

¹⁴Practice Greenhealth. *Water Conservation Programs*. <http://cms.h2e-online.org/ee/facilities/waterconserve/>. Accessed September 2009.

¹⁵Electric Power Research Institute. *Water and Sustainability (Vol. 4): U.S. Electricity Consumption for Water Supply and Treatment—The Next Half Century*. Product ID No. 1006787. 2002.

¹⁶<http://www.h2e-online.org/pubs/Memorandum.pdf>. Accessed September 2009.

¹⁷California Integrated Waste Management Board. <http://www.ciwb.ca.gov/bizWaste/FactSheets/Hospital.htm>. Accessed September 2009.

¹⁸<http://www.epa.gov/waterscience/ppcp/>, accessed 9/25/09.

¹⁹<http://www.epa.gov/waste/hazard/wastetypes/universal/pharm.htm>. Accessed September 2009.

²⁰Ovitt, University of Illinois. 1996.

a mission-based sector such as health care, with healing and stewardship central tenets. Indeed, many health care systems view their buildings and operations as visible, tangible manifestation of their core mission of healing and stewardship.

Initially released in 2004, the *Green Guide for Health Care* is the health care sector's first quantifiable sustainable design toolkit, integrating enhanced environmental and health principles and practices into the planning, design, construction, operations and maintenance of health care facilities. It is a voluntary, self-certifying metric toolkit. The *Green Guide* builds on the ASHE Green Healthcare Construction Guidance Statement; its structure is adopted from the market-proven LEED framework and was created at a time when there was a void of green building rating tools and guidance customized for the health care sector. The *Green Guide* introduced an array of health care specific credits, such as *Connection to the Natural World/Places of Respite*, *Process Water Use Reduction*, *Medical Equipment Efficiency*, *Design for Flexibility*, *Persistent Bioaccumulative Toxic Chemical Reduction*, *Construction Practices*, *Acoustical Control*, *Daylight and Views*. These reflect a methodical, strategic look at how best to guide an industry with a unique operational profile, while honoring the opportunity to connect efficiency and performance within a context of healing. Health care systems such as Kaiser Permanente, based in California and the Nation's largest non-profit health care system, and Partners in Massachusetts have adopted the *Green Guide* to support the design, construction and operations of their new construction, renovations and additions.

The *Green Guide* also developed a series of peer-reviewed Technical Briefs, released in 2007, to provide technical guidance to the industry. It also developed a peer-reviewed Prescriptive Path for Hospitals to achieve 14 percent Energy Reduction, applicable to all climate zones.

LEED for Healthcare development began in 2004, using the *Green Guide for Health Care* as a foundational reference document. As with the *Green Guide*, LEED for Health Care will address issues unique to the health care industry including reducing chemicals and pollutants, providing access to nature and the outdoors, and encouraging transportation alternatives that reduce dependence on single occupant vehicles and a customized approach for views and daylight.

As a result of these initiatives, today there are about 90 registered *Green Guide for Health Care* projects representing an estimated 70 million square feet of green health care facilities, and 440 LEED-registered and certified health care buildings, with 65 certified under LEED rating systems released prior to LEED 2009, launched in April 2009.²¹ LEED certified health care projects represent more than 6 million gross square feet.

These customized market transformation tools have been an essential underpinning of integrating green building into the health care sector. Through their use in practice, we are learning with increasing certainty the costs and benefits of energy and water efficiency and other green building strategies. Indeed, we find with recent data that a comprehensive green building approach can *enhance* patient safety, and *improve* the health and well-being of patients and staff.

Further evidence of the market value of these tools is the Massachusetts Department of Public Health's approval, in September 2008, of new guidelines that include the *Green Guide for Health Care* and LEED for Healthcare into the Determination of Need process. These guidelines, in effect as of January 1, 2009 for hospitals and clinics, and July 1, 2009 for nursing homes, require that the Determination of Need must establish that the project will take "all feasible measures . . . to avoid or minimize damage to the environment", and the projects must "demonstrate their consideration of and commitment to LEED for Health Care and the *Green Guide for Health Care* standards, and be certifiable at a "silver" level based on the LEED point structure."²²

The U.S. Environmental Protection Agency's Energy Star for Healthcare offers two tools to benchmark facility performance for both new construction and existing buildings, available for acute care and children's hospitals and medical office buildings, in addition to other market sector building types. EPA's *Target Finder* provides a platform for architects and building owners to establish energy targets during the design process, and be eligible to achieve an EPA rating.²³ Performance is compared to an "average" building, using up to three energy sources to estimate an-

²¹ Personal communication with Melissa Gallagher-Rogers, USGBC. September 24, 2009.

²² www.thefreelibrary.com/Massachusetts+Determination+Of+Need+Process+Expanded+To+Include+New...-a0187008995 accessed 9/24/09, 105 CMR 100.533(B)(8) ("Factor 8").

²³ http://www.energystar.gov/index.cfm?c=new_bldg_design.bus_target_finder. Accessed September 2009.

nual energy use. Projects achieving a rating of 75 or higher are eligible for *Designed to Earn the ENERGY STAR* designation.

EPA's *Portfolio Manager* offers an online tool to enable existing facilities to measure and manage energy and water consumption, estimate carbon footprint, and rate energy performance compared to facilities in their region and nationally. Portfolio Manager helps to guide strategic opportunities to reduce consumption. To date, 48 acute care and children's hospitals, representing 39,147,806 square feet, have earned the ENERGY STAR designation—15 of these are Department of Veterans Affairs hospitals.

DOE's EnergySmart Hospitals, launched in 2008, provides hospitals with tools and resources addressing energy-efficiency and renewable energy technologies, spanning design, construction, retrofit, and operations and maintenance. EnergySmart Hospitals' goals include achieving 20 percent improved efficiency in existing hospitals, and 30 percent improved efficiency in new hospitals relative to current standards.²⁴

The Healthcare Energy Impact Calculator, developed by Healthcare Without Harm and Practice Greenhealth, is a Web-based tool that calculates health impacts associated with power plant emissions associated with a health care facility's electrical generation. Identifying carbon dioxide, sulphur dioxide, nitrogen oxide and mercury emissions, the EIC estimates the number of related health incidents, such as asthma, premature death, and bronchitis, emergency room visits, medical treatment costs, and external societal costs based on U.S. EPA data.

Critically, green health care facilities need not cost more than conventional facilities. Recent research published in 2009 reflecting an assessment of 13 LEED-certified and-registered health care projects suggests that first costs associated with green health care facilities are lower than commonly thought. Consistent with findings from other building sectors, data reveal that achieving low- or no first cost premium in health care facilities is independent of project size and LEED certification level. The study found that first cost green building premiums range from 0 to 5 percent before accounting for financial incentives—such as grants, philanthropic gifts, and public or utility incentives—and 0 to 3.8 percent when including financial incentives. The study also found that first cost green building premiums were higher for projects that achieved LEED certification early in this decade vs. projects that were certified later. As with other sectors, first cost green building premiums for health care facilities are trending down.²⁵

EXAMPLES

Dell Children's Medical Center of Central Texas, a 473,000 square foot, 169-bed acute care hospital serving 46 Central Texas counties, opened in April 2007. As the first LEED-Platinum certified hospital in the world, Dell Children's provides an inside view of the costs and benefits of green health care facilities. From its inception, the Dell Children's team—both from the hospital administration and the design team—prioritized health and wellness. They made a commitment to quality in their pursuit of LEED Platinum certification. The project benefited from a rigorous energy model considering the relationships between building orientation, exterior envelope performance, window placement, daylight, access to views, and mechanical equipment. By partnering with the local utility, the project also reaped benefits from an on-site Combined Cooling, Heating and Power Plant (CCHP). The CCHP's 4.5 MW natural gas-fired turbine supplies 100 percent of the hospital's electrical demand, along with steam, and is 75 percent more efficient than coal-fired power plants. Combined heat and power systems reduce carbon dioxide and nitrogen oxide emissions, so contribute to healthier environments. As a healing environment, Dell Children's provides every patient room with daylight and views, with high efficiency lighting and occupancy sensors to reduce electrical loads. The project is designed to achieve a 17.2-percent reduction in direct energy use—and is an example of how an energy efficient hospital can also provide abundant daylight and views, often seen as being at cross-purposes. Additionally, Dell Children's installed low-flow plumbing fixtures saving 1.4 million gallons of water a year, and tied in to the City of Austin's reclaimed *purple pipe* water system to offset reliance on potable water for their native plant landscape and outdoor healing gardens. They diverted 32,000 tons of construction debris from landfills, achieving a 91 percent overall recycling rate. Now

²⁴ http://www1.eere.energy.gov/buildings/energysmarthospitals/about_esh.html. Accessed September 2009.

²⁵ HERD Journal.

in operation for more than 2 years, the Dell experience amplifies some of the measurable benefits from a high performing green hospital:²⁶

- 2.4 percent nursing turnover rate in the first year, compared to 10–15 percent national average. The cost to replace one nurse at Dell Children’s is more than \$70,000.
- With energy costs of \$2–\$4 per square foot per year, productivity gains could exceed annual energy cost of operating the building.
- LEED has positively influenced recruitment, media attention, and patient surveys provide positive comments about building design.

A second example is Gundersen Lutheran, a not-for-profit health care system operating in Wisconsin, Iowa and Minnesota. Gundersen Lutheran’s focused efforts on energy performance have enabled them to achieve its goal of 20 percent reduced energy costs by the end of 2009, and to be 100 percent carbon neutral by 2014. In the May/June 2009 article “Lowering Health Care Costs Through Energy Efficiency”, Gundersen Lutheran’s goal was defined as, “. . . produce as much clean energy as it consumes by 2014, using techniques that have quick paybacks so that savings from reduced energy use can be used to support the institution’s health care mission.”²⁷ They will achieve this by reducing energy demand in existing buildings by 30 percent, and in new facilities by 50 percent. A key driver of Gundersen’s aggressive goal setting was their projection that if recent energy price trends continued, their energy bills would increase \$500,000 each year.²⁸ Their analysis of 10 years of utility bills calculated energy use of 250 to 235 kBtu per square foot per year. They are designing their new hospital, due to open in 2012, to operate at 125 to 115 kBtu per square foot per year. Their early investment in a comprehensive facilities’ audit identified lighting retrofit as a key energy savings opportunity. Retrofitting with more efficient lamps yielded “better light for half the cost or less” according to Gundersen’s Corey Zarecki, and saved \$250,000 per year in reduced energy bills.²⁹ Gundersen Lutheran’s Jeff Rich, Executive Director of Major Projects and Efficiency Improvements, also views this effort as mission driven: “Not only do we feel it is the right thing to do from an environmental standpoint, we think it will improve health. By dropping carbon emissions, we actually can improve the air quality and the health of the community, and we believe that it is a hedge against inflationary pressures we are seeing from energy prices. And we believe we can drop the cost of health care with this program.”³⁰

RECOMMENDATIONS

The Department of Veterans Affairs can further advance their energy-efficiency and green building initiatives through a comprehensive suite of data driven environmental goals, consistent with improved patient care and enhanced workplace, such as follow:

1. Perform a comprehensive audit of existing facilities and procurement to highlight the low-hanging fruit yielding quick return on investment that will reap financial benefits for many years. Consider these *investment* expenses, such as retrofitting lamps and water fixtures.
2. Ensure a regular maintenance regime, continuous commissioning and consideration of adding controls to mechanical equipment to optimize mechanical operations.
3. Implement green housekeeping, integrated pest management and use of healthy materials to measurably improve air quality.
4. Collaborate with industry peers on research initiatives such as displacement and natural ventilation that hold promise for significant energy reductions, and appropriate use of reclaimed water sources consistent with infection control considerations; share best practices.
5. For new construction, use an integrative design process and flexible design strategies; establish aggressive energy and water goals and assess renewable energy strategies. Design for solar readiness to enable installation of renewables when they have favorable life cycle costs.

²⁶ Pioneering the Platinum Path for Health Care. Practice Greenhealth/GGHC Webinar, April 24, 2009.

²⁷ Sarah Klein, “Case Study: Lowering Health Care Costs Through Energy Efficiency”. The Commonwealth Fund. May/June 2009. <http://www.commonwealthfund.org/Content/Newsletters/Quality-Matters/2009/May-June-2009/Case-Study.aspx>. Accessed September 2009.

²⁸ Sarah Klein, “Case Study: Lowering Health Care Costs Through Energy Efficiency”. The Commonwealth Fund. May/June 2009. <http://www.commonwealthfund.org/Content/Newsletters/Quality-Matters/2009/May-June-2009/Case-Study.aspx>. Accessed September 2009.

²⁹ Ibid.

³⁰ Ibid.

6. Locate new projects near transit and provide safe routes for pedestrians and cyclists; for existing facilities, collaborate with transit authorities to provide service.
7. Connect facilities to locally grown, healthy food options.
8. Take advantage of existing tools to measure, manage and continuously improve performance.
9. Expand bottom line evaluation to provide for life cycle cost assessment, factoring in patient length of stay, employee recruitment and retention, energy and water savings, long-service mechanical performance, healing environment and environmental quality as measures of economic performance.

Together, these strategies have the promise to position the Department of Veterans Affairs as a leader in green health care facilities. As a comprehensive initiative, these commonsense solutions will lower the VA's carbon footprint, shield against rising energy and water costs, provide a healthy environment to support patient healing and staff well-being and productivity, and contribute to healthy communities and ecosystems.

Prepared Statement of Thomas W. Hicks, Executive Director, Building Performance Initiative, U.S. Green Building Council

On behalf of the U.S. Green Building Council's (USGBC) nearly 20,000 organizational members and 78 local chapters, thank you Chairman Filner and Ranking Member Buyer for the opportunity to testify about opportunities to improve the energy efficiency and sustainability of buildings owned and operated by the U.S. Department of Veterans Affairs. My name is Tom Hicks, and I direct the Building Performance Initiative at the U.S. Green Building Council.

Introduction

The U.S. Green Building Council is a national nonprofit organization working to advance more environmentally responsible, healthy, and profitable buildings.

The VA, with a diverse real estate portfolio including more than 1,400 sites of care and serving millions of veterans each year,¹ can and should do more to lead by example in the transformation of our buildings and communities. The agency has taken significant steps in this direction in recent years through its formal embrace of green building standards and initial deployment of a number of renewable energy systems.

The Impact of Constructing and Operating Buildings

Buildings annually account for 39 percent of U.S. primary energy use and for 38 percent of U.S. CO₂ emissions;² 13.6 percent of all potable water use or 15 trillion gallons per year;³ and they consume 40 percent of raw materials globally (3 billion tons annually).⁴ The EPA estimates that 136 million tons of building-related construction and demolition debris are generated in the U.S. in a single year.⁵ (By way of comparison, the U.S. creates 209.7 million tons of municipal solid waste per year.⁶) It is clear that the VA should accelerate its efforts to reduce the impact of its construction and building operations activities on the environment.

Policymakers and building owners alike are now embracing green building to meet current economic, energy, and environmental challenges. They are focusing on the whole building, from construction materials to energy systems, and even cleaning supplies and waste management.

More specifically, green building reduces emissions and environmental impacts throughout the supply chain and the complete building lifecycle by targeting:

- reduced energy consumption through the use of energy-efficient heating and cooling systems, renewable power, and building commissioning (system "tune ups");

¹See U.S. Department of Veterans Affairs Organizational Briefing Book (June 2009) p. 7, available at <http://www.va.gov/ofcadmin/docs/vaorgbb.pdf>.

²Energy Information Administration (2008). *Assumptions to the Annual Energy Outlook; Energy Information Administration (2008). EIA Annual Energy Outlook*.

³U.S. Geological Survey (2000). 2000 data.

⁴Lesssen and Roodman, 1995, "Worldwatch Paper 124: A Building Revolution: How Ecology and Health Concerns are Transforming Construction," Worldwatch Institute.

⁵U.S. EPA Characterization of Construction and Demolition Debris in the United States, 1997 Update.

⁶U.S. EPA Characterization of Municipal Solid Waste in the United States, 1997 Update. Report No. EPA530-R-98-007.

- reduced potable water consumption through the use of low-flow fixtures and appliances, and the on-site treatment of storm water;
- reduced health impacts and improved environmental performance through the use of nontoxic, salvaged, recycled, and local materials, and the development of plans for managing waste, and
- reduced emissions, and reduced health and environmental impacts by siting buildings away from fragile ecosystems and near public transportation, and by promoting the use of hybrid or electric cars, and the use of alternative means of transportation, such as bicycles and walking.

Measurement of Economic, Health, and Environmental Benefits: The Size of the Opportunity

Importantly, the technology to make substantial reductions in energy use and CO₂ emissions in buildings is already available. Investments in energy-saving and other climate-friendly technologies can deliver buildings and communities that are significantly less carbon intensive, and are also more profitable and healthy places to live and work. The potential returns of a nationwide commitment to energy efficiency are tremendous: McKinsey & Co. reports that an up front investment of \$520 billion in energy efficiency could generate more than \$1.2 trillion in energy savings, reduce energy consumption by 23 percent, and reduce annual greenhouse gas emissions by 1.1 gigatons by 2020.⁷ According to McKinsey, this would have the same environmental impact as taking the entire fleet of U.S. passenger vehicles and light trucks off the road.⁸

The greening of day-to-day operations and maintenance of our building stock represents a powerful strategy for realizing this potential in a cost-effective and fully verifiable way. For example, green “tune-ups” to our building systems and equipment, known as “commissioning,” produce measurable operational and environmental savings. Commissioning of existing buildings can improve energy efficiency by roughly 15 percent at a median cost of only 27 cents per square foot—offering an attractive payback period of roughly 6 months.⁹ To give you a sense of the size of this opportunity, if all of the Nation’s existing commercial buildings were to take advantage of these tune ups, this would yield \$18 billion or more in energy savings annually.¹⁰

Recognizing this potential, USGBC has worked for more than a decade to provide building owners, operators, and users with the tools and resources they need to achieve lasting environmental improvements in the places they live, work, and learn.

Validating Green Building: Use of Leadership in Energy and Environmental Design (LEED)

Chief among USGBC’s suite of resources for advancing market transformation is the LEED (Leadership in Energy and Environmental Design) rating system—a voluntary, third-party certification system for green buildings. It was developed by USGBC to provide the building community with a measurable consensus definition of leadership in energy and environmental design.

LEED promotes performance in six key areas: sustainable site development, water savings, energy efficiency, materials and resources, indoor environmental quality, and green building innovation. Each category includes certain minimum requirements that all projects must meet, followed by additional credits that are earned by incorporating green design and construction techniques. Four progressive levels of LEED certification—Certified, Silver, Gold and Platinum—are earned based on the number of credits achieved. The Green Building Certification Institute (GBCI) provides independent, third-party verification to ensure a building meets LEED’s high performance standards.

Originally launched in 2001 for new commercial construction projects, LEED is continuously improved to ensure its responsiveness to technical innovation and market demand. USGBC released rating systems for operations and maintenance and commercial interiors markets in 2006, and for the schools and residential sectors in

⁷McKinsey & Co., *Unlocking Energy Efficiency in the US Economy* (July 2009), pp. iii & 12, available at http://mckinsey.com/client-service/electricpower/naturalgas/downloads/US_energy_efficiency_full_report.pdf.

⁸See McKinsey & Co., available at http://mckinsey.com/client-service/electricpower/naturalgas/US_energy_efficiency/.

⁹Mills, E., Friedman, H., Powell, T., et al., *The Cost-Effectiveness of Commercial-Buildings Commissioning: A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the United States* (December 2004), p. 1, available at <http://eetd.lbl.gov/ea/emills/pubs/pdf/cx-costs-benefits.pdf>.

¹⁰*Id.* at 57.

2007. USGBC is also nearing completion of rating systems for neighborhood developments, health care facilities, and retail spaces. (A more complete discussion of LEED for Healthcare follows on page 8.)

The most recent version of LEED, known as LEED 2009, was released in April 2009. This version involves several key advancements, including the weighting of LEED credits based on the extent of their ability to impact different environmental and human health concerns; and the regionalization of credits to acknowledge specific environmental issues and priorities that arise in different locations. Additional improvements to the online platform for LEED and an expanded certification structure through the Green Building Certification Institute accompanied the launch of LEED 2009.

Verifying Building Performance

USGBC's work is guided by an understanding that improving building performance is a *process*, not an isolated act. Optimal building performance hinges on a sustained commitment from building owners, managers, and users alike, who must work together to ensure conscientious installation, use, and management of building equipment and systems.

The importance of operations and maintenance to maximizing the energy-saving potential of sustainable design cannot be overstated. Where there is a gap between the design aspirations of a building and its actual performance, the problem is almost always operations and maintenance issues. For example, although one high-performance building was designed to achieve energy savings of 50 percent when compared to the national average, it in actuality achieved energy savings of just over 10 percent—a significant achievement gap.¹¹ It turned out the building was not being *operated* with the same commitment to energy efficiency as was evidenced by its design and engineering. Closing this design-performance gap is essential to meeting the mounting climate and energy challenges that are now commanding international attention, and to realizing the \$1.2 trillion in potential energy savings that are possible through energy efficiency improvements by 2020.¹²

Motivated by its desire to close potential achievement gaps between design and performance, in August 2009, USGBC launched a new Building Performance Initiative. The Initiative seeks to put in place a comprehensive data collection effort for *all* buildings that have achieved LEED certification; implement an appropriate methodology for analyzing this data; and provide building owners with better information with which to address any performance gaps that stem from predicted versus actual building performance.

The Initiative builds on announcements made by USGBC earlier this year in tandem with its release of LEED 2009. LEED 2009 requires that the owners of all certified projects permit USGBC to access actual energy and water use data in the future to support research on best practices and building performance. Mindful that diligent operations and maintenance practices are an imperative for *all* buildings, USGBC also encourages new construction projects certified under LEED to embrace the operational and maintenance practices set forth in our separate certification protocol—LEED for Existing Buildings: Operations & Maintenance.

LEED for Existing Buildings: Operations & Maintenance provides building owners and managers with a set of performance targets and best practices for improving their facilities and their building management practices to yield substantial savings in energy, water, and solid waste. Developed by industry experts from the facility and property management and engineering fields, the LEED for Existing Buildings: Operations & Maintenance rating system provides a set of best green practices in building operations, highlighting opportunities to use less energy, water and natural resources; improve the indoor environment; and uncover hidden opportunities for savings. A key requirement is that the facility manager develop a comprehensive plan for reporting, inspecting, and reviewing building operations and maintenance practices to ensure optimal performance throughout the building's life. Projects are required to submit actual performance data through LEED's online portal as part of the certification process to demonstrate that they are achieving the indicated performance measures.

Greening Federal Buildings

As the owner, tenant, or manager of more than 3.3 billion square feet of building space valued at more than \$772 billion, the Federal Government has the country's

¹¹ See *id.* at p. 8, Fig. 1.

¹² See McKinsey & Co., *Unlocking Energy Efficiency in the U.S. Economy (July 2009)*, available at http://mckinsey.com/client/service/electricpowernaturalgas/downloads/US_energy_efficiency_full_report.pdf.

largest real estate portfolio,¹³ including many of the Nation's most recognized and cherished landmarks. With this vast portfolio comes the power to forge a greener, more energy efficient, healthier, and prosperous path for the Nation's buildings and communities. By leveraging the unparalleled purchasing power of taxpayer dollars to support green building, the Federal Government can not only reduce its significant environmental footprint, but also speed the adoption of green building strategies by the private sector, and save real dollars and resources through reduced utility bills and operating costs.

The potential environmental and economic savings are extraordinary. If the Federal Government were to re-commission its entire building stock and achieve the estimated 15-percent reductions in energy use,¹⁴ it could generate more than \$650 million in annual energy savings and eliminate roughly 2.7 million tons of carbon in 1 year.¹⁵

Recognizing the impact of the Federal building sector, 13 Federal agencies or departments have made policy commitments to use or encourage LEED certification. Some 24 million square feet of federally owned or leased building space is currently certified under LEED, and more than 400 million square feet of space is registered with LEED. These policies, coupled with various policies referencing LEED in 34 States and more than 190 localities, are having a marked impact on the larger green building landscape. To date, more than 23,700 building projects are registered with LEED, and more than 3,600 projects have earned LEED certification.

Sustainability and the Department of Veterans Affairs

Boasting a construction budget of more than \$1.8 billion and a diverse building portfolio of more than 1,700 facilities, including 1,400 sites of care,¹⁶ the VA is an essential player in the effort to reduce our Nation's environmental footprint. The department's significant presence in the health care sector presents unique opportunities for Federal leadership, given the large energy use of hospitals and medical centers and the critical role these facilities play in advancing the Nation's wellness.

VA has long worked to improve the energy performance of its facilities, adopting EPA's Energy Star tool early on to benchmark its portfolio. In the past several years, the VA has worked consistently to comply with Federal environmental requirement and goals,¹⁷ including through its "Green Buildings Action Plan." The Action Plan details the agency's commitment to the use of integrated design, commissioning, energy efficiency, and measurement and verification to enable optimal performance of agency facilities.¹⁸ The VA's Sustainable Design and Energy Reduction Manual provides additional guidance in pursuit of these goals, with information about how the LEED rating system (and specific credits and topics within it) can be used by VA facilities to meet Federal mandates.¹⁹ Indeed, LEED is prescribed as the methodology for achieving Federal mandates related to sustainability and energy reduction, and projects are encouraged to achieve LEED Silver equivalency for construction projects. Third-party certification under LEED is recommended, but not required.²⁰

The following LEED case study highlights green building principles in practice in one VA facility:

¹³ Federal Real Property Council, FY 2007 Federal Real Property Profile (May 2008), http://gsa.gov/graphics/ogp/FRPP_FY07.pdf.

¹⁴ See Mills, E., Friedman, H., Powell, T., et al., *The Cost-Effectiveness of Commercial-Buildings Commissioning: A Meta-Analysis of Energy and Non-Energy Impacts in Existing Buildings and New Construction in the United States (December 2004)*, available at <http://eetd.lbl.gov/emills/PUBS/Cx-Costs-Benefits.html>.

¹⁵ Extrapolations from Federal building consumption data in the U.S. Department of Energy's Buildings Data Energy Book, available at <http://buildingsdatabook.eren.doe.gov/ChapterView.aspx?chap=4#1>. Total Federal primary energy consumption in buildings and facilities for FY 2005 was 65 quadrillion Btu. The Federal Government spent \$4,390,100,000 in FY 2005 on energy for buildings. The above extrapolations assume that all of the energy comes from coal-fired electricity production.

¹⁶ See Department of Veterans Affairs Organizational Briefing Book (June 2009) p. 5, available at <http://www.va.gov/ofcadmin/docs/vaorgbb.pdf> (noting that VA maintains 153 hospitals, 995 outpatient clinics, 135 community living centers, 49 domiciliary residential rehabilitation treatment programs, 232 veterans centers, 57 veterans benefits offices, and 128 national cemeteries).

¹⁷ See, e.g., Energy Policy Act of 2005, Public Law 109-58; Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; Energy Independence and Security Act of 2007, Public Law 110-140.

¹⁸ See U.S. Department of Veterans Affairs, Green Buildings Action Plan, available at <http://www.cfm.va.gov/TIL/sustain/GreenBuildAction.pdf>.

¹⁹ See U.S. Department of Veterans Affairs, Sustainable Design and Energy Reduction Manual, available at <http://www.wbdg.org/ccb/VA/VAENERGY/sderm.pdf>.

²⁰ See *id.* at 2-2.

- **VA Regional Office, Reno, NV:** VA's first LEED certified facility, which earned LEED Silver under LEED for New Construction version 2.2, features a range of energy and environmental measures. The 36,000 square-foot building has occupancy sensors and daylighting controls, low-flow plumbing fixtures, a "cool" roof to reduce heat effect, high-efficiency glazed windows, and paints, carpets, and other products selected for their low-Volatile Organic Compound (VOC) content. The project also makes use of locally and regionally sourced materials, with some 30 percent of materials manufactured by local companies, roughly 70 percent harvested or extracted within 50 miles, and more than 10 percent derived from recycled materials.²¹

Eighteen other VA facilities are now registered with LEED.

Opportunities for Enhanced Performance

Leveraging Economic Recovery Funds

In recent months, VA has pursued a number of far-reaching sustainability projects through the use of funds provided by the American Recovery and Reinvestment Act (ARRA). Significantly, the agency is dedicating roughly \$399 million of the \$1 billion provided for medical facilities operated by the Veterans Health Administration to energy efficiency and renewable energy projects.²² The remaining funds will be used for diverse nonrecurring maintenance projects, among them the installation of advanced utility metering systems and lighting controls, and upgrades to HVAC systems.²³ Additional energy conservation projects are planned for monuments and memorials as part of the \$50 million in repair funds provided to the National Cemetery Administration.²⁴

USGBC applauds the Department's commitment to sustainability and encourages it to leverage ARRA funds to even greener ends through the use of energy saving performance contracts. Under this model, the agency enters a contract with an energy service company (ESCO), which finances the upfront cost of the desired improvements, including needed equipment. The balance is then repaid by the agency throughout the contract period using the energy and other savings that are generated by the project. By providing upfront financing that can be combined with other measures undertaken by the agency, performance contracting offers VA a means of broadening both the scope and depth of its facility-related projects.

Most commonly used to finance water and energy improvements, performance contracting is gaining popularity as a means of supporting green improvements. Unlike traditional performance contracting, which frequently targets isolated opportunities, "green performance contracting" draws upon an integrated approach encompassing energy- and water-saving measures as well as features designed to improve indoor health and environmental quality. Green performance contracting may even be used to cover the cost of green roof retrofits, and the installation of systems to manage stormwater or other external environmental pollutants.

By accounting for the interaction between building systems, materials, and operational measures, green performance contracting can deliver maximum building performance. Combining this model with third-party verification, such as that provided by LEED for Existing Buildings: Operations and Maintenance, can ensure that buildings optimize sustainability as well as cost reductions.

Green Health Care Facilities

Located throughout the country and varying in type from hospitals to outpatient clinics and community living centers, VA health facilities play an essential role in the wellness of both our Nation's people and our environment. Indeed, in 2008, more than 5 million veterans sought care in VA health facilities.²⁵ The use of green building strategies targeted at the health care sector can optimize performance of these facilities, in turn improving patient care, reducing greenhouse gas emissions, and

²¹ U.S. Department of Veterans Affairs, VAnguard (May/June 2008), "A Sustainable Approach to Building Design," at p. 14–15, available at <http://www1.va.gov/opa/feature/vanguard/08mayjuneVG.pdf>.

²² See U.S. Department of Veterans Affairs, Implementing the Recovery Act, available at http://www.va.gov/recovery/Implementing_the_Recovery_Act.asp.

²³ See U.S. Department of Veterans Affairs, Planned Obligations for ARRA Non-Recurring Maintenance Projects through August 30, 2009, available at http://www.va.gov/recovery/Agency_Plans_and_Reports.asp.

²⁴ See U.S. Department of Veterans Affairs, Implementing the Recovery Act, available at http://www.va.gov/recovery/Implementing_the_Recovery_Act.asp.

²⁵ U.S. Department of Veterans Affairs Organizational Briefing Book (June 2009) p. 7, available at <http://www.va.gov/ofcadm/docs/vaorgbb.pdf>.

generating significant financial savings that can be reallocated to other priorities in service of our Nation's veterans.

Developed in conjunction with the Green Guide for Health Care, LEED for Healthcare addresses sustainability through the unique lens of treatment environments. The rating system, which is nearing its second public comment period, builds on core LEED credits to also encompass issues such as increased sensitivity to chemicals and pollutants, traveling distances from parking facilities, and access to natural spaces.

Several VA health care facilities are now registered with LEED, most under the LEED for New Construction rating system. USGBC encourages the use of integrated design in all VA health care facilities in light of their unique impact on health, the environment, and the economy.

Advanced Metering

Advanced meters enable building owners and operators to view in "real time" a building's energy and water consumption and also allow for peak demand reductions, reducing capacity shortages in strained utility service territories. In addition to enabling dramatic operational savings, advanced metering performs a critical educational role—helping to raise awareness among building occupants and operators about both the need and opportunities for reducing energy and water consumption. Several VA facilities are now installing advanced metering using ARRA funds. USGBC urges other facilities to follow their lead.

Renewable Energy and Green Power Purchasing

Turbulent energy prices, greenhouse gas emissions, and energy security demand that buildings and communities seek out new and renewable sources of energy, among them solar, wind, and biomass power. The VA is a leader in the purchase of "green" power, ranking 4th among Federal agencies participating in the EPA's Green Power Partnership, which assists organizations in procuring power from renewable resources.²⁶ The agency currently derives 4 percent of its electricity from green power.²⁷

Importantly, VA facilities need not rely on power purchasing alone to diversify their energy supplies, but rather can themselves serve as significant renewable energy producers. In 2007, as part of its energy management plan, the VA launched an initiative to expand the use of the alternative energy in VA facilities. The agency selected 39 pilot projects for potential use in hosting photovoltaic, solar water heating, wind, or geothermal systems. These projects are enabling dramatic results. For example, through more than 1,600 solar panels on its 2,000-square foot roof, the Jerry L. Pettis Memorial VA Medical Center in California is expected to save an estimated \$60,000 in electricity costs.²⁸

Other VA health care facilities possess similarly tremendous square footage, and as such, opportunities for deploying renewable energy systems. Building commissioning—by ensuring proper calibration of building equipment and by addressing leaks in the building envelope—can assist in eliminating unnecessary energy use and in putting renewable energy to its most efficient use.

Conclusion

With a vast building portfolio and a mission of service to our Nation's veterans, VA is a natural leader in the movement toward more sustainable, healthy, and cost-effective buildings. The agency's recent efforts to both track and seek improvements in the energy and environmental performance of VA facilities through metering and commissioning are critical, and should be extended to *all* VA facilities. Additional focus on the use of integrated and sustainable design strategies—particularly in VA's health care facilities—can amplify these efforts, enabling impressive environmental and health benefits, while also generating financial savings that can be reallocated to other priorities in support of our Nation's veterans.

About U.S. Green Building Council

The Washington, D.C.-based U.S. Green Building Council is committed to a prosperous and sustainable future for our Nation through cost-efficient and energy saving green buildings.

²⁶ U.S. Environmental Protection Agency, Green Power Partnership, Top 10 Federal Government (as of July 9, 2009), available at <http://www.epa.gov/grnpower/toplists/top10federal.htm>.

²⁷ *Id.*

²⁸ U.S. Department of Veterans Affairs, VAnguard (November/December 2008), available at <http://www1.va.gov/opa/feature/vanguard/08novdecVG.pdf>.

With a membership comprising 78 local chapters, nearly 20,000 Member companies and organizations, and more than 100,000 LEED Accredited Professionals, the U.S. Green Building Council is the driving force of an industry that is projected to soar to \$60 billion by 2010. The U.S. Green Building Council leads an unlikely constituency of builders and environmentalists, corporations and nonprofit organizations, elected officials and concerned citizens, and teachers and students.

**Prepared Statement of Jane M. Rohde, AIA, FIIDA, ACHA, AAHID,
Principle and Founder, JRS Associates, Inc.,
on behalf of Green Building Initiative**

Chairman Filner, Ranking Member Buyer and Members of the Committee, thank you for the opportunity to discuss my experience evaluating the sustainability of VA Hospitals using the Green Building Initiative's Green Globes® rating system.

I am the principal and founder of JSR Associates, Inc., a senior living and health care consulting firm. As an architect with more than 20 years of health care experience, I've participated on many design Committees, including the *Guide lines for Design and Construction of Healthcare Facilities*, which is code in at least 44 States and referenced by the VA.

Today I am speaking on behalf of the Green Building Initiative, a non-profit organization that brought the Green Globes® building rating system to the United States in 2005.

About Green Globes®

The Green Globes system is a Web-based tool being used by 21 VA hospitals to meet the Federal requirements outlined in the Guiding Principles. Green Globes for Continual Improvement of Existing Buildings (CIEB) was the module used. During this process, VA Energy Managers were asked to complete an electronic survey of their medical center and report their findings. Important items requested during this evaluation are monthly energy and water consumption from utility bills, information on transportation practices that minimize energy consumption, and other data that describe policies related to containing emissions, promoting recycling, and monitoring indoor environmental issues.

Additionally, the Green Globes system recognizes progress in reducing energy consumption through use of the Energy Star rating system. By evaluating operational energy and source energy through Energy Star, and by using life cycle assessment tools, the Green Globes rating system can help building owners identify a building's carbon footprint and set goals for improvements.

Once the initial Green Globes survey is completed in-house, the team is then provided with an automated report with an initial score and opportunities for improvement. This automatically generated report is based on the Green Globes protocol which assigns a certain number of points to each answer based on desirable outcomes. The report is for the internal team's use to evaluate the recommendations for improvements to the medical facility and its operations.

Following this evaluation, a third-party assessor visits the building to audit the team's documented outcomes, interview key staff, complete a walkthrough and determine if the building qualifies for Green Globes certification.

Lessons Learned on VA Buildings

As a third-party assessor, I have visited 15 out of the 21 hospitals that are working to complete the Green Globes evaluation and certification process.

While we are still in the early stages of evaluating the VA hospitals, I can tell you that these facilities are doing extremely well in their efforts to comply with Federal sustainability requirements. It is clear to me that, in addition to receiving valuable feedback and recognition from this process, many of the VA's best practices in sustainability will provide valuable case studies to benefit the health care facilities in the private sector.

I would like to provide you with some of the creative ideas and programs that are currently proposed or being completed at VA hospitals across the country:

- Richmond, Virginia, has a proposed project to complete an arboretum that would not only be a site enhancement, but will reduce heat island effect, reduce water runoff, provide a resource for the Veterans and their families, and create an opportunity for engaging the community at-large.
- Portland, Oregon, has a boiler/chiller plant supervisor training program that is exemplary, including an education manual and on-site training tools. They are

able to share their expertise with not only trainees but other locations that need assistance with additional improvement in energy and water consumption.

- Dallas, Texas, is in the process of completing an Ethanol fueling station for the VA and other governmental agencies for their Flexible Fuel fleet vehicles.
- Birmingham, Alabama, located in a tight urban block, is evaluating using an existing underground spring for recovery of water for the cooling tower.
- San Diego, California, has one of the strongest recycling programs across the board. This site, as well as Milwaukee, Portland, and Seattle, are excellent examples of systems that are working to reduce use of natural resources.

Because continual improvement is just that—continual—it is important to realize that ongoing efforts are what make a hospital sustainable. Tools and certification programs like Green Globes allow the VA staff to conduct periodic assessments that then empower them to be the drivers of initiatives for improvement that can be quantified over time.

The next steps for VA and I assume all Federal agencies will be to do the deeper dive on their portfolios. Continuing with such an assessment program will help to achieve the largest potential energy and water savings across all of VA Health Care Facilities—not only hospitals, but the range of VA facilities, including CBOTs, CLCs, Hospice/Palliative Care, and Polytrauma Centers. To do this, they need multiple tools—like Green Globes—to help make surveying, measurement, evaluation, and regular benchmarking part of their ongoing process.

It is clear that the VA hospitals that have been assessed are on a positive path for sustainable improvement. I am fortunate to be part of this groundbreaking initiative, assessing firsthand the creativity, the potential, and the amazing outcomes that are sure to manifest as a result of this ongoing evaluation and certification process.

JSR Associates, Inc. Background and Relevant Information

JSR Associates, Inc. represents over 20 years of experience in programming, architecture, interior design, and operational consulting for Senior Living and Healthcare Projects. Jane Rohde founded the firm in 1996 and her practice focuses predominantly on senior living and health care consulting. She is an independent contractor serving the Green Building Initiative as a third party assessor for the Continual Improvement of Existing Buildings module of Green Globes®. Rohde holds a Bachelor of Architecture Degree from Virginia Tech and is certified by the American College of Health Care Architects (ACHA) and the American Academy of Health Care Interior Designers (AAHID). Rohde is also NCIDQ and NCARB certified, as well as being a LEED Accredited Professional. Additionally, Rohde is a professional member of the AIA and honored as a Fellow for her volunteer and leadership work in health care design by the International Interior Design Association (FIIDA).

Highlights from Third-Party Assessment of VA Hospitals Using Green Globes-CIEB Rating System

To date, the initial VA hospitals evaluated are on track to achieve Green Globes certification. This approach to evaluation provides a holistic review of facility operations addressing not only energy issues, but also water, indoor environment, site enhancement, emissions, and environmental management practices. With both the Energy Manager and GEMS Coordinator (Green Environmental Management System) positions already in place within most VA Medical Centers, an ideal team is created to work in tandem on completing the on-line Green Globes survey. VA was able to evaluate whether to hire outside vendor support to complete the sustainability evaluations or to use their in-house staff. In most cases, Green Globes is written in such a way that in-house teams will often choose to complete the work on their own, knowing that a highly qualified third-party assessor will be following through with a detailed audit. Furthermore, the Green Globes process provides instant feedback and recommendations for the teams to consider as they drive further improvements in the performance of the VA portfolio.

Opportunities for VA Hospitals to Conduct Ongoing Assessment and Continual Improvement

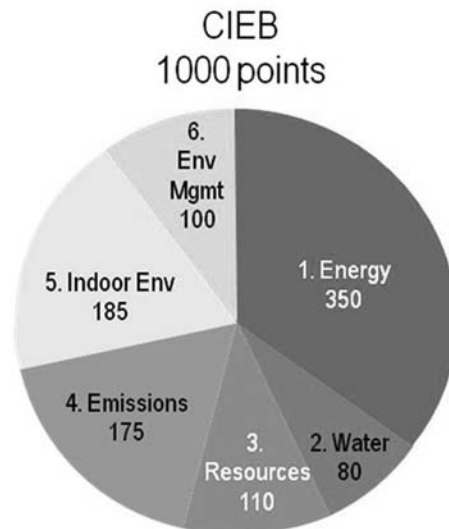
The following recommendations are some of those that will be made for consideration to the in-house teams to further this dynamic process:

- Use thermal imaging for all hospitals to detect thermal leaks in the envelope of the buildings. This includes evaluation of loss of thermal control through the roof, walls and windows.
- Create a task force to include IT departments and Energy Managers to review opportunities to reduce the time that computers are turned on in non-essential areas to conserve energy.
- Create a task force to include Food Service management, Canteen management, and Procurement/Acquisitions to discuss the potential of localizing contracts to reduce inherent energy and transportation costs of products that could be provided locally.
- Recommend discussion between NSF, VACO, and EPA to evaluate Kitchen Equipment for energy and water conservation compliance (Energy Star, FEMP, Waterwise, etc.).
- Continue to monitor and benchmark water usage and energy usage comparatively to uniques (patient types) and resulting staff changes for clearer evaluation of consumption in relationship to the water and energy reductions required by 2015.
- Work cooperatively with GBI and other similar green building organizations, the Irrigation Association and industry to enhance opportunities for water efficiency and site enhancement as this process is extended to other VA facilities, including cemeteries.

Third-party certification is also an important part of sustainability. It is important to validate the work that VA is doing—and—if it's similar to the process the VA has used through the GBI, it will provide them with valuable feedback and recommendations for continual improvement from highly qualified assessors.

Green Globes for Continual Improvement of Existing Buildings

Considering that the United States is home to more than 100 million buildings, the need to improve the performance of existing structures is a necessary prerequisite for widespread energy efficiency; particularly for health care buildings, as their water and energy consumption are much larger than other building types. The missing element—until GBI introduced Green Globes-CIEB—was a practical and affordable way to measure and monitor sustainability and operational performance on an ongoing basis.



Green Globes-CIEB allows users to create a baseline of their building's performance, evaluate interventions, plan for improvements, and monitor success—all within a holistic framework that also addresses physical and human elements such as material use and indoor environment.

As in Green Globes for New Construction, energy is the most significant area of assessment within Green Globes-CIEB. A combined focus on energy use, building features, and management practices helps to pinpoint where performance is lacking and what corrective action is required. The system uses ENERGY STAR to determine a consumption target for each building type and, where appropriate, buildings must meet a minimum performance target of 75 percent based on the comparable ENERGY STAR rating system.

Green Globes Automated Reports

Green Globes Report

Sample Building San Diego
January, 2009

INTRODUCTION

Sample Building is a 1,120,380 square foot multi-residential building that was built after 1990, located in San Diego, California. It has 5 storeys. There is underground parking. Sample Building is described as follows: *Garden style development with swimming pool. Construction is wood frame stucco on podium*



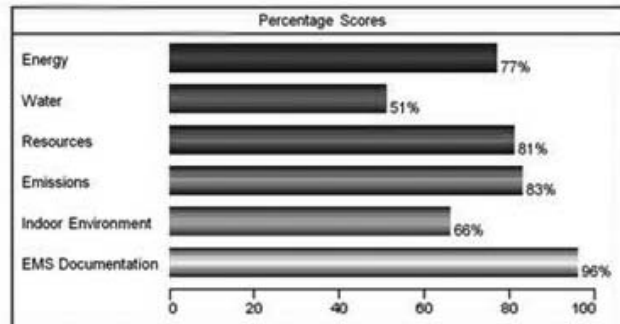



Fig1: Views of Sample Building

The approximate number of people living in the building is 1,538. The building has other tenancies such as rental retail, restaurant/cafe/teria. The building is owned by JP Morgan and managed by Todd Kerr. The building manager has been with the building 5 years and is stationed on site.

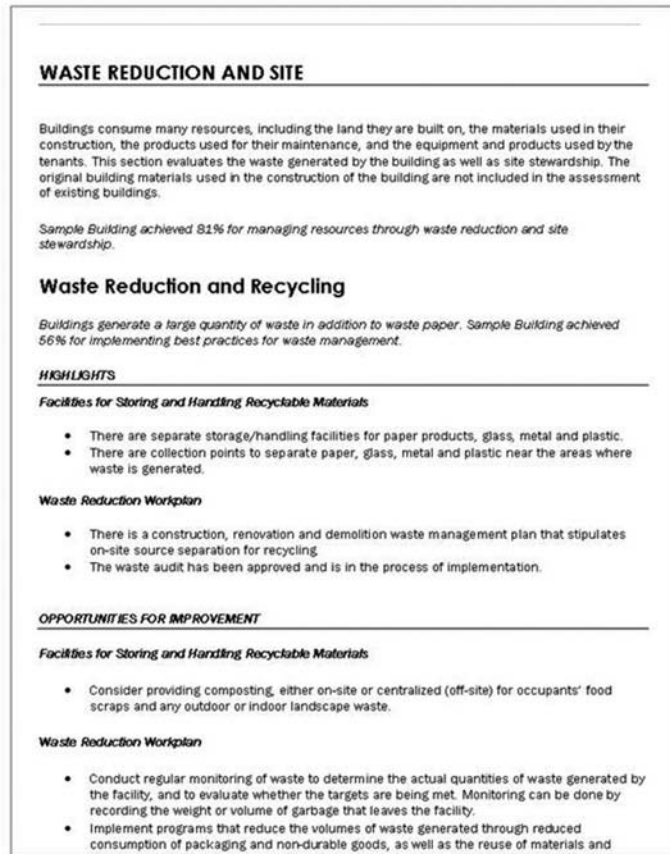


Sample Building achieved an overall rating of 76 %.

Overview

The management of multi-residential buildings has strong jurisdiction over the common areas but relatively little control over the tenants' suites. With regards to energy consumption, control is limited to outdoor, parking and service area lighting. With regards to water, control is limited to irrigation. The best opportunities for an intervention are through working with or advising tenants through tenants' guidelines. This is particularly applicable in the time of new lease agreements. Having in place a set of energy and environmental policies would also empower the management to act on the energy and environmental issues. Such "best practice" policies and procedures may include:

- Energy
 - Energy Audit
 - Energy Management (Reduction) Plan
- Water
 - Written Policy to Minimize Water Use
 - Water Audit
- Waste Reduction and Site
 - Recycling Program
 - Waste Audit
 - Construction, Renovation and Demolition Waste Management Policy
- Emissions and Effluents
 - Hazardous Materials Survey
 - Hazardous Products Management Plan
- Indoor Environment
 - Means for Addressing Tenant/Occupant Concerns
- Environmental Management System
 - Tenant Criteria Manual
 - Communication with Tenants System



The best way to achieve facility-wide environmental goals is to put easy to understand information in the hands of those that make decision and maintain the facilities. Green Globes-CIEB reports are generated following completion by the in-house staff of an approximately 150-question building survey. The survey helps staff to identify their operations' strengths and weaknesses and provides them with opportunities for improvement. The report is a tool for the in-house staff and decision-makers.

The report is also informative for the third-party assessor prior to evaluation of the building against Green Globes protocols. Each entry in the survey must be verified by the GBI-authorized third-party assessor before a building can qualify for a Green Globes rating of one, two, three, or four Green Globes. Once an on-site assessment is completed by a GBI-assigned third-party assessor—which includes evaluation of documentation and interviews with key facility personnel—a certified rating is assigned to the building.

Achieving Green Globes Certification

Projects that achieve a score of 35 percent or more out of applicable points become eligible for a Green Globes rating of one, two, three or four globes, as follows:

- One Globe: 35–54 percent
- Two Globes: 55–69 percent
- Three Globes: 70–84 percent
- Four Globes: 85–100 percent

However, buildings cannot be promoted as having achieved a Green Globes rating until the information submitted has been assessed and certified by a qualified third party.

The Green Globes third-party assessment features a rigorous evaluation process. The evaluation includes a thorough review of documentation, an on-site walk through, and interviews of key facility personnel.

The GBI currently oversees a network of Green Globes-trained assessors comprised primarily of licensed architects and engineers with significant experience in building sciences and sustainability issues. To accommodate increasing demand and further strengthen our third-party assessment program, GBI has launched a personnel certification and training program. The most highly qualified architects, engineers, and building sustainability experts will be eligible to become certified as Green Globes Assessors (GGAs) whereas other practitioners with experience in applying sustainability principles to buildings can earn a Green Globes Professional (GGP) certification. Both programs are accompanied by comprehensive training.

U.S. Market Acceptance of Green Globes

To date, 76 buildings have successfully achieved Green Globes third-party certifications across the United States. More than 400 additional buildings are also registered to complete a Green Globes assessment in the future.

Green Globes has also been formally recognized by the public and private sectors including the following:

- To date, 35 Federal Government buildings are registered with Green Globes and are at some stage in the assessment process. This includes 14 buildings from the U.S. government Services Administration (GSA) Region 9 (San Francisco) and GSA Region 5 (Chicago), 21 Green Globes-CIEB assessments from the U.S. Department of Veterans Affairs and 1 Green Globes assessment from the U.S. Department of State.
- Nineteen States have included Green Globes in green building legislation, regulation or executive order, including: Arkansas, Connecticut, Florida, Hawaii, Illinois, Indiana, Kentucky, Minnesota, New Jersey, New York, Nevada, North Carolina, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia and Wisconsin.
- Green Globes is included in insurance packages offered for green buildings by Aon Corp., Fireman's Fund Insurance Co., Liberty Mutual, and Travelers.
- Since the launch of Green Globes-CIEB, some of the largest corporations and real estate companies in the country have chosen to use it for their existing building portfolios, including the USAA Real Estate Co., Tishman Speyer-Chicago, Capital One, and Rubbermaid.

Green Building Initiative Background and Relevant Information

GBI Mission & Structure

The GBI is committed to accelerating the adoption of green building practices by offering credible and practical tools that make green design, management and assessment more accessible to a wider population of builders and designers.

The Green Building Initiative (GBI) is a 501(c)(3) non-profit education organization based in Portland, Oregon. It was established to accelerate the adoption of sustainable design and construction practices by promoting credible and practical approaches to green building for both residential and commercial construction.

Ward Hubbell, who has previously testified before Congress, serves as President of GBI at the discretion of an independent, multi-stakeholder board of directors comprised of construction professionals, product manufacturers, non-profit organizations, university officials, and other interested third parties. Each board member is allocated one vote to guide the GBI, ensuring an equal balance of influence. For a list of board members, please visit the *board page* of the GBI Web site.

Having long recognized the power of collaboration, GBI has sought to foster relationships with a variety of organizations related to the built environment with the goal of helping to accelerate the acceptance of sustainable design and construction in the marketplace. To this end, GBI has a formal partnership with the U.S. Environmental Protection Agency's ENERGY STAR® program, as well as Memorandums of Understanding with the following organizations:

- American Institute of Architects (AIA)
- American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE)
- Associated General Contractors of America (AGC)
- Building Owners and Managers Association (BOMA)

- National Association of Home Builders (NAHB)
- GBI has also established collaborative relationships with, among others:
- Alliance to Save Energy (ASE)
 - Architecture 2030
 - Sustainable Buildings Industry Council (SBIC)

Accomplishments, Innovation and Competition

When GBI was established in late 2004, there were no green building rating systems with the specific objective of supporting mainstream design and building professionals. This is at the core of the Green Globes system and is fundamental to encouraging energy efficiency and other green building practices on the broad scale that is clearly necessary. That is why GBI obtained the exclusive rights to develop and promote Green Globes in the United States.

Having more than one rating system in the U.S. market supports the diversity of buildings, design and building professionals, and budgets. It also creates an atmosphere of healthy competition, which does for green building what it has done in countless other areas—drives improvements, lowers costs and benefits the ultimate consumer, which in this case is our shared environment.

In the last 4 years, for example, GBI:

- Became the first green building organization to be accredited as a Standards Developing Organization (SDO) by the American National Standards Institute (ANSI),
- Embarked on a process to establish Green Globes as the first ANSI standard for commercial green building, which will be completed this year,
- Introduced Green Globes-CIEB to strengthen the link between sustainable design objectives and actual building performance,
- Developed the first tool for integrating life cycle assessment (LCA)—widely considered to be the most effective way to compare the environmental impacts of building materials and assemblies—into a green rating system, and
- Chose to advance the green movement as a whole by supporting the development of a generic version of its LCA tool—the ATHENA® *EcoCalculator for Assemblies*—which is available free of charge from the ATHENA Institute (www.athenasmi.ca).

As evidenced by these highlights, GBI's offerings have evolved as new opportunities have arisen to help mainstream practitioners accelerate their adoption of green building practices. Our goal is for green building to become the norm and, while GBI has arguably become a leading voice in the movement, we are committed to remaining nimble and continuing our role as an agent of positive change.

Conclusion

It is the GBI's view that improving the efficiency of buildings one of the most important things Congress can do to reduce energy consumption and address its related impacts. Green building rating systems can accelerate this process by defining goals that go beyond code, providing the means to measure progress, and rewarding those who excel. It is the GBI's hope that this Committee will recognize the valuable and complementary role of green building rating systems and create policy that encourages rating system developers and others to create additional market-based incentives that help motivate significant energy and greenhouse gas reductions.

Thank you for inviting the Green Building Initiative to participate in this important hearing. We look forward to the opportunity to work with all of the Members of the House Committee on Veterans' Affairs to help increase the sustainability of VA facilities and operations.

Prepared Statement of James L. Hoff, DBA, Director of Research, Center for Environmental Innovation in Roofing

Good morning and thank you, Mr. Chairman and Members of the Committee, for the invitation to speak to you at this hearing on energy efficiency. My name is Dr. James Hoff, and I serve as Research Director for the Center for Environmental Innovation in Roofing in Washington, DC. The mission of the Center is to serve as the unified voice of the roofing industry in matters relating to the energy and environmental benefits afforded by modern roofing materials and systems. Our membership includes roofing contractors, roofing materials manufacturers, construction designers and building researchers, all interested in a common goal of raising public awareness of the importance of our Nation's rooftops and their strategic value in

reducing energy consumption, mitigating environmental impact, and enhancing the quality of the buildings in which we all live and work.

My mission before the Committee this morning is to raise awareness of the magnitude of roofing's contribution to energy efficiency and the many different ways our Nation's rooftops can be used to meet broader goals of reducing energy consumption and create a cleaner environment. In addition, I would like to express the Center's support of the important energy initiatives already undertaken by the Department of Veterans Affairs, especially as embodied in the Department's Green Buildings Action Plan. And finally, I would like to recommend some additional actions that should be taken to help assure that the important energy efficiency goals of the Department of Veterans Affairs are fully realized on the rooftops of all VA facilities.

Energy Goals and Our Nation's Rooftops

Building Heat Loss and Roof Insulation.

Of all the opportunities for saving energy through improved roof system design, the opportunity to reduce building heating costs is by far the most important. Direct heat loss through the roofs of our Nation's commercial and institutional buildings accounts for 25 percent of total building heating loads, or over \$12.5 billion in annual energy costs (Huang & Franconi, 1999). Given the magnitude of energy costs related to heat loss directly through our roofs, the application of adequate levels of roof insulation is a critical aspect of efficient roof system design. Unfortunately, the great majority of the commercial/industrial roofs in the United States are not adequately insulated as measured by current energy efficiency standards. The Center estimates that the average level of insulation in our Nation's roofing inventory is at least 30 percent lower than current building code requirements, which in turn is 30 percent lower than the level needed to support the energy reduction goals of the Energy Independence and Security Act of 2007.

However, because thermal insulation has been designed to be an integral part of modern commercial roofing systems, increased amounts of insulation may be added easily and economically during the installation of a roof on both new and existing buildings. The Center estimates that if the 50 million square foot inventory of commercial/institutional roofs in the United States were insulated at the levels needed to meet the energy efficiency targets of the Energy Independence and Security Act of 2007, annual energy costs savings would exceed \$2.0 billion (Center for Environmental Innovation in Roofing, 2009).

Solar Loads and Cool Roofs.

Roofs also contribute substantially to building cooling loads through the absorption of solar energy into the roofing material. In addition to increasing building air conditioning requirements, solar heat absorption by roofs and other man-made surfaces tends to increase the average temperature of our cities, contributing to what is known as the Urban Heat Island Effect. Because solar heat loads generally peak during the late afternoon, demand for electricity also tends to spike at the same time. In fact, research suggests that up to 10 percent of overall electricity demand in urban areas is used to compensate for this heat island effect (Akbari, 2005).

Reducing this solar heat load can be accomplished through the application of a number of "Cool Roofing" techniques suitable for both new as well as retrofit applications. In new applications, the cost of installing a roof with a highly reflective cool surface may be no greater than the cost of installing a non-reflective roof. And in retrofit applications, reflective roof coatings may offer an economical alternative to complete roof membrane replacement, which in turn mitigates environmental impact generated by additional construction waste. "Green Roofs", or roofs covered with a layer of vegetation offer an alternative cool roofing technology that reduces cooling loads through the thermal mass and the evaporation of transpired moisture from the vegetation. In a similar manner, roof surfaces covered with stone ballast or concrete pavers can reduce cooling loads by absorbing the sun's heat during the day and releasing it at night, similar to the dynamics of traditional adobe construction in desert regions of the United States.

Although cool roof surfaces may not offer the same magnitude of overall energy savings as increased roof insulation, the energy savings opportunity is still very significant. According to the Heat Island Group of Lawrence Berkeley Laboratories, the installation of cool reflective roofing surfaces—either as new roofing materials or reflective coatings over existing roofing materials—could generate annual cooling energy savings as high as \$175 million (Akbari, 2005).

Clean Energy and the Rooftop Platform.

In addition to the opportunities to significantly reduce building energy consumption, the rooftops of our country also offer an attractive platform to increase the supply of energy from renewable resources. This rooftop “platform for the future” is especially attractive for the deployment of photovoltaic (PV) systems which generate electricity through the direct conversion of sunlight into usable electrical power. In addition to rooftop PV systems, the installation of roof-mounted solar thermal systems offer an economical clean energy alternative, especially for Department of Veterans Affairs facilities requiring large quantities of hot water for laundry and cleaning operations.

The benefits offered by rooftops for the economical and sustainable deployment of renewable solar energy are numerous. Because existing rooftops already serve a functional purpose by keeping water out of buildings and helping generate economic value in the form of occupancy or rent, their use as a platform to generate solar energy is generally much less expensive than the acquisition of undeveloped real estate. Further, the users of the energy generated by rooftop clean power are located directly beneath the rooftop, reducing transmission and operating costs. Finally, because rooftop clean power is generally located directly within the current developed electric grid, no new transmissionlines or controls are necessary.

Long-Term Energy Savings and Roof Service Life.

No matter how much energy efficiency can be designed into a building, the benefits of that efficiency can only be realized if the building provides a long and problem-free service life. And of all the major components of a modern building, the roof system undoubtedly exercises the most influence on service life. Roof leaks and other roof-related failures can rapidly accumulate excessive moisture within a building, accelerating the deterioration of building materials and components. In addition, excessive moisture can lead to mold growth that may adversely the health and safety of building occupants. Finally, excessive moisture can compromise the thermal resistance of building insulation, leading to a slow but steady reduction in overall energy efficiency.

The issue of durability in roofing system design becomes even more important as the rooftop takes on a new and expanded role as a platform for renewable energy. For any building owner investing in a rooftop solar system that may require 20 or more years of continuous service to assure adequate financial return, it is imperative that the underlying roofing system is designed and installed to provide the needed uninterrupted service life.

Roofing and Clean Energy Jobs.

According to the 2002 Economic Census, over 225,000 Americans are employed in the roofing industry. Given the overall market potential for energy-efficient roofs combined with the additional opportunities for rooftop solar energy production, the roofing industry offers an outstanding opportunity for the development of a new generation of highly skilled energy technicians and high-paying green jobs.

Roofing contractors already contribute a high added value through their work—of the \$21 billion expended annually on roofing installations in the U.S., over \$13 billion of economic value is added by roofing contractors above and beyond the required roofing materials. With the advent of new energy-saving and energy-producing technologies now being added to roofing installations, the overall economic contribution of the roofing industry is certain to increase significantly, both in terms of added materials as well as new value-added job skills.

Recommendations for the Committee

Incorporate Recent Energy Standard Updates in Department Action Plans.

The Center would like to express its support of the important energy initiatives already undertaken by the Department of Veterans Affairs, especially as embodied in the Department’s Green Buildings Action Plan. This plan establishes overall targets and broad operating principles consistent with the energy targets of the Energy Policy Act of 2005 and the Energy Independence and Security Act of 2007. These targets called for a 30-percent improvement over the then-current national energy consensus standard for buildings, ASHRAE 90.1–2004. Since the enactment of this legislation, however, the ASHRAE standard has been revised upward (ASHRAE 90.1–2007), and an even higher level of the standard is anticipated within the year. Because building energy use standards, driven by technology improvements and current economics, continue to evolve, the Center recommends that the Department’s Green Building Action Plan also be revised to reflect the current building energy standard of ASHRAE 90.1–2007.

Establish Specific Insulation Targets for All New and Replacement Roofs.

As mentioned previously, the Department's Green Buildings Action Plan establishes overall targets for energy efficiency, especially in regard to how they should be applied to new buildings and major renovations. However, many roofing projects, especially the re-roofing of existing Department facilities, fall outside new building or major renovation activities. As a result, there may be some confusion as to how the 30 percent energy improvement target should be applied to a roofing-only project. To avoid this potential confusion, the Center recommends that a specific target be established for roof insulation by applying the 30 percent overall savings target to the current minimum roof thermal conductance requirements of ASHRAE 90.1-2007 (for roofs with above deck insulation). The calculation for this recommendation for the applicable ASHRAE climate zones is illustrated in the following table:

ASHRAE Climate Zone	ASHRAE 90.1-2007 Min. Roof U-Value ¹	Adjusted For 30% Energy Improvement	Equivalent Min. Roof R-Value ²
Zone 1	0.067	0.047	21.3
Zone 2-8	0.050	0.035	28.6

¹U-value is a measure of thermal conductance.

²R-value is a measure of thermal resistance and the reciprocal of U-value.

It should be noted that ASHRAE 90.1-2004 and ASHRAE 90.1-2007 also includes a design provision for cool roofs, which allows a 10-percent reduction in roof insulation value in certain climate zones if the roof system is a cool roof. Although the Center does not dispute the logic of this tradeoff, we recommend this tradeoff only be used if the Department's Green Buildings Action plan is upgraded to the most recent 2007 version.

Include Roof Condition Assessment in all Roof-Mounted Renewable Energy Projects

As mentioned previously, durability in roofing system design becomes especially important if the role also serves a platform for renewable energy production. Because the Department will certainly expect 20 or more years of continuous service from any investment as sizeable as rooftop solar or other renewable energy systems, the Center strongly recommends that the condition and design of the roof be evaluated to assure that both the renewable energy system and the roof system will have compatible service lives.

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Prepared Statement of Kevin Kampschroer, Acting Director, Office of Federal High-Performance Green Buildings, U.S. General Services Administration

Good afternoon, Chairman Filner, Ranking Member Buyer and Members of this Committee. My name is Kevin Kampschroer and I am the Acting Director of the Office of Federal High-Performance Green Buildings at the United States General Services Administration (GSA). Thank you for inviting me today to discuss the goals for Federal Agencies to become more energy efficient in a sustainable manner.

GSA, through the Public Buildings Service (PBS), is one of the largest and most diversified public real estate organizations in the world. Our real estate inventory consists of more than 8,600 owned and leased assets representing nearly 354 million square feet of rentable space across all 50 States, 6 territories and the District of

Columbia. Our portfolio is composed primarily of office buildings, courthouses, land ports of entry, and warehouses. GSA's goal is to manage these assets efficiently, while delivering and maintaining superior workplaces at best value to our client agencies and the American taxpayer.

We also collaborate with other Federal agencies as partners in developing, implementing and evaluating Federal green building programs through programs such as ENERGY STAR, which is jointly run by the U.S. Environmental Protection Agency and U.S. Department of Energy. We have worked with the U.S. Department of Veterans Affairs (VA) on the Veterans Benefits Office in Reno, NV, which was the VA's first building rated using a third-party, independent rating system: Leadership in Energy and Environmental Design (LEED). We continue to work with the VA on every new project in support of the VA's important mission to our country's veterans.

Cost and Value

High-performing green buildings provide the best value for the taxpayer and for the public through both life cycle cost benefits and positive effects on human health and performance. A recent study¹ of GSA's 12 earliest green Federal buildings shows energy consumption is down 26 percent and occupant satisfaction up 27 percent, compared to commercial office benchmark data in those regions. More importantly, the top third of studied buildings, which use an integrated design approach, deliver significantly better results with 45 percent less energy consumption, 53 percent lower maintenance costs, and 39 percent less water use.

A recent report by CoStar, a major real estate transaction information collection company, shows that green buildings, in general, also have lower vacancy rates. According to the 2008 McGraw-Hill Construction SmartMarket Report: Key Trends in the European and U.S. Construction Marketplace, operating costs for green buildings are on average 8 to 9 percent lower, building values are 7.5 percent higher, buildings have a 3.5 percent greater occupancy ratio, and green buildings provide a 6.6 percent total return on investment.

With the above mentioned long-term operating cost benefits, the life cycle cost of green buildings is lower than the life cycle costs of those that are not. Even the initial capital costs are not necessarily higher, and when they are, only marginally so. GSA's study of the initial capital cost shows that the increase on average is about 3 percent, ranging from zero to 10 percent, depending on the design. Similarly, a private sector study by Davis Langdon² in 2007 shows that green building aspects tend to have a lesser impact on costs than other building decisions, such as which kind of finishes and amenities the building might provide.

Environmental Benefits

Good sustainable design offers economic, environmental and societal benefits. If a building decreases its energy consumption, the cost of operation is less, the asset value increases, and the production of greenhouse gasses also decreases. Although there is a large focus on reducing energy consumption today, there are other benefits of sustainable buildings. For example, a planted or "green" roof can have significant economic benefits by lowering the roof temperature and thus cooling, lowering costs for neighboring buildings, reducing the city's heat island effect, and reducing storm water runoff. In cities like Washington DC, with a combined storm water and sewer system, this reduces water pollution both locally and downstream in the Chesapeake Bay. Finally, societal benefits include physically and aesthetically pleasing effects for building occupants and neighbors, jobs for workers to install and maintain planted roofs, and reduction in greenhouse gasses caused by the building.

The careful selection and use of materials can reduce energy consumption during the manufacturing process and protect the health of occupants. Careful construction techniques can reduce the amount of construction waste that reaches landfills by 95 percent or more. Re-use of existing structures can reduce resource consumption while preserving our country's heritage. Careful siting can make buildings perform better from both environmental and human perspectives: proximity to public transportation reduces pollution, saves energy, reduces employee petroleum use, and improves occupants' quality of life. The key is holistic, integrated planning that con-

¹"Assessing Green Building Performance", K.M. Fowler et al., U.S. General Services Administration 2008, based on: KM Fowler and EM Rauch: Assessing Green Building Performance: A post-occupancy evaluation of 12 GSA Buildings, PNNL-17393, Pacific Northwest National Laboratory, Richland, WA, 2008. The full report and white paper summary can be found at www.gsa.gov/appliedresearch under Research Publications.

²Lisa Fay Mathiesson, Peter Morris, "The Cost of Green Revisited" Davis Langdon, July 2007, <http://www.davislangdon.com/upload/images/publications/USA/The%20Cost%20of%20Green%20Revisited.pdf>

siders all factors that influence a building, including the decision of whether to build at all. In addition, every one of the choices is also a choice to reduce the production of greenhouse gasses.

Design challenges for high performance green buildings may vary for different building types (e.g. hospitals). Given the intensive use of the buildings, as with data centers and laboratories, the measures will be different, and the benchmarks need similarly to be adjusted to reflect the use of the building. One can still address energy efficiency in hospitals, and in doing so, the energy efficiency decisions will be balanced differently against air quality standards and other health-related factors.

We need to have at least as much emphasis on actual building performance as on design. The State of California is contemplating standard building performance labeling as a prerequisite for every real estate transaction, and beginning in 2010 GSA will require new building leases over 10,000 square feet³ to have an Energy Star rating earned in the most recent year of operation. The value of the Energy Star rating is that it is an on-going performance measure.

We in the building industry and in the Federal Government also need to expand our measures. While today we typically concentrate on energy use in the building, we need to remember that buildings are also tools for businesses and organizations. The Energy Independence and Security Act of 2007 states that a high-performance green building must not just perform well mechanically, but must perform to improve the health and enhance the performance of the occupants.⁴ This is particularly important in health care facilities, where the importance of the work within the buildings cannot be overstated. If we only look at the energy consumption of the building, we miss the importance of how building performance can increase the ability of people to care for the ill, to reduce the transmission of disease, or to create the conditions of healing. Similarly, modernizing office buildings into high performance facilities can increase the productivity of the workers inside. Carnegie Mellon University has documented over 100 solid, scientifically valid studies that demonstrate the link between high-performance features and some aspect of productivity. Johns Hopkins University has measured reduction in airborne illness by adding ultraviolet light in mechanical systems. The Pacific Northwest National Laboratory has measured an increase in productivity through better lighting. Hewlett Packard has also measured increases in employee engagement linked to their facility greening activities.

A key broad measure of environmental impact is greenhouse gas (GHG) emissions. Once you measure the collective effects of greenhouse gas production by an organization—with buildings as components—you can make more informed decisions and tradeoffs. We need to look at the way we buy materials for the building, travel to and from the building, the way we use the building, and how the building is operating. In both office buildings and computer centers, integrating the occupants' operations with the facility operations can increase energy savings by as much as 50 percent, and also lower the tenants' cost of operations.

Health care facilities present particular difficulties and opportunities. We care for the sick, and try to prevent the transmission of disease in these facilities. We need to create conditions in which health care professionals can perform at their best. They operate around the clock. A health care facility is an amalgam of office, laboratory, hotel, data center and industrial facilities—all in one complex building. The daunting complexity may obscure opportunities for improvement. The key will be to make sure that the facility operations integrate hospital health care operations. As part of the training held at GovEnergy just last month, several case studies presented examples of dramatic energy and water reduction with no reduction in health care effectiveness.

The research that the National Institutes of Health has been conducting on the way that buildings and their mechanical systems can either increase or mitigate the transmission of airborne pathogens is also beginning to change the way that health care facilities are constructed and operated. More research on the unintended consequences of current building management practices is need.

Creation of Green Jobs

The jobs created across the design, engineering, manufacturing, construction and operations industries will bolster the "green economy." These jobs will provide prac-

³ Except in cases where the tenant stays in the same building, or where the market does not provide a building that meets the agency's functional needs, or if the lease is in a historic building. These exceptions are more explicitly defined in the Energy Independence and Security Act of 2007, sec. 435.

⁴ EISA Sec. 401(13).

tical experience in high-performance technologies, green construction and building operations.

GSA has identified over 50 different trades and professions that will participate in the accomplishment of GSA building projects. While it may seem that some aspects of construction are unaffected by new technologies, we find that virtually all are changed in some way by the application of the principles of sustainable buildings and delivery. For example, in demolition work, GSA takes particular care to ensure that materials are reused, and recycled, and we have avoided 95 percent of the traditional construction waste on several of our projects.

Installation of PV requires special skills that are a part of the green economy. Lighting systems and controls have improved dramatically over the past 10 years. Implementing emerging technologies leads to the creation of green jobs in building operations. GSA has discovered that most building operators in the government and private sector state that they are unable to find enough well-trained people to run high-performance buildings and keep them running in a high-performance mode. Buildings that are tuned up, commissioned and operating well can easily slip into poorer performance without proper maintenance. The aggregate result is a significant degradation of performance and an unnecessary increase in energy consumption. GSA is already in conversations with the Building Owners and Managers Association, the International Facility Managers Association and others about the apparent shortage of sufficiently trained building operators. GSA will work with the Department of Labor to encourage connections between GSA-sponsored building projects and the public workforce system to provide individuals access to training and employment opportunities in green jobs created with Recovery Act funding. We believe that GSA's Recovery Act projects can potentially provide jobs along this emerging career pathway.

Conclusion

The funds Congress provided Federal agencies through the American Recovery and Reinvestment Act are a sound investment in several respects. First, the timely obligation of these recovery funds will stimulate job growth in the green construction and real estate sectors. Second, the money will help reduce energy consumption and improve the environmental performance of our inventory. Third, the funds, in large part, will be invested in the existing infrastructure, which will help reduce our backlog of repair and alteration needs, thus increasing the assets' value, prolonging their useful life, and ultimately further conserving our country's resources. Finally, these funds will be invested in government-owned assets for the long-term requirements of our Federal customers.

Thank you again for this opportunity. All of us at GSA are excited by the contribution Congress has allowed us to make, both with the Recovery Act and in our continuing service to other Federal agencies. I am available to address any questions you may have. We look forward to continuing to support the VA in its mission and to help the VA reduce its environmental impact while simultaneously improving the conditions for people working in its facilities and the veterans staying in those facilities.

Prepared Statement of Richard G. Kidd IV, Program Manager, Federal Energy Management Program, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy

INTRODUCTION—Overview of the Federal Sector

Good morning Chairman Filner, Ranking Member Buyer, and other distinguished Members of the Committee. I am Richard Kidd, the Program Manager for the Department of Energy's Federal Energy Management Program (FEMP). FEMP operates within DOE's Office of Energy Efficiency and Renewable Energy, which manages 10 research and development and deployment programs. FEMP's mission is to:

Facilitate the Federal Government's implementation of sound, cost-effective, energy management and investment practices to enhance the Nation's Energy security and environmental stewardship.

I am pleased to have the opportunity to address this Committee and to talk about the Federal Government's efforts to reduce its energy intensity and challenges we face as we attempt to achieve national goals, highlighting our work with the Department of Veterans Affairs (VA). I believe that VA's efforts in reducing their energy consumption help tell the story of how Federal agencies can lead the way in "going green."

For perspective, the U.S. Federal Government is the single largest user of energy in the Nation. Key statistics illustrate the impact the Federal Government has on national security, U.S. energy consumption, the Federal budget, and the environment include:

- Nationwide, buildings account for nearly 40 percent of U.S. primary energy consumption;
- The Federal Government currently owns, operates, and leases over 500,000 buildings at 8,000 sites throughout the U.S.; and
- The Federal building inventory includes commercial, industrial, residential, research, institutional, agricultural, transportation, and cultural facilities operated by 26 cabinet-level departments and independent agencies with a highly diverse set of complex missions.

In FY 2008, total site-delivered energy consumption was 1.1 quadrillion Btu (“quads”), roughly 1.6 percent of U.S. total consumption. Also in FY 2008, the Federal Government’s site-delivered energy, also known as point of use energy, bill was \$24.5 billion. This represented approximately 0.8 percent of total Federal expenditures (\$2.983 trillion) that year. Of the \$24.5 billion, over \$7 billion was spent on energy to operate Federal buildings.

ENABLING AUTHORITIES FOR FEDERAL ENERGY MANAGEMENT

I would like to highlight the Federal authorities that guide energy policy at the Federal level. Following the 1973–1974 oil embargo, Congress first recognized the national security dimensions of our dependence on oil and the adverse impacts of this dependence. These concerns have only heightened over time and a series of legislative initiatives have been passed that guide the reduction of Federal energy use, the procurement of renewable electric power, and the reduction in petroleum use. The key guiding documents for Federal energy policy include:

- National Energy Conservation Policy Act, as amended by the Energy Independence and Security Act (EISA) of 2007, and the Energy Policy Act of 2005 (EPAc 2005);
- Energy Conservation and Production Act, as amended by EISA and EPAc 2005;
- Energy Policy Act 1992 (EPAc 1992);
- Executive Order 13423; and
- EISA

These authorities establish a range of Federal energy management goals that apply to all Federal agencies that operate buildings and facilities. The most salient goals are:

- Reducing energy intensity (Btu/ft²) by 15 percent by the end of FY 2010, compared to a FY 2003 baseline and by 30 percent by the end of FY 2015;
- Using renewable electric energy equivalent to a least 5 percent of total electricity use in FYs 2010–2012 and at least 7.5 percent in FY 2013 and beyond; at least half must come from sources developed after January 1, 1999; and
- Reducing water consumption intensity (g/gsf) by 2 percent annually relative to the FY 2007 baseline to achieve 16 percent by the end of FY 2015.

FEDERAL ENERGY FOOTPRINT—*Goal Performance*

All Federal agencies submit energy use data to FEMP for analysis. The Federal agency energy use figures provided are based upon the submissions for FY 2008. This data is analyzed by FEMP and submitted to the Office of Management and Budget (OMB) for its use in assessing agencies progress and status on the OMB Energy Scorecard. The Federal Government has made significant progress in reducing its energy use during the past decade. However, FY 2008 findings indicate that while the Federal Government as a whole is currently meeting all of its major goals in the areas of energy efficiency, deployment of renewables and petroleum reduction, the rate of progress decreased in FY 2008.

Some of the other key highlights of our analysis are presented below.

Six Federal agencies consume 80 percent of the energy used by the Federal Government. The Department of Veteran’s Affairs (VA) is the third largest energy consumer in the Federal Government:

Total Government and Top Six Agency Facility Energy Users

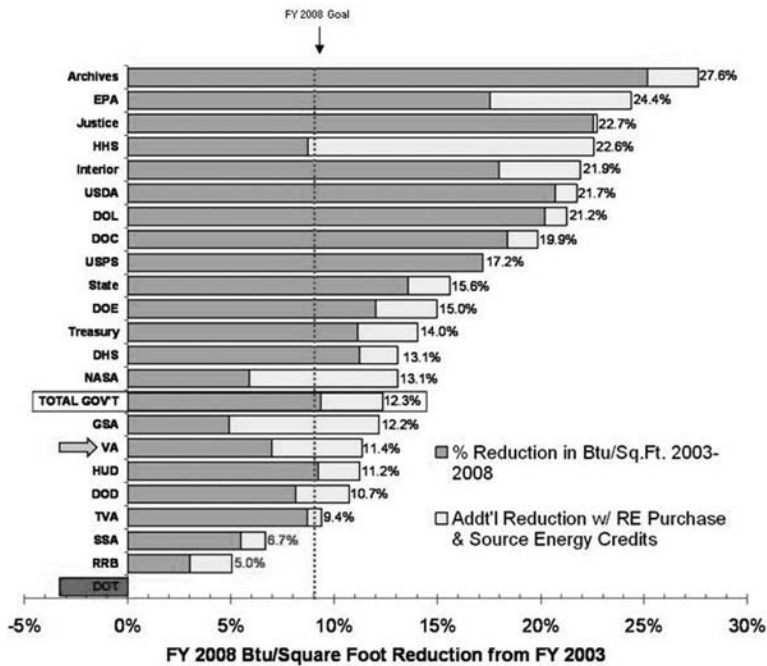
*Preliminary 2008 Data

Agency	Total Facility Gross Square Footage		Total Facility Energy Use		Total Facility Energy Costs	
	Million SF	Percent	Billion Btu	Percent	Million \$	Percent
DoD	1,983.7	62%	217,868	56%	\$3,949.1	55%
USPS	325.6	10%	30,732	8%	\$645.8	9%
VA	146.8	5%	28,290	7%	\$512.0	7%
DOE	109.9	3%	26,595	7%	\$414.8	6%
GSA	210.7	7%	18,366	5%	\$434.6	6%
DOJ	71.3	2%	15,975	4%	\$208.0	3%
Other	375.5	12%	48,576	13%	\$1,059.1	15%
Total	3,223.0	100%	386,402	100%	\$7,223.4	100%

Energy Intensity

Based on preliminary FY 2008 data, the Federal Government's energy intensity in its goal-subject buildings was 110,854 Btu/ft² or 12.4 percent lower than the FY 2003 base year energy intensity of 126,583 Btu/ft². VA reduced its energy intensity by 11.4 percent as indicated on the chart below.

Federal Facility: Agency Progress Towards Energy Reduction Goal

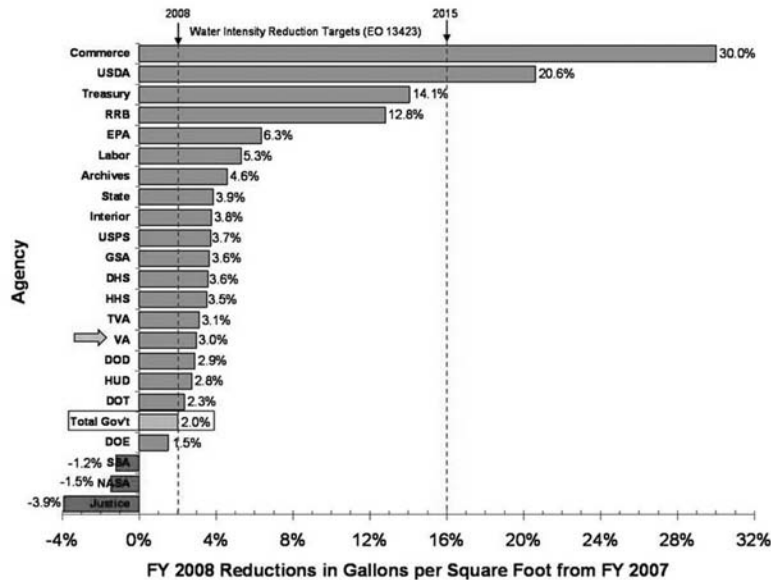


Water Reduction

In FY 2008, the Federal Government used a total 162,169.9 million gallons of water, or 51.2 gallons per gross square foot (g/gsf). Compared to FY2007, the Federal Government reduced its water intensity by 2.9 percent, surpassing the reduc-

tion goal. VA reduced its water intensity by 3 percent in FY 2008 as indicated on the chart below.

Federal Facilities: Agency Progress Toward Water Reduction Goal



Renewable Energy

The statutory goal for Federal electricity use from renewable sources is 3 percent of total electricity use in fiscal years 2007–2009, 5 percent in fiscal years 2010–2012, and 7.5 percent in FY 2013, and thereafter. Under E.O. 13423, at least half of this reduction must be from sources developed after January 1, 1999. Currently, electricity from renewable sources counts toward energy efficiency and therefore is credited toward overall energy reductions. However, the energy efficiency credit earned by renewable energy sources is being phased out by FY 2012.

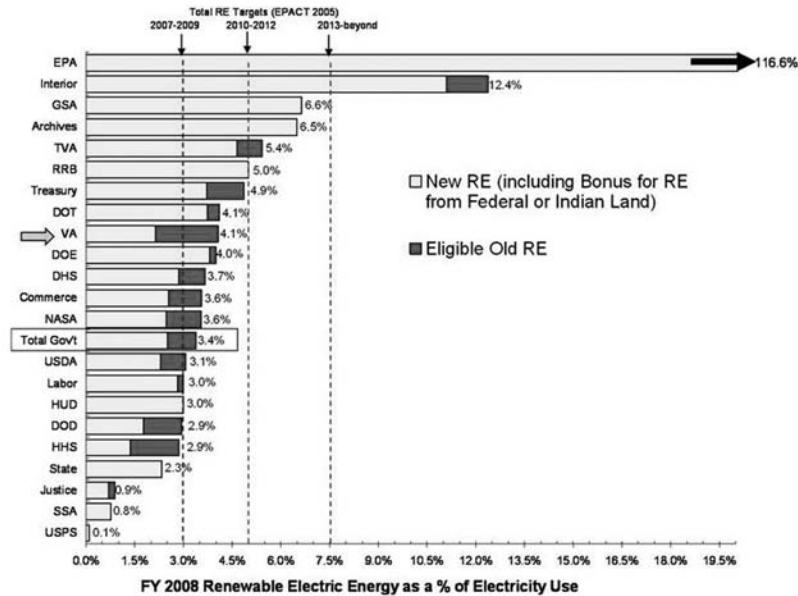
Sixteen Federal agencies achieved the FY 2008 goal for renewable energy purchases; six did not. While 13 agencies showed progress from last year, seven agencies witnessed the percentage of their electricity from renewable sources decline, two remained unchanged. VA exceeded the renewable energy reduction goal achieving a reduction of 4.1 percent as indicated on the chart below.

Overall, the Federal Government used renewable electric energy equivalent to 3.4 percent of its electricity use in FY 2008, which is significantly less than the 4.9 percent for FY 2007. Renewable electric energy use in the Federal Government declined by 32 percent from FY 2007, from 2.8 terawatt-hours to 1.9 terawatt-hours; total facility electricity use declined only slightly (-0.9 percent). A preliminary assessment of the data suggests two reasons for this decline:

- Increases in the price of renewable energy certificates (RECs)¹; and
- Reduced motivation to purchase RECs since their contribution toward meeting the energy reduction goal is declining. FY 2008 was the first year of the credit phase out—RECs could only contribute up to 60 percent of an agency's reduction (5.4 percent of the 9.0 percent target reduction in energy intensity).

¹RECs represent the environmental attributes of the power produced from renewable energy projects and are sold separate from commodity electricity. Federal agencies may purchase RECs to count toward energy intensity reduction goals.

Federal Facilities: Progress Toward Renewable Energy Goal



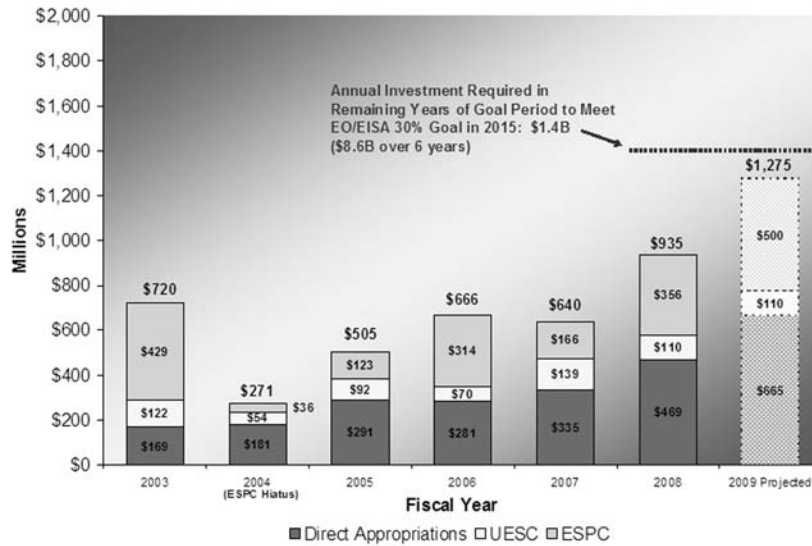
Funding

Improvements in energy efficiency come at a cost. Agencies may use appropriated funds, or if conditions merit, Energy Savings Performance Contracts (ESPCs) or Utility Energy Savings Contracts (UESCs), that are budget neutral contracts paid over time from future energy savings, to fund energy and water efficient projects. Authority for the ESPC and UESC programs were provided to the agencies in EPACT 1992 and permanently authorized in EISA 2007. In FY 2008, the Federal Government invested \$934,700,167 in energy-efficiency projects. Funding was derived from the following sources:

- \$468,659,178 from direct appropriations;
- \$365,409,689 by ESPCs; and
- \$109,631,300 by Utility Energy Savings Contracts (UESCs).

In an FY 2007 Memorandum, the Chairman of the Council on Environmental Quality recommended that Federal agencies spend approximately 20 percent of their annual energy costs on energy efficiency measures. Only three agencies—DOE, the Environmental Protection Agency (EPA), and the U.S. Postal Service—met this recommendation. VA invested 7.8 percent of its energy budget, all from direct appropriations in the amount of \$39.8 million. Overall, an amount equivalent to 12.9 percent of the Federal Government's total energy budget was spent on energy efficiency and renewable energy projects, split evenly between ESPC/UESC projects and direct obligations. The chart below shows historic data for funding energy efficiency and renewable energy projects and a projection for FY 2009.

DOE's Estimate of Annual Investment Required



DEPARTMENT OF VETERANS AFFAIRS—PERFORMANCE

The Department of Veterans Affairs operates 153 hospitals with at least one in each State, the District of Columbia, and Puerto Rico plus over 100 national cemeteries and a variety of other veterans care-related and benefits administration facilities in 39 States. FEMP data analysis shows that 99 percent of VA's energy consumption occurs in its medical facilities. In addition to the VA's annual appropriations, which address both major and minor construction projects, the Recovery Act provides VA with \$1 billion for non-recurring maintenance, including energy projects for the Veterans Health Administration's medical facilities and \$50 million for monument and memorial repairs, including energy projects for the Veterans' Cemetery Administration. Both Recovery Act appropriations will remain available until September 30, 2010.

VA faces challenges in meeting its energy and water consumption goal since medical facilities operate 24-hours per day, 7 days a week. They require heating and cooling, steam and hot water, and energy-intensive medical equipment, along with a very high-volume of outside air. These facilities also have high standards for air quality which require operating energy-intensive equipment to circulate fresh air and in most cases all incoming air must be conditioned. Health care facilities also have requirements shared by industrial including "process" energy load requirements. That means that for health care facilities, energy requirements are dependent on the number and types of patients served and no ENERGYSTAR® or FEMP-designated product categories exist for the medical equipment widely used throughout VA facilities nationwide. The ever increasing number of veterans being served, and a shift to digital medical records, has also led to a sharp increase in the VA's IT requirements, which may further add to its energy use requirements.

Despite these challenges, VA exceeded the current Federal energy reduction goals as reflected in the charts above for energy intensity, water reduction, and renewable electric power procurement. The chart below highlights the profile of VA's energy use and energy intensity. While VA's energy intensity is almost 66 percent above the Federal average, it is below the national average for health care facilities. Also, 25 VA medical centers have earned EPA ENERGYSTAR® building labels, which means they are in the top 25 percent of facilities in their category; in this case, the category is acute care hospitals.

Federal Government and VA Building Characteristics

Building Characteristics	Federal Government	VA	VA % of Federal Sector
Number of Buildings	> 500,000	3,766	0.75%
Number of Buildings over 1 million ft ²	38	1	2.63%
Number of Buildings greater than 500,000 ft ²	1271	128	10.07%
Site-delivered energy consumption in Federal goal-subject buildings (Billion Btu)	340,247.3	26,960.9	7.92%
Thousand gross square feet (GSF) of Facility	43,069,329.5	146,812.5	4.78%
Energy Intensity (BTU/GSF)	110,854	183,642	NA
Estimated emissions of carbon dioxide, methane and nitrous oxide from goal building energy use (MTCO ₂ E)	42,658,568	3,003,584	7.04%

Additionally:

- VA ranks fourth among Federal agencies in terms of overall on-site facility energy consumption behind DoD, USPS, and DOE;
- VA ranks third in terms of Federal facility energy expenditures;
- VA ranks fourth in terms of Federal facility square footage; and
- Approximately 75 percent of VA's total building square footage is in the hospital category.

FEMP uses the OMB Energy Management Scorecards to rate each Federal agency's progress in meeting mandated energy reduction goals. VA received a green status score for its FY 2008 Federal energy management efforts. VA performance, as measured by the scorecard, reveals that it met or exceeded the following criteria:

- Reduction in energy intensity in goal-subject facilities compared with FY 2003;
- Use of renewable energy as a percent of total facility electricity use;
- On track to meter electricity in 100 percent of appropriate facilities by FY 2012;
- Reduction in water intensity compared with FY 2007; and
- Percent of new building designs begun since October 1, 2006, that are 30 percent more energy efficient than relevant code.

In addition to its goal performance outlined above, VA has demonstrated significant achievement in a variety of other energy efficiency and renewable power activities which includes:

- Developing a public-private energy savings partnership project at the VA West Haven Campus of the Connecticut Health Care System involving multiple utilities and private partners;
- Producing a department-wide plan, the *Energy Management Action Plan*;
- Making significant investments in human capital to include hiring 12 regional-level energy managers and 87 energy engineers at the facility level;
- Implementing a "build green" approach for all major projects by incorporating sustainable design concepts into solicitation requirements for architecture and engineering firms; and
- Launching a major renewable energy initiative in FY 2009 featuring feasibility studies and project implementation for solar, wind, geothermal and renewably fueled cogeneration.

DOE/FEMP-VA PARTNERSHIP ACTIVITIES

In May 2009, FEMP issued a call to all Federal agencies to submit proposals for DOE technical assistance (TA) to provide agencies with TA to plan and implement projects funded by Recovery Act or base FY 2009 appropriations. Three VA project proposals were selected for a total value of \$210,000. These projects consist of:

- **VA National Cemeteries**, including TA for detailed renewable energy feasibility studies at four cemetery sites;
- **VA Medical Centers**, including TA in the development of retro-commissioning specifications to increase the energy efficiency of VA's Medical Centers; and
- **Veterans Integrated Service Networks (VISN 7)**, including integrated site-assessments and short-term diagnostic testing to retro-commission selected sites is being performed in the regional network of 203 VA buildings located in Alabama, Georgia, and South Carolina.

These TA projects strengthen an already well-established DOE/FEMP–VA partnership. The partnership's key features include:

- DOE/FEMP, VA, Department of Defense, Department of Homeland Security, General Services Administration, and EPA joint sponsorship of the annual GovEnergy Workshop and Tradeshow, which is the Federal Government's premier event to train Federal employees (over 3,000 participants) on a wide range of technical, project financing, and policy-related issues;
- Active participation of VA personnel in FEMP-sponsored project financing workshops for Federal procurement and facility energy management;
- Active VA participation in FEMP-coordinated interagency task force and working groups; and
- Recognition of VA sites and personnel for their leadership and accomplishments through the annual Federal Energy and Water Management award and energy champion programs.

VA has made great strides in “greening” their operations, and FEMP looks forward to continuing to work with VA to ensure that critical national energy and water efficiency goals are met. Working together, we can improve the quality of VA facilities for employees and patients, cut operating costs, and meet critical national goals in reducing greenhouse gas emissions, and reducing Federal energy and water use.

Chairman Filner, Ranking Member Buyer and Members of the Committee, thank you for giving me the opportunity to speak with you today and I look forward to answering any additional questions you might have.

**Prepared Statement of James M. Sullivan, Director, Office of Asset
Enterprise Management, U.S. Department of Veterans Affairs**

Mr. Chairman and Members of the Committee, thank you for the opportunity to discuss with you the Department of Veterans Affairs (VA) Green Management Program and our commitment to energy efficiencies and cleaner energy—and to building lasting change that reduces VA's impact on the environment.

I am accompanied here today by Ed Bradley, Director of Investment and Enterprise Development Service, Office of Asset Enterprise Management; and John Stenger, Director of Health Care Engineering; and John Beatty, Director of Safety, Health, Environmental and Emergency Management; both from the Veterans Health Administration (VHA).

As the lead for VA's “Green Team,” I will present our Green Management Program and identify the four major program areas; scope of responsibilities; recent accomplishments; investments in energy efficiency and renewable energy; energy savings; and VA's path toward reducing its carbon footprint as an agency while enabling and supporting VA's primary mission—to provide the highest quality care and services to our Veterans and their families.

Green Management Program—Overview

VA is making great strides in conserving resources at its facilities across the country by proactively managing its energy, environmental, fleet and sustainable building efforts. These four program areas are the cornerstone of our integrated Green Management Program. Working collaboratively with VA's administrations—VHA, Veterans Benefits Administration (VBA) and National Cemetery Administration (NCA) and staff offices—we have, for example, reduced the rate at which VA uses energy in buildings by 11 percent since 2003. We have created facility energy engineer positions to serve all facilities. We have exceeded alternative fuel vehicle acquisition mandates and installed pumps to dispense alternative fuels at 10 fueling stations, with many more planned and on the way. Six VA facilities have earned certification as green buildings, and others are in the evaluation process right now.

We are dedicating over \$400 million in Recovery Act funds to make facilities more energy efficient and to add solar, wind and other renewable energy capacity. Activities such as these that help “green” our world are the right thing to do. They im-

prove our well-being and ensure a healthy planet for the generations to come. Reducing our energy and environmental footprint is not only the right thing for VA to do, it is the smart thing. Each action we take to reduce, reuse and recycle energy, water and other resources has the potential to generate cost savings that VA can redirect to its core mission of caring for our Nation's Veterans and their families.

Our agency has established a tangible goal for each and every employee to integrate energy and environmental considerations into their day-to-day activities and into all VA operations and long-term planning processes.

Energy and Water Management

Since 2003, VA has been successful in setting goals that exceed mandates; benchmarking energy consumption at its facilities; improving energy efficiency; and investing in renewable energy generation to reduce its fossil fuel consumption.

Energy Project Investment Process

VA instituted a rigorous centralized energy project identification, evaluation and investment process in 2003. The process begins with regionally coordinated facility energy assessments to identify and evaluate potential energy and water conservation measures. Once measures are identified, facility and regional decision-makers select measures to implement and decide on funding methods, which include appropriations and alternative financing such as energy savings performance contracts. VA's National Energy Business Center, established in 2005, provides the Department with all energy-related contracting services, from energy assessments to performance contracting.

Technologies & Projects

The VA's Green Management Program has focused especially on identifying facilities with high potential for renewable energy projects and pursuing implementation of those projects. VA is making use of the funds provided through the Recovery Act to fund design-build contracts and feasibility studies at existing medical centers and national cemeteries across the country. Additionally, VA is conducting renewable energy feasibility studies for all new construction projects.

Solar photovoltaic (PV) panels are one technology that VA is deploying. In 2008, we installed solar PV systems at 2 medical centers and we expect to award design-build contracts for 19 additional projects this year. With the design-build process, contractors evaluate VA needs and propose the technologies and systems best suited to filling those needs, including both thin film and crystalline technologies. VA is actively pursuing wind and geothermal systems as well, with contracts for two wind and four geothermal systems to be awarded this year.

Cogeneration (also known as combined heat and power) is an energy efficient system especially suited to meeting medical center energy needs. Such systems simultaneously produce electricity and steam, hot water or chilled water. The cogeneration plant at the Mountain Home VA Medical Center (VAMC) in Johnson City, Tennessee, uses waste methane gas that is produced from and processed at a local municipal landfill. The cogeneration system at the San Diego VAMC won a Department of Energy (DOE) award in 2006 and features a natural gas turbine with very low emissions of nitrogen oxide (NO_x). VA awarded 12 contracts this past August for feasibility studies of renewably fueled cogeneration at 38 sites in 15 States and Puerto Rico.

VA is aggressively implementing advanced metering systems to measure consumption at the building level to help identify problems and opportunities to improve energy performance. We are currently completing installation of electric and non-electric meters in Veterans Integrated Service Networks (VISNs) 10 and 22, awarding a contract this fiscal year to install electric meters in all other VA facilities, and funding non-electric metering for all VA facilities through the Recovery Act.

Water Management

VA's medical facilities must use water relatively intensely to meet stringent patient care requirements. At VA's national cemeteries, water is essential for maintaining appropriate national shrine environments. VA was able to reduce its water consumption intensity by 3 percent between FY 2007 and FY 2008 while also meeting these mission-related requirements, exceeding the mandated reduction by 50 percent. The new VBA Regional Office in Reno, Nevada, is certified Leadership in Energy and Environmental Design (LEED) Silver and uses water-wise landscaping and other water management techniques such as waterless urinals to reduced water consumption by more than 30 percent. NCA has been taking steps to reduce water consumption while maintaining respect for our Veterans' resting places. For example, at Fort Bliss National Cemetery (El Paso, Texas), NCA used water-wise land-

scaping with drought-resistant plants and installed drip-emitters for irrigation. Several VA facilities have won DOE awards for water management, and VA is actively pursuing additional opportunities.

Sustainable Building

As a Federal agency, VA is required to ensure that 15 percent of its building inventory incorporates sustainable practices by 2015 in accordance with the mandates of Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management (2007). The Green Building Initiative, Inc. (GBI) recently awarded Green Globes sustainable building certifications to three VAMCs. Additionally, one VHA and two VBA facilities have (LEED) certifications. The new VBA Regional Office in Boise, Idaho, which will be activated in October 2009 uses geothermal energy and is in process for LEED Gold certification. Moreover, all new construction and major renovation projects are being designed to meet sustainable building principles.

There are 19 additional VA facilities that expect to obtain third-party green building certification by the end of 2009. Once certifications are obtained, VA's sustainable building square footage will reach 12 percent of total applicable square footage in inventory.

We recognize the importance of building our new facilities to be as sustainable as possible, and also maintaining that status through the use of the Energy Star building rating system. VA has been an active participant in the Energy Star buildings program since 2003. Twenty-five VAMCs have received an Energy Star label, representing nearly 30 percent of all Energy Star labeled medical centers in the United States. These labels signify that the facility is among the top 25 percent of comparable facilities in the Nation in terms of energy performance. We have also established Energy Star ratings for all of our medical centers and for two VBA regional offices.

Environmental

The Nation's environmental statutes impact the way VA facilities are maintained and operated. Protecting the environment is critical to ensuring the health of Veterans, employees and the public, as well as the communities that VA serves. VA is committed to continually improving its environmental programs to meet Federal, State and local environmental requirements and reduce risks that VA facility operations may pose to the environment. VHA is responsible for providing quality health care to our Nation's Veterans care at more than 150 VAMCs, 875 community-based outpatient clinics and other health care facilities.

Environmental Management Systems

The Green Environmental Management System (GEMS) is the foundation for environmental management in VA's medical centers, focused on environmental performance through a process of continuous improvement. By 2008, GEMS were in place at all VAMCs with dedicated GEMS coordinators serving at 99 percent of medical facilities. In 2009, VHA began presenting detailed GEMS training courses to improve understanding of statutes and regulations. NCA is expanding the number of cemeteries covered by environmental management systems significantly using Recovery Act funding, and will soon be adding coordinators as well.

Green Purchasing

Buying green products is consistent with VA's mission to provide our Nation's Veterans with a healthy environment. VA is proud of Fort Custer National Cemetery's (Augusta, Michigan) prestigious 2007 White House Closing the Circle Award for testing and using biobased products in cemetery grounds maintenance equipment. Between September 2007 and June 2009, 100 percent of the desktop computers that VA leased were Electronic Product Environmental Assessment Tool gold or silver products, signifying relatively low environmental impact.

Electronic Stewardship

VA is preparing to implement computer power management nationwide. This project is challenging not only because of VA's size and widely dispersed facilities, but because of its impact on other information technology requirements, all of which need to be fully integrated. As implementation proceeds, VA will be developing a strategy for activating power management in nonmission-critical equipment.

Greenhouse Gas (GHG) Reduction

Last year VA participated in developing protocol for the public sector to inventory GHG emissions and has joined a new Federal interagency initiative to "road test" the protocol. VA is working with the Federal Energy Management Program office

at DOE in their GHG reduction leadership role. We have established an advisory group within VA to shape VA's strategy for establishing a baseline inventory and achieving VA's initial target of 30-percent reduction by FY 2020 from a FY 2008 baseline.

Fleet Management

VA is taking steps to curb petroleum use and increase the use of alternative fuels. We are on track to exceed our fleet management goals of reducing petroleum consumption 2 percent annually and increasing our alternative fuel consumption 10 percent annually. To support our growing alternative fuel vehicle fleet, 25 facilities plan to add alternative fueling capacity, and we are completing a study to identify optimal locations for constructing up to 35 additional stations with the \$7 million in minor construction program funding we received for this purpose. Also, VA is placing electric vehicles on VAMC campuses and national cemeteries.

Education & Outreach

VA has recently embarked on a new initiative called the "Green Routine." This initiative is an outreach and awareness campaign created with the support of Secretary Shinseki. The outreach will provide the necessary information and resources to educate all employees on how they can take advantage of the daily opportunities within their grasp to contribute personally to creating a healthier environment. Deliverables include an informational video; a Web page; an instructional guide to going green in the workplace; and a facilities action plan. Our agency is a leader among other Federal agencies in reducing its energy consumption and environmental impact, but now we are educating and reaching out to our 288,000 employees nationwide to help us continue on the right path – the green path.

Conclusion

Over the past several years, VA has laid a solid foundation of leadership in green management at its facilities by implementing environmental management systems and hiring energy managers and environmental coordinators. We are building lasting change by constructing sustainable new facilities with energy efficiency and renewable energy features. Reducing environmental impacts and increasing energy efficiency are a top priority of the Green Management Program while we maintain our focus on our core mission of caring for our Nation's Veterans and their families. Thank you again for the opportunity to testify. My colleagues and I are prepared to answer your questions.

**Statement of Hon. Harry E. Mitchell, a Representative
in Congress from the State of Arizona**

I would like to thank Chairman Filner for calling this important hearing. And a thank you to our panelists for appearing today, as well.

The VA is the 6th highest in energy consumption intensity and 3rd highest in water consumption intensity among Federal agencies.

For fiscal year 2008, energy and water costs were \$512-million and \$27-million, respectively. With close to \$540-million in energy costs, even the most modest upgrades aimed toward sustainability could save taxpayers millions of dollars.

I share the conviction that energy efficiency and conservation can lead to a greener and more sustainable VA. However, these improvements must be made in a manner that does not compromise the delivery of care and services to our veterans.

To the extent that energy efficiency and conservation can lead to more efficient use of American taxpayer dollars and better overall services and benefits for our heroic veterans, that is certainly a good thing as well.

I look forward to hearing from our panelists today and working to achieve a more efficient and sustainable VA.

I yield back the balance of my time.

MATERIAL SUBMITTED FOR THE RECORD

BACKGROUND MATERIAL

CHART SHOWING JULY 2009 MANAGEMENT SCORECARDS—SUMMARY

July 2009 Management Scorecards - Summary

	Energy		Transportation		Environment	
	Status	Progress	Status	Progress	Status	Progress
Agriculture	●	●	●	●	○	●
Commerce	●	●	●	○ ↓	●	●
Defense	○	○ ↓	●	○ ↓	●	●
Education					●	● ↑
Energy	● ↑	●	●	●	●	●
EPA	●	●	●	●	●	●
HHS	○	●	●	○	○	●
DHS	○	●	●	○ ↓	○	○
HUD	●	●	●	○ ↓	○	●
Interior	●	●	○	○	●	○ ↓
Justice	●	●	●	● ↑	●	●
Labor	○	●	●	●	○	●
State	●	○ ↓	●	●	●	○
Transportation	●	○ ↓	●	○ ↓	●	●
Treasury	●	●	●	●	●	●
Veteran's Affairs	●	●	○ ↑	○ ↓	○	●
Court Services			●	○ ↓		
GSA	●	●	●	○	●	○
NARA	●	●			●	●
NASA	●	●	●	○ ↓	○	●
OPM					○	○
SSA	●	●	●	●	●	○ ↑
Smithsonian	●	○ ↓	○	●	●	●
TVA	●	●			○	●
USPS	●	●	●	●	●	○

POST-HEARING QUESTIONS AND RESPONSES FOR THE RECORD

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

Gail Vittori
Co-Director, Center for Maximum
Potential Building Systems
8604 FM 969
Austin, TX 78724

Dear Gail:

In reference to our full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you could answer the enclosed hearing questions by the close of business on November 13, 2009.

In an effort to reduce printing costs, the Committee on Veterans' Affairs, in cooperation with the Joint Committee on Printing, is implementing some formatting changes for materials for all full Committee and Subcommittee hearings. Therefore, it would be appreciated if you could provide your answers consecutively and single-spaced. In addition, please restate the question in its entirety before the answer.

Due to the delay in receiving mail, please provide your response to Debbie Smith by fax at 202-225-2034. If you have any questions, please call 202-225-9756.

Sincerely,

BOB FILNER
Chairman

MH:ds

Memorandum

To: Chairman Bob Filner House Committee on Veterans' Affairs

From: Gail Vittori, Co-Director
Center for Maximum Potential Building Systems
Austin, TX

Date: November 13, 2009

Re: Follow-up hearing questions for 9-30-09 VA Committee Hearing

1. **You stated that San Diego, California, has one of the strongest recycling programs across the board. Please discuss what practices they are implementing and how the VA could take those practices and apply them to buildings and hospitals across the country?**

My testimony and oral statement did not discuss the recycling program in San Diego.

2. **All new VA construction projects beginning in 2009 will incorporate green building principles. What should the VA be strategically focused on to ensure that there is not a significant achievement gap, and that these buildings can sustain energy savings over the long term?**

As I mentioned in my testimony, there are a number of recommendations that should be adopted or expended to ensure that energy efficiency and sustainability are achieved over the long run in VA facilities.

These include:

- For existing facilities, adopt a regular maintenance regime including "green" housekeeping methods, establish continuous commissioning, adding meters and controls to mechanical and plumbing equipment, and retrofit electrical lighting to energy conserving lamps to optimize operational performance.
 - For new construction, support an integrative design process, establish aggressive energy and water goals, and assess renewable energy strategies. Design for solar readiness to enable installation of renewable energy systems when they have favorable life cycle costs. Ensure strategies that promote patient healing and staff well-being and productivity, such as access to daylight and views, connection to the outdoors, and enhanced indoor air quality through low-emitting materials, are strategic considerations during space planning, programming, and design.
 - Take advantage of existing tools to measure, manage and continuously improve performance. These include the *Green Guide for Health Care*, particularly the v2.2 Operations section that is beginning a pilot in 2010, *LEED 2009* and, when launched, *LEED for Health Care*. In addition, U.S. EPA's Energy Star Target Finder (for new construction) and Portfolio Manager (for existing buildings) provide a benchmarking protocol to measure performance relative to health care sector peers.
 - Engage in collaborative research initiatives with other health care systems and governmental agencies on critical performance topics, including but not limited to displacement ventilation, appropriate implementation of reclaimed water sources with special regard for infection control consequences, appropriate lighting strategies, and pathways to achieve energy use reductions by more than 30 percent in varying climatic zones.
 - Expand bottom line evaluation to provide for life cycle cost assessment, factor in patient length of stay, employee recruitment and retention, energy and water savings, and long-term mechanical performance as key indicators of economic performance.
3. **Can you elaborate on the benefits of green health care facilities both in patient care and safety, employee satisfaction, cost savings, con-**

servation of energy and water, and reduction of waste and the carbon footprint?

The benefits of green health care facilities are numerous. Dell Children's Hospital, discussed in greater detail in my testimony, serves as one example of the benefits to adding sustainability measures to health care facilities. Dell Children's is designed to achieve a 17.2-percent reduction in direct energy use. The installation of low-flow plumbing fixtures saves 1.4 million gallons of water a year.

There has also been a positive response from the staff as well. Dell Children's had a 2.4 percent nursing turnover rate in the first year, compared to 10–15 percent national average. With a cost of more than \$70,000 to replace one nurse, Dell Children's low turnover rate is also a significant financial savings for the hospital.

4. How is the VA doing in relation to most private health care facilities?

As I mentioned in my testimony, the Department of Veterans Affairs has had a visible presence in supporting efforts in sustainable development and has invested in their own research to advance sustainable practices in their portfolio, including the release of *Innovative 21st Century Building Environments for VA Health Care Delivery*.

It is also laudable that 15 of the 48 acute care and children's hospitals that have earned the ENERGY STAR designation are owned and operated by the Department of Veterans Affairs.

With that said, more can and should be done to expand sustainable practices in the Department of Veterans Affairs. My testimony elaborates on a number of health care systems and facilities that are helping to lead the way on greening health care operations.

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

Thomas W. Hicks
Executive Director
Building Performance Initiative
U.S. Green Building Council
2101 L Street, NW, Suite 500
Washington, DC 20037

Dear Tom:

In reference to our full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you could answer the enclosed hearing questions by the close of business on November 13, 2009.

In an effort to reduce printing costs, the Committee on Veterans' Affairs, in cooperation with the Joint Committee on Printing, is implementing some formatting changes for materials for all full Committee and Subcommittee hearings. Therefore, it would be appreciated if you could provide your answers consecutively and single-spaced. In addition, please restate the question in its entirety before the answer.

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Sincerely,

BOB FILNER
Chairman

MH:ds

**Post-Hearing Question for Tom Hicks
Executive Director, U.S. Green Building Council
From the Honorable Bob Filner
September 30, 2009**

Energy Efficiency at the U.S. Department of Veterans Affairs

All new VA construction projects beginning in 2009 will incorporate green building principles. What should the VA be strategically focused on to ensure that there is not a significant achievement gap, and that these buildings can sustain energy savings over the long term?

U.S. Green Building Council
Washington, DC.
November 9, 2009

Chairman Bob Filner
House Committee on Veterans' Affairs
335 Cannon House Office Building
Washington, D.C. 20515

Chairman Filner:

Thank you for the opportunity to participate in the full committee hearing ("Energy Efficiency at the U.S. Department of Veterans Affairs") on September 30, 2009 and thank you for your question in your October 2, 2009 letter. As a non-profit organization that has promoted green buildings for the past 16 years, the U.S. Green Building Council (USGBC) has had the opportunity to work with many leading organizations, companies, and people and to witness their success in translating green building principles into action. The ability of the Department of Veterans Affairs to ensure that it succeeds in the same way and does not experience an achievement gap as it incorporates green building principles into all new construction projects is a matter of leadership and commitment: the leadership to provide the vision and the commitment to the strategies that deliver upon that vision. USGBC provides the following recommendations to the Department of Veterans Affairs.

1. Commit to a Single Green Building Rating System. The General Services Administration concluded in its July 2006 study on green building rating systems that "LEED® is not only the U.S. market leader, but is also the most widely used rating system by Federal and State agencies, which makes it easy to communicate a building's sustainable design achievements with others." LEED is also the only rating system in the United States that was wholly designed within, by, and for the U.S. and is the only one that requires third party evaluation to obtain certification. By aligning its green building goals within the framework of LEED, the Department of Veterans Affairs would ensure its green building principles are credibly evaluated. Furthermore, alignment with LEED would enable the Department to take advantage of opportunities to scale its green building principles across the building portfolio.

Commit to Specific Performance Goals. Many organizations, including many Federal agencies, have seen great success by committing to specific performance goals as a way to easily communicate both internally and externally the vision of the organization. The Department of Veterans Affairs should also commit to and communicate performance requirements across a range of energy and environmental issues. Examples of leadership positions for new construction projects might include:

- 40 percent more efficient than ASHRAE Standard 90.1
- 20 percent of energy use from renewable, on-site sources
- 50 percent reduction in water use relative to Energy Policy Act 1992
- Elimination of potable water for landscaping
- 90 percent diversion of construction debris from disposal in landfills
- Elimination of materials manufactured with volatile organic compounds (VOCs)
- Establishment of a green cleaning policy for VA for new and existing facilities
- Provide 90 percent of building occupants with direct access to daylight and exterior views
- Select only transit friendly project sites

The above examples are just a few that should be seriously considered for all new construction projects to ensure that buildings can sustain both the energy savings and environmental performance for the long term. In addition to these choices, all

new construction and existing buildings projects should be required to do the following:

- The integrated design process is a core principle and formal process of good green building design and construction and typically achieves the best results. By including representatives across the entire spectrum of the life of the building—designers, occupants, owner, contractors—a holistic and a common vision for the green principles to be included in the building can be achieved.
- Building commissioning should be required in new and existing buildings. As I discussed in my testimony, commissioning is the process of verifying and documenting that all of its systems are planned, designed, installed, tested, operated and maintained to meet the owner's project requirements. Done correctly, building commissioning not only identifies potential construction and operational issues during design and construction, it also optimizes the performance of the building. As I stated in my testimony, if the Federal Government were to re-commission its entire building stock and achieve the estimated 15-percent reductions in energy use, it could generate more than \$650 million in annual energy savings and eliminate roughly 2.7 million tons of carbon in 1 year.
- Perhaps the most prevalent and significant factor affecting the sustained energy and environmental performance of buildings is occupant behavior. For each new project, education should be provided to building occupants both before and immediately after occupancy begins. Education should focus on the performance goals for the building, the role the occupants play in achieving those goals, the green and energy efficient attributes of the building, and how the occupants are expected to interact with the building, its attributes, and the building management team. As part of the education process, the Department of Veterans Affairs should set up and administer a continuous improvement process that directly involves the occupants so that both the building management team and the occupants themselves have a role in the outcome of the building.

Thank you again for the opportunity to participate in the Full Committee hearing and for the opportunity to respond to your question on sustaining savings over the long term. I would be happy to provide any additional information you may need.

Respectfully,

Thomas W. Hicks
U.S. Green Building Council

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

Jane M. Rohde
Principal
JSR Associates, Inc.
8191 Main Street, 2nd Floor
Ellicott City, MD 21043

Dear Jane:

In reference to our Full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you could answer the enclosed hearing questions by the close of business on November 13, 2009.

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Due to the delay in receiving mail, please provide your response to Debbie Smith by fax at 202-225-2034. If you have any questions, please call 202-225-9756.

Sincerely,

BOB FILNER
Chairman

MH:ds

JSR Associates, Inc.
Ellicott City, MD.
October 28, 2009

Dear Honorable Bob Filner,

The following are in response to your post-hearing questions for Jane Rohde, Principal of JSR Associates, Inc. regarding the Energy Efficiency at the U.S. Department of Veterans Affairs Hearing on September 30, 2009.

1. **All new VA construction projects beginning in 2009 will incorporate green building principles. What should the VA be strategically focused on to ensure that there is not a significant achievement gap, and that these buildings can sustain energy savings over the long term?**
 - a. **One observation that was consistent while completing the Green Globes™ assessments for the existing VA hospitals was for new construction projects there is little or no involvement/input from the people currently working at the existing facility.** It is strongly recommended that local staff expertise (including the Energy Manager) be involved at the on-set of the design process, through the design process, and through the construction, commissioning, and occupancy process. An integrated team from the outside, without in-side staff being involved, does not provide an environment that is conducive to sustainability over time. Once the new construction project is completed, the outside team goes away without the local staff and operations team being completely updated in the maintenance and operation of the new building. Sustainability is a dynamic process, requiring training and involvement of on-site staff.
 - i. In addition, design guidelines that are developed from VACO are often completed prior to receiving input from those working in the field. If the process required input first, then guidelines and specifications were developed in tandem with the VA sites, there would be substantial improvement in the specifications and guidelines that includes saving of time and resources in their development.
 - ii. In evaluating hospitals, there is also concern that guidelines and specifications that are being issued from VACO are not as current as those being utilized in the private sector. For example, there are lighting guidelines provided by the Illuminating Engineers Society of North American (IESNA) for both acute care and senior living settings. VACO has their own guideline that may not reflect the current recommendations. Further, there are proposed lighting sustainability guidelines in development by DOE. The ultimate concern is that the DOE guidelines do not take into account the aging eye and health care settings. The VACO guidelines do need to be updated and it is recommended to provide direct reference to the most current IESNA guidelines.
 - iii. Another recommended venue for creating guidelines is for VACO to evaluate the 2010 cycle of the *Guidelines for Design and Construction of Health Care Facilities* as a basis for design of VA facilities. The 2010 version includes basic sustainability information, ties to ASHRAE standards, and includes different types of health care settings. The 2010 guidelines are anticipated for publication in January, 2010. Information is available at www.fgiguilines.org (Facilities Guidelines Institute).
 - b. **Second observation is the utilization of the Green Globes Continual Improvement of Existing Buildings (CIEB) allows the local staff to continually evaluate and improve the operation of the buildings.** From this perspective, it would make sense to evaluate the utilization of the Green Globes New Construction Module, as it feeds in naturally to the CIEB module; again allowing the local staff to complete continual commissioning and post occupancy evaluations as they are operating not only the existing facility, but also the expansions and new construction projects on the VA campuses as they come online.
 - c. **Recommend continual or retro-commissioning being completed** with in-house staff and contracted staff as required once a new construction project is completed. Internal audits would also be valuable, as most third party external audits are not on the sites over an extended period of time.
 - d. **It is recommended that cross-training programs from VA hospital to VA hospital be implemented;** utilizing existing expertise to improve energy performance VA wide. Currently there are training programs set up in Augusta, Georgia and Portland, Oregon for plant management. Expanding this program both online and on-site to include GEMS programming

would be beneficial in assisting all VA Hospitals to improve in the areas of waste management, water and energy conservation, environmental purchasing, and training.

- e. **Another issue brought out in assessments is a current movement by H.R. to reduce the pay grade of Energy Managers (which may also extend to existing positions).** In speaking to one of the VISN Energy Managers there is a concern that G11, which is used for open positions, will not attract qualified persons to the position. And if they are; once the recession abates, the person would immediately leave the position. This creates issues with consistency, knowledge base, as well as continual sustainable improvement.
2. **Can you elaborate on the benefits of green health care facilities both in patient care and safety, employee satisfaction, costs savings, conservation of energy and water, and reduction of waste and the carbon footprint?**
 - a. **The best way to demonstrate the benefits of green health care facilities** is through examples of projects that have been implemented in some of the existing VAs that include positive patient and staff outcomes. These are considered best practices:
 - i. **Implementation of a microfiber mop and cleaning program** completes not only reduction of infection risk and cross contamination; protecting patients and staff, but also reduces the water and chemical usage for cleaning, less exposure to chemicals for staff, less lifting of heavy cleaning equipment reducing potential staff back injuries, and faster drying times reducing the opportunity for falls.
 1. There is a distinction between up front costs (first costs) and operational savings. The microfiber mops initially cost more, but save operationally through less workman's compensation, decrease in infection risk, and safer environments for both patients and staff.
 2. This type of improvement could be recognized through staff incentives for providing creative and resourceful ideas that not only improve the environmental footprint, but most importantly improve patient and staff outcomes and satisfaction.
 - ii. **Energy efficient boiler equipment with low emissions** not only reduces the carbon footprint, but also saves energy and provides costs savings. New direct digital controls (changed over from pneumatic controls) provides not only better monitoring of equipment, but provides tools to monitor energy usage over time, better control of heating and cooling, and opportunities for adjustment for patient and staff comfort and satisfaction.
 - iii. **Providing gardens, roof gardens, and indigenous plants** reduces heat island effect by having less exposed pavement and roofing. Other advantages include less storm water run off, reduction of need for irrigation (cost savings), places of respite for veterans and their families, access to daylight for long term stay patients to reset their circadian rhythms (promoting improved sleep patterns) and the opportunity for access to vitamin D, and an opportunity for the community at-large to participate with service projects at VA facilities.
 - iv. **Recycling and reusing sharps containers avoids** disposing of the entire container plus its contents; reducing the waste to only the bio-medical waste contents. This waste reduction measure has proven to be effective in reducing potential needle sticks by staff members (promoting staff and patient safety). The sharps containers are removed on a regular basis, contents are removed for disposal, and then containers are disinfected and reused.
 3. **How is the VA doing in relation to most private health care facilities?**
 - a. **Most private health care facilities do not serve the same breadth of patient types and needs that the VA serves.** Generally speaking, in the public sector, there are teaching/research hospitals, community based hospitals, and specialty hospitals. Many VA hospitals are working with universities completing research within VA hospitals, providing long term care (including nursing homes: Community Living Centers, palliative/hospice care, rehabilitation, polytrauma, spinal chord injury, and brain trauma), surgery, radiology, in-patient care, out-patient care (all types including dental, ophthalmology, podiatry) and community based services. In many ways, VA hospitals are a one-stop shop, providing all services in a holistic manner

for veterans. Often sites include a Fisher House, which is equivalent to the Ronald McDonald House found located near private health care facilities. This comparison information is provided as background, because it is difficult to compare private facilities to VA facilities, because they usually do not cover the breadth of services that VA facilities provide.

- b. There is a growing trend for private health care systems to evaluate green building principles as well as evidence based design initiatives.** Evidence based design utilizes research to demonstrate outcomes based upon the physical setting and environment. It is a process that utilizes evidence to better inform the decisionmaking and design processes. Because of the broad breadth of services that VA hospitals provide, they would be excellent sites to complete research that can benchmark not only sustainability through tools such as Green Globes™, but also benchmark impacts of the healing environment on patient and staff outcomes. More information on evidence based design can be found at www.healthdesign.org.
- i. As an example, the VA is in a perfect position to provide the private sector with research on the efficacy of sustainable cleaners versus traditional cleaners** as they relate to infection control. With over 90,000 people dying annually of hospital acquired infections (Burke JP. Infection control-A problem for patient safety. N Engl J Med 2003; 348:651–656), this undertaking would provide excellent data for VA hospital standards as well as data for private sector hospitals. Particularly for private sector hospitals, nosocomial infections are a high priority, because reimbursements are no longer being paid for patient services related to a hospital acquired infection (HAI).
- c. From a care model perspective, the VA is piloting and moving toward the use of the Planetree care model, which is a patient centered model.** The idea behind Planetree is that staff is trained and decisions are made based upon patient needs and comfort versus being only staff driven. Some VA facilities are also evaluating culture change and the Eden Alternative™, which are similar to Planetree, in that the long term care patient or resident is the center of the care model. Interdisciplinary teams, universal worker training, breaking down departmental silos and improving quality of life for patients and staff are all instrumental to these types of care models. Additional information on these models can be found at www.planetree.org, www.pioneernetwork.net, www.culturechangenow.com, www.edenalt.org, and www.smallhousealliance.org.
- d. Overall, with the VA evaluating patient-centered care models, sustainability and green building initiatives, and their potential to be centers of excellence for evidence based design initiatives there is an opportunity to lead the private sector through the demonstration of best practices.** There are opportunities for the VA to learn from the private sector as well and a forum to promote communication between VA facilities and the VA and private health care facilities would be worthwhile for both types of organizations.

Thank you for the opportunity to respond to your post-hearing questions. If I can be of further assistance, please contact me at (410) 461-7763 or jane@jrassociates.net.

Respectfully submitted,

Jane M. Rohde, AIA, FIIDA, ACHA, AAHID, LEED AP
Principal

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

James L. Hoff, DBA
Director of Research
Center for Environmental Innovation in Roofing
816 Connecticut Avenue, NW, 5th Floor
Washington, DC 20006

Dear James:

In reference to our full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you

could answer the enclosed hearing questions by the close of business on November 13, 2009.

In an effort to reduce printing costs, the Committee on Veterans' Affairs, in cooperation with the Joint Committee on Printing, is implementing some formatting changes for materials for all full Committee and Subcommittee hearings. Therefore, it would be appreciated if you could provide your answers consecutively and single-spaced. In addition, please restate the question in its entirety before the answer.

Due to the delay in receiving mail, please provide your response to Debbie Smith by fax at 202-225-2034. If you have any questions, please call 202-225-9756.

Sincerely,

BOB FILNER
Chairman

MH:ds

Committee on Veterans' Affairs
United States House of Representatives
Post-Hearing Question for James L. Hoff
Director of Research, Center for Environmental Innovation in Roofing
From the Honorable Bob Filner
September 30, 2009
Energy Efficiency at the U.S. Department of Veterans Affairs

Question:

All new VA construction projects beginning in 2009 will incorporate green building principles. What should the VA be strategically focused on as to ensure that there is not a significant achievement gap, and that these buildings can sustain energy savings over the long term?

Response:

Establish Specific Insulation Targets for All New and Replacement Roofs

The Green Buildings Action Plan as currently published by the Department of Veterans Affairs, establishes a 30 percent overall improvement target for building energy efficiency, with special emphasis on new building construction and major renovation. However, many roofing projects, especially the re-roofing of existing Department facilities, fall outside new building or major renovation activities. As a result, there may be some confusion as to how the 30 percent energy improvement target should be applied to a roofing-only project. To avoid this potential confusion, the Center recommends that a specific target be established for roof insulation by applying the 30 percent overall savings target to the current minimum roof thermal conductance requirements of ASHRAE 90.1-2007 (for roofs with above deck insulation). The calculation for this recommendation for the applicable ASHRAE climate zones is illustrated in the following table:

ASHRAE Climate Zone	ASHRAE 90.1-2007 Min. Roof U-Value ¹	Adjusted For 30% Energy Improvement	Equivalent Min. Roof R-Value ²
Zone 1	0.067	0.047	21.3
Zone 2-8	0.050	0.035	28.6

¹U-value is a measure of thermal conductance.

²R-value is a measure of thermal resistance and the reciprocal of U-value.

Include Roof Condition Assessment in all Roof-Mounted Renewable Energy Projects

Long-term durability of a building's roofing system becomes a critical factor whenever the roof also serves a platform for renewable energy production. Because the Department will certainly expect 20 or more years of continuous service from any investment as sizable as rooftop solar or other renewable energy systems, the Center strongly recommends that the condition and design of the roof be evaluated to assure that both the renewable energy system and the roof system will have compatible service lives.

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

Honorable Steven Chu
Secretary
U.S. Department of Energy
1000 Independence Ave. SW
Washington, DC 20585-0001

Dear Secretary Chu:

In reference to our full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you could answer the enclosed hearing questions by the close of business on November 13, 2009.

In an effort to reduce printing costs, the Committee on Veterans' Affairs, in cooperation with the Joint Committee on Printing, is implementing some formatting changes for materials for all full Committee and Subcommittee hearings. Therefore, it would be appreciated if you could provide your answers consecutively and single-spaced. In addition, please restate the question in its entirety before the answer.

Due to the delay in receiving mail, please provide your response to Debbie Smith by fax at 202-225-2034. If you have any questions, please call 202-225-9756.

Sincerely,

BOB FILNER
Chairman

MH:ds

U.S. Department of Energy
Washington, DC.
November 19, 2009

Hon. Bob Filner
Chairman
Committee on Veterans' Affairs
U.S. House of Representatives
Washington, DC 20515

Dear Chairman Filner:

On September 30, 2009, Richard Kidd, Program Manager, Federal Energy Management Program, Office of Energy Efficiency and Renewable Energy testified on energy efficiency goals for Federal Agencies.

Enclosed are the responses to two questions that you submitted for the hearing record.

If we can be of further assistance, please have your staff contact our Congressional Hearing Coordinator, Lillian Owen, at (202) 586-2031.

Sincerely,

Betty A. Nolan
Senior Advisor
Congressional and Intergovernmental Affairs

Enclosures

QUESTIONS FROM CHAIRMAN FILNER

Question 1: What are your thoughts on how VA is planning to spend the \$405 million provided by the American Recovery and Reinvestment Act?

Answer: Each agency is responsible for determining how it will spend American Recovery and Reinvestment Act funding, in line with Congressional direction and guidance. Since the VA is the third largest consumer of total facility energy use in the Federal Government (after the 000 and the Postal Service), it has numerous op-

portunities for investing in improved energy efficiency, management and sustainability.

Question 2: Is there anything that you would emphasize more or put more funding into than what the VA plans to do at this time?

Answer: FEMP encourages agencies to use alternative financing, annual appropriations, and American Recovery and Reinvestment Act (ARRA) funds in a flexible financing approach that supports comprehensive projects which maximize the benefits of their energy savings investments. ARRA and annual appropriations can be particularly helpful in financing longer payback projects like renewables, water-efficiency, metering and other energy conservation measures that do not provide the near-term return on investment necessary for alternative financing.

Committee on Veterans' Affairs
Washington, DC.
October 2, 2009

Honorable Eric K. Shinseki
Secretary
U.S. Department of Veterans Affairs
810 Vermont Avenue, NW
Washington, DC 20420

Dear Secretary Shinseki:

In reference to our full Committee hearing entitled "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009, I would appreciate it if you could answer the enclosed hearing questions by the close of business on November 13, 2009.

In an effort to reduce printing costs, the Committee on Veterans' Affairs, in cooperation with the Joint Committee on Printing, is implementing some formatting changes for materials for all full Committee and Subcommittee hearings. Therefore, it would be appreciated if you could provide your answers consecutively and single-spaced. In addition, please restate the question in its entirety before the answer.

Due to the delay in receiving mail, please provide your response to Debbie Smith by fax at 202-225-2034. If you have any questions, please call 202-225-9756.

Sincerely,

BOB FILNER
Chairman

MH:ds

Questions for the Record
Hon. Bob Filner, Chairman
House Committee on Veterans' Affairs
September 30, 2009

Energy Efficiency at the U.S. Department of Veterans Affairs

Question 1: Currently the VA has six facilities that are either LEED or Green Globes certified and 18 more for 2009. What is the strategic plan to continue to grow the certification process? How is VA selecting which facilities are getting rated and when?

Response: As of October 20, 2009, VA received 10 Green Globe certifications and three LEED certifications, and is expecting 11 more Green Globe certifications by the end of 2009. VA is selecting facilities for the certification process based on the following criteria: (1) sustainable building self-assessment results; (2) Energy Star rating; and (3) implementation of energy efficiency and renewable energy projects. The self-assessment is an annual survey that each VA-owned facility must complete, with questions based on the Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings. VA uses this criteria to select additional facilities to complete any needed improvements and obtain certification.

Question 2: Please discuss the differences in cost between utilizing Green Globes rating system and LEED rating system? Please explain why VA is utilizing both systems and what benefits and drawbacks each system has specific to VA's needs.

Response: The certification fees for both LEED and Green Globes vary depending on building size and other factors. For an existing building over 500,000 square feet, the current certification fee for Green Globe is \$10,000, and between \$12,500 and \$15,000 for LEED depending on U.S. Green Building Council membership status. The following hyperlinks provide certification fee information for each system:

LEED: <http://www.gbci.org/DisplayPage.aspx?CMSPageID=127>

Green Globes: <http://www.thegbi.org/assets/pdfs/Green-Globes-Price-List-7-01-09-Building-Certifications.pdf>

VA has elected to use LEED for assessment of new construction and Green Globes for assessment of existing buildings. LEED and Green Globes are both based on the five Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings specified in Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management." Both incorporate related Department of Energy (DOE) guidance. Different rating elements apply within each system depending on whether the facility is a new construction project or an existing building. Per DOE analysis, Green Globe and LEED equally cover all elements of the five Guiding Principles for new construction. For existing buildings, Green Globe covers all of the Guiding Principles, while LEED leaves out certain elements. Specifically, LEED does not account for the following components of the Guiding Principles in its existing building certification: (1) measurement and verification; (2) process water (water used in non-plumbing applications such as cooling systems); (3) moisture control; and (4) construction waste.

Question 3: How can you be sure that the energy conservation percentages being collected at each facility are accurate and true? What metrics are in place to ensure these numbers are being reported honestly? At what point will this data become objective and not self-reported by each facility?

Response: Data is validated upon entry into the energy consumption database with a combination of automated and manual review. Engineering staff at the local, network and Administration program office level review facility data regularly, along with quarterly Departmental program office review. During the past two years, VA has brought over 100 energy engineers on board to provide subject matter expertise, which has resulted in improved data quality and consistency. Responsible program officials at each level review and certify energy data, and any significant changes in data are corrected or justified. Additionally, VA is installing building-level metering at VA-owned facilities nationwide. Meter data for electricity, natural gas, steam, chilled water and water consumption is being sent electronically to a VA-wide database. As metering is implemented, this data will allow VA energy engineers to validate billed consumption. It will also allow them to spot problems such as leaks and potential opportunities for energy efficiency improvements. VA is on track to meet mandated deadlines for metering implementation with electric metering by 2012, and other metering by 2016.

VA is rolling out third-party utility bill data validation for all facilities nationwide, and is within 30 days of bringing the first stations online. It is anticipated that all stations will be ready to begin within the next 60 days. The third party will be entering billed consumption and cost into a database, and reviewing the data to ensure that the billing entity is using the applicable tariff/contract, and that there are no errors in billing calculations. The vendor will also be flagging unusually high billed consumption/costs, and monitoring periodically to ensure that the facility is on the most favorable rate schedule. The system is constructed so that no one except the vendor can address discrepancies and inaccuracies in the utility invoice or make changes to the database. Each modification to the data, whether instigated by the vendor or by the station, will be accompanied by a written, documented justification.

Question 4: Please provide an analysis of cost differentials between new construction with and without green building practices, as well as estimate cost savings over the long term for new construction in energy and water consumption.

Response: VA commissioned development of an Energy Reduction and Sustainable Design Guide to outline requirements for implementing energy efficiency and sustainability mandates contained in the Energy Policy Act of 2005, the Energy Independence and Security Act of 2007, and Executive Order 13423. As part of that effort, VA determined the cost of implementing these requirements would be an additional 7 percent (not including renewable energy features). Subsequently, VA has added 7 percent to all new major project funding requests in FY 2009 and beyond.

VA has not yet completed construction of buildings that have been specifically designed to meet all of the Federal mandates. However, we have established goals for all FY 2009 projects and beyond to reduce energy usage by 30 percent and water by 20 percent, and to obtain LEED Silver certification. Specific operating data for energy and water savings is not yet available. However, based on extensive studies

and life-cycle analysis on our most recent projects, we are confident that VA will see a significant savings when these facilities begin operations.

Question 5: Please explain if there is a proposed employee incentive plan for rewarding VA employees for energy saving ideas. If not, please explain why something like that has not been developed to capitalize and reward those who work in the VA facilities every day and have frontline knowledge of potential savings?

Response: Various individual VA facilities offer recognition and reward to employees for energy saving ideas and other suggestions for “going green.” To promote awareness and education of energy and environmental impacts at the corporate level, VA recently launched the *Green Routine*. The *Green Routine* is a product of a working group of VA employees to promote a broad collection of ideas. Among other features, it includes a publicly accessible VA webpage, www.va.gov/greenroutine. We are working on developing an online forum for employees to share ideas and solutions that have worked for their facility. Since the launch of the webpage, VA’s Office of Asset Enterprise Management has received numerous emails with ideas on energy saving and recycling techniques. We are reviewing these suggestions and the forum as a potential basis for a corporate-level incentive program. Plans are already under way to initiate a corporate-wide program to acknowledge Greening VA best practices, innovation, and initiatives at all levels of the organization.

Question 6: Expert witnesses and leading experts in the industry state that having natural light and green space for patients reduces stress and facilitates a quicker recovery. Does the VA have any plans to try to incorporate these principles into their new construction? If so, how and if not, why?

Response: VA has been incorporating such concepts into its facilities’ designs for many years. VA has included, as part of our standard design practices, atria, patient green spaces, day lighting, indoor air quality, and other initiatives that significantly improve patient outcomes. Examples include the Detroit and Minneapolis VA medical centers constructed in the mid-1980s, and most recently the design of the new medical center in New Orleans. VA also keeps abreast of the latest environment-of-care literature and studies, and is updating its design criteria to ensure our facilities are state-of-the-art and incorporate design concepts that significantly improve patient outcomes.

Question 7: Bringing about culture change has always been a challenge for VA. With a majority of leadership at the VISN and facility level having a background in health care, how is the VA focusing these medical professionals on the importance of energy, fleet and environmental management as well as sustainability? Is there, or are there plans, to incorporate performance measures in the Executive Career Field Performance Plan for VISN Directors and Service Chiefs?

Response: During FY 2009, VA implemented Network Director performance monitors related to energy and vehicle fleet management. For FY 2010, VA has added a monitor for environmental management performance. These monitors exist in addition to the Network Directors’ performance plans and measures. For FY 2011, the responsible program offices will work with the Veterans Health Administration’s Office of Quality and Performance to develop and implement performance measures in the Executive Career Field Performance Plans.

Committee on Veterans’ Affairs
Washington, DC.
October 16, 2009

Gail Vittori
Chair, Executive Committee
U.S. Green Building Council
Co-Director, Center for Maximum
Potential Building Systems
2101 L Street, NW, Suite 500
Washington, DC 20037

Dear Ms. Vittori,

During the September 30, 2009, full Committee hearing on Energy Efficiency at the U.S. Department of Veterans Affairs, I provided each of the witnesses in the first panel a summary of H.R. 292, and asked them to provide input into this bipartisan legislative initiative.

I am writing to follow up on this request, and am providing you with a full copy of the legislation, as well as the bill summary and CBO preliminary estimate of the cost of implementation.

It would be appreciated if you could provide your views by November 13, 2009 on letter size paper, single spaced.

Thank you for your cooperation in this matter. Your input is greatly appreciated.

Sincerely,

Steve Buyer
Ranking Republican Member

SB:dwc
Enclosures

Memorandum

To: Ranking Member Steve Buyer House Committee on Veterans' Affairs
From: Gail Vittori, Co-Director
 Center for Maximum Potential Building Systems
 Austin, TX
Date: November 13, 2009
Re: Comments on H.R. 292, Department of Veterans Affairs Sustainability Act of 2009—"To Improve energy and water efficiencies and conservation throughout the Department of Veterans Affairs, and for other purposes."

1. Implement a comprehensive sustainability program

- Recommend define scope of "comprehensive sustainability program"—is it comprehensive to view the totality of building operations, procurement/supply chain and dependencies (such as transportation) in a life cycle context?
- Present in context of a healing environment (perhaps better wording than "...meeting the responsibilities of the Department)—should be viewed as "both/and" vs. "either/or"—for example, minimizing consumption (such as water flow in nurse's sinks where they are trying to fill up a container actually don't benefit from low-flow since it adds significant time to their task).

2. Establish and maintain a database to track and report on energy and water expenditures.

- What is being measured? Direct use only or also looking upstream/downstream and at procurement/supply chain and dependencies for a broader view of energy/water footprints. For example, UK's National Health Service found that transportation was 18 percent of carbon footprint, with direct energy use 22 percent.
- Recommend include energy and water sources, such as on-site renewables, captured rainwater and/or condensate; other graywater sources.
- Ensure have proper meters to gather energy and water data (NOTE: process water use is about 70 percent vs. 30 percent domestic/fixture water use). Proper metering should categorize energy and water end—use to understand patterns and provide hierarchical display from high to low.

3. Require annual audit of energy usage.

- As above, important to understand if this is intended to capture direct energy use only, or extend upstream and downstream.
- Should this also be an audit of water use, especially given the energy intensity of water?

4. Establish Office of Energy Management.

- Recommend reconsider this as Office of Sustainability, providing the context for a broader view of scope—or Energy Management and Sustainability as with the Advisory Committee in #5.

5. Create Advisory Committee on Energy Management and Sustainability

- No comment.

6. Ensure compliance with EO13423.

- Clarify whether the purpose of the bill is to ensure compliance or encourage industry best practices and leadership.

7. Report on use of funds to install fueling stations at 35 medical facility campuses.

- No comment.

8. **Submit plan to increase use and installation of energy efficient and renewable energy systems in Department buildings.**
 - Establish ROI/life cycle cost assessment basis recognizing investments can result in substantial operational cost savings.
 - Add solar readiness for new buildings where economics may not support procurement
 - Add water efficiency systems, esp. addressing process water use (70 percent of total hospital water use) and potential infection control concerns associated with water conserving fixtures and reclaimed water.
 - Provide guidance on appropriateness of energy efficient and renewable energy systems based on climate zone, scale of building, etc.
 - Include technologies such as displacement ventilation and natural ventilation than can have favorable energy performance outcomes.
 - Note that most medical equipment does not have energy rating—EPA doing initial work but needs more money to accelerate to lead to Energy Star rating for major medical equipment. (NOTE that GGHC and LEED–HC has created a medical equipment efficiency credit that I believe is headed to Pilot Credit Library.)
 9. **Authorize use of electrical sub-metering of buildings.**
 - Recommend add water sub-metering; also consider measurement and verification for water, as with credit in draft LEED for Health Care and GGHC. Should controls be added as complementary element?
 10. **Ensure energy efficient products meeting VA requirements are purchased applicable to items that consume electricity.**
 - Note that most medical equipment does not have energy rating—EPA doing initial work but needs more money to accelerate to lead to Energy Star rating for major medical equipment. (NOTE that GGHC and LEED–HC has created a medical equipment efficiency credit that I believe is headed to Pilot Credit Library).
 - Provide a roadmap to target the products that are biggest consumers of electricity to guide strategic procurement-biggest bang for the buck.
 11. **Grants up to \$10,000 for Adaptive Housing to encourage use of high efficiency systems and products, and other energy reduction items.**
 - Recommend provide strategic guidance/ROI—i.e., relative benefit of investment in PVs, solar thermal, relamping, including correlating to climate zone.
 12. **Provide grants for adaptive vehicles to encourage purchase of alternative fuel vehicles.**
 - No comment.
 13. **Require study on water and energy consumption by National Cemetery Administration.**
 - Recommend guidance on how comprehensive—upstream/downstream—and also diversify water sources, reuse strategies. Etc.
 14. **All VA to directly utilize expertise of National Laboratories re: energy and water efficient technologies.**
 - Track performance of systems once installed.
 15. **Authorize Secretary of VA to conduct pilot program for sale of air pollution emission reduction incentives and retain proceeds from sales.**
 - No comment.
-

Committee on Veterans' Affairs
Washington, DC.
October 16, 2009

Thomas W. Hicks
Executive Director
Building Performance Initiative
U.S. Green Building Council
2101 L Street, NW, Suite 500
Washington, DC 20037

Dear Mr. Hicks,

During the September 30, 2009, full Committee hearing on Energy Efficiency at the U.S. Department of Veterans Affairs, I provided each of the witnesses in the first panel a summary of H.R. 292, and asked them to provide input into this bipartisan legislative initiative.

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Thank you for your cooperation in this matter. Your input is greatly appreciated.

Sincerely,

Steve Buyer
Ranking Republican Member

SB:dwc
Enclosures

U.S. Green Building Council
Washington, DC.
November 9, 2009

Ranking Member Steve Buyer
House Committee on Veterans' Affairs
335 Cannon House Office Building
Washington, D.C. 20515

Ranking Member Buyer:

Thank you for the opportunity to participate in the full committee hearing ("Energy Efficiency at the U.S. Department of Veterans Affairs") on September 30, 2009 and thank you for the opportunity to have input on your legislation. Below are my comments on H.R. 292:

Section 2: While tracking and reporting on energy and water expenditures is a good start, other areas should be included. Given the impact that employee and patient transportation can have on the overall energy and carbon footprint, VA should perform annual commuting surveys to better understand their energy footprint (and so that they can take positive steps to improve it). Performing an annual employee and patient satisfaction survey to understand the impacts that energy efficiency and green features are having would also be valuable.

Section 3: Include water, commuting, and occupant satisfaction as well.

Section 4: Establishing an office with the name "Office of Energy Management" too narrowly focuses the purview. Broadening the mission to incorporate wider sustainability goals would maximize the effectiveness of the office.

Section 8: Under (b) specify green or vegetative roofs.

Section 9: Adding requirements that the energy and water consumption on all buildings are individually metered, managed, and tracked on no less than a monthly basis would be beneficial.

Section 10: Beyond energy efficient products, VA should also be utilizing products that are green, sustainable, no-VOC/low-VOC, recyclable, re-usable, and recycled.

I hope you find these comments helpful in advancing more sustainable VA facilities. Please contact me if I can be of further assistance in this matter.

Respectfully,

Thomas W. Hicks
U.S. Green Building Council

Committee on Veterans' Affairs
Washington, DC.
October 16, 2009

Ward Hubbell
President
The Green Building Initiative
2104 SE Morrison
Portland, OR 97214

Dear Mr. Hubbell,

During the September 30, 2009, full Committee hearing on Energy Efficiency at the U.S. Department of Veterans Affairs, I provided each of the witnesses in the first panel a summary of H.R. 292, and asked them to provide input into this bipartisan legislative initiative.

I am writing to follow up on this request, and am providing you with a full copy of the legislation, as well as the bill summary and CBO preliminary estimate of the cost of implementation.

It would be appreciated if you could provide your views by November 13, 2009 on letter size paper, single spaced.

Thank you for your cooperation in this matter. Your input is greatly appreciated.

Sincerely,

Steve Buyer
Ranking Republican Member

SB:dwc
Enclosures

JSR Associates, Inc.
Ellicott City, MD.
October 21, 2009

Ranking Member Buyer
U.S. House of Representatives
Committee on Veterans' Affairs
One Hundred Eleventh Congress
335 Cannon House Office Building
Washington, DC 20515

RE: Bill Summary: H.R. 292: Department of Veterans Affairs Energy Sustainability Act of 2009: To improve energy and water efficiencies and conservation throughout the Department of Veterans Affairs, and for other purposes.

Dear Ranking Member Buyer,

Based upon your request during the testimony provided during the "Energy Efficiency at the U.S. Department of Veterans Affairs" on September 30, 2009 at 10:00 am, the following comments/responses are provided regarding H.R. 292:

1. Direct the Secretary of Veterans Affairs to implement a comprehensive sustainability program throughout the Department of Veterans Affairs for the purpose of using resources in a manner that minimizes consumption and encourages the use of alternative sources of energy while still meeting the responsibilities of the Department.

a. Comments/Responses:

- i. For the VA Hospitals this is already in place through the GEMS (Green Environmental Management System) policy that is required for all of the VA facilities.
 - ii. This is staffed by a GEMS Coordinator (position often includes more than the GEMS responsibility depending upon the facility) working cooperatively with the Energy Manager position.
 - iii. Note that in recent Green Globes™ assessments of VA hospitals, it has come to my attention that the Energy Manager position is being downgraded to a G11. This creates difficulty for the VISN Energy Manager to fill these positions, and maintain high quality personnel to sustain current programming and improvements.
2. Direct the Secretary of Veterans Affairs to establish and maintain a database to track and report on energy and water expenditures by the Department of Veterans Affairs. The database would provide a baseline to compare changes in Department energy and water expenditures.
 - a. Comments/Responses:
 - i. Hospitals have been tracking and documenting this online within a VA database; minimally since FY2005.
 - ii. However most hospitals have been tracking this data from FY2003 or earlier.
3. Require an annual audit of energy usage by the Department of Veterans Affairs.
 - a. Comments/Responses:
 - i. Most of the facilities that have been assessed for Green Globes™ certification have conducted or have planned an energy audit. Some facilities have been conducting energy audits every 2 years. If this is proposed for all facilities, this would require appropriate funding at the local levels.
 - ii. Note that with the Energy Managers in place, an internal energy audit by existing staff is also appropriate and may prove out to be more thorough than a third part energy audit. Outside contractors would only be available for short periods of time on the site; whereas Energy Managers are on site on a continual basis. Addition FTEs may be required for the Energy Manager to complete an energy audit, but the results could garner more complete information.
4. Establish an Office of Energy Management within the Department of Veterans Affairs under the direction of a Deputy Assistant Secretary, who would report to the Assistant Secretary for Management.
 - a. Comments/Responses:
 - i. Currently there is a position of Energy Manager at each VA site, as well as VISN level Energy Managers. They also meet annually at the GovEnergy Conference, which is held at various locations around the country in August.
5. Create an Advisory Committee on Energy Management and Sustainability.
 - a. Comments/Responses: Recommendations for an Advisory Committee include the following individuals that I have worked with at different VA sites. All of the sites have exemplary staff that would be valuable on an Advisory Committee:
 - i. Mark Hudson, VISN 6 Energy Manager
 - ii. Rick Hart, Dallas Energy Manager
 - iii. Jeffrey Means, VISN 11 Energy Manager
 - iv. Frank Moran, Portland Facilities Supervisor
 - v. Jim McCarthy, Portland Boiler/Chiller Plant Foreman
 - vi. Jean Wroblewski, Milwaukee Food Service/Nutrition
 - vii. Frank Novitzki, Richmond Energy Manager
 - viii. Jean Parkinson, San Diego GEMS Coordinator
 - ix. Mark Sargent, Augusta Energy Manager
 - x. Raphael Ciano, West Palm GEMS Coordinator
 - xi. Michael Dobbins, Augusta GEMS Coordinator
 - xii. Gary D'Alessandro, Detroit Energy Manager
 - xiii. Mary Francis, Durham RN
 - xiv. In addition to the recommended disciplines listed above, it is recommended that the overall structure of the Committee include an interdisciplinary team: Food Service/Nutrition, EMS (including house-keeping), Nursing, Industrial Hygiene, Infection Control, Biomedical

- Engineering, and Laundry (if applicable) because all of these departments impact sustainability and energy use directly. Specialty areas' staff, such as those working in radiology and other energy intensive use areas need to be aware of energy and water use goals when selecting medical equipment; creating an opportunity for discussion between the medical equipment specifiers and the energy managers.
6. Ensure compliance with Presidential Executive Order 13423, on Energy Management within federal agencies, and Department of Veterans Affairs Directive 0055, which establish goals for energy efficiency and sustainability.
 - a. Comments/Responses:
 - i. GEMS Policies are utilized as a basis for Environmental Management Systems for each hospital. GEMS directive includes reference to Presidential Executive Order 13148 as well as Presidential Executive Order 13423.
 - ii. Energy Managers through the Green Globes™ process are working toward compliance of the Executive Orders.
 - iii. Note that the percentages of energy savings required needs to be assessed in conjunction with the increase of patient and staff load; versus evaluating as a simple percentage.
 - iv. Another measurement that would be appropriate is the Btu/square foot utilized as a better measurement versus percentage of savings.
 7. Require a report on the use of funds appropriated for "Construction, minor projects" for the installation of fueling stations at 35 medical facility campuses under title II of the Military Construction and Veterans Affairs and related Agencies Appropriations Act, 2009 (division E of Public Law 110-329; 122 Stat. 3708)
 - a. Comments/Responses:
 - i. None.
 8. Require the Secretary to submit a plan to increase the use and installation of energy efficient and renewable energy systems in Department buildings, to include the use of:
 - a. Qualified solar technologies such as distributed amorphous, crystalline and nanophotovoltaic technologies systems, solar heating systems, solar cooling systems, solar hot water systems, solar lighting systems, and hybrid technologies that incorporate one or more of such systems;
 - b. Qualified energy efficient roof and building envelope systems;
 - c. Qualified wind technologies; and
 - d. Qualified biomass materials such as wood-based renewable fuels to be used for fueling boilers and heaters.
 - e. Authorize appropriations in the amount of \$150,000,000 to carry out the installation of qualified systems.
 - f. Comments/Responses:
 - i. Prior to completing expensive alternative and renewable energy systems and pilots, consult with those already working in the field (existing VA hospitals' staff). For example, the return on investment (ROI) for photovoltaic systems is not cost effective within the constraints of current technology. Two sets of data are available from the Dallas VA and the Loma Linda VA.
 - ii. Include ground source heat pump systems as acceptable alternative energy systems; as a practical cost and energy savings opportunity.
 - iii. Include green roofs as acceptable portions of alternative energy systems; as they reduce heat island effect as well as provide potential site amenity for Veterans and families.
 - iv. Include the utilization of thermal imaging as a funded means for evaluation of building envelope systems. This would assist facilities in not only identifying energy needs, but also necessary repairs; such as sealing the envelope, replacement of energy saving windows and doors, and identifying issues with roofs. All these items contribute to energy savings.
 9. Authorize the use of electrical sub-metering of buildings on the Department of Veteran Affairs.
 - a. Comments/Responses:
 - i. For 2010, VACO has in place a submetering project for all VA hospitals. The submetering includes any buildings 50,000 square feet or larger and higher energy user areas; such as MRI, surgery, research

- labs, etc. This initiative includes not only metering electricity, but also water and gas metering.
- ii. Note that the Dallas VAMC does include submetering, which was installed locally by the Energy Manager and staff.
10. Direct the Secretary of Veterans Affairs to ensure, to the maximum extent practicable that energy efficient products meeting the requirements of the Department of Veterans Affairs are purchased whenever the Department purchases items that consume electricity. In determining the energy efficiency of products, the Secretary would be required to consider products that:
 - a. Meet or exceed Energy Star specifications; or
 - b. Are listed on the Federal Energy Management Program Product Energy Efficiency Recommendations product list of the Department of Energy.
 - c. Comments/Responses:
 - i. This is included in the Purchasing Policy included within the GEMS Policies and Procedures for setting up GEMS Policies for VA hospitals. Some hospitals have Purchasing Policies in place and others are in progress, but they are required by the overall VACO GEMS policy requirements to include energy savings equipment.
 1. Depending upon the VA Facility, the Energy Managers have some input on specifications of medical and other equipment purchases, but this is not consistent. Obviously, patient safety and care can not be compromised, but in order to make sure that the Energy Manager has an opportunity for input on equipment; it would have to be required within the sign off process.
 2. Some VA hospitals have worked with Acquisitions/Contracting to include a sign off line by the Energy Manager on purchase requests; so that evaluation and recommendations are taking place. Often recommendations, in addition to verifying the specification for energy savings and alternatives, will also head off issues with having the appropriate power supply available for a specific piece of equipment.
 - ii. Further recommend that NSF, Energy Star/FEMP, and VA work together to evaluate commercial kitchen equipment for energy compliance and ratings.
 11. Provide grants up to \$10,000 for Adaptive Housing to encourage use of high efficiency systems and products, and other energy reduction items.
 - a. Comments/Responses
 - i. None.
 12. Provide grants for adaptive vehicles to encourage purchase of alternative fuel vehicles for eligible individuals under section 3902 (a) of title 38, United States Code.
 - a. Comments/Responses
 - i. None.
 13. Require a study on water and energy consumption by the National Cemetery Administration.
 - a. Comments/Responses
 - i. None.
 14. Allow the Department of Veterans Affairs to directly utilize the expertise of the National Laboratories regarding energy and water efficient technologies.
 - a. Comments/Responses
 - i. Note that Augusta VA has had a complete assessment through the National Renewable Energy Lab (NREL) that has provided baseline data for energy projects, decision making, and prioritization of projects on their site.
 15. Authorize the Secretary of Veterans Affairs to conduct a pilot program for the sale of air pollution emission reduction incentives (also known as emission reduction credits or ERCs) and retain the proceeds from the sales.
 - a. Comments/Responses
 - i. In addition to “retaining the proceeds from the sales”; recommend “retaining the proceeds and directing the funds to the GEMS program and/or Energy Management budget”. This would make sure that the funds that are retained are not placed into a general fund versus for utilization by GEMS Committee and Energy Manager. Currently savings that

are made through GEMS and Energy Projects do not come back to the departments to make further improvements.

16. General Funding Comments:

a. Comments/Responses

- i. It is recommended to streamline the funding processes. The following is an example of good planning for energy projects, but funding processes holding up the implementation.

In reviewing the Seattle VA Hospital, the list of all of their energy improvements is tied to an ESPC (Energy Savings Performance Contract). Acquisitions wanted to revise the ESPC, and as a result the re-write has prevented the Seattle plans to be completed. The contract has been held up for 2 years. In the meantime, other available funding within the Seattle VA was re-directed to other projects identified in fiscal year budgets; in anticipation of the ESPC being approved. As a result none of the energy projects have been completed; although the planning has been in place for over 2 years.

Thank you for the opportunity to comment on H.R. 292: Department of Veterans Affairs Energy Sustainability Act of 2009. If I can be of further assistance please contact me directly at (410) 4617763 (O), (410) 978-2112 (C), or by email: jane@jsrassociates.net.

Respectively Submitted,

Jane M. Rohde, AIA, FIIDA, ACHA, AAHID, LEED AP
Principal

Committee on Veterans' Affairs
Washington, DC.
October 16, 2009

James L. Hoff, DBA
Research Director
Center for Environmental Innovation in Roofing
816 Connecticut Avenue, NW, Fifth Floor
Washington, DC 20006

Dear Mr. Hoff,

During the September 30, 2009, full Committee hearing on Energy Efficiency at the U.S. Department of Veterans Affairs, I provided each of the witnesses in the first panel a summary of H.R. 292, and asked them to provide input into this bipartisan legislative initiative.

I am writing to follow up on this request, and am providing you with a full copy of the legislation, as well as the bill summary and CBO preliminary estimate of the cost of implementation.

It would be appreciated if you could provide your views by November 13, 2009 on letter size paper, single spaced.

Thank you for your cooperation in this matter. Your input is greatly appreciated.

Sincerely,

Steve Buyer
Ranking Republican Member

SB:dwc
Enclosures

Center for Environmental Innovation in Roofing
Washington, DC.
February 1, 2010

Hon. Steven Buyer
Ranking Republican Member
United States House of Representatives
Committee on Veterans' Affairs
335 Cannon Office Building
Washington, DC 20515

Reference: H.R. 292 Department of Veterans Affairs Energy Sustainability Act of 2009

Dear Representative Buyer:

Thank you again for the opportunity for the Center for Environmental Innovation in Roofing to testify before the Committee on Veterans' Affairs as part of the September 30, 2009 hearing regarding energy efficiency at the U.S. Department of Veterans Affairs. And thank you for your request for comments regarding H.R. 292.

As a research and advocacy organization representing roofing manufacturers and roofing contractors across the country, we are very encouraged by the bipartisan support for H.R. 292, and we have asked our members to offer their comments and support to their Congressional Representatives.

We are particularly encouraged by the provisions of section 9 of H.R. 292, which calls for the Secretary of Veterans' Affairs to submit to Congress a detailed plan for increasing the use of energy efficient and renewable energy technologies in VA facilities and operations, including the provision for qualified energy efficient roofing systems.

The Green Buildings Action Plan as currently published by the Department of Veteran's Affairs, establishes an overall improvement target for building energy efficiency, with special emphasis on new building construction and major renovation. However, many roofing projects, especially the re-roofing of existing Department facilities, fall outside new building or major renovation activities. As a result, there may be some confusion as to how the energy improvement target should be applied to roofing-only projects. The provisions of section 9 of H.R. 292 will remove this potential confusion and help assure that the Department of Veteran's Affairs develops a comprehensive energy efficiency plan incorporating proper consideration for the importance of roofing systems—both new and existing—at all Veterans Affairs' facilities.

Again, thank you for the opportunity to provide testimony at the September 30, 2009 hearing and for your consideration of our comments regarding H.R. 292. Please do not hesitate to call on us if you have any questions or require additional information.

Yours very truly,

James L. Hoff, DBA
Research Director

JLH/jh

