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CHARTING A CLEAN ENERGY FUTURE FOR THE INSULAR AREAS

JOINT OVERSIGHT FIELD HEARING

BEFORE THE

SUBCOMMITTEE ON INSULAR AFFAIRS

JOINT WITH THE

SUBCOMMITTEE ON ENERGY AND MINERAL RESOURCES

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED TENTH CONGRESS

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JOINT OVERSIGHT FIELD HEARING ON "CHARTING A CLEAN ENERGY FUTURE FOR THE INSULAR AREAS."

Saturday, April 12, 2008
U.S. House of Representatives
Subcommittee on Insular Affairs, joint with the
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
Frederiksted, St. Croix, U.S. Virgin Islands

The Subcommittees met, pursuant to call, at 10:05 a.m., at Frits E. Lawaetz Conference Room, Legislature of the Virgin Islands, Frederiksted, St. Croix, U.S. Virgin Islands. Hon. Donna Christensen [Chairwoman of the Subcommittee on Insular Affairs] Presiding.

Present: Representatives Christensen, Costa and Shuster.

STATEMENT OF THE HON. DONNA M. CHRISTENSEN, A DELEGATE IN CONGRESS FROM THE VIRGIN ISLANDS

Mrs. CHRISTENSEN. Good morning. The oversight hearing by the Subcommittee on Insular Affairs and the Subcommittee on Energy and Mineral Resources will come to order. The Subcommittees are meeting today to hear testimony on Charting a Clean Energy Future for the Insular Areas.

Let me welcome everyone here this morning to this hearing. As we have done in Guam, the Commonwealth of the Northern Mariana Islands, and American Samoa, the Subcommittees today are making history by having the first congressional hearing in Frederiksted, St. Croix.

Thank you, Senate President Richards and the 27th Legislature for making the St. Croix chambers available to us.

I want to also begin by welcoming my colleagues who join me on the dais: The Chairman of the Subcommittee on Energy and Minerals, Congressman Jim Costa from California, and Representative Bill Shuster from Pennsylvania. I am grateful that they have taken time away from their own districts to be here for this important hearing.

And I want to acknowledge Chairman Costa's leadership of his Subcommittee in working to maintain a healthy balance between energy needs and conserving our nation's natural resources. I believe we can all agree that the leadership that he and the

Subcommittee provides is more important than ever in today's world of rising oil prices.

I am also very pleased to welcome my colleague, Representative Bill Shuster. This is Mr. Shuster's fourth term in Congress representing Pennsylvania's 9th District. In addition to his membership on the Energy and Minerals Subcommittee, Mr. Shuster serves on the Transportation and Infrastructure Committee where he is the Ranking Member of the Subcommittee on Railroads, Pipelines and Hazardous Materials.

The people of the Virgin Islands welcome both of you and thank you for your interest in addressing these issues faced by your fellow Americans living in the U.S. territories. And as we go through this hearing, you will recognize that the residents of the territories, in our case the Virgin Islands, will voice concerns which are very similar to those of your own constituents in California and Pennsylvania. And while the entire country is feeling the pinch of increased utility costs, you will also find that nowhere is it as severe as here in the United States Virgin Islands and our fellow offshore areas.

I also want to welcome our witnesses, thank them for taking time on this Saturday morning to present testimony at what I expect to be the first in a series of hearings on the unique energy challenges facing the insular territories.

In 2005, my colleagues and I worked with Natural Resources Chairman, Nick Rahall, to update a 20-year-old energy assessment done for the insular areas. The Department of the Interior, together with the Department of Energy and representatives of public power, completed that new assessment in 2006.

This report should be viewed by all, as Congress has renewed interest in seeing how well the challenges of reducing energy cost to insular areas can be addressed. No one should believe that Congress wishes for this report to sit for another 20 years before action is taken to lessen our territories' reliance on imported fuel. Thus, our hearing this morning is meant to further this process. Chairman Costa and I brought local leaders, residents, industry representatives and nongovernmental organizations together with Federal government expertise to lay the groundwork in developing a plan which would create a clean energy policy that can be implemented in the future to benefit our U.S. territories.

To be frank, many in the U.S. mainland still view our U.S. territories solely through sunglass lenses, but as we look toward the future with clean and renewable energy in mind, the attributes which bring tourists to our shores should also be our sources of energy. Island breezes could power turbines, our bright sun could charge batteries, our ocean and surf could be the driving engines which bring unlimited energy out from our sea onto our shores and into our homes.

I'm pleased that this hearing has generated a lot of interest from my constituents. I want to thank Senator Ronnie Russell of WSTX for carrying it live on radio so that it can reach a broader audience. I'm also pleased that we have had the active and meaningful engagement of our government industry, NGO's and the Federal agencies.

And before I close, I just want to point out that despite all of the obstacles and challenges that we do face, both WAPA and the V.I. Energy Office have had their efforts recognized nationally—and the Virgin Islands Department of Energy a few years ago for its educational program for the NEED Project. A few weeks ago, I was privileged to join Mr. Hodge, Mr. Rhymer, and Ms. Dunn from WAPA as they received the Energy Star Partner of the Year Award for Excellence in Energy Star Promotion. Congratulations to both of you.

At this time the Chair would like to recognize Chairman Costa, Chair of the Subcommittee on Energy and Mineral Resources, for any statement that he might have.

[The prepared statement of Mrs. Christensen follows:]

Statement of The Honorable Donna M. Christensen, Chairwoman, Subcommittee on Insular Affairs

Good morning.

I want to begin by welcoming all of our witnesses who agreed to present testimony at this oversight field hearing convened jointly by the Subcommittee on Insular Affairs and the Subcommittee on Energy and Mineral Resources. I am joined on the dais by my colleagues, Energy and Minerals Chairman Jim Costa (from California) and Representative Bill Shuster (from Pennsylvania).

I want to acknowledge Chairman Costa's leadership of his subcommittee to maintain a healthy balance between energy needs and conserving our nation's natural resources. I believe that we can all agree that the leadership he and his subcommittee provides is more important than ever in today's world of rising oil prices.

I am also very please to welcome my colleague, Representative Bill Shuster. This is Mr. Shuster's fourth term in Congress, representing Pennsylvania's 9th District. In addition to his membership on the Energy and Minerals Subcommittee, Mr. Shuster serves on the Transportation and Infrastructure where he is the Ranking Member of the Subcommittee on Railroads, Pipelines, and Hazardous Materials.

The people of the Virgin Islands welcome you to the Caribbean and thank you for your interest in addressing the energy issues faced by your fellow Americans living in U.S. territories. I believe that throughout this hearing you will recognize that residents of the territories, in our case the Virgin Islands, will voice concerns which are similar to your own constituents in California and Pennsylvania.

However, the obvious challenges that residents of this and other territories must overcome are isolation which prevents interconnectivity or economies of scale; the lack of indigenous sources of fossil fuels which has led to complete dependence of imported fuel; and the ocean's corrosive environment which makes upkeep of energy equipment difficult and costly.

In 2005, my colleagues and I worked with Natural Resources Chairman Nick Rahall to update a twenty year old energy assessment done for our insular areas. The Department of the Interior, together with the Department of Energy and representatives of public power completed the new assessment in 2006. This report should be viewed by all as a Congress's renewed interest in seeing how well the challenges of reducing energy costs to insular areas can be addressed. No one should believe that Congress wishes for this report, to sit for another twenty years before action is taken to lessen our territories' reliance on imported fuel.

Thus, our hearing this morning is meant to further this process. Chairman Costa and I have brought local leaders, residents, industry representatives, and non-governmental organizations together with federal government expertise to lay groundwork in developing a plan which could create a clean energy policy that can be implemented in the future to benefit our U.S. territories.

To be frank, many in the U.S. mainland view our U.S. territories solely through sunglass lenses. But as we look toward the future with clean and renewable energy in mind, the attributes which bring tourists to our shores should also be our sources for energy. Islands breezes could power turbines, our bright sun could charge batteries, our ocean and surf could be the driving engines which bring unlimited energy out from the sea—onto our shores, and into our homes.

I am pleased that this hearing has generated a lot of interest from my constituents, but I am even more pleased that we have had the active and willful engagement by industry, NGO's, and our federal agencies.

STATEMENT OF THE HON. JIM COSTA, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

Mr. COSTA. Thank you very much, Madame Chairwoman. It is indeed our pleasure to be here this morning in the U.S. Virgin Islands on the wonderful island of St. Croix to join with you in focusing on a very important issue to not only the U.S. Virgin Islands but to other insular territories that have similar problems. I would go beyond and indicate that this is also a matter of national security, especially when we look at the importance of the refinery that is here in St. Croix, and the role that it plays in providing energy to many of the states in the mainland.

These islands truly are beautiful, and I have been most welcomed since I've arrived, notwithstanding my head cold. The fact is that we appreciate the Governor, and the President of the Legislature, as well as other witnesses who will testify before both Subcommittees here today and with our colleague, Mr. Shuster, from Pennsylvania.

Your representative is a tenacious advocate on behalf of the constituents of the U.S. Virgin Islands. I know because I hear it on a weekly basis, and you should be proud of the hard work that she does. She asked if we would be willing to bring both Subcommittees together to come here to St. Croix for the purpose of trying to deal with the challenges that we are facing and the extremely high cost of energy rates that U.S. citizens are facing here in the U.S. Virgin Islands, as was noted by the Chairwoman, the second highest in the entire United States—only exceeded by American Samoa.

So truly, when you look at the percentage of cost that residents pay here as a part of their costs, their monthly costs, a larger percentage of the family's monthly budget goes to pay for the utilities. So, obviously, it's a pressing issue that we must try to address.

It's important that we note that obviously these energy challenges that we are facing are not just facing the U.S. Virgin Islands, but they are facing the entire country of ours. And at $100 a barrel of oil, it impacts our ability to deal with our deficit; it impacts our ability to deal with international issues. I submit that this war on terrorism that we are fighting today, we are in fact financing both sides of this war when we look at the costs that we are faced with in Iraq and Afghanistan at $100 a barrel for oil because, of course, countries that are not friendly to us are benefiting from the high cost of that resource. There are a multitude of reasons why we need to figure out strategies to reduce the cost of energy for all U.S. citizens.

It's important that we look at the fact that the insular territories' sky-high electrical rates and cost of foreign oil are among the issues that are affecting these islands. While these islands are not endowed as we know with an abundance of natural—other types of natural resources—coal, oil or gas as they have in Pennsylvania or they have in California—they are blessed with some resources that the good Lord has shown a willingness to provide and that, as the Chairwoman mentioned, is this wonderful sun, the wind power, and the ocean power. These if harnessed properly, I believe, can make major improvements to the energy situation of these islands.

The second panel that we are going to hear from this morning, as I understand, is going to provide testimony in those areas of

how we can reduce the dependency of oil as being the sole source of electricity for the U.S. Virgin Islands.

And while there is a lot of work that is being done to provide cleaner and more independency for the energy future of the Virgin Islands, it's important that no matter how active the government of the U.S. Virgin Islands is, and how tenacious an advocate Representative Christensen is—because she certainly is—you can't do it alone. And that's why she wanted the Subcommittees to come here.

Our Subcommittees have different jurisdictions in natural resources. We have the difficult challenge with the Subcommittee on Energy and Mineral Resources, which I chair, to protect public lands but, at the same time, try to take advantage of the energy and the wealth that comes from them. And that oftentimes is a difficult balancing act to perform. But if we do our work well, it's essential to ensure that the Federal government, the Department of Energy, look at all the options.

One of the questions that I am going to continue to raise this morning is the Memorandum of Understanding with Hawaii that was established earlier this year, in January, to ensure that Hawaii, which has a similar set of circumstances as the U.S. Virgin Islands, obtain 70 percent of their energy from renewable sources by the year 2030. I think a similar sort of goal ought to be addressed as we look at the U.S. Virgin Islands. I believe a similar partnership between the Governor, the government in Washington and the insular areas is practical and necessary.

The third panel we will be listening to this morning has people from the Department of Energy and the Department of the Interior who were instrumental in making that Hawaii partnership happen. I am going to be addressing many of these questions to them.

I look forward again to listening to all of you. I am pleased to be in St. Croix. As I told your representative, when I have come here in the past, it's strictly as a civilian with my baseball cap on and my little sunglasses she talked about earlier, as a sailor. One of my passions is to come to the Caribbean and to kind of hide for a week or two and sail these beautiful islands. Today I am here in an official capacity and pleased to be so.

I thank you again, Madame Chairwoman, for allowing us to be a part of your hearing. I yield back.

[The prepared statement of Mr. Costa follows:]

Statement of The Honorable Jim Costa, Chairman, Subcommittee on Energy and Mineral Resources

Thank you very much, Chairwoman Christensen, and thank you for inviting me to your beautiful islands for this hearing, where I have experienced the most tremendous hospitality from everyone. I look forward to the rest of my stay on the Virgin Islands, and in particular hearing more about some of the challenges that you face with respect to energy, and what we in Congress can do to try to ease some of those burdens.

Because there is no doubt about it—those burdens are significant. The energy problems that we face as a country are magnified in the insular areas. The mainland produces about two-thirds of the energy that it uses. But on the insular areas, you import essentially 100%. Electricity prices are rising across the country, but here they are over three times the national average. This situation is simply not sustainable for the residents of the Virgin Islands and the other insular areas. It is not sustainable for economic growth on these islands. And, it is not sustainable

for our environment or national security. Guam, for example, hosts some of our most important military assets in the Pacific, but it is entirely dependent on imported oil.

That's why we are here to talk about charting a clean energy future for the insular areas "a future that uses indigenous sources of energy to lessen your dependence on imported oil and reduce your electricity prices, while being friendlier to the environment at the same time.

I like the fact that we've titled this hearing "Charting a Clean Energy Future" because I'm an avid sailor. But the title is more than just an allusion to sailing. It also emphasizes that the reason the Virgin Islands has such tremendous sailing—your beautiful ocean and the winds that pass over it—can also hold the answer to your most pressing energy challenges.

As Chairwoman Christensen pointed out, the same factors that make this a paradise on earth—the sun, the breezes, the ocean—bless you with a tremendous opportunity for generating energy from these resources cleanly and sustainably. And whereas the small size of your islands creates challenges, is also allows modestly sized renewable energy projects to make a major impact.

I believe the Department of Energy recognized this when they signed a Memorandum of Understanding to get the State of Hawaii to 70% renewable power in just over twenty years. That is an incredibly ambitious goal, but it is achievable. If the Department of Energy is willing to come together with the governments of the insular areas, then we can try to achieve similar goals for the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands. The energy situation faced by Hawaii and the insular areas are similar, although in many ways the insular area challenges are even more severe—a smaller infrastructure, higher electricity prices, and even more frequent tropical storms. But if Hawaii can reach their clean energy goals, then the insular areas can meet their energy goals as well, and I look forward to hearing from our witnesses on how we can best accomplish that together.

Mrs. CHRISTENSEN. Thank you, Chairman Costa.

The Chair now recognizes Representative Shuster for any opening statement he might have.

STATEMENT OF THE HON. BILL SHUSTER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF PENNSYLVANIA

Mr. SHUSTER. Thank you, Chairwoman. It's a pleasure to be here back in the Virgin Islands. I'll start off just as Mr. Costa ended. This is my first official visit here, but I've been to the Virgin Islands many times. In fact, the last time I was in St. Croix was in 1970. I was a young kid. We stayed at the Grape Tree Bay Hotel. The second time to the Virgin Islands was to St. Croix, but many times to St. Thomas and St. John over the years. And for me I always have a warm spot in my heart, if not on my skin, when I am in the beautiful sun here in the Virgin Islands.

You have a very strong advocate in Washington in Chairwoman Christensen in what she does. Not only is she an aggressive, strong arm but, most importantly, effective in making sure that the voice of the Virgin Islands is heard in the U.S. Congress. So you should really appreciate all the efforts and work she does—and she does a great job of it.

I am not going to repeat a lot of what my colleague said. It's obviously critical, not only to the U.S. Virgin Islands, but to the world what we are doing in energy, how we are going to solve the crisis I believe we face in energy. I know that in reading on the Virgin Islands the high cost of your electricity here and what we need to do and what you have been doing trying to reduce and conserve energy to help reduce those costs.

But in looking at new energy sources, I think it's absolutely critical, not only the renewables, wind and solar, but clean coal tech-

nology. I come from Pennsylvania, which is a large coal producing state, and we want to find ways and we do have ways today available to us and that we can use coal and burn it clean and use it because we have a great source of it. Coal gasification, turning coal into oil and gas to be able to utilize that, it's something we must get serious about and produce that in this country. And, of course, nuclear energy is something we look at other countries around the world that's producing—the French, for instance, produce 80 percent of their electricity through nuclear power. It's safe, it's clean, and we really need to pursue the development of a more robust nuclear sector in this country.

And I know on these islands looking at smaller types of facilities, talking briefly before about is it possible to build a nuclear facility that's smaller. I know there are folks out there looking at that. The Virgin Islands can be a laboratory to develop those types of facilities, whether it's a smaller coal-fired electric plant, whether it's a nuclear facility that can be utilized, because there have been places in the country that were able to develop it, we'll be able to put that into practice.

And as Mr. Costa said, this is not just about the economy and what it's doing to our economy, but it's a national security issue. It should be very high, if not the highest on our list of how we are tackling this challenge we have.

So I am pleased to be here. I look forward to learning a lot today, look forward to hearing all our witnesses. With that yield back. Thank you.

Mrs. CHRISTENSEN. Thank you, Congressman Shuster.

I would now like to recognize the first panel of witnesses, The Honorable Usie Richards, President of the 27th Legislature of the Virgin Islands; Mr. Bevan Smith, Director of the Virgin Islands Energy Office; Mr. Hugo Hodge, Executive Director of the Virgin Islands Water and Power Authority; Mr. Donald Cole, Vice Chair of the Public Services Commission; and Mr. Darryl Miller, President of the St. Croix Alliance to Protect Utility Ratepayers.

Mrs. CHRISTENSEN. Thank you. The Chair now recognizes Senate President Richards for his testimony.

STATEMENT OF HON. RAYMOND "USIE" RICHARDS, PRESIDENT, 27TH LEGISLATURE OF THE VIRGIN ISLANDS

Mr. RICHARDS. Pleasant good morning to one and all. It is indeed a pleasure for me on behalf of the members of the 27th Legislature to bring greetings to our Honorable Delegate, Donna M. Christensen, in her position as Chairwoman of the Subcommittee of Insular Affairs, along with your distinguished Subcommittee members. And equally so, greetings are bestowed upon The Honorable Jim Costa, Chairman of the Subcommittee on Energy and Mineral Resources and his distinguished Subcommittee members. I want to also say a pleasant good morning to Representative Shuster. It's a pleasure to have you here from Pennsylvania.

I believe that today it's most fitting that the Joint Oversight Hearing on Charting a Clean Energy Future for the Insular Areas be convened in the U.S. Virgin Islands, where energy costs, existing resources, alternate sources and revenues generated are paramount concerns for the Virgin Islands and its residents.

I must therefore elaborate for a brief moment, because in the Territory our most major concern is the factor that I am sure will be discussed by the representatives of the Water and Power Authority, the Levelized Energy Adjustment Cost, the LEAC factor. Simply put, LEAC is the fuel charge, the cost to the Virgin Islands Water and Power Authority to produce electricity and water that is consumed by its customers. According to WAPA, it does not profit from LEAC. The LEAC amount paid by each WAPA customer is passed on directly to HOVENSA, the local oil refinery formally HOVIC, a full subsidiary of Hess Oil.

Any Virgin Islander would tell you that LEAC makes up in excess of one half of his or her monthly WAPA bill. The cost of LEAC is ever-increasing. It's the foremost quandary affecting the energy future of the Territory. Thus, it remains difficult to chart the progression of LEAC costs and the projected future impact on Virgin Islanders. This is due primarily to the fact that as the cost of fuel increases worldwide, increases to the LEAC becomes inevitable. At present, as all of us know, fuel costs are well over $100 a barrel.

In December of 2007, the Virgin Islands Public Services Commission approved WAPA's request for a LEAC increase for electricity use from 19 cents per kilowatt hour to 25 cents per kilowatt hour, resulting in a 34 percent increase in LEAC electricity costs for every Virgin Islander. This means that for every kilowatt hour a WAPA customer uses, WAPA charges 25 cents. LEAC costs for water use remained unchanged at 7.58 cents per kilowatt hour. WAPA's average customer uses approximately 500 kilowatt hours monthly, and the average customer's bill went up by 22 percent.

The question is what is being done today? There is discussion on alternative sources of energies being explored. WAPA is encouraging its customers to lower consumption of electricity and water. Whether we speak of the alternative sources that are existing today, charting a clean energy future suggests that we should look toward alternative energy sources which would, one, reduce pollution that is a by-product of energy use; conserve non-renewable energy sources; help preserve the ecological balance of the planet; help preserve natural resources; and most importantly, promote the use of renewable energy sources.

However, viable alternate energy sources must be researched thoroughly before a commitment to use is made in the Territory. Here I use the term "viable" because an alternate source of energy has to be cost effective to the Territory. This would include reasonable costs for start-up as well as reasonable costs for required long-term maintenance. Moreover since the Virgin Islands is now four distinct islands geographically, the alternate source of energy must consider its capacity to be applied on widespread basis to meet the needs of the Territory's infrastructure and WAPA's residential and business customers. Whether we speak of the alternate sources of wind power, petroleum coke, solar power, and geothermal energy, these are the ideas I think that we ought to consider.

But the proposal before WAPA to reduce the cost of energy in the Territory are inclusive of some of these and possibly in addition to those that I have mentioned. But at the end of 2007, they had released a request for proposals for alternate sources of energy, according to WAPA and pre-qualified bid responses were received

from companies for wind, solar, biomass, and ocean thermal energy. I believe approximately 18 companies expressed an interest.

But it should be made evidently clear by now that all of the aforementioned proposed alternative sources of energy are surely long term and have no impact on the current impact of the pocketbooks of our residents. Today the most important question to be addressed in the Virgin Islands is our ability to immediately access the capital required to reduce the cost of energy in the Virgin Islands.

This brings to me the often discussed and debated item of gasoline excise tax. As you are aware, the HOVENSA oil refinery on this island of St. Croix is one of the largest refineries in the Western Hemisphere and has continuously served as a major supplier of gasoline and various oil products to the U.S. mainland. In turn, taxes collected from states on gasoline sold within their states are collected by both the state and Federal governments. A great percentage of these taxes are returned to the states to support and finance their infrastructure development. This act is of no controversy with the people of the Virgin Islands.

What is of consequence to our people? It's heart wrenching to acknowledge that existing Federal law mandates that products produced in the Virgin Islands, shipped to the U.S. mainland, where taxes are collected on this product, that the Virgin Islands Government is reimbursed a percentage, if not all of the taxes collected on these oil products.

It is evident that we must establish a mechanism to finance the development, production, and distribution of clean energy in the Virgin Islands. The Virgin Islands Government, despite its willingness, does not possess the necessary capital to assure a reduction in the current cost of energy, much less the necessary capital to ascertain and retain clean, renewable and sustainable energy. The time is now to begin the discussion and take action on the return of gasoline excise taxes to the Government of the Virgin Islands.

I thank you for this opportunity and look forward to a healthy discussion on this matter. And, Madame Chairwoman, today I thought that I should wear brown, because in our local vernacular, things in the Virgin Islands are very brown, but I wore green just like you today to hope that it's a bright beginning so we could begin to address some of the problems that are facing the people of Virgin Islands. Again, thank you for this opportunity.

[The prepared statement of Mr. Richards follows:]

Statement of The Honorable Usie R. Richards,
Senate President—27th Legislature of the Virgin Islands

On behalf of the members of the 27th Legislature of the Virgin Islands, I am honored in my capacity as Senate President to bring greetings to The Honorable Donna M. Christensen, the Territory's Delegate to Congress who is here today in her position as Chairwoman of the Subcommittee on Insular Affairs along with her distinguished Subcommittee Members. Equally so, greetings are bestowed upon The Honorable Jim Costa, Chairman, Subcommittee on Energy and Mineral Resources and his distinguished Subcommittee Members. I welcome each of you to our beautiful Island of St. Croix! Enjoy its splendor and while here, you are encouraged to contribute to our local economy by dining and shopping in our hospitable establishments.

It is most fitting that a Joint Oversight Field Hearing on, "Charting a Clean Energy Future for the Insular Areas" be convened in the U.S. Virgin Islands, where

energy costs, sources, alternate sources and revenues generated are paramount concerns for the Territory and its residents. Please allow me the opportunity to elaborate a moment.

LEVELIZED ENERGY ADJUSTMENT CLAUSE (the LEAC Factor):

Simply put, LEAC is the fuel charge: the cost to the U.S. Virgin Islands Water and Power Authority (WAPA) to produce electricity and water that is consumed by its customers. According to WAPA, it does not profit from LEAC; the LEAC amount paid by each WAPA customer is passed on directly to HOVENSA, the local oil refinery.

Any Virgin Islander would tell you that LEAC makes up in excess of one half of his or her monthly WAPA bill. The cost of LEAC is ever-increasing. It is the foremost quandary affecting the energy future of the Territory. Thus, it remains difficult to chart the progression of LEAC costs and the projected future impact on Virgin Islanders. This is due primarily to the fact that as the cost of fuel increases worldwide, LEAC likewise increases. At present, fuel cost is now over $100 per barrel!!

On December 1, 2007, the U.S. Virgin Islands Public Services Commission approved WAPA's request for a LEAC increase for electricity use from 19 cents per kilowatt hour to 25 cents per kilowatt hour, resulting in a 34% increase in LEAC electricity costs for every Virgin Islander. This means that for every kilowatt hour a WAPA customer uses, WAPA charges 25 cents! LEAC costs for water use remained unchanged at 7.58 cents per kilowatt hour. WAPA's average customer uses 500 kilowatt hours monthly, and the average customer's bill went up by 22%.

What is being done?

- Alternate sources of energy are being explored
- WAPA is encouraging its customers to lower consumption of electricity and water

ALTERNATE SOURCES OF ENERGY:

"Charting a Clean Energy Future" suggests that we should look towards alternative energy sources which would 1) reduce pollution that is a by-product of energy use; 2) conserve non-renewable energy sources; 3) help preserve the ecological balance of the planet, and 4) help preserve natural resources. However, viable alternate energy sources must be researched thoroughly before a commitment to use is made in the Territory. Here, I use the term "viable" because an alternate source of energy has to be cost-effective to the Virgin Islands. This would include reasonable costs for start-up as well as reasonable costs for required long-term maintenance. Moreover, since the U.S. Virgin Islands is now four distinct islands geographically (St. Croix, St. John, St. Thomas and Water Island), the alternate source of energy must have the capacity to be applied on a widespread basis to meet the needs of the Territory's infrastructure and WAPA's residential and business customers.

Some alternate sources of energy being explored presently include:

- **Wind Power:** Wind-powered generators are used to produce wind energy. It is a renewable source of energy; as long as there is wind, this source of energy can be generated. No pollution is produced from wind power therefore the environment is not contaminated.
- **Petroleum Coke:** Petroleum Coke is a waste-product of the Hovensa Oil Refinery that is the result of the process utilized to refine oil using the catalytic cracking plant. This material when efficiently burned provides an opportunity to produce clean energy. Currently this material is in demand by off-island entities and thereby is collected and shipped off-island.
- **Solar Power:** Solar energy is obtained when the sun's rays are collected into solar cells or solar thermal panels for conversion into electricity. Solar power also is a renewable source of energy and is non-pollutant. I am aware that a St. Croix family on the East End (Jan Mitchell and Steffen Larsen) was recently honored for use of solar power in their home.
- **Geothermal Energy:** Geothermal power is derived from heat energy beneath the earth. GeoNet BioFuels is a company recently established on St. Croix as an alternate source to gasoline.

PROPOSALS BEFORE WAPA TO REDUCE THE COST OF ENERGY IN THE VIRGIN ISLANDS:

At the end of November 2007, WAPA released a request for proposals for alternate sources of energy. According to WAPA, pre-qualified bid responses were received from companies for wind, solar, bio-mass and ocean thermal energy. Eighteen (18) companies expressed an interest and financial capability to sell power to WAPA. The respondents' proposals are due by May 1, 2008.

GASOLINE EXCISE TAX:

As you are aware, the HOVENSA Oil Refinery, on this island of St. Croix, is one of the largest refineries in the Western Hemisphere and has continuously served as a major supplier of gasoline and various oil products to the U.S. mainland. In turn taxes collected from states on gasoline sold within their states are collected by both the state and federal governments. A great percentage of these taxes are returned to States to support and finance their infrastructure development. This act is of no controversy with the people of the Virgin Islands. What is of consequence to our people? It is heart wrenching to acknowledge that existing Federal Laws mandates that products produced in the Virgin Islands and shipped to the U.S. mainland, where taxes are collected on this product, that the Virgin Islands Government is reimbursed a percentage, if not all of the taxes collected on the oil products shipped to the mainland. It is evident that we must establish a mechanism to finance the development, production and distribution of clean energy in the Virgin Islands. Our territorial government, despite its willingness, does not possess the necessary capital to ascertain and retain clean, renewable and sustainable energy. I thank you for this opportunity and look forward to a healthy discussion on this matter.

Mrs. CHRISTENSEN. Thank you, Senate President Richards. That is the purpose for which we are being here today, to look for better days.

I did not state at the beginning of Senator Richards testifying that the timing light on the table indicates when time is concluded. But I didn't feel that I could come into his own chamber and cut him off before he was finished, so we allowed you to go over. Thank you for your testimony.

The Chair now recognizes Mr. Smith to testify. Mr. Smith, in addition to being the Director of the V.I. Energy Office, is testifying on behalf of the Governor is my understanding as well. We invite you to testify for five minutes.

STATEMENT OF BEVAN SMITH, DIRECTOR, VIRGIN ISLANDS ENERGY OFFICE

Mr. SMITH. Thank you.

Good morning, Madame Chairwoman Christensen, Chairman Costa, Representative Shuster, other members of the Subcommittees, members in the audience and those listening on radio. My name is Bevan Smith, Jr., and I have been working with the Virgin Islands Energy Office for 25 years and served in the capacity of the Director since 2004. It is a pleasure to appear before you today to offer testimony on such a timely subject matter, Charting a Clean Energy Future for the Insular Areas.

The Virgin Islands is an unincorporated territory of the United States located in the Lesser Antilles islands group between the Atlantic Ocean and the Caribbean Sea.

The Territory faces many of the same problems encountered by all small island nations with our relatively small electric power system, limited interconnection, and generation units that are based on older petroleum fueled technology with relatively poor heat rates. This is further complicated by the reliability criteria that require online generation to maintain high spinning reserve margins in the absence of a supply grid. These conditions lead to excessive costs for the sole electric utility which are further increased by the recent upturn in petroleum prices.

The U.S. Virgin Islands currently relies on virtually 100 percent imported petroleum as its source of its energy. The Territory's generating facilities are included in that slim minority of just 1.6 per-

cent of the total electricity generated nationwide that utilizes oil-fired plants. Due to the concentration of the majority of the world's oil reserve in countries that are unfriendly to the United States, the growing international demand for oil and the associated increase in the price of oil, the economy of the U.S. Virgin Islands is highly vulnerable to supply disruptions and energy price increases. This vulnerability is further exacerbated since much of the petroleum is imported from PDVSA, the state-owned petroleum company of Venezuela. The current political instability of that region of the world could result in a severe disruption or curtailment of petroleum shipments from HOVENSA refinery on St. Croix, which is partially owned by PDVSA.

Furthermore, the reliance on imported energy sources creates a large financial burden on the United States Virgin Islands economy. Typically, two-thirds of the price of electricity in the U.S. Virgin Islands is attributed to the fuel adjustment charges, all of which are derived from the escalating cost of purchasing petroleum. The dependence on imported fossil fuel forces our residents to pay a higher percentage of their disposable income for energy than residents of the mainland United States. An increasing number are faced to make decisions to either pay for the food, medicine or utility bill.

High energy costs are driving up the cost of living in the Territory by fueling inflation. It serves as the deterrent to business development, and is perhaps the greatest threat to the Virgin Islands economy. It is imperative that this reality is taken into consideration throughout all testimonies to the Joint Oversight Field Hearing on Charting a Clean Energy Future for the Insular Areas.

The United States Department of Energy has been instrumental in the Territory's development of energy programs over the past 34 years through its formula-driven Energy Extension Service, State Energy Conservation Program, Institution Conservation Program and the State Energy Program grants. The former three grants have been phased and SEP continues to supplement funding to the Territorial State Energy Plan.

Over the past decade, the U.S. Virgin Islands has been awarded an average of $235,000 annually in the U.S. Department of Energy formula grant funds, which represents 8 percent of the total budget. Program year 2008 will bring $174,000 to the Territory to assist with the mission of the Virgin Islands Energy Office. Low Income Heating and Energy Assistance Program, LIHEAP, funds are awarded directly to the local Department of Human Services, and that's to the tune of some $122,000. Significantly, our focus on general education programs earned the U.S. Virgin Islands the 2003 National Energy Education Development State Program Award from the NEED Project.

In charting a clean energy future for the insular areas, we need both the Insular Affairs and the Energy and Mineral Resources Subcommittees to address on behalf of all the territories of the United States of America the funding challenges, program priorities, and our unique energy issues. An adequate resolution will bring self-sufficiency through increased utilization of renewable energy technology and energy sufficient measures. As it pertains to the funding issues, the U.S. Virgin Islands is often inappropriately

compared to the continental U.S. when it comes to allocation of energy funds. This comparison is grossly unfair since the United States Virgin Islands is not as densely populated as the continental U.S., therefore distributing electricity generation costs among fewer utility customers.

Electricity rates in the southeast continental U.S. averages between 5 to 10 cents a kilowatt hour, while electricity in the U.S. Virgin Islands is currently at 35 cents a kilowatt hour heading to 42 cents in the near future. Additionally, the U.S. Virgin Islands is often compared to Hawaii when it comes to energy. While the climates of the Pacific and Caribbean islands are somewhat similar, demographics are starkly different. Hawaii is densely populated and has a highly sophisticated energy infrastructure.

Mrs. CHRISTENSEN. I am going to ask you to wrap up. We are going to get to some of your other points in the question and answer.

Mr. SMITH. Thank you. I just say that Section 251 of the 2005 Energy Policy Act authorizes the Secretary of the Interior among other items to make grants to governments of insular areas of the United States for project plans that include an analysis of a range of options to address energy security projects such as protecting electric power transmission distribution lines or significantly reducing dependence on an insular area on imported fossil fuel.

The Office of the Governor has taken a lead by example posture by instituting an energy demand reduction program for the central Government.

In closing, I would like to thank both Chairs of the Subcommittees, and I would like to reiterate that the driving factor in the economy of the U.S. Virgin Islands is the high cost of energy. We are hoping that clean energy technologies can be that solution. However, there are significant impediments to the implementation, and the U.S. Virgin Islands may not be able to overcome without assistance from the Federal Government. This requires immediate Congressional action. Thank you.

Mrs. CHRISTENSEN. Thank you, Mr. Smith.

[The prepared statement of Mr. Smith follows:]

Statement of Bevan R. Smith, Jr., Director,
Virgin Islands Energy Office

Good Morning Madame Chairwoman Christensen, Chairman Costa and other members of the two Subcommittees. My name is Bevan Smith Jr. and I have been working with the Virgin Islands Energy Office for 25 years and served in the capacity as Director since 2004. It is a pleasure for me to appear before you today to offer testimony on such a timely subject matter:

Charting a Clean Energy Future for the Insular Areas

The U.S. Virgin Islands is an unincorporated territory of the United States located in the Lesser Antilles islands group between the Atlantic Ocean and the Caribbean Sea.

The Territory faces many of the same problems encountered by all small island nations with our relatively small electric power system, limited interconnection, and generation units that are based on older petroleum-fueled technology with relatively poor heat rates. This is further complicated by reliability criteria that require online generation to maintain high spinning reserve margins in the absence of a supply grid. These conditions lead to excessive costs for the sole electric utility which are further increased by the recent upturn in petroleum prices.

The U.S. Virgin Islands (USVI) currently relies on virtually 100% imported petroleum as the source of its energy. The Territory's generating facilities are included

in that slim minority of just 1.6% of the total electricity generated nationwide that utilizes oil-fired plants. Due to the concentration of the majority of the world's oil reserves in countries unfriendly to the US, the growing international demand for oil and the associated increase in the price of oil, the economy of the USVI is highly vulnerable to supply disruptions and energy price increases. This vulnerability is further exacerbated since much of the petroleum is imported from PDVSA—the state-owned petroleum company of Venezuela. The current political instability in that region of the world could result in a severe disruption or curtailment of petroleum shipments to the Hovensa refinery on St. Croix, which is partially owned by PDVSA.

Furthermore, the reliance on imported energy sources creates a large financial burden on the USVI economy. Typically two-thirds of the price of electricity in the USVI is attributed to fuel adjustment charges, all of which is derived from the escalating cost of purchasing petroleum. The dependence on imported fossil fuels forces our residents to pay a higher percentage of their disposable income for energy than residents of the mainland United States. An increasing number are forced to make decisions to either pay for food, medicine, or their utility bill. High energy cost is driving up the cost-of-living in the Territory by fueling inflation; it serves as a deterrent to business development, and is perhaps the greatest threat to the Virgin Islands economy. It is imperative that this reality is taken into consideration throughout all testimonies to this Joint Oversight Field Hearing on "Charting a Clean Energy Future for the Insular Areas".

The U.S. Department of Energy has been instrumental in the Territory's development of energy programs over the past 34 years through its formula driven Energy Extension Service, State Energy Conservation Program, Institutional Conservation Program and State Energy Program (SEP) grants. The former three grants have been phased out and the SEP continues to supplement funding to the Territorial State Energy Plan. Over the past decade, the USVI has been awarded an average of $235,000 annually in USDOE formula grant funds, which represents eight percent of each fiscal year's total budget. Program year 2008 will bring $174,000 to the Territory to assist with the mission of the Virgin Islands Energy Office. Low Income Heating and Energy Assistance Program (LIHEAP) funds are awarded directly to the local Department of Human Services to supplement their Energy Crisis Assistance Program. Significantly, our focus on general energy education programs earned the USVI the 2003 National Energy Education Development State Program Award from the NEED Project.

In charting a clean energy future for the Insular Areas, we need both the Insular Affairs and the Energy and Minerals Resources Subcommittees to address on behalf of all Territories of the United States of America, funding challenges, program priorities, and our unique energy issues. An adequate resolution will bring self-sufficiency through increased utilization of renewable energy technologies and energy efficiency measures. As it pertains to funding issues, the USVI is often inappropriately compared to the continental U.S. when it comes to allocation of energy funds. This comparison is grossly unfair since the USVI is not as densely populated as the continental US, therefore distributing electricity generation costs among fewer utility customers. Electricity rates in the Southeast continental U.S. averages between $0.05—$0.10/kWh while electricity in the USVI is presently $0.35/kWh and forecasted to be $0.42 in the near future. Additionally, the USVI is often inappropriately compared to Hawaii when it comes to energy. While the climates of the Pacific and Caribbean islands are somewhat similar, the demographics are starkly different. Hawaii is densely populated and has a highly sophisticated energy infrastructure and a large industrial base. The USVI is not as densely populated and has an increasingly antiquated energy infrastructure. The State Energy Program formula for allocation of funds to the States and Territories has not been updated in over 20 years. The formula was developed when energy costs in the Territory were much lower. To discontinue this inadvertent discrimination the formula needs to be updated to include changes in energy costs, insular location, climate, demographics, etc.

The U.S. Department of Energy's Weatherization Assistance Program (WAP) is the nation's largest residential energy efficiency program. Its mission is to insulate the dwellings of low-income persons, particularly the elderly, persons with disabilities, families with children, high residential energy users, and households with a high energy burden, in order to conserve needed energy and to aid those persons least able to afford higher utility costs. While the USVI does not require funding to insulate against cold winter temperatures, low-income citizens of the Territory can increase energy efficiency through the insulation of conventional water heater tanks or the installation of domestic solar water heaters to reduce electricity costs. The latter program was successfully implemented by the sunshine State of Florida

using Weatherization Assistance Program funds. However, under current law, the USVI cannot participate in the WAP. Even if we were made eligible through an act of Congress, the USVI's portion would be approximately $25,000 based on the existing formula. Here again is another example of inadvertent discrimination against the Territories when it comes to the allocation and distribution of Federal Funds. This disparity should be corrected and the allocation formula for both LIHEAP and WAP should be updated.

There are specific program priorities that must be addressed in charting a clean energy future for the Territories. We need every opportunity available to improve our energy efficiency, increase the use of renewable energy and to reduce our 100% dependence on imported fossil fuels. As previously mentioned, the USDOE formula grant makes up a relatively small percentage of the overall SEP Territorial State Plan's budget; therefore, participation in the USDOE Competitive Solicitations is necessary. In many instances when the USDOE issues solicitations the Territories are either excluded from competition or the program areas for funding are not applicable or relevant to energy priorities within the particular insular area.

Despite the difficulties of acquiring private partnerships, matching non-federal grant funds, and competing with the 50 states, the USVI has been successful in winning a handful of USDOE Special Projects Solicitation grant awards. We formed partnerships and conducted technical building audits through a Rebuild American Paradise grant; the Building Energy Codes grant was instrumental in the Territory's adoption of the 2003 International Building Codes. Plans are currently underway for an upgrade to a tropical building energy code through a grant to Hawaii on behalf of the Territories; a grant for the development of a distributed generation policy led to a Net Metering policy for the Territory; and a grant to conduct a Wind Energy Case Study provided data that supplemented Wind Mapping efforts of the National Renewable Energy Laboratory and the USDOE Wind Powering America in a recent wind workshop with record breaking attendance by residents of the USVI. The technical assistance was beneficial in showing the potential of each category of the grant award, but due to the lack of funding for actual implementation, no energy or cost savings were realized.

Section 251 of the 2005 Energy Policy Act authorizes the Secretary of the Interior among other items, to make grants to governments of insular areas of the United States for project plans that include an analysis of a range of options to address energy security projects such as protecting electric power transmission and distribution lines or significantly reducing the dependence of an insular area on imported fossil fuel. There are authorized in the Act, but not yet appropriated, $6,000,000 for each fiscal year after the enactment. Similar authorization existed in previous EPACTs but no appropriations have actual been made even though the Territorial Energy Assessment Plan has been completed with its findings and recommendations. The Virgin Islands Energy Office and the Water and Power Authority (WAPA) have already employed many of the strategies or projects identified by the Secretary of Energy as having the greatest potential for reducing the dependence on imported fossil fuels. Through the appropriation of these grants, the recommendations in the recently updated Energy Assessment report and other subsequent reports can serve as the roadmap towards reducing the Territories dependence on imported fossil fuel and begin to chart a clean energy future for all.

The Office of the Governor has taken a lead by example posture by instituting an energy demand reduction program for the central Government. This project aims to reduce energy consumption in government facilities and vehicles by at least 5 percent per year over the next four years. The program will implement the best practices in order to advance energy-efficiency throughout government, improve utility management decisions in government facilities, and promote the use of renewable and advanced vehicle technologies and/or alternative fuel blends.

The Virgin Islands Energy Office was recently relocated to the Office of the Governor to bring a serious focus on energy issues in the USVI by commissioning the development of a comprehensive energy strategy for the Territory with the collaboration of the Southern States Energy Board, USDOE National Energy Technology Laboratory, and Virgin Islands energy stakeholders.

The goal of the comprehensive energy strategy is to develop a comprehensive energy strategy for the USVI that will increase the standard of living of the citizens of the Territory by assuring the long-term availability of affordable, secure supplies of energy. A secondary goal is to become a Caribbean and worldwide showcase for the development and use of renewable energy.

In closing, I thank both chairs of the subcommittees, and would like to reiterate that the driving factor in the economy of the USVI is the high cost of energy. We are hoping that clean energy technologies can be the solution. However, there are significant impediments to their implementation and the USVI may not be able to

overcome without assistance from the Federal Government. This will require immediate Congressional action.

Mrs. CHRISTENSEN. The Chair now recognizes the Executive Director of V.I. WAPA, Mr. Hodge for 5 minutes.

STATEMENT OF HUGO HODGE, JR., EXECUTIVE DIRECTOR, VIRGIN ISLANDS WATER AND POWER AUTHORITY

Mr. HODGE. Good morning, Madame Chairwoman Christensen, Chairman Costa, Representative Shuster and members of the two Subcommittees. My name is Hugo Hodge, Jr. I am the Executive Director of the Virgin Islands Water and Power Authority. Let me begin by thanking both Subcommittees on behalf of the Authority for the attention to this extremely important topic and for affording us the opportunity to inform you folks of Virgin Islands Water and Power Authority's extended effort to bring clean and economical energy to the islands and the critical role that it believes the Federal government has to play in this endeavor.

To this end, the Authority would like to describe for you its considerable and ongoing efforts to control and reduce the exorbitant costs of power and water to the citizens of the Virgin Islands in this very difficult economic environment, and to reduce our dependence on imported oil; outline some of the more significant impediments that have made this goal so difficult to achieve; and identify ways in which we believe the Federal government and Congress in particular can provide assistance that is critical to our success.

As you will see shortly from my presentation, I believe that, while we have undertaken a number of powerful initiatives and are actively exploring a broad range of alternatives to our current generating system, assistance from Washington will be critical in our ultimate success in these endeavors.

To begin, the Authority believes that it is extremely important to understand the truly unique circumstances that govern its efforts to secure clean and economical energy for the residents of the islands, and to recognize that they are far more constraining, both economically and geographically, than anything that stateside United States face in these endeavors. Unlike most stateside systems, the Authority is in essence a nonprofit government owned utility that is the sole source of public power and water in the island.

One of WAPA's most distinguishing characteristics is that it operates in an insular environment where there is no power grid from which it can gain access to electricity generated by other utilities, or even generated by its own separate generating plants on St. Thomas and St. Croix.

Among other things, this prevents the Authority from being able to purchase power generated elsewhere by others that might provide a variety of alternative, and possibly much less expensive, sources of power. It also means that we must have more generating units per megawatt of capacity, and incur the high operating costs that entails in order to provide the necessary on-site backup generating capacity that is typically provided stateside by the regional power grids.

Our insular character and limited geographical resources eliminates a number of other options that are available to stateside utilities. For example, natural gas, hydroelectric and nuclear power generation are simply resources not readily available here. Similarly the absence of large areas for crop production make reliance on biofuels impractical in the islands.

Because the islands do not have any significant natural sources of potable water, our power generating system must also provide the power necessary for the operation of the Authority's large desalination plants, which provide the vast majority of the drinking water for the islands. Because of this, anything that adversely impacts the cost of electricity in the islands also increases the cost of drinking water.

It is also critically important to recognize that our limited financial resources create major obstacles to our efforts to develop and implement alternative sources of energy that are environmentally sound, less costly and might significantly reduce our dependence on imported oil.

Given that the Authority is funded 100 percent by its customers, it's important to recognize the difficult economic conditions facing the residents of the islands. The cost of electricity to our residential customers is currently running an exorbitant 34 cents per kilowatt hour. That is almost 350 percent above the U.S. national average of 10.8 cents per kilowatt hour. The huge increases in the price of oil in recent years and months have caused our rates to increase by over 118 percent since 2002. Consequently, stateside concerns about increased power costs attributable to the increased price of oil pale in comparison to what Virgin Islands residents already experience, while further increases loom in the horizon.

We estimate that for every dollar increase in the cost of a barrel of oil, the cost to our residential customers for a kilowatt hour of power will increase by at least 1.75 cents.

Even though our citizens pay far more for electricity than stateside customers, they are far less able to afford these enormous prices. It often goes unrecognized that the per capita income in the Virgin Islands is about $19,000, which is over 34 percent below the per capita income in the poorest of the 50 states.

The combined impact of extremely high energy costs and limited financial resources can be seen in the dramatically low power consumption rates of our citizens. Whereas stateside households consume an average of 1,000 kilowatt hours per month, the average in the Virgin Islands is a dramatic 50 percent lower, at only 500 kilowatt hours per month.

You want me to conclude?

Mrs. CHRISTENSEN. You got about a minute.

Mr. HODGE. WAPA has been aggressively evaluating potential alternative sources of energy and changes in the Authority's system infrastructure that could reduce power costs and dependence on oil.

On February 28 R.W. Beck, a consultant firm under contract with the Authority, in collaboration with the Public Service Commission, completed a major update of WAPA's plan for power generation expansion. Wind power resources, efficiency improvements, waste to energy options, utilization of slow-speed diesels, increased implementation of combined cycle generation, the use of liquefied

natural gas, petroleum coke, and ocean thermal technology are all being considered.

In conclusion, I want to thank the Subcommittees once again for allowing us the opportunity to make this presentation. I hoped that I have helped to increase your understanding of the very unique circumstances that constrain our efforts to reduce our dependency on oil, to reduce our exorbitant costs for electric power generation, and to develop alternative sources of energy in the Virgin Islands. I also hope that you appreciate how hard we have been working to achieve those goals, and how much we are in need of Federal assistance to supplement the extremely limited resources we are able to devote to this critically important effort. Thank you.

Mrs. CHRISTENSEN. Thank you, Mr. Hodge.

[The prepared statement of Mr. Hodge follows:]

Statement of Hugo Hodge, Jr., Executive Director-CEO, Virgin Islands Water & Power Authority

I. Introduction

Good morning, Chairwoman Christensen, Chairman Costa, and members of the two Subcommittees.

My name is Hugo Hodge, Jr. I am the Executive Director of the Virgin Islands Water & Power Authority. I am joined here this morning by the Authority's Chief Operating Officer, Mr. Gregory Rhymer, who will be available to assist me in addressing any question you might have at the conclusion of my prepared remarks. Mr. Rhymer was specifically responsible for the Territorial Energy Assessment update in 2006 and has been the Authority's guide for the past 18 years in its compliance with environmental requirements relating to its many past modifications and future expansion projects. As you know, we provided the subcommittees in advance with a detailed written statement, which I will try to summarize for you now within the 5-minute time period allotted for each of the oral presentations. For those in the audience who might like to see our full written presentation, we have brought a number of copies and will make them available when the hearing has concluded.

As you may know, I assumed the leadership of the Authority on January 1. Before that I was the Director of Griffin Power in Georgia, where I was in charge of strategic planning, and led management teams in all aspects of electric utility operations—including the evaluation of alternative sources of power generation. Born and raised in the Virgin Islands, I hold a bachelor of science degree in mechanical engineering, have an MBA from Georgia State University, and am nationally certified as a Power Quality Professional and as a Public Manager.

Let me begin, by thanking both subcommittees on behalf of the Authority for their attention to this extremely important topic, and for affording us the opportunity to inform you of both VIWAPA's extensive efforts to bring clean and economical energy to the Islands, and the critical role that it believes the federal government has to play in this endeavor.

To this end, the Authority would like to——

1. Describe for you its considerable, and ongoing, efforts to control and reduce the exorbitant costs of power and water to the citizens of the Islands in this very difficult economic environment, and to reduce our dependence on imported oil;
2. Outline some of the more significant impediments that have made this goal so difficult to achieve; and
3. Identify ways in which we believe the federal government, and Congress in particular, can provide assistance that is critical to our success.

As you will see shortly from my presentation, I believe that, while we have undertaken a number of powerful initiatives, and are actively exploring a broad range of alternatives to our current generating system, assistance from Washington will be critical to our ultimate success in these endeavors.

II. Our Critically Important Insular Setting

TO BEGIN, the Authority believes that it is extremely important to understand the truly unique circumstances that govern its efforts to secure clean and economical energy for the residents of the Islands, and to recognize that they are far more constraining, both economically and geographically, than anything that state-side utilities face in these endeavors.

VIWAPA is a quasi-public entity that is the sole source of public electricity and water in the Islands. Unlike most state-side systems, it is, in essence, a non-profit government-owned utility. It is run by a governing Board that is appointed by the Governor (with the advice and consent of the Legislature). That Board, both monitors its operations, and selects its Executive Director—who, with his staff and Authority employees, manages and conducts its widespread and complex operations on a daily basis.

One of WAPA's most distinguishing characteristics is that it operates in an insular environment where there is no power grid from which it can gain access to electricity generated by other utilities, or even generated by its own separate generating plants on St. Thomas and St. Croix. This island isolation imposes significant operational constraints on the Authority that are not shared by state-side facilities.

1. Among other things, this prevents the Authority from being able to purchase power generated elsewhere by other utilities or by private entities that might provide a large variety of alternative, and possibly much less expensive, sources of power.
2. It also means that, unlike state-side utilities, we must have more generating units per MW of capacity (and incur the higher operating costs that entails) in order to provide the necessary on-site backup generating capacity that is typically provided state-side by the regional power grids to which almost all other electric utilities have ready access.

Geographic Limitations

Because of our insular situation, and limited geologic resources, there are certain options available to other utilities that are simply unavailable to the Authority. For example:

1. The use of less expensive and less polluting natural gas is simply not an option, here. The same is true for coal.
2. Similarly, the absence of large areas for crop production makes reliance on biofuels impractical in the Virgin Islands
3. Hydroelectric and nuclear power generation are also not options here.
4. In addition, our insularity and remote location limits the potential use of a number of emission control options that are under active consideration elsewhere—like carbon sequestration that might be used with the combustion of cheap coal for the control of greenhouse gas emissions.
5. Water Supply—Because the Islands do not have any significant natural sources of potable water, our power generating system must also provide the power necessary for the operation of the Authority's large desalinization plants—which provide the vast majority of the drinking water for the Islands. Because of this, anything that adversely impacts the cost of electricity in the islands also increases the cost of drinking water.

Economic Constraints

It is also critically important to recognize that our limited financial resources create major obstacles to our efforts to develop and implement alternative sources of energy that are environmentally sound, less costly and might significantly reduce our dependence on imported oil.

Given that the Authority is funded 100% by its customers, through its charges for power and water, it is important to recognize the difficult economic conditions facing the residents of the Islands.

1. The Already Exorbitant Cost of Electricity—The cost of electricity to our residential customers is currently running about 38 cents per kilowatt hour (kwh). To put this in stark perspective, that is almost 400% above the U.S. national average of 10.8 cents per kilowatt hour. Due to our heavy dependence on oil for power generation, and the huge increases in the price oil in recent years (and months), our rates have increased by over 118% in just the last 6 years. While there are very legitimate concerns among U.S. mainland citizens about increasing power costs attributable to the increased price of oil, they pale in comparison to what Virgin Island residents already experience, with further increases looming on the horizon.

   We estimate that for each $1 increase in the cost of a barrel of oil, the cost to our residential customers for a kilowatt hour of power will increase by at least $0.0175.
2. Low Per Capita Income—Even though our citizens pay far more for electricity than state-side customers, they are far less able to afford these enormous prices. It often goes unrecognized that the per capita income in the Virgin Islands is about $19,000, which is over 34% % below the per capital income in the poorest of the 50 states.

3. Severely Reduced Household Consumption of Electricity—The combined impact of extremely high energy costs and limited financial resources can be seen in the dramatically low power consumption rates of our citizens, in comparison to state-side customers. Whereas state-side households consume an average of 1,000 kilowatt hours per month, the average in the Virgin Islands is a dramatic 50% lower, at only 500 kilowatt hours per month.

Unique Dependence On Oil

State-side, only a minuscule percentage of the generated electricity comes from the burning of oil. Consequently, while the recent drastic increases in the price of oil have had some impact on the state-side cost of electricity, is has been trivial in comparison to the impact in the Virgin Islands.

State-Side, the breakdown in power generation is as follows:

48.6% Coal
21.5% Natural Gas
19.4% Nuclear
6.0% Hydroelectric
3.0% Other
Only 1.6% Oil

It is particularly noteworthy that the predominant state-side sources of electric power (the first four I just listed—comprising over 95% of the total) are not now, and never will be, available in the Virgin Islands—due to the remote location and geographic features of the Islands.

In stark contrast, literally 100% of power generation in the Virgin Islands is currently derived from the combustion of oil.

Consequently, the dramatic increases in the price of oil over the past several years (and particularly in the last several months), have had a 60 times greater impact on the average cost of power generation here than in the states.

The result is that the recent increases in the price of oil have had a far more dramatic impact in the Islands than they have elsewhere, and that the adverse impacts will only be further magnified as oil prices continue to rise.

Under these circumstances, it is obvious that we have a tremendous incentive to improve the efficiency of our power generation, to encourage power conservation by our citizens, and to otherwise reduce our dependence on imported oil by identifying and developing alternative sources of energy that are both environmentally beneficial and significantly less costly.

III. VIWAPA's Broad and Aggressive Initiatives To Achieve These Important Goals

A. Improving the Efficiency of the Authority's Power Generation from Oil.

Increases in Combined Cycle Operations—Obviously, to the extent we can extract more power production from each gallon of oil we burn, the more efficient we are, and the less it will cost our customers for each kilowatt hour of electricity they purchase. To that end, the Authority has invested a great deal in the addition of waste heat recovery generators (sometimes called "HRSG's or waste heat boilers) to its facilities in recent years.

Waste heat boilers make use of the otherwise "wasted" heat that is released from the burning of oil in its combustion turbine generators, by converting it to steam which is then utilized in either the production of electricity or the production of water by our desalinization plants. This reduces the amount of oil that it would be necessary to purchase in the absence of the waste heat boilers.

This mode of efficient operation is called "combined cycle operation." We currently have 2 waste heat boilers, which operate in combined cycle mode with four of our combustion turbine generators.

Moreover, we are in the process of installing another waste heat boiler on St. Croix, and are evaluating the addition yet another one on St. Thomas.

Future Installation of More Efficient Combustion Turbines—In addition, we have also taken steps via a Condition Assessment and Power Supply Study update to identify and evaluate more efficient primary combustion turbines when replacing older units or adding to our overall generating capacity.

B. Improved Efficiency in the Use of Electricity by Our Residents

As part of its major effort to improve efficiency in the use of electricity by our citizens, the Authority has been very active for several years with its energy conservation public education program. In 2006, VIWAPA became an EPA-recognized ENERGY STAR partner in order to better leverage the available tools and resources to enlighten our residents and visitors on the importance of energy efficiency. Our vigorous efforts in this regard earned us EPA's ENERGY STAR Partner of the Year

2008 Award for Excellence in Energy Star Promotion, which was presented to the Authority at an awards ceremony on April 1 in Washington, D.C..

The goal of our energy efficiency program is to reduce energy consumption, reduce associated greenhouse gas emissions, and reduce demand on our power generation capabilities. As one example, we have taken significant steps to increase consumer awareness of the benefits of CFL lighting fixtures and other energy-efficient technologies and practices. In 2006, the Authority purchased 60,000 Energy Star qualified CFLs, and have already distributed most of them free of charge in well-publicized educational events to our individual customers and a broad array of public institutions. Our extensive educational outreach program has included CFL distribution at our offices, at over 40 other convenient locations via "CFL Caravans," and at heavily populated community events. Ads and other educational messages in local print media, on local radio and tv stations, in our own newsletter and in presentations to our employees, community groups, businesses, government agencies, churches and schools have also helped to convey the energy-efficiency message to our citizens, and to increase consumer awareness of the link between energy production and greenhouse gas emissions.

IV. Aggressive Evaluations of Potential Alternative Sources of Energy and Changes in the Authority's System Infrastructure That Could Reduce Power Costs and Dependence on Oil

The Recent R.W. Beck Power Supply Study

On February 28, the R.W. Beck power industry consulting firm, under a contract with the Authority, and in collaboration with the Public Service Commission, completed a major update of VIWAPA's plans for power generation expansion. The overarching objective of its Power Supply Study was to provide an understanding of near- and long-term power supply options that might reduce the Authority's cost of electric power production and simultaneously reduce its dependence on fuel oil. It provided a detailed assessment of the potential economic, geographic and environmental compliance feasibility of a broad array of potential technologies, including:

- wind powered resources;
- efficiency improvements;
- waste to energy options;
- utilization of slow-speed diesels;
- increased implementation of combined cycle generation;
- the use of imported Liquified Natural Gas (LNG);
- the direct combustion of petroleum coke generated as a by-product of the Hovensa refinery on St. Croix;
- the combustion of methanol generated locally from the gasification of petroleum coke;
- Ocean Thermal Energy Conversion (OTEC); and
- the interconnection of the St. Thomas and St. Croix electric systems via a high-voltage submarine direct current transmission line.

B. The Resulting RFP Process

Based on the analysis and recommendations in the Beck Power Supply Study, the Authority moved aggressively to develop and publish a Request For Proposals, that solicited proposals from well-qualified companies for the implementation of one or more of the non-oil based alternatives that were identified as potentially viable in the Beck Study. Bidding was open on all such generation technologies, and proposals were invited that would displace as much of our current source of power as possible, under power purchase agreements that could last as long as 20 years.

The RFP was communicated to relevant trade associations and was advertized in a number of trade journals. Among other things, it specifically referenced interest in power generation based on wind, solar, ocean thermal, biomass, tidal, wave geothermal, and petroleum coke technologies, and suggested that alternatives might include the submarine cable interconnection of our plants on St. Thomas and St. Croix, and LNG and methanol fuel options, most of which were recommended in the Territorial Energy Assessment Report.

Twenty firms submitted pre-qualification forms, and were evaluated by a technical committee consisting of a representative from Boston Pacific Company, independent expert technology and financial consultants, and the Authority's Chief Operating Officer, Mr. Gregory Rhymer. In order to pre-qualify, bidders had to demonstrate experience designing, constructing and operating generating facilities similar to those they would be proposing. They had to demonstrate the ability to obtain the financing for their proposals, and they had to demonstrate that their non-oil based solutions are commercially feasible. Eighteen bidders were pre-qualified by

the technical committee, and we are anxiously awaiting the final proposals, which are due on May 1.

Although we have not yet received the final detailed proposals under the RFP, we know from the R.W. Beck analysis, and the other information we have received to-date, that all of the potential initiatives are extremely expensive, and will, at a minimum, severely strain the Authority's limited resources (and the resources of our citizens). In some cases, it appears almost certain that the Authority will not be able to pursue promising approaches without significant financial help—either because it has inadequate resources to invest, or because the risks are just too great for it to assume on its own. For some of the more promising alternatives, it appears all but certain that we will not be able to pursue them without significant assistance from the federal government.

V. Federal Assistance Is Critical

A. Financial Assistance

Due to the general economic conditions in the Islands, the high cost of maintaining our generators and distribution systems in our remote locations, and the already exorbitant cost of energy shouldered by our citizens, the Authority has extremely limited resources to devote to the exploration and development of viable alternatives to oil. Our economic plight is exemplified by the fact that our largest customer (the Government of the Virgin Islands) has had chronic difficulties over the years in making timely payments for the power it must consume on behalf of our citizens. Consequently, we are in urgent need of financial assistance from Washington.

It is our understanding that in the Energy Security Act of 2005, the Department of the Interior was obligated to fund power generation initiatives in the insular territories of the type that VIWAPA is currently trying to pursue. We understand that while Congress appropriated money for that program, and Interior made promises that it would be distributed, none of it was ever released. Congress obviously recognized that financial assistance for this sort of program was necessary and appropriate. Consequently, we would urgently request any assistance you could provide in helping us to secure funding under that legislation, or in securing future appropriations under new legislation that would help to finance these important initiatives.

We would point to our potential development of an undersea connection between St. Thomas and St. Croix as a good example of a project that might be particularly appropriate for federal financial assistance. The Beck study indicated that such a connection could significantly reduce the redundancy in our systems due to the current need for substantial on-site back-up capacity on both islands, and would enable both of our facilities to install larger, more efficient, generators, and to operate them more frequently at their most efficient load levels. It might also serve as a pilot demonstration for submerged connections that could be applied elsewhere in the Insular Areas.

B. Other Legislative Assistance- Global Warming Legislation

In the Clean Air Act Amendments of 1990, Congress and EPA recognized (in the adoption of special provisions in what is now § 325 of the Act) that the unique geographical and economic conditions in the Virgin Islands and other territories could make it unreasonable to require them to comply with all of the emission control requirements that are applicable state-side. Under that provision, EPA has exercised its authority to grant relief on several occasions.

Both houses of Congress are currently considering legislation that is likely to establish major requirements for the control and reduction of emissions of greenhouse gases like carbon dioxide. Some of those proposals would include requirements that emitters of carbon dioxide either substantially reduce their emissions (through increased use of alternative sources of power), or purchase costly emission reduction credits. While we do not believe that it is intended that requirements of this type be applied to small territorial facilities like those of the Authority, we are concerned that language might ultimately be adopted that could inadvertently sweep the Authority into such a program. We hope that our presentation helps you to understand why that should be avoided at all costs.

Due to the extremely high electricity costs borne by our citizens, there is already far more than enough financial incentive than is necessary for the Authority to reduce its greenhouse gas emissions as much as it can. More importantly, due to its remote locations and limited economic and geographic resources, the Authority simply does not have the broad array of options for reducing greenhouse emissions that is available to state-side utilities. And, of course, to the extent it is not able to reduce its greenhouse gas emissions, neither the Authority, nor the citizens of the Virgin Islands (who would have to pay for any emission credits through increased util-

ity bills), would have the financial resources to purchase any credits that might be required. Under these circumstances, and given the extremely small contribution that the territories make to greenhouse emissions generally, we would solicit your assistance in making sure that federal greenhouse gas legislation does not require the Authority to purchase emission credits that the citizens of the Virgin Islands will never be able to afford.

CONCLUSION

In conclusion, I want to thank the subcommittees once again for allowing us the opportunity to make this presentation. I hope that I have helped to increase your understanding of the very unique circumstances that constrain our efforts to reduce our dependence on oil, to reduce our exorbitant costs for electric power generation, and to develop alternative sources of energy in the Virgin Islands. I also hope that you appreciate how hard we have been working to achieve those goals, and how much we are in need of federal assistance to supplement the extremely limited resources we are able to devote to this critically important effort.

Mrs. CHRISTENSEN. The Chair now recognizes Mr. Cole to testify on behalf of PSC.

STATEMENT OF DONALD COLE, VICE CHAIR, PUBLIC SERVICES COMMISSION

Mr. COLE. Thank you, Madame Chair Delegate Christensen, members of the Subcommittees on Insular Affairs, Energy and Mineral Resources and the listening audience. On behalf of the Public Services Commission of the Virgin Islands, I thank you on your attention to these important issues affecting the residents and the economy of the United States Virgin Islands. The Public Services Commission is the U.S. Virgin Islands' regulatory authority with jurisdiction over all public utilities, including electricity, water, waste management, and ferry transportation. I'm the Vice Chair of the Commission, and I have members of my Commission and my legal team sitting in the audience.

We have submitted written testimony, Madame Chair, which we kept brief. I have brought additional copies of that testimony for your convenience. In keeping with your request, I will only summarize our testimony in my comments.

The Public Services Commission is charged with balancing the interest of the ratepayers with those of the regulated utilities. For the past five years the Virgin Islands' dependence on fuel oil for transportation and electrical energy and even for water production has imbalanced the scale. The only way these utilities survived has been to impose unending increases in fuel on the ratepayers. The burden has become unsustainable, and it does not yet appear to have peaked. Our residents are paying 34 cents per kilowatt hour and 40 cents appear to be on the near horizon. Compare those rates with mainland rates from 7 to 15 cents per kilowatt hour, and the extraordinary burden is obvious. The Water and Power Authority is strapped for cash even at these rates.

As the maintenance suffers, the aging infrastructure becomes less efficient, and the downward spiral worsens. Meanwhile, our annual fuel oil bill at the Authority would be more than $260 million on today's oil prices just for electricity and water. And that burden is imposed on the population of less than 120,000 people.

Families, the poor, and elderly simply cannot afford these continuing extraordinary costs, and the very sustenance of life is in danger. Conservation can only help reduce costs so far, and Virgin

Islanders already consume only about half of the national average in electricity. Rates must be reduced to maintain affordability.

The burden goes beyond individual suffering. Commercial ratepayers are already paying even higher rates. Studies done elsewhere, such as in Hawaii, indicate the damaging economic effects of such high rates—extracting money that could be reinvested and discouraging new investment.

The Commission has worked with WAPA over the past four years to ensure that the existing infrastructure is examined and new options evaluated. An updated studies on those issues is on the way and it's due within weeks.

The Virgin Islands are well placed to replace much of its existing infrastructure with more efficient and greener technology. We are well placed to take advantage of wind and solar power, and it may even be possible to connect with other islands where geothermal resources will be present.

We now must move from studies to planning and implementation of changes. WAPA currently has an RFP for new power, but that is only the start. We must move rapidly in a manner that can afford both short-term and long-term relief to the ratepayers.

In doing so, we are seeking to fulfill the mandates of the 2005 Energy Policy Act, and the Energy Independence and Security Act of 2007. We will be seeking assistance in reducing our reliance on oil, as all of our oil is imported, and moving toward power that is both economical and environmentally sensitive. To do so, we will need your assistance, Madame Chair, and the Congress.

The ratepayers are already incredibly burdened, which financing will be critical to get the technologies in place. We will be seeking assistance on the both of these acts, and we require new appropriations. The economy of the Virgin Islands is at stake, and we will continue to seek your assistance in moving these islands forward to a clean and efficient, affordable future.

Thank you very much, Madame Chair.

Mrs. CHRISTENSEN. Thank you, Mr. Cole.

[The prepared statement of Mr. Cole follows:]

Statement of Donald G. Cole, Vice Chair,
Virgin Islands Public Services Commission

Dear Delegate Christensen, members of the Subcommittees on Insular Affairs and Energy and Mineral Resources, and the Listening Public:

The Public Services Commission of the Virgin Islands thanks you for your attention to these important issues affecting the residents and the economy of the United States Virgin Islands. The Public Services Commission is the U.S. Virgin Islands' regulatory authority with jurisdiction over all public utilities, including electricity, water, waste management, and ferry transportation.

The Virgin Islands are experiencing a serious energy crisis. It is a crisis not of our making, but is the result of federal government monetary and fiscal policies, international events, and other factors, far beyond our control. Unlike the mainland, there are no indigenous sources of oil, coal or natural gas energy available for use here in the Virgin Islands. Neither are there large rivers which can be tapped for hydro-electric power. And, nuclear energy, while in wide-spread use on the mainland, is cost prohibitive given our size and isolation. Accordingly, we are today totally dependent on imported oil. Because oil had been relatively stable and economical until 2003, the Virgin Islands had come to rely on this resource, not only for transportation, but for electrical generation and water production have—all have been powered by fuel oil here in the Virgin Islands. Oil prices have increased fivefold, from $22/bbl to $110/bbl, in just five years. The days of cheap oil appear to be irretrievably over, and changes must occur and quickly.

The Commission has for several years worked with the Virgin Islands Water and Power Authority ("WAPA") to diversify its energy sources and to increase its use of renewable energy. Today, WAPA is in the final stages of completing studies on its current power generation and water production facilities, its options for replacement and/or rehabilitation of existing equipment, and the preparation of a long-term plan. That process was initiated in 2004 and completion is anticipated in a matter of weeks. The first study, the Condition Assessment Study, was conducted based on $33/bbl oil; however, oil continued its climb throughout the study period and by the time the study was finished oil was above $50/bbl. As everyone is well aware, that increase has only continued, and oil today is above $110. WAPA has conducted an initial review of the 2005 study (called a "Fatal Flaw Analysis"), reviewing alternatives for new power generation, and is presently working to complete the updated Condition Assessment Study. We are happy to provide you with any of these documents.

At the present time, Virgin Islands residents pay nearly 34 cents/kWh for power—to our knowledge, the highest rate in the nation. The majority of consumer's cost is fuel oil, totaling more than 25 cents or approximately 74% of the residential electric rate. It is important to note that this rate is based on $92/bbl fuel—so we already know that the rate will continue to climb even further. Moreover, as the Virgin Islands do not have substantial surface or ground water, the majority of our water supplies are through rooftop catchment and desalination. Desalination is an energy intensive process, and the Virgin Islands currently rely on an older distillation technology that requires steam for the desalination process. As water is the very essence of life, its cost is a matter of grave concern to the public welfare, and one to which the Commission is paying acute attention.

Currently, the Virgin Islands spend more than $200,000,000 per year just for fuel oil for its electricity and water. This staggering cost is compounded by several additional factors which include the relatively small size of the Islands' population, at just over 110,000 and the low per capita income and higher cost of goods and services to Virgin Islands residents. This combination of factors creates a burden that is simply not sustainable. On average, Virgin Island residents consume less than half the electricity of mainland residents, yet an average residential bill now exceeds $170 per month. To put this into further perspective, mainland power costs for residential consumers range from 6¢/kWh to 15¢/kWh—comparatively, Virgin Island consumers pay more than twice that amount. Since the Virgin Islands per capita income is well below the U.S. average, the extraordinary cost of energy imposes a tremendous burden that simply cannot be continued for the long term. Additionally, the Commission finds these costs especially worrisome for those members of our community who are most affected by these rates, particularly the high level of families with children living in poverty and the numbers of seniors for whom these costs may present an insurmountable burden.

In the Department of Energy's Memorandum of Understanding with the State of Hawaii on the Clean Energy Partnership, the parties note the enormous burden placed on the local economy by the increases in world oil prices. Hawaii is estimated to suffer a 0.5 percent reduction in GDP for every 10 percent increase in the price of oil—and given the greater percentage reliance on oil here, there is no reason to think that the Virgin Islands suffer less.

In addition to relying solely on oil-fired generation for the generation of electricity and the production of water, the Virgin Islands also suffer from an aged and outdated infrastructure, with much of the Islands' electrical generation capacity being twenty-five years or more old. The Commission views this both negatively and positively. While antiquated plants presents a near term problem, in that our generation facilities are not as efficient as newer equipment, it also means that we are in an excellent position to develop a modern, environmentally sensitive, and efficient electrical generation and water production plan for the future.

While the Territory is currently dependent on oil-fired processes, the Virgin Islands is ripe for receiving and implementing renewable and environmentally sensitive power production. However, there are additional challenges that must be taken into consideration in addition to the overall need and desire for moving to alternative energy sources. For example, while these Islands are located within the trade winds and can produce steady wind power much of the year this benefit must be weighed against the potential conflict with the Islands' major source of revenue which is tourism. St. Thomas and St. John have little available land that is not already occupied, and are tourist based economies. There is a justifiable concern about the visual impact and potential effects on tourism that are associated with wind energy. Additionally, on St. Croix some of the prime sites for wind generation are also highly visible and in environmentally sensitive areas. Moreover, our location within the tropics also makes these islands vulnerable to hurricanes and tropical

storms, and the relative isolation of the Virgin Islands creates additional concerns regarding over-reliance on wind power. Performance guarantees and storm insurance would make wind power a substantially more attractive option for investment.

Solar power would also appear to be a logical addition to the power generation options in the Virgin Islands but, until very recently, it has been cost prohibitive, at least as to photovoltaic power. Solar thermal, which has been successfully used in the desert Southwest also carries some concerns about vulnerability to storm damage, and land area requirements. Because it is so reliably sunny, and well within the tropics, the Virgin Islands should be a prime candidate for any demonstration project for large scale distributed solar project.

Only Hawaii and the Pacific Islands can offer anything comparable to the Virgin Islands' ability to reach both warm tropical waters and cold deep water; in fact, our surface waters are substantially warmer than those surrounding Hawaii, resulting in an even greater temperature differential. But ocean thermal technology does not appear to have reached commercially viable status, and is unlikely to do so without further research and support. The Virgin Islands is the best location for a demonstration Ocean Thermal Energy (OTEC) project in the Atlantic basin.

The Virgin Islands also have a problem addressing waste disposal, which is not surprising given our limited land and many visitors. Waste-to-energy would seem to be a logical response for a limited portion of our energy needs, and this would assist in the resolution of another environmental issue for the islands.

Finally, the Virgin Islands are home to the largest petroleum refinery in the Caribbean, the HOVENSA facility on St. Croix. The presence of this refinery provides a steady supply of petroleum coke, which is a low cost fuel, but with a very high carbon footprint. The Virgin Islands should be a prime candidate for a demonstration pet coke plant with carbon recapture.

Concluding Remarks:

In order to make progress and overcome the dire energy needs of the Territory, the Virgin Islands could benefit tremendously from federal assistance with and guarantees for long term debt. The Virgin Islands must replace aging plants that are cost effective to retire. This will have the added benefit of retiring aging plants with new and greener technologies that may make carbon credits available.

In addition, the Virgin Islands may require waivers from certain standards—for example, diesel generators may be economically and environmentally sound as back up generators in complement with solar and wind power, but are difficult to permit within the United States. Such units are however, vastly more fuel efficient than the current generators within the Virgin Islands.

The Virgin Islands could also benefit from assistance in making our current system more efficient as we transition to new technologies.

On behalf of the Public Services Commission, I thank you for creating this important forum, wherein the dialogue on the challenges and solutions of our present energy crisis could be discussed. It is our greatest hope that the fruits of this discussion will mean a true transformation for the territory, its infrastructure, and the people of the Virgin Islands.

Thank you,

Mrs. CHRISTENSEN. The Chair now recognizes the final panelist, Mr. Miller, to testify on behalf of the St. Croix Alliance to Protect Utility Ratepayers.

STATEMENT OF DARRYL MILLER, PRESIDENT, ST. CROIX ALLIANCE TO PROTECT UTILITY RATEPAYERS

Mr. MILLER. Good morning, Chairman Costa, Chairwoman and Delegate Donna M. Christensen and other distinguished members of the Committee on Natural Resources Subcommittee on Insular Affairs and Subcommittee on Energy and Mineral Resources.

On behalf of the hard working ratepayers of the Virgin Islands, I am privileged to appear before you to speak as the voice of the ratepayers and to express in the most urgent manner possible, the need for immediate and tangible solutions to our extremely high and inefficient power production and distribution system in the Territory.

The ratepayers of the Territory look forward with great anticipation toward the results of this hearing in an effort to alleviate the burden placed on us daily by the inefficiency of our Water and Power Authority.

The extremely high cost of water and power production has exponentially increased our cost of living. It greatly affects every single commodity we purchase and consume on a daily basis. As a result, an economic burden has been placed squarely on the backs of each and every ratepayer territory wide.

On August 31, 2005, I testified before the 26th Legislature's Committee of the Whole on this very same relevant and critical issue at hand today—developing and implementing immediate solutions to the problem of an inefficient and extremely high electric and water production system in the Territory. Needless to say, three years into the future, the ratepayers of the Territory still face the exact same dilemma of 2005, with additional increases in both water and power costs, with no solutions in sight from the Governor, the Legislature, the Public Services Commission, and the Water and Power Authority.

To date there is absolutely no definite or clearly intelligible sense of urgency to this problem. As a result, ratepayers implore you, the oversight committee on Insular Affairs, not to follow suit in inaction, but to posthaste use all your resources and power to mitigate corrective solutions to our outdated water and power production and distribution system.

Corrective solutions must result in an implemented dynamic energy strategy that will help us meet our energy needs based on highly informed decisions about how our energy is purchased, consumed, and managed. This requires a robust energy management system with data analysis and reporting capabilities to proactively manage energy production, consumption, and cost.

No longer should it be allowed for our Water and Power Authority, with the assistance of the Public Services Commission, to pass the cost of inefficiency on to the ratepayers of the Territory without accountability. Business intelligence must replace party politics if corrective measures are to be implemented.

In the past, our Territory has been burdened by elected officials who lack competence in understanding the modernization of energy production and distribution. These officials would then appoint board members to the Water and Power Authority who similarly lack the knowledge of modernizing energy production and distribution. This has resulted in limited knowledge of how to wisely invest, plan and forecast in the most effective and cost-effective energy efficiency portfolios for overcoming common marketplace barriers to energy efficiency. The solution is business intelligence. Business intelligence is the most effective way to continue successfully negating change. This translates into energy efficiency.

Utilities, states, and others across the United States have decades of experience in delivering energy efficiency to their customers. Thus, it is the duty of this oversight committee of Insular Affairs to work with our government and Legislature to enact policies and programs to capture the benefits of energy efficiency and address underinvestment in energy efficiency. This can only be done by providing the funding necessary to deliver these programs,

and by examining policies governing our Water and Power Authority to ensure that these policies facilitate, not impede, cost-effective programs for energy efficiency.

Our power production infrastructure is overburdened and outdated. Overburdened and outdated systems significantly limit the availability of low-cost electricity, and our sole reliance on fossil fuel raises energy prices and potentially compromises energy system reliability, resulting in frequent outages with no compensation for damaged goods to the ratepayers.

The ratepayers of the U.S. Virgin Islands hereby respectfully request the Committee on Insular Affairs to take immediate visible action to establish a timeline of implementation and completion to modernize the Water and Power Authority; to establish a team of competent individuals to recover, analyze, and implement existing studies already done by both the Public Services Commission and the Water and Power Authority with taxpayers' money that have clearly expressed solutions and corrective measures to our current energy crisis.

In conclusion, the past four years has resulted in nothing but higher utility cost to the ratepayers of the territory with no visible, tangible signs of sense of urgency to mitigate the problems of high energy cost by our elected officials. Charting the future requires complete understanding of the precise problem of energy production and distribution, then implementing solutions unique to the Virgin Islands. It is said that the solution to our high energy cost and inefficiency would take at least two years. Chairman Costa, ratepayers cannot simply afford two more years without relief.

The St. Croix Alliance to Protect Utility Ratepayers would like to thank you, Chairman Jim Costa and Chairman and Delegate Donna M. Christensen, for this opportunity to appear before the respected Committee on Insular Affairs and on the Subcommittee on Energy and Mineral Resources. Thank you for your attention and time.

Mrs. CHRISTENSEN. Thank you, Mr. Miller.

[The prepared statement of Mr. Miller follows:]

Statement of Darryl E. Miller on behalf of the Ratepayers of the U.S. Virgin Islands and the St. Croix Alliance to Protect Utility Ratepayers—SCAPUR

Good Morning, Chairman Nick J. Rahall, Chairwoman and Delegate Donna M. Christensen, and other distinguished members of the Committee on Natural Resources Subcommittee on Insular Affairs and Subcommittee on Energy and Mineral Resources.

On behalf of the hard working Ratepayers of Virgin Islands, I am privileged to appear before you to speak as the voice of the Ratepayers, and to express in the most urgent manner possible, the need for immediate and tangible solutions to our extremely high and inefficient power production and distribution system in the Territory.

The Ratepayers of the Territory look forward with great anticipation, towards the results of this hearing in an effort to alleviate the burden placed on us daily by the inefficiency of our Water and Power authority.

Members of the Committee on Natural Resources Subcommittee on Insular Affairs and Subcommittee on Energy and Mineral Resources, let me inform you if you do not already know, we the Ratepayers of the U.S. Virgin Islands are currently paying the highest cost per kilowatt for electricity under the U.S. flag, coupled with the additional high cost of water production.

The extremely high cost of water and power production has exponentially increased our cost of living here in the Territory, as it pertains to every single com-

modity we consume on a daily basis, resulting in nothing short of a burden on the backs of each and every Ratepayer territory wide.

Members of the Committee and Subcommittee, on August 31, 2005, I testified before the 26th Legislature's Committee of the Whole, as it pertained to the very same relevant and critical issue at hand today, developing and implementing immediate solutions to the problem of an inefficient and extremely high electric and water production system in the Territory. Needless to say, three years into the future, the Ratepayers of the Territory still face the exact same dilemma of 2005, with additional increases in both water and power costs, with no solutions in sight from the Governor, the Legislature, the Public Services Commission, and the Water and Power Authority.

To date, there is absolutely no definite or clearly intelligible "sense of urgency" to this problem, and as a result, the Ratepayers of the Territory implore you the Oversight Committee on Insular Affairs, not to follow suit in inaction, but to post haste use all your resources and power to mitigate corrective solutions to our outdated water and power production and distribution system.

Corrective solutions must result in an implemented dynamic energy strategy that will help us meet our energy needs based on highly informed decisions about how our energy is purchased, consumed and managed. This requires a robust energy management system with data analysis and reporting capabilities to proactively manage energy production, consumption, and cost.

An investment in the latest computer software the energy industry has to offer to track energy use, would enable our Water and Power Authority the ability to build a comprehensive energy database, over a period of years, to collect and analyze historical utility data to proactively manage energy production, consumption, and cost. "The historical energy data also play a pivotal role in performing a host of energy management operations; particularly load forecasting for procurement purposes." The result is the ability to forecast daily, weekly, monthly, and yearly energy needs, as well as potential peak demand periods and associated energy costs, increasing efficiency.

No longer should it be allowed for our Water and Power Authority, with the assistance of the Public Services Commission, to pass the cost of inefficiency onto the Ratepayers of the Territory without accountability. "Business Intelligence" must replace party politics if corrective measures are to be implemented.

In the past, our Territory has been burdened by elected officials who lack competence in understanding the modernization of energy production and distribution. These officials would then appoint board members to the Water and Power Authority who similarly lack the knowledge of modernizing energy production and distribution. This would result in limited knowledge of how to wisely investment, plan, and forecast in the most effective and cost-effective energy efficiency program portfolios and programs for overcoming common marketplace barriers to energy efficiency. The solution is "Business intelligence".

> "Business intelligence is a combination of technology and management practices that prioritizes collecting, providing access to, and analyzing large amounts of unstructured data in ways that help people make better decisions."

"The key to effective energy intelligence is transforming the large amount of energy and enterprise data into information and knowledge that can help achieve specific business objectives, such as:

- Avoiding surprises in energy costs and management
- Recovering costs through end user rebilling
- Reducing costs through identifying inefficiencies
- Reducing costs through demand response
- Reducing price risk through hedging and sourcing strategies
- Creating a culture of conservation through increased energy accountability."

"Business intelligence is the most effective way to keep successfully navigating change", this translates into energy efficiency.

"Recognizing energy efficiency as a high-priority energy resource is an important step in efforts to capture the benefits it offers and lower the overall cost of energy services to ratepayers."

Utilities, states, and others across the United States have decades of experience in delivering energy efficiency to their customers. Thus, it is the duty of this oversight committee of Insular Affairs, to work with our Government and Legislature to enact policies and programs to capture the benefits of energy efficiency and address underinvestment in energy efficiency. This can only be done by providing the funding necessary to deliver these programs, and by examining policies governing our Water and Power Authority to ensure that these policies facilitate, not impede, cost-effective programs for energy efficiency.

Our power production infrastructure is overburdened and outdated. Overburdened and outdated systems significantly limit the availability of low-cost electricity; and our sole reliance on fossil fuel raises energy prices and potentially compromises energy system reliability, resulting in frequent outages with no compensation for damaged goods.

The Ratepayers of the U.S. Virgin Islands hereby respectfully request the Committee on Natural Resources Subcommittee on Insular Affairs and Subcommittee on Energy and Mineral Resources take immediate and visible action and establish a timeline of implementation and completion in order to:

- Modernize the Water and Power Authority; it's water/electrical energy production and distribution, and other assets, to drastically improve overall water/electrical systems efficiency
- Establish a team of competent individuals to recover, analyze, and implement existing studies already done (by both PSC and WAPA) with taxpayers money that have clearly expressed solutions and corrective measures to our current energy crisis
- Establish an Energy Management Division with a robust energy management system and a comprehensive energy database
- Develop a comprehensive and dynamic energy strategy/plan that establishes how energy from 2008 and in the future is Purchased, Consumed, and Managed in the U.S. Virgin Islands
- Manage WAPA's electrical and water production and distribution by improving meter reading efficiencies and implementing automatic meter reading technology and data collection
- Manage outage response, by implementing outage detection technologies to reduce the frequency of outages, improve response and restore times for outages
- Subsidize the Water and Power Authority for the expressed purpose of eliminating substantial rate increases
- Audit the Water and Power Authority to correctly assess financial inefficiencies and determine the true financial picture. Apply "business intelligence" to control our energy costs
- Once and for all, direct the Water and Power Authority to negotiate the RFP to secure Alternative Energy Solution, in accordance with the Public Utility Regulatory Policies Act, no more stalled talks
- Allocate money that would liquidate outstanding Government Water and Power Authority bills owed, set clearly defined and stable energy budgets, and mandate that government agencies pay their utility bills annually
- Develop investment strategies and planning that would convert government buildings into "green buildings" that utilizes solar technology
- Place technologically competent people on the boards of the Water and Power Authority and the Public Services Commission
- Establish and mitigate safe, reliable, efficient, and affordable services and rates for the ratepayers of the U.S. Virgin Islands to reduce consumption and cost
- Restore Ratepayers faith in the oversight of the Water and Power Authority, and all other utilities of the Territory, that our trust and tax dollars are being well spent
- Establish the National Action Plan for Energy Efficiency Recommendations and Options in the U.S. Virgin Islands (see figure ES-2)

In conclusion, the past four years has resulted in nothing but higher utility cost to the Ratepayers of the Territory, with no visible or tangible "sense of urgency" to mitigate the problem of high energy cost, by our elected officials. The St. Croix Alliance to Protect Utility Ratepayers would like to thank you Chairman, Nick J. Rahall, and Chairwoman, and Delegate, Donna M. Christensen, for this opportunity to appear before the respected, Committee on Natural Resources Subcommittee on Insular Affairs and Subcommittee on Energy and Mineral Resources.

Thank you for your attention and time.

Figure ES-2.

National Action Plan for Energy Efficiency Recommendations & Options

Recognize energy efficiency as a high priority energy resource.

Options to consider:

- Establishing policies to establish energy efficiency as a priority resource.
- Integrating energy efficiency into utility, state, and regional resource planning activities.

- Quantifying and establishing the value of energy efficiency, considering energy savings, capacity savings, and environmental benefits, as appropriate.

Make a strong, long-term commitment to implement cost-effective energy efficiency as a resource.

Options to consider:

- Establishing appropriate cost-effectiveness tests for a portfolio of programs to reflect the long-term benefits of energy efficiency.
- Establishing the potential for long-term, cost-effective energy efficiency savings by customer class through proven programs, innovative initiatives, and cutting-edge technologies.
- Establishing funding requirements for delivering long-term, cost-effective energy efficiency.
- Developing long-term energy saving goals as part of energy planning processes.
- Developing robust measurement and verification (M&V) procedures.
- Designating which organization(s) is responsible for administering the energy efficiency programs.
- Providing for frequent updates to energy resource plans to accommodate new information and technology.

Broadly communicate the benefits of and opportunities for energy efficiency.

Options to consider:

- Establishing and educating stakeholders on the business case for energy efficiency at the state, utility, and other appropriate level addressing relevant customer, utility, and societal perspectives.
- Communicating the role of energy efficiency in lowering customer energy bills and system costs and risks over time.
- Communicating the role of building codes, appliance standards, and tax and other incentives.

Provide sufficient, timely, and stable program funding to deliver energy efficiency where cost-effective.

Options to consider:

- Deciding on and committing to a consistent way for program administrators to recover energy efficiency costs in a timely manner.
- Establishing funding mechanisms for energy efficiency from among the available options such as revenue requirement or resource procurement funding, system benefits charges, rate-basing, shared-savings, incentive mechanisms, etc.
- Establishing funding for multi-year periods.

Modify policies to align utility incentives with the delivery of cost-effective energy efficiency and modify ratemaking practices to promote energy efficiency investments.

Options to consider:

- Addressing the typical utility throughput incentive and removing other regulatory and management disincentives to energy efficiency.
- Providing utility incentives for the successful management of energy efficiency programs.
- Including the impact on adoption of energy efficiency as one of the goals of retail rate design, recognizing that it must be balanced with other objectives.
- Eliminating rate designs that discourage energy efficiency by not increasing costs as customers consume more electricity or natural gas.
- Adopting rate designs that encourage energy efficiency by considering the unique characteristics of each customer class and including partnering tariffs with other mechanisms that encourage energy efficiency, such as benefit sharing programs and on-bill financing.

Sources:

Itron White Paper, Business Intelligence for Enterprise Energy Management
National Action Plan for Energy Efficiency, July 2006

Mrs. CHRISTENSEN. I'd like to thank all of the panelists. We are also under a five minute limit for questions, and I am going to begin my questions, and I would ask for as concise responses as

possible so that I can get at least three questions in my five minutes.

One of the reasons of course we scheduled this hearing is to establish a record which would serve as a basis for my being able to request assistance, and all of you have spoken to that.

Mr. Smith, there are a number of programs out there to assist, as you mentioned, but some are being funded, some are not, some we are eligible for, some we are not eligible for. What, in your opinion, would be the most useful thing the Federal government could do—increase funding to state energy programs or, under Sections 251 or 252 of Energy Policy, a partnership similar to Hawaii, the financing program? Maybe you could start with your recommendations as to the grants that are available that you might have some recommendations on.

Mr. SMITH. Most definitely, Madame Chairwoman Christensen, we can definitely see an increase in the overall SEP formula. I urge Members of Congress to look at the formula for the Territory and really consider updating them. This formula has not been updated for over 20 years.

When it comes to special solicitation, the territories are usually inadvertently discriminated against because many of the program priorities of the United States mainland are not the same for the insular areas. So, therefore, I suggest having a solicitation that let the territories compete among each other, if it must be competitive grants. For instance, there is a Solar America Initiative. These initiatives start where the population must be 250,000. From the very start, we can't qualify.

Our programs in the Territory as it relates to solar has been very successful. The report—as most people referenced—said that the Virgin Islands is in the best position to move these programs. Therefore, I think a program such as a Solar America Initiative should start with the territories and funding adequately should be available.

Mrs. CHRISTENSEN. Thank you.

Senator Richards, you have already heard about the Hawaiian Clean Energy Initiative—mentioned by Chairman Costa—and it is expected that the State of Hawaii would have to take some legislative and regulatory actions in order to make them more attractive to renewable energy investors. If the Department of Energy were to enter into a similar partnership maybe uniquely tailored to Virgin Islands, would you be willing to consider the legislative and regulatory changes that might be recommended?

Mr. RICHARDS. Thank you, Madame Chair. I think at this particular point in time, at least as a member of the body, it would be premature for me to respond to that without knowing what the contents and the commitment is that would be required in the legislation.

Mrs. CHRISTENSEN. But I'm sure that you—if it meant helping the Territory, that the Legislature would—and I think you have already started to address some issues by I think—did I read that you are providing some funding to seniors and low income.

Mr. RICHARDS. Yes, we have. I can simply respond to you that if in the majority of the members mind that it is going to help the

energy crisis, I suspect that would be something the Legislature can address.

Mrs. CHRISTENSEN. Thank you for your answer. I think they are currently reviewing that in Hawaii, and we wouldn't expect you to give a blanket OK.

Mr. Hodge, question to you. We've heard you make reference to inefficiencies at WAPA. Could you tell the Subcommittees a little about what WAPA has been doing to reduce those inefficiencies.

Mr. HODGE. Yes, Madame Chair. Currently WAPA is embarked on efforts to achieve the efficiency, not only on the generation but on the distribution side and on the metering throughout the broad spectrum of the Authority. We invested in some waste heat boilers on St. Croix. The new one is being built on St. Thomas. We are refurbishing the one that was off line for the last several months. The one on St. Thomas alone, we are able to fast track the repairs of it and it will be coming back on line somewhere in late June, early July, which is about six months ahead of schedule. That itself allows for a combined cycle effort, which means it will be able to power a third unit by the exhaust from this waste heat boiler, which is a unit being spun without burning oil.

It's about 1.2 to 1.4 million dollars of savings when that unit is running, and by it coming on line in July, June, six months ahead of schedule, you are looking at 14 to 18 million dollars of savings in oil purchases. The one that is being built in St. Croix is also the same, and that's based on today's prices of oil.

So, you know, the infrastructure needs to be maintained. There is a cash flow problem. The government has indicated that they are intent on satisfying their debt to the Authority, and with that we will be able to maintain the equipment and dispatch the units in the most efficient manner.

Mrs. CHRISTENSEN. Thank you.

My time is up. I will now recognize Mr. Costa for his questions.

Mr. COSTA. Thank you very much, Madame Chairwoman. And thank all the witnesses for your testimony. You obviously caused myself and I think members of the committee to ask a lot of questions, but time is limited.

Mr. Smith, why do you believe that there was—the insular areas were left out of the weatherization program?

Mr. SMITH. As a colleague of mine said, it seems to be some time of folklore. They said in the initial program when the territories were asked, we declined. I checked every Energy Director prior to me, and no one has such recollection.

Mr. COSTA. Let's try to follow up on that. The comprehensive energy strategy that has been discussed with the Department of Energy, I was looking here in our handouts, and there seems to be a plan that's at least been partially focused on. And I would like to get a better idea of where you are on that effort that talks about a staged approach, the work plan; it talks about project funding and planning, assessing the future U.S. VI energy situation. It goes on and it has six tasks. It seems to be a logical way in which to pursue this effort. Where would you describe you are in this process?

Mr. SMITH. If my recollection serves me right, I think project funding was one of the first tasks in the work plan. And we have

had some meetings. We have met with all the stakeholders that we have identified to include HOVENSA, the Water and Power Authority, we have met with the Alliance, Mr. Darryl Miller's group, we have met with the St. Croix Environmental Association, and we have taken their recommendations of what they can see as to be very profitable and viable within an energy strategic plan. We have catalogued those suggestions, and we kind of run out of money. And two days ago we did get an award from the Department of the Interior to continue that study. So we are moving——

Mr. COSTA. I think that plan is important in terms of helping get all the, for lack of a better term, the ducks in order in terms of how to proceed. I mean, you have a very tenacious and passionate representative in my colleague, Congresswoman Christensen, but she has to have a plan in place to say, look, we got our act together, this is what we think we can do to reduce these horrific rates that our citizens are paying, but we need help in implementing the plan.

Let me ask you about landfill issues and gas. There was, I guess, a state energy program for grants—I mean in landfill. How many tons of trash does the Virgin Islands——

Mr. SMITH. Our numbers say that territorially we generate about 400 tons per day. I hear recent numbers we can get up 500 tons a day.

Mr. COSTA. Has serious waste to energy been considered as a part of a solution?

Mr. SMITH. Yes, it has. We are in the process of reviewing some proposals from several companies who are offering to provide waste to energy solutions. The Energy Office is also doing a demonstration project with the Waste Management Authority to extract some of the methane from Bovinity landfill.

Mr. COSTA. Because we are doing that a lot. I would like to go back to that, but my time is going quickly.

Mr. Hodge, you talked in your testimony—not in your oral statement—about an electrical cable between St. Thomas and St. Croix to help reduce the distributive cost of power. How much would that cost and how serious is that proposal?

Mr. HODGE. There is a study being done right now, I believe, through the Department of the Interior as to tell you what the actual cost would be to develop such a conductor between those islands. The benefits are a reduction in the amount of spending reserve that you have to run independently by each plant, and reliability by having the systems connected. In the event the FPI comes up with a possibility of a large generating facility, you could have it on St. Croix where it has land space and would benefit all the Virgin Islands. It's critical to determine where the future should go for the Virgin Islands. The price is being determined as we speak.

Mr. COSTA. You haven't determined the cost effectiveness yet?

Mr. HODGE. No.

Mr. COSTA. It strikes me as the percentage of electricity that you are currently using to desalinize your water. What percentage of the electricity usage here in the islands go strictly for desalination of water? Can you give me that breakdown?

Mr. HODGE. It's hard to say strictly because the units that are spinning to produce power, steam is extracted to run the desal units. I would guess somewhere in the neighborhood of steam for maybe 60 percent of the unit is going toward the desal plants. It's a conjunction, while it's generating electricity, we are using the extracted steam for water at the same time.

Mr. COSTA. My time is expired, Madame Chairwoman, but there are a couple of questions, if we have a second round, I would like to come back to. And because of the water issues we have in California, I would like to get it separate from this hearing, but I would like to find out how much it cost per acre foot for you to desal water, because something we need to look at in greater effort in California.

Mrs. CHRISTENSEN. Do you have an answer for that question?

Mr. HODGE. Per acre cost I have to get that, but we can determine it.

Mrs. CHRISTENSEN. The Chair now recognizes Mr. Shuster for his questions.

Mr. SHUSTER. Thank you, Chair, and thank all the witnesses for testimony today.

First question, Mr. Hodge, you talked about the efficiency, the things you are doing to increase the efficiencies of the plant. Can you spend enough money to really make that more efficient, or is it just the cost of oil so expensive that you are going to get little benefit out of those efficiencies?

Mr. HODGE. The cost is simply prohibitive for a lot to happen, but you have to get efficient with what you have while you release your dependency from oil. If you have a combined effort, increase your efficiency, get rid of your dependency on oil all at the same time.

Mr. SHUSTER. With the current plant you can't get the tremendous increase in efficiency that you really need?

Mr. HODGE. There is a lot that can be gained from the current plant, because there are some units that aren't running due to lack of maintenance and need. Some of them have actually new parts that can be refurbished and perform in a better manner. If you can dispatch the units in an efficient manner and utilize both the No. 6 and No. 2 oil in a manner that's best for the plant, you can see a significant savings.

The problem is you have units down, so you are running your most expensive units, and the larger ones aren't running as well, and you are using more units to achieve the same amount of power. With the influx of revenue of cash, we will be able to get the units in a situated dispatched more efficiently.

Mr. SHUSTER. Even with a older plant, you can see some efficiency?

Mr. HODGE. That's correct. The plant is older, but you do have a lot of units that have new generators, new turbines. There is a lot of new parts in those old units.

Mr. SHUSTER. This LIHEAP program, coming from the northeast, Pennsylvania, we benefit greatly, our low income seniors especially with the LIHEAP. Do you receive any of that LIHEAP money down here in the Virgin Islands? I don't know who, maybe, Mr. Smith, I don't know if you know the answer to that.

Mr. SMITH. Yes, we do receive LIHEAP to the tune of roughly $122,000, and we have matched I think a million dollars to help with our Energy Crisis Assistance Program. What happens with the lack of funding, we usually have to take off a lot of qualifying people and only focus on the elderly and senior citizens.

Mr. SHUSTER. There was some talk by some of you about solar and wind. Solar power, what percentage of the territory generates electricity through solar power presently?

Mr. SMITH. I'd say less than 2 percent.

Mr. SHUSTER. Even if you had a significant increase in solar, you are doubling, it would still only be 4 percent.

Mr. SMITH. We do have a net peering program which is helping to increase that. The cost of solar panels is still very high for the average citizen.

Mr. SHUSTER. What about wind?

Mr. SMITH. Wind is growing very much. We are working with our permitting, and there is strong interest. I think there are at least a dozen people right now ready for the sky streams and similar turbines.

Mr. SHUSTER. What percentage of wind produced electricity?

Mr. SMITH. Even less than solar.

Mr. SHUSTER. That brings me to my question, I see you put an RFP out on small power providers, and I read that's soon to come in.

Mr. HODGE. May 1.

Mr. SHUSTER. As I mentioned the statement about coal producing electric plants and nuclear power, are those alternatives that have been considered? I know they are long-term. I know you talked a little bit short-term and long-term. These are long-term solutions. What are the prospects of coming up with a design for a smaller coal-fired and electric plant or taking the technology out of a nuclear sub, a smaller nuclear generator? Is that something to be considered or would it be something feasible here in the Virgin Islands?

Mr. HODGE. There is a respondent that is proposing a coal solution to the territory's needs, so that is one option. There is an existing facility in the Virgin Islands that has a coal-fired unit. So they are responding to the RFP.

As far as nuclear, the economies of scale are a little tricky when you get to this size for a nuclear reactor. It has to be something that incorporates both the Virgin Islands and Puerto Rico for it to make sense from my knowledge of nuclear facilities, and that would still require an interconnection under water between the Virgin Islands and Puerto Rico. It has been mentioned and we are trying to get a alliance with PREPA right now in Puerto Rico to see where we could further evaluate those scenarios.

Mr. SHUSTER. The grid right now doesn't connect to Puerto Rico?

Mr. HODGE. No, sir. St. Thomas is connected to St. John, and that's the extent of the connection of the grid in the Virgin Islands.

Mr. SHUSTER. I'm sorry.

Mr. HODGE. St. Thomas and St. John are connected, but that's the extent of any interconnection in the area.

Mr. SHUSTER. The question is how difficult is that? How expensive is that? Is that prohibitive or is it something that can be done?

Mr. HODGE. St. Thomas and St. Croix the problem with the connection there is that those are some of the deepest waters and the undulating at the bottom of the floor of the water there as well. There is a study being done right now of the topography of the seafloor to see if it can actually be done at a decent price. St. Thomas and Puerto Rico might be even more affordable than the one through St. Thomas and St. Croix. It's all being done through a study right now so we can get accurate numbers on it. The benefit would be tremendous.

Mr. SHUSTER. Thank you. I see my time has expired.

Mrs. CHRISTENSEN. Thank you.

As requested by Chairman Costa, we are going to have a brief second round of questions.

Senator Richards, as you listed possible alternative energy, you didn't list voltaic. Was there a reason, or was it just an oversight?

Mr. RICHARDS. No, Madame Chair, it's not a particular reason. My sole purpose of being here is regard to the statement that I made that we can speak about all these other alternative energies, until we get to the bottom point of finding some time and some energy, getting the financial capital that we believe should be returned to the Virgin Islands, we are looking farther down in the future not dealing with today's crisis that the residents and our constituents are faced with today in the Virgin Islands.

Mrs. CHRISTENSEN. I think it's a matter that we can also take up in another hearing, but part of the purpose for this hearing is looking at what is needed so that the capital—so that we can go back to Congress and see where we can capitalize the needs of WAPA and the territory in general.

Mr. Miller, you spoke at one of my town meetings a couple of years ago, and I was—can you point to couple of areas where you seen some improvement?

Mr. MILLER. Congress Lady, to be honest with you, when I—when we as ratepayers look at improvement by our Authority, we want to see or feel it in our pockets. And there is—feeling it in our pocket is where we would assess improvement, and we don't see—we don't feel it in our pockets, so we are not saying the improvement has been, if any, significant enough for us to say that improvement is working.

Mrs. CHRISTENSEN. That is the bottom line. That is the bottom line. As you said in your testimony, it is severely impacting the quality of life here in the territory.

Mr. Hodge, just to follow up a little on the coal issue. In your testimony I think you mentioned that coal would really not be an option for the Virgin Islands, but you did have a request for proposals for coal on the petcoke or dual fire units, and we have the availability of petcoke here in the territory. With the environmental problems that come from coal and coke burning and the likelihood that Congress is going to be enacting more climate change legislation, is that a viable solution for the territory?

Mr. HODGE. It's viable, especially if we can get through your help some relief from any possible carbon tax that might come in the future, if we can get the insular areas exempted from such a program, it's even more viable at that point. So we look forward to your help and your efforts to help us with that.

But coal is a viable option. And I apologize, but I did resubmit my testimony for you having made some changes to it. You should have it in your presence by now. The clerk has received it. But coal is a viable option for us.

Mrs. CHRISTENSEN. Thank you. Your answer allowed you to bring in the other issue about the credits. Thank you.

I now recognize Mr. Costa for his questions.

Mr. COSTA. Thank you very much. That was one of the areas I wanted to follow up with regards to petcoke, which is a by-product with regard to the refinery capability here and how carefully and cost effective that might be as part of the solution.

It seems to me—and I'm new to the challenges that you are facing here, but you are the experts, and while Congresswoman Christensen has indicated at great length the challenges and the difficulty, the great difficulty it's causing for citizens of the U.S. Virgin Islands on these utility rates, that like the strategies that we are attempting to pursue in the states, that there is no one silver bullet. Just seems to me that there is a combination of strategies that you are going to have to try to employ here as you look at renewable sources of energy, as you look at what you are currently using and how the refinery that exist here might be a part of that solution as you look on transitioning with other technologies. I know we haven't even begun to talk about the potential for waste technology.

But speaking of renewables, Mr. Cole, I know among other wonderful islands that I enjoy frequenting when I can get some free time, in Hawaii they have done a great deal with wind power, and I'd like to get your take as to the acceptance and utilization here. One of the things that the islands have in abundance it seems to me is wind power, and I would like to know what studies have been done and what the current view is from the Public Services Commission on the availability of wind power and its applicability.

Mr. COLE. Thank you, Mr. Costa. Mr. Smith, Bevan Smith, who is the Director of the Energy Office held a conference about a month and a half ago where it was a wind energy conference, and the statistics have shown that here on the island of St. Croix, on the south shore of St. Croix and in St. Thomas that wind can be a viable renewable energy. The thing is the cost going into getting this energy up and running.

The Public Services Commission has always advocated with the Water and Power Authority through a regulatory authority that RFPs went out, and wind was one of the winners in the RFP that went out earlier, but it's an avoided cost issue. I'm sure Mr. Smith can speak more to the facts of the study on wind, and Mr. Hodge in terms of the avoided cost in terms of that type of energy.

Mr. COSTA. Mr. Smith, you care to comment briefly?

Mr. SMITH. Yes, sure. As Mr. Cole said, we did conduct a wind energy workshop, and the attendance was overwhelming. It was one of the best workshops I have seen on energy. We had some 251 very interested attending.

With wind, we have steady marginal winds. However, the strong interest in the territory is for small wind, unlike most of the states, and because of that we have to really look at the balance of our tourism product and putting up small wind turbines throughout

downtown Charlotte Amalie or Christiansted, St. Croix. So the Department of Planning and Natural Resources are carefully trying to see what areas, how we are going to go about putting small wind.

Definitely wind is an option at the utility scale, and I know for sure WAPA is considering utility scale wind in the RFP.

Mr. COSTA. I would just from my own experience suggest that the concern about tourism and the impacts, Maui is a wonderful island like St. Croix is, as well as St. Thomas or St. John, but they have been experiencing—not just on Maui but other islands of the Hawaiian chain—wind. And they've got a series of large scale generation wind plants down one of the ridges of the mountain there between the heel valley between Makawao and on the way over to Lo'ihi, and I don't think it has one impact on the level of tourism for the people wanting to go to Hawaii.

In California, we are blessed with much of course, but tourism, believe it or not, is one of our major industries in California, and we have series of regions where we have wind farms that, some would think they are rather ostentatious. I am not suggesting you put it here, but they are very productive. Almost excess of 4 percent of California's energy needs now are from wind.

So I think that it's not going to solve all your problems, but it does provide I think an important balance and mix. I don't think it's going to—I would be very doubtful that it would impact tourism here in the islands.

Mr. SMITH. May I respond?

Mr. COSTA. I agree with you, and I think the Office of the Governor does also, but they were very surprised that our interest here is small wind. Therefore, we are talking about residential and small commercial areas putting individual towers on their property.

When we look to the states, there are not many districts that deal with small wind. We are trying to really see how we can still satisfy the individual residences and protect our tourism product. But we do want to see wind power here in the territory. We are working very hard to see that happen. Thank you.

Mrs. CHRISTENSEN. The Chair recognize Mr. Shuster for his questions.

Mr. SHUSTER. Thank you.

One brief question, this is follow up to grid. You said the water is very deep between St. Croix and St. Thomas. What about the other islands in the Caribbean, are there other islands—I got to believe they have similar type problems. Can you connect to any of those other islands?

I think sometimes we all sit here and think, well, we are all the U.S., we got to connect to a U.S. territories and states, but in Europe, the grid is all connected throughout Europe. The French sell to Germans and the British sell to Dutch. Is there another island or other islands that are close enough without the deepwater problem?

Mr. HODGE. There is a long-term plan that is out there that discusses the connection of underwater grid between the Caribbean island that goes down the same route as the communication cables. So there has been some discussions and talks about it.

We used to be a member of CARILEC, which is the organization for all the Caribbean electric companies, and previously the Authority had removed itself from the membership, and I have recently reapplied for membership. So that would again foster that kind of discussion again to see if we could get some kind of agreement worked out between all the islands.

Mr. SHUSTER. Is my assumption correct that all these islands throughout the Caribbean have this energy situation?

Mr. HODGE. That's correct. We all generate pretty much the same way. Some of the islands have subsidy from the government, and that's how they combat their problems. And then you have other islands that some are blessed with geothermal, some are blessed with different resources; but pretty much most of the Caribbean islands generate using oil in the same way.

Mr. SHUSTER. Thank you.

Mrs. CHRISTENSEN. Thank you. I want to thank the first panel for their valuable testimony. And members of the Subcommittees will likely have additional questions which will be submitted in writing, which we will ask for you to respond in writing as well. Thank you very much.

I would like to now recognize the second panel of witnesses: Mr. Robert Nicholson of Sea Solar Power International; Mr. James Resor, the Chief Financial Officer of groSolar; Frazier Blaylock, the Director of the Federal Government Relations, Covanta Holding Corporation; and Mr. Jim Powell, Senior Policy Advisor to the Southern States Energy Board.

Mrs. CHRISTENSEN. We are ready to resume our testimony with the second panel. The Chair now recognizes Mr. Nicholson to testify for five minutes.

STATEMENT OF ROBERT NICHOLSON,
SEA SOLAR POWER INTERNATIONAL

Mr. NICHOLSON. Madame Chairwoman Christensen, Mr. Chairman Costa, Representative from the Commonwealth from Pennsylvania, Mr. Shuster, staff of the Subcommittee, listening audience, renewable energy enthusiasts, my name is Robert Nicholson. I am President of Sea Solar Power International, and we are a leading firm in the commercial development of OTEC.

OTEC takes advantage of the solar energy that's stored in the upper layers of the ocean and surrounds the various islands of the Caribbean. St. Croix, for example, can be supplied entirely with OTEC 100 percent of the time with about 30 megawatts of installed power.

The ocean is the largest solar collector in the world. It absorbs the sun 24 hours a day. The energy is stored. We use the surface water as the heat source, we use the cold bottom water which is 40 degrees, 3,000 feet below the surface as a heat sink, and we can develop 10 megawatts of electricity.

This power plant is designed specifically for small tropical islands. It will produce 3 million gallons of desalinated water per day. It will produce a whole variety of fish, vegetables that could be grown with the upper lining of the nutrient rich water from the bottom of the ocean. It would support 500 acres of mariculture. St.

Croix, the tropical islands throughout the equatorial zone can become energy rich with this technology.

We have our own financing. We are proposing to build, own and operate and install these plants. We have proposals in ten other small islands. We have proposals for the Hawaiian Electric Company, Puerto Rico, and the Persian Gulf for 100 megawatt floating plants. We are convinced that we can supply most of the tropical world equatorial zone with low cost clean energy using only solar energy, producing enormous quantities of freshwater.

Each 100 megawatt power plant would support an annual fish harvest of $100 million a year. This is a technology that is ready for today. We have a team that we have assembled that can design, build, own and operate each plant. We have full funding from private investors, and we are in the position to provide St. Croix with a proposal May 1st for a 10 megawatt land base plant.

Once the island becomes renewable energy dependent, it can then convert its automobiles to electric plug-ins, and at that point you become energy rich, energy self-sufficient, and no longer do you have a goal vein on your treasury for money going to import foreign oil. We can do this in American Samoa. This can be applied to Guam, all the territories, all the islands throughout the tropical equatorial zone.

At the moment we have a proposal to the Hawaiian electric company for 100 megawatt plant. The whole idea for the future is to build eight 200 megawatt power plants, surround Oahu with these solar energy generating facilities, and at that point again convert to electric plugs-in. They become energy rich.

One of the best examples to site in the Caribbean and everyone knows this, and you think you have problems in St. Croix, St. Thomas, St. John, Haiti is in dire straits. It is a country in ruin. This technology can make them very energy independent.

The lower the cost of energy in any given economy, the higher the standard of living for its citizens. So now is the time to take advantage of this unusual situation. You are surrounded by energy, you are rich in your own natural resource. We have the technology that can convert that solar energy into electricity 24 hours a day, enormous quantities of fish and food production and automobile transportation as well.

We are currently working with research laboratories, and we have two ways to generate liquid fuel from the seawater using only solar energy. We believe that from a national security standpoint, we can make our country, United States, energy rich, energy independent. We don't have to be relying on foreign produces who are not our friends. This is a fantastic opportunity for everyone.

We've been working with WAPA. We realize that this is a tremendous opportunity now with the new director who's fresh, who has new vision. We have dynamic leadership with Donna Christensen, the representative to the islands. And I am pleased that Chairman Costa with his interest in renewable energy just makes it a fantastic opportunity to move this forward.

So in conclusion we are getting ready to submit the proposal May 1st. We will have a very attractive competitive price. This will I'm sure get the attention of everyone. We have our own financing. There is no risk to the host client. We bear that risk. However, in

the future at any time should the WAPA, the U.S. Virgin Islands want to purchase the power plant from us, we will sell it to them. So we are not a threat to oil or coal or to the operation that's now underway. This is just an incredible opportunity to ease in to renewable energy and get off in a phased out manner with fossil fuel. Thank you.

Mrs. CHRISTENSEN. Thank you, Mr. Nicholson.

[The prepared statement of Mr. Nicholson follows:]

Statement of Robert J. Nicholson III, President, SEA SOLAR POWER INTERNATIONAL, LLC, Owned by the Abell Foundation

"FEED THE PEOPLE—SAVE THE WORLD"

WHAT IS OTEC?

OCEAN THERMAL ENERGY CONVERSION

- OTEC is an economically and environmentally efficient means to convert the solar energy of the tropical oceans into low-cost electricity.
- A large floating vessel similar to an ocean drilling rig or large tanker houses the power cycles. Small, land based plants are also available.
- Warm 80 degree F surface water is pumped through heat exchangers in order to boil the working fluid, propylene, into a vapor. Propylene boils under pressure at 67 degrees F. The vapor then expands through vapor turbines which drive generators.
- Cold 40 Degree F bottom water is pumped up from 3,000 feet below the surface to condense the vapor back into its liquid state. The liquid propylene returns to the evaporators where the cycle starts all over again.

OTEC

RENEWABLE ENERGY

- Oceans are largest solar collectors on earth
- They are already built and paid for
- Manmade solar collectors only work when the sun shines
- OTEC - base load power operates 24 hours per day
- Stored solar energy throughout the equatorial zone could provide 300 times the world's consumption of electricity

THERMAL ENERGY

- A pound of water raised one degree is lifted to an equivalent height of 778 feet
- OTEC operates on a delta-T of 40 Degrees F
- 40 degrees x 778 feet = 31,120 feet
- Best possible Carnot cycle designed by SSP is 3.25%
- 3.25% x 31,120= 1,011 feet
- Warm water, cold water—divide 1,000 by 2 = 500 feet of head—constant heat source

TWO STANDARD OTEC MODELS

- 10 MW land based OTEC plant—3 million gallons of fresh water per day
- 100 MW floating OTEC plantship—32 million gallons of fresh water per day
- Both small and large plants can be dedicated to produce only fresh water
- Small land based plant: 10 million gallons of fresh water per day—large plantship—130 million gallons of fresh water per day
- Large quantities of ammonia for fertilizer

STUDIES CONFIRM TECHNICAL FEASIBILITY

- Fluor Daniel
- Lehigh University Energy Research Center
- EA Engineering / Abell Foundation
- Indian Government Appraisal
- Southern States Energy Board's Special Report to Puerto Rico
- Stone & Webster / Kvaerner- John Brown

SEA SOLAR POWER INT., LLC, TEAM

- Sea Solar Power International, LLC: OTEC cycle designed by J. Hilbert Anderson
- Abell Foundation: equity funding
- AON Risk Insurance: guarantee performance of each SSP-OTEC plant
- Burns & Roe Enterprises, Inc: mechanical engineers—design OTEC cycle
- Whiting-Turner Contracting Company: construction of complete OTEC plant
- Mele Associates, Inc: environmental permits
- Loria Emerging Energy Consulting: OTEC expert
- Dr. Pierce Linaweaver: OTEC expert
- Alion Science & Technology: marine architects—design marine platforms
- Healy Tibbitts Builders, Inc., Division of Weeks Marine, Inc: install cold water pipe

PROPOSAL

- SSPI is prepared and eager to install OTEC plants throughout the equatorial zone
- SSPI has the most advanced OTEC design, the team in place to deliver and the financing from private investors to begin now
- SSPI is seeking sincere clients to enter into signing contracts for both power and water
- This includes both the land based OTEC for small islands and the large floating OTEC plantships for continental applications

ACTION

- Identify decision makers—coordinate with their technical advisors
- Select ideal site
- Negotiate power and water contracts
- Secure operating permits
- Install OTEC plant—3 years
- Additional plants as desired

Mrs. CHRISTENSEN. The Chair recognizes Mr. Resor to testify for five minutes.

STATEMENT OF JAMES RESOR, CHIEF FINANCIAL OFFICER, GROSOLAR

Mr. RESOR. Thank you. First, thank you to Honorable Chairwoman Christensen and Chairman Costa, Representative Shuster, and particularly I note staff has worked hard to pull together these hearings.

My name is James Resor. I'm the Chief Financial Officer of groSolar. We are a distributor and installer of photovoltaic systems for residences and also commercial enterprises. We operate in about 40 states, and we are based in Vermont but obviously have field offices throughout the mainland. In our experience we also work with a lot of different utilities, so I very much appreciate hearing the perspectives of WAPA earlier today.

A couple of comments. One is when we look at solar, since we are involved in solar projects throughout many different situations from the northeast to California to Colorado, there are a couple variables that we look at that make it more compelling than other places. Probably the most important is, what are the electricity rates that ratepayers have to pay from a conventional source of electricity.

So clearly, as we have heard many testify, when you are paying more than 30 cents a kilowatt hour right off the bat, regardless of your sun quality, even if that was 35 cents in Massachusetts or

Alaska, it would still be a relatively compelling opportunity for solar. Clearly here when you add an addition that you have ample sunlight, the opportunity for solar as a true distributed source of energy in small doses for residences or commercial enterprises is compelling.

In addition, there are certain site characteristics that are important. A very important feature is the cooperation with the local utility. And fortunately there is a lot of data and experience that you can draw from other parts of the United States in terms of net metering and how those programs are implemented to make streamline the implementation so it doesn't become a barrier, but it really encourages the installation of solar.

The other aspect terms of net metering, which I understand has recently been put in place for the Virgin Islands, which is very positive, is to be careful that you don't exclude commercial enterprise. Sometimes if the cap is only 10 kilowatts, you may effectively exclude some opportunities for solar for food distributors and hotels and other commercial enterprises which have the same—are feeling the same pinch of the high electricity prices.

In our experience a lot of our clients in the commercial sector are big box retail stores, food distributors that have a lot of air conditioning and food refrigeration electricity uses and are often very attractive customers for solar solution.

One other piece which I addressed in my written testimony I think the timing of this hearing is very critical, and that as you probably all know, last week the Senate passed a bill particularly for solar and wind renewing the investment tax credit and other features that have been discussed in the House already, in fact passed in the House under different forms. But the bill under—that was introduced by Senator Cantwell did pass the Senate I believe 88 to 8. Again, showing strong bipartisan support. Now the interest will turn back to the House.

I think your Subcommittees taking up this issue—and that's a bill that helps the U.S. Virgin Islands as it does any part of United States because it basically allows businesses to have that longer term horizon to drive the commercial investment tax credit. In addition, it helps at the residential level by extending the 30 percent tax credit that's available to the residence owner and removing the cap. Right now it's capped at $2,000 per system. So I think those are both—and there is more detail of that in my written testimony, but again I think the extent that the hearings from these Subcommittees can provide additional momentum and support for those discussions in the House, that will be extremely timely.

And then last, again I will be happy to take any questions on solar, but we feel there is a tremendous opportunity here in the U.S. Virgin Islands, and I think as Chairman Costa pointed out, there is no one silver bullet. You really need to look at a mixed strategy over time that you can start to address the acute needs that the people of U.S. Virgin Islands are experiencing. Thank you.

Mrs. CHRISTENSEN. Thank you, Mr. Resor.

[The prepared statement of Mr. Resor follows:]

Statement of James Resor, Chief Financial Officer, groSolar

Introduction:

Thank you, Mr. Chairman and Members of the Committees, for providing me the opportunity to testify today.

My name is James Resor. I am the Chief Financial Officer of groSolar, Inc. groSolar (www.grosolar.com) is a national distributor, integrator and installer of solar photovoltaic systems for residences and commercial enterprises. We are active in more than forty states and Canada with offices and distribution centers in several northeastern states, New Jersey, Colorado, California, Oregon and Canada.

In addition to our diverse residential solar experience, groSolar has designed and installed solar systems for a wide range of commercial and government enterprises and other property owners. These installations include: food distribution centers, agricultural operations, schools, municipal buildings, general office buildings, multi-unit residential complexes, sports stadiums and resort properties. These solar installations are tied to the local electric utility ("grid-tied"). Customers retain access to their electric utility while generating electricity from solar power.

Solar energy systems (photovoltaic for electricity or solar thermal for water heating) can be used in most places throughout the United States. Photovoltaic (PV) and solar water heating systems are distributed generation (DG) technologies. Like other DG technologies, they provide energy at the point of consumption rather than at a central power plant hundreds of miles away. As such, DG does not rely on vulnerable regional transmission lines and local distribution networks. By producing energy at the source of consumption, solar power alleviates stress and vulnerability on the grid. It also ensures power generation should transmission facilities or generating stations fail due to terrorism, accidents or natural disaster. Solar power is a very flexible solution that can be added in targeted or widespread doses for residential and commercial purposes to meet the needs of consumers and utility grid reliability. [1]

Where Solar Energy Makes Sense:

The relative attractiveness of solar installations depends upon three sets of variables: (I) geographic/economic factors, (ii) site characteristics, (iii) and program objectives:

1. Geographic/Economic Factors:

- Utility prices for conventional electricity vary greatly among different parts of the country. High cost areas like the Northeast, much of California, Hawaii and Insular Areas such as the U.S. Virgin Islands make solar systems look relatively more attractive than in low cost areas such as parts of the Southeast or certain Western states. When electricity prices are approaching $0.20 per kwh or even higher (versus the U.S. mainland average of $0.13 per kwh), this makes solar energy that much more attractive. Thus, in places like the U.S. Virgin Islands or Hawaii, prices greater than $0.30 per kwh offering a compelling opportunity to install solar energy systems.
- Favorable local regulations such as the existence of "net metering", which allows customers to sell excess power back to the grid at the same price as they purchase power, are critical.
- Local/utility financial incentives provided by the state or local government or utility company that can augment federal incentives. An example of this can be where the local utility is willing to provide incentives to homeowners or businesses to install solar in order to address peak demand or grid congestion issues. This can help the utility mitigate risks of brownouts and/or avoid expensive grid or generation capacity enhancements. For example, groSolar is working with several utilities to provide "distributed generation" near the demand points to work around grid congestion points and thus avoid expensive grid upgrades.
- Amount of sunlight. While Arizona is obviously better than Massachusetts in terms of sunlight, other variables such as relative utility prices and local regulations are more critical and usually outweigh the significance of the amount of sunlight. Consider the fact that Germany and Japan have been the leaders in solar capacity with far less solar resources than the U.S. Acceptance of solar energy in southern California has more to do with high electric rates and supportive local incentives than plentiful sunlight.

[1] See Appendix 1 for overview of PV, solar thermal and other solar technologies

2. Site Characteristics:

- Various site-specific characteristics affect the productivity and/or installation costs of solar systems. It is preferable to have:
  - Unobstructed southerly site exposure
  - Flat roof or low-angle slope (or nearby fields or parking lots for ground-mounted or canopy arrays)
  - Less than 60 feet above ground for roof mounted systems (preferably 1-2 stories)
  - Structurally sound roof to bear weight of solar array without significant obstruction from dormers, mechanical equipment, vents or shading from sunlight

3. Program Objectives (some of these apply more to commercial opportunities):

- Property owner/manager objectives
  - Lock in long-term, predictable energy costs to mitigate risks of electric rate increases, particularly for those areas that are highly dependent upon petroleum-based sources for electric generation.
  - Reduce carbon emissions
  - Use solar energy as part of broader energy conservation measures (e.g. with efficient lighting, recycling, etc.) to reduce overall energy costs
  - Public relations value to residents, employees, customers and other constituents
- Sufficient scale of project to provide economies of scale for design, permitting, financing, installation of multi-residential sites or office buildings. A portfolio of smaller projects or residential installations, which share a common owner/manager and other characteristics, can also provide attractive economies of scale and reduce the all-in cost of solar installations.
- Long-term financing potential
  - Good credit quality of owner/user of power (or use of 3rd-party credit enhancements/guarantees) to facilitate long-term financing
  - Ability of owner or third-party to use commercial investment tax credits which are currently 30% in year one

Current Legislation:

I would now like to direct my testimony to current discussions within Congress. The timing of this joint hearing is excellent. Earlier this month, Senators Cantwell and Ensign proposed the Energy Tax Stimulus Act of 2008 (S. 2821). It contains key items that are necessary for continued rapid growth of solar energy in the U.S., including Insular Areas such as the U.S. Virgin Islands. The proposed legislation draws on strong bipartisan support for solar. For example, two important provisions are:

1. the extension of the 30% Investment Tax Credit (ITC) for commercial solar investments for eight years (and allowing electric utilities to claim the ITC)
2. the extension of the 30% personal tax credit for one year for residential solar investments while also repealing the current $2,000 cap

Further information on the components of this important legislation is included in Appendix 2. The short and long-term benefits of enacting this legislation would be significant. The benefits include:

- Increased energy security: Solar energy is a domestic and abundant energy source in the U.S. The U.S. has the best solar resources of any developed country in the world. Proportionally, U.S. solar energy resources exceed those of fossil, nuclear or other renewable energy resources. Despite this tremendous advantage, the U.S. has failed to capture and harness this free and readily available energy. In 2006, solar energy produced just 1/30th of one percent of all electricity in the U.S.; Germany in contrast, with the solar resources no better than those of Alaska, installed seven times more solar energy property than the entire U.S.[2] Solar technologies help stabilize the nation's electricity grid, provide clean, reliable power, and reduce the impact of natural disasters and terrorist acts. By generating electricity at the point of consumption, the effects of natural disaster or terrorist attacks can be mitigated. Producing these homegrown technologies in the U.S. will reduce our dependence on foreign sources of energy, while simultaneously lowering the cost of energy to consumers.

[2] EIA, Net Generation by Energy Source by Type of Producer, October 2006.



Figure 2: Germany Insolation

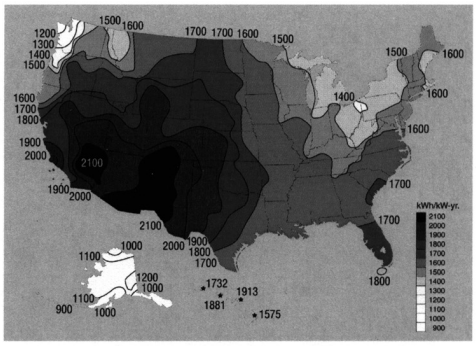
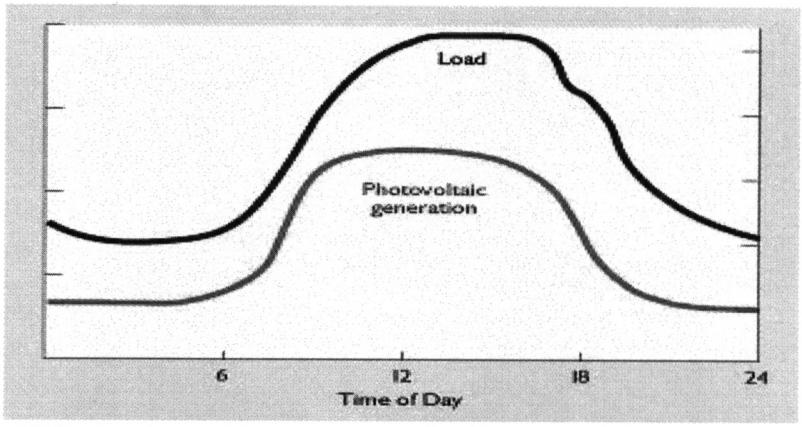


Figure 3: U.S. Insolation

- Reduction in the use of high cost natural gas (and other petroleum-based fuels): In most parts of the U.S., peak electricity demand occurs when solar electricity is near optimal efficiency (9 AM—6 PM). This demand load is almost exclusively served by central station gas generation (or other petroleum-based fuels) that can be easily cycled on and off and is often highly inefficient. Given the high price of natural gas to key industrial sectors and consumers, the U.S. can no longer afford to neglect its abundant solar resources. Analysis conducted by the Solar Energy Industries Association (SEIA) concludes that an eight-year extension and expansion of investment tax credits for solar energy will displace over 5.5 trillion cubic feet (Tcf) of natural gas, providing an economic value to consumers in excess of $50 billion. [3] This is enough energy to displace the need for all new LNG terminals by 2012.



Utility load and PV output versus time of day.

- Hedge against rising energy prices: In the last five years, consumers have seen electricity prices escalate between 20 and 78 percent. At the same time, we have seen the price of natural gas triple and the price of gasoline routinely exceed $3.00 per gallon. Each year the cost of energy is taking a larger percentage of a family's income than at any other time in U.S. history. This energy inflation vulnerability especially impacts the poor and elderly on fixed incomes. Solar can help address this vulnerability because it requires no fuel to operate. Although a solar system is more expensive up front in many cases, there are no additional costs for operating a system once installed. Furthermore, solar panels are guaranteed for 20-25 years, allowing consumers to "lock in" their electricity prices for decades.

[3] Solar Energy Industries Association Natural Gas Displacement Model

- Job creation: Solar systems require high-tech manufacturing facilities and produce well paying, high-quality jobs. Extending the tax credit will create an estimated 55,000 new jobs in the solar industry and over $45 billion in economic investment. groSolar has doubled its workforce in the last 12 months, including some hires who had been recently laid off from construction related employment due to the downturn in the U.S. housing market.
- Clean energy and environmental benefits: Solar energy is the cleanest method of energy generation, in terms of avoided air, waste and noise pollution, energy payback, water conservation, radiation, harm to wildlife, or environmental risk in the event of an accident. Solar energy produces no greenhouse gases, no acid precipitation or toxic emissions, and no other air pollution of any kind. Over the 40-50 year life of a solar electric system, every kilowatt (kW) of solar electric power reduces 217,000 pounds of carbon dioxide, 1500 pounds of sulfur dioxide, and 830 pounds of nitrogen oxides emissions as compared to electricity produced by conventional generation.[4] Photovoltaic solar energy generates electricity without using any water. In contrast, fossil fuel and nuclear based electricity generation use substantial amounts of water to run steam turbines. Across the U.S., approximately 40% of fresh water withdrawals are used for electric generation.[5] If water-starved communities like Phoenix and Las Vegas are to continue growing, we must place greater emphasis on water-free electricity generating technologies.

APPENDIX 1

OVERVIEW OF SOLAR ENERGY TECHNOLOGIES

PHOTOVOLTAICS (PV)

Technology

Photovoltaic (PV) devices generate electricity directly from sunlight via an electric process that occurs naturally in certain types of material. Groups of PV cells are configured into modules and arrays, which can be used to power any number of electrical loads.

Crystalline silicon—the same material commonly used by the semiconductor industry—is the material used in approximately 90% of all PV modules today. PV modules generate direct current (DC) electricity. For residential use, the current is then fed through an inverter to produce alternating current (AC) electricity that can power the home's appliances.

The majority of PV systems today are installed on homes and businesses that remain connected to the electric grid. Consumers use their grid-connected PV system to supply some of the power they need and use utility-generated power when their power usage exceeds the PV system output (e.g., at night). In 41 U.S. states, when the owner of a grid-connected PV system uses less power than their PV system creates, they can sell the electricity back to their local utility, watch their meter spin backwards, and receive a credit on their electric bill—a process called net metering. The electric grid thus serves as a "storage device" for PV-generated power. Net metering is a critical requirement to facilitate adoption of PV systems.

Markets

The global PV market has averaged 38% annual growth over the last five years. Yet PV still accounts for a small percentage of electricity generation worldwide and less than 1/30th of 1% in the U.S. Furthermore, the U.S. lags behind Germany and Japan in installations as well as in manufacturing. Germany and Japan have surged to the lead with coherent, long-term national incentive policies, despite dramatically inferior amounts of sunshine.

The U.S. possesses the best solar resources in the world, and yet Germany installs seven-times as much PV as the U.S. Germany and Japan have taken the lead in solar manufacturing and installations because of long-term national incentive policies designed to make solar power mainstream. Japan instituted a carefully designed rebate program that lasted over ten years, while Germany incentivizes solar installations by paying 3-4 times retail electric rates for the electricity generated from PV systems for 20 years. The surging player in the industry, China, has gone

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[4] NREL report, "Distributed Energy Resources for the California Local Government Commission," October 2000.

[5] Sandia National Laboratories, Energy-Water Nexus, http://www.sandia.gov/news-center/news-releases/2006/environ-waste-mgmt/mapwest.html

from having no PV industry to manufacturing twice the level of the U.S. in just three years. While California is the dominant U.S. market for PV, with 73% of the grid-tied installations in 2006, there is substantial activity in other states.

SOLAR THERMAL SYSTEMS

Technology

Solar thermal systems provide environmentally friendly heat for household water and space heating. The systems collect the sun's energy to heat either air or a fluid. The air or fluid then transfers solar heat to your home or water. In many climates, a solar heating system can provide a very high percentage (50 to 75%) of domestic hot water energy. In many northern European countries, combined hot water and space heating systems are used to provide 15 to 25% of home heating energy.

Active solar water heating systems can be either "open loop," in which the water to be heated flows directly through the rooftop collector, or "closed loop," in which the collector is filled with an antifreeze solution that passes through a heat exchanger mounted in or around your normal water heater. During the day, in good weather, your water can be heated entirely by the sun. In any weather, the heating system can back up your existing heater, reducing overall energy costs.

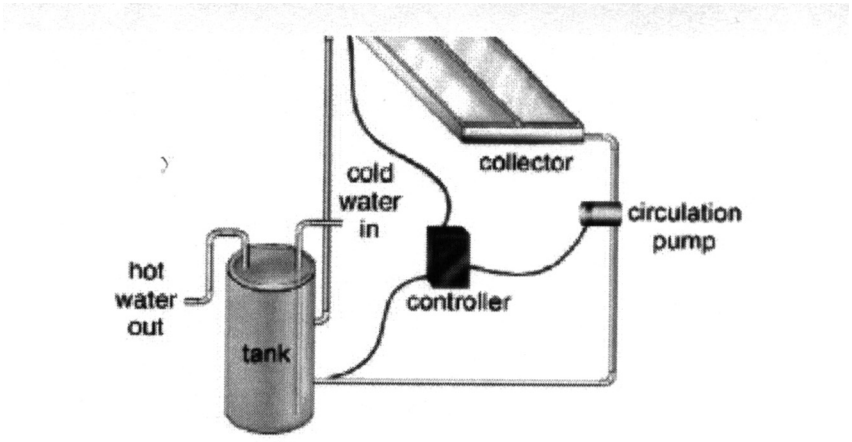


Diagram of an active solar thermal system.

Markets

In the absence of coherent national policies, from 1997 until 2005, the U.S. solar water heating and solar space heating market showed little growth, averaging about 6,000 installations per year. In the past couple years, numerous states have created or expanded incentives to complement the new federal tax credits. Accordingly, the market is has increased quite a bit. Solar water heating can be done at same time as PV.

CONCENTRATING SOLAR POWER

Technology

Concentrating solar power (CSP) plants are utility-scale generators that produce electricity by using mirrors or lenses to efficiently concentrate the sun's energy. Two principal CSP technologies are parabolic troughs and dish-Stirling engine systems.

Using curved mirrors, parabolic trough systems concentrate sunlight to drive conventional steam turbines. The mirrors focus the sun's energy onto a receiver pipe or heat collection element. From there, a high temperature heat transfer fluid picks up the thermal energy and uses the heat to make steam. The steam drives a conventional steam-Rankine power cycle to generate electricity. A typical collector field contains many parallel rows of troughs connected in series.

THIN FILM SOLAR

Technology

There are four basic categories of thin film PV based on the materials used to convert light into electricity. They are: i) Amorphous Silicon (• α-Si), ii) Cadmium Telluride (CdTe), iii) Copper Indium (Gallium) di-Selenide (CIS/CIGS) and iv) Emerging (Dye-sensitized, Organic or Nano-materials)

Not only can different materials be used to create the PV effect, but they can also be deposited on different substrates. Currently, most production technologies use glass as the substrate, as in the case of all CdTe technologies, and many emerging α-Si technologies. But some α-Si solutions use a flexible metal foil as the substrate, and many emerging and CIGS technologies can be deposited on glass or metal foil as well as lower temperature substrates like plastic.

Unlike today's traditional solar photovoltaic (crystalline PV) technology, thin film PV uses very little or no silicon and other material to build a solid state electricity generation device. Thus, a whole new range of applications otherwise not possible using traditional solar cells are enabled because thin film materials can be applied to a multitude of surfaces such as glass, plastic and flexible metal foils. Thin film PV can be manufactured using various deposition and packaging methods that offer flexibility in scaling production and addressing applications. Currently, commercial applications of thin film PV are limited due to lower efficiencies and used predominantly for large utility-scale PV projects where space is not a constraint.

APPENDIX 2

THE CLEAN ENERGY TAX STIMULUS ACT OF 2008

On April 3, 2008 Senators Cantwell and Ensign announced the Clean Energy Tax Stimulus Act of 2008 (S. 2821). It contains key items that are necessary for continued rapid growth of solar energy in the U.S. Here is a summary of key sections of the proposed legislation.

Purpose: To provide for the limited continuation of clean energy production incentives and incentives to improve energy efficiency in order to prevent a downturn in these sectors that would result from a lapse in the tax law.

Title I—Extension of Clean Energy Production Incentives

Section 101. Extension and modification of the renewable energy production tax credit (IRC Section 45). Under current law, an income tax credit is allowed for the production of electricity using renewable energy resources, like wind, biomass, geothermal, small irrigation power, landfill gas, trash combustion, and hydropower facilities. A taxpayer may generally claim a credit for 10 years, beginning on the date the qualified facility is placed in service. In order to qualify, however, facilities must be placed in service by December 31, 2008. *The bill extends the placed in service date for one year (through December 31, 2009). It also redefines small irrigation power to include marine and hydrokinetic energy, and enables the credit to help reduce the cost of renewable electricity that is ultimately sold to utility customers when the utility itself is also a part owner of the renewable facility.*

Section 102. Extension and modification of the solar energy and fuel cell investment tax credit ("ITC") (IRC Section 48). Under current law, taxpayers can claim a 30 percent business energy credit for purchases of qualified solar energy property and qualified fuel cell power plants. In addition, a 10 percent credit for purchase of qualifying stationary microturbine power plants is available. The credit for qualified fuel cell power plant property is capped at $500 per 0.5 kilowatt of capacity. Credits apply to periods after December 31, 2005 and before January 1, 2008. *The bill enables taxpayers to claim the 30 percent business credit for the purchase of fuel cell power plants and solar energy property and the 10 percent credit for stationary microturbines, through December 31, 2016. In addition, the bill repeals the $500 per .5 kilowatt of capacity cap for qualified fuel cell power plant property, and allows electric utilities to claim the ITC.*

Section 103. Extension and modification of the residential energy-efficient property credit (IRC Section 25D). Under current law, taxpayers can claim a personal tax credit for the purchase of property that uses solar energy to generate electricity for use in a dwelling unit and qualified solar water heating property that is used exclusively for purposes other than heating swimming pools and hot tubs. The credit is equal to 30 percent of qualifying expenditures, with a maximum $2,000 credit for each of these systems of property. Section 25D also provides a 30 percent credit for the purchase of qualified fuel cell power plants. The credit for any fuel cell may not exceed $500 for each 0.5 kilowatt of capacity. The

credit applies to property placed in service prior to January 1, 2009. *The bill extends the credit for residential solar property for one year (through December 31, 2009) and repeals the $2,000 credit cap for qualified solar electric property. The bill also allows the tax credit to offset Alternative Minimum Tax ("AMT") liability.*

Section 104. Clean Renewable Energy Bonds ("CREBs") (IRC Section 54). Under current law, public power and consumer-owned utilities that cannot benefit from tax credits can issue Clean Renewable Energy Bonds (CREBs) to help them reduce the cost of renewable energy investments. Under current law, there is a national CREB limitation of $1.2 billion in bonding authority and CREBs must be issued before December 31, 2008. *This bill authorizes an additional $400 million of CREBs that may be issued and extends the authority to issue such bonds through December 31, 2009. In addition, the bill allocates 1/3 of the additional bonds for qualifying projects of State/local/tribal governments; 1/3 for qualifying projects of public power providers; and 1/3 for qualifying projects of electric cooperatives.*

Section 105. Extension of the special rule to implement FERC restructuring policy (IRC section 451(i)). *The bill extends through December 31, 2009, the present-law deferral provision that enables qualified electric utilities to recognize gain from certain transmission transactions over an 8-year period.*

Title II—Extension of Incentives to Improve Energy Efficiency

Section 201. Extension and modification of the credit for energy-efficiency improvements to existing homes (IRC section 25C). 1Current law provides a 10 percent investment tax credit for purchases of advanced main air circulating fans, natural gas, propane, or oil furnaces or hot water boilers, windows and other qualified energy-efficient property. The credit applies to property placed in service prior to January 1, 2008. *The bill extends the credit for one year (through December 31, 2009), and specifies that certain pellet stoves are included as qualified energy-efficient building property.*

Section 202. Extension of the tax credit for energy-efficient new homes (IRC section 45L). 1Current law provides a tax credit to an eligible contractor equal to the aggregate adjusted bases of all energy-efficiency property installed in a qualified new energy-efficient home during construction. *The bill extends the energy-efficient new homes credit for two years (through December 31, 2010), and permits the eligible contractor to claim the credit on a home built for personal use as a residence.*

Section 203. Extension of the energy-efficient commercial buildings deduction (IRC section 179D). 1Current law allows taxpayers to deduct the cost of installing energy-efficient improvements in a commercial building. The deduction equals the cost of energy-efficient property installed during construction, with a maximum deduction of $1.80 per square foot of the building. In addition, a partial deduction of 60 cents per square foot applies to certain subsystems. The deduction applies to property placed in service prior to January 1, 2009. *The bill extends the deduction to property placed in service through December 31, 2009, increases the maximum deduction to $2.25 per square foot, and allows a partial deduction of 75 cents per square foot for building subsystems.*

Section 204. Modification and extension of the energy-efficient appliance credit (IRC section 45M). 1Current law provides a credit for the eligible production of certain energy-efficient dishwashers, clothes washers, and refrigerators. The credit for dishwashers applies to dishwashers produced in 2006 and 2007 that meet the Energy Star standards for 2007. *The bill extends the credit to appliances produced in 2008, 2009, and 2010 and updates the qualifying efficiency standards in accordance with the Energy Independence and Security Act of 2007.*

Mrs. CHRISTENSEN. The Chair now recognizes Frazier Blaylock to testify for five minutes.

STATEMENT OF FRAZIER BLAYLOCK, DIRECTOR, FEDERAL GOVERNMENT RELATIONS, COVANTA HOLDING CORPORATION

Ms. BLAYLOCK. Thank you, Chairwoman Christensen, Chairman Costa, Mr. Shuster. We greatly appreciate your having us here this morning. My name is Frazier Blaylock. I am the Director the Federal Government Affairs for Covanta Energy Corporation. Thanks

for the opportunity to speak to you about how we could help in restoring a clean energy future for the insular areas.

Covanta operates 34 energy-from-waste facilities in the United States including three in Pennsylvania, one in Stanislaus County, California. We also operate one in Honolulu, four in Florida, and three on Long Island in New York. And I mention those communities in particular because the geographic similarities they share with insular areas we are discussing today.

Energy from waste is a specially designed energy generation process that uses household waste as a fuel and help solve some of society's biggest challenges, including dependence on foreign oil, solid waste management, climate change, and land use, all of which have already been raised today.

Covanta serves the disposable needs of approximately twelve million people in communities across the United States and reduces the need for fossil fuels by generating over 1,200 megawatts of renewable energy and saving the equivalent of 15 million barrels of oil each year.

Every ton of trash processed at energy-from-waste facilities generates between 500 and 700 kilowatt hours of renewable electricity on a 24/7 base load basis, and our operations recycle over 350 million tons of recovered metals every year.

One key benefit of the energy-from-waste process is the use of an indigenous, sustainable fuel called trash, which itself creates management challenges for insular communities and communities throughout the country. Unlike fossil fuel, garbage is readily available and within short transportation distances from these energy facilities and from the energy consumers. For each ton of trash processed in energy-from-waste facility enough electricity is generated to offset one barrel of oil.

It is particularly relevant for Covanta to be addressing the energy future of the insular areas because of other environmental benefits that we offer. Energy from waste is a safe, reliable waste disposal method that generates renewable energy, reduces greenhouse gas emissions, recovers metals from recycling and reduces reliance on landfills. The energy-from-waste process reduces the volume of solid waste received in our facilities by 90 percent, and displaces one ton of greenhouse gas emissions for every one ton of trash we process.

According to the Department of Energy, who is here today, energy from waste makes important contributions to the overall effort to achieve increased renewable energy use. And in 2003 the EPA stated that energy from waste produces electricity with less environmental impact than almost any other source of electricity.

I mentioned Hawaii, New York, and Florida earlier and that's because island and peninsula communities share some similar characteristics that present—share some similar characteristics that are relevant to your island communities. Limited drinking water supplies, a limited ability to import power and export waste and finite land space are among those challenges. Energy from waste, in addition to having a potential to contribute significantly to energy independence and renewable energy, has the benefit of positively impacting those challenges.

Insular peninsula areas, they're depending on energy from waste as part of their growing energy environmental infrastructure. Hillsborough and Lee Counties in Florida has expanded their existing energy-from-waste facility because of population growth and limited landfill space. The city of Honolulu is planning a 900 ton per day expansion of their existing energy-from-waste facility, which we operate. That expansion will increase the contribution of energy generated in that Honolulu plant by 8 percent of all the power generated on the island of Oahu. In addition, Florida and Long Island communities also moved to energy from waste because it avoids stress to drinking water supplies that landfilling presents. More locally, Puerto Rico's solid waste management plan calls for the construction of two energy-from-waste plants with the combined capacity of 2900 tons per day.

Finally, another critical benefit these communities will realize by generating renewable energy, energy-from-waste plants is a net reduction in their greenhouse gas production, the avoidance of methane gas generation from landfills, avoidance of fossil fuel production, and minerals recycling all contribute to energy-from-waste greenhouse gas avoidance.

We believe we would be an excellent choice for renewable power for insular communities like the U.S. Virgin Islands for all these reasons and be delighted to take any questions from the committee. Thank you very much.

Mrs. CHRISTENSEN. Thank you, Ms. Blaylock.

[The prepared statement of Ms. Blaylock follows:]

Statement of Frazier Blaylock, Covanta Energy Corporation

Good morning Chairman Christensen, Chairman Costa and members of the committee. My name is Frazier Blaylock and I am the Director of Federal Government Affairs for Covanta Energy Corporation. Thank you for the opportunity to come speak to you today about the benefits of Energy-from-Waste (EfW) in pursuing a clean energy future for the insular areas.

Covanta Energy operates 34 Energy-from-Waste facilities in the United States, including one in Honolulu, 4 in Florida and 3 on Long Island in New York. I highlight these seven locations because of the geographic similarities they share with the insular areas we are discussing today. We also have a worldwide presence, with facilities in Europe and China.

Energy-from-Waste is a specially designed energy generation process that uses household waste as fuel and helps solve some of society's biggest challenges including dependence on fossil fuels, solid waste management, climate change, and land use. Covanta serves the disposal needs of approximately 12 million people in communities across the United States and reduces the need for fossil fuels by generating 1,265 megawatts of renewable energy, and saving the equivalent of 15 million barrels of oil each year. Every ton of trash processed at an EfW facility generates a significant 500-700 Kwh of renewable electricity on a 24/7, base-load basis. And, our operations recycle over 350 million tons of recovered metals each year.

A key benefit of the EfW process is the use of an indigenous, sustainable fuel which in and of itself creates management challenges for insular communities. Unlike fossil fuels, garbage is readily available and within short transportation distances from these energy generating facilities and the energy consumers. For each ton of trash processed at an EfW facility, enough electricity is generated to offset one barrel of oil.

It is particularly relevant for Covanta to be addressing the energy future of the insular areas because of the unique environmental benefits that we offer. EfW is a safe, reliable waste disposal method that generates renewable energy, reduces greenhouse gas emissions, recovers metals for recycling, and reduces reliance on landfills. The EfW process reduces the volume of solid waste received at a facility by 90% and displaces one ton of greenhouse gas emissions for every ton of trash we process. According to the U.S. Department of Energy, EfW makes "important contributions to the overall effort to achieve increased renewable energy use and the

many associated positive environmental benefits." In 2003, the EPA stated that EfW produces electricity "with less environmental impact than almost any other source of electricity."

I mentioned Hawaii, New York and Florida earlier, and that is because Island and peninsula communities share some similar characteristics that can present infrastructure challenges to government. Limited drinking water supplies, a limited ability to import power and export waste, and finite land space are among those challenges. EfW, in addition to having the potential to contribute significantly to energy independence and renewable energy, has the benefit of positively impacting those challenges.

Insular and peninsula areas today are depending upon EfW as part of their growing energy and environmental infrastructure. Hillsborough and Lee Counties in Florida have expanded their existing EfW facilities because of population growth and limited landfill space. The City of Honolulu is also planning a 900 ton per day expansion of their existing EfW facility. That expansion will increase the contribution of energy generated by that renewable facility to approximately 8% the amount of all the power generated on the Island of Oahu. In addition, Florida and Long Island communities also look to EfW because it avoids threats to drinking water supplies that landfilling presents. More locally, Puerto Rico's solid waste management plan calls for the construction of two EfW plants with a combined capacity of 2,910 tons per day.

Another critical benefit that these communities will realize by generating renewable energy at EfW plants is a net reduction in their greenhouse gas production. The avoidance of methane gas generation from landfills, avoidance of fossil fuel production, and metals recycling all contribute to EfW's greenhouse gas avoidance.

Energy from Waste is an excellent choice for renewable power for insular communities because it can not only provide clean, reliable, base load renewable power, but it does so by solving a second insular infrastructure challenge which is uniquely met by EfW.

Thank you for the opportunity to speak with you today. I am more than happy to answer any questions the Members may have.

Mrs. CHRISTENSEN. And the Chair now recognizes Mr. Powell representing the Southern States Energy Board for five minutes.

STATEMENT OF JIM POWELL, SENIOR POLICY ADVISOR, SOUTHERN STATES ENERGY BOARD

Mr. POWELL. Madame Chairwoman, Mr. Chairman, Mr. Shuster, and other members of this committee, and I thank you very much for the opportunity to be here today to testify on Charting a Clean Energy Future For the Insular Territories. Special thanks to the committee staff for arranging this.

The Southern States Energy Board is a nonprofit interstate compact organization that was created in 1960 and established under public law. I am here today representing the Southern States Energy Board. The board's mission is to enhance economic development and the quality of life in the South through innovations in energy and environmental policies, programs and technologies. 16 southern states and two territories including the U.S. Virgin Islands are members of the Southern States Energy Board.

We talked a lot today about the energy dilemma is what I would like to call it. I am not going to repeat examples that people have provided that preceded me. But the citizens of the insular areas, including the Virgin Islands are currently experiencing some of the highest energy costs in our nation, perhaps even the world. Because of this, because of the high prices, citizens of the insular territories are forced to spend a higher percentage of their disposable income on energy as compared to people in other parts of the continental U.S.

Energy dollars are leaving the insular areas. Every barrel of oil that's brought into the insular territories is money going out to politically unstable parts of the world that some of us don't like to talk about. By using indigenous renewable resources that are located here in this insular areas, energy dollars stay in insular areas thus benefiting the local economies by creating clean energy jobs not to mention the benefits that it does to the environment. Many of the citizens in the insular areas are forced to make quality of life decisions such as purchasing food and medicine or paying a utility bill. It's not the case in all parts of the U.S.

The Energy Policy Act, Section 251 of the Energy Policy Act of 2005 produced the Insular Areas Energy Assessment Report, which was prepared by the Pacific Power Association for the Department of the Interior and released in the summer of 2006. This important report is a comprehensive assessment totaling 453 pages that contains numerous recommendations designed to reduce the insular areas dependence on imported petroleum and to increase the use of renewable energy resources while improving energy efficiency measures. The broad base assessment should be used as the basis for all the insular areas to develop a comprehensive energy strategy for the future.

Section 252 of EPACT 2005 directed the Secretary of Energy in consultation with the Secretary of Interior to assess and report to Congress on projects with the greatest potential for reducing dependence on fossil fuels used to generate electricity and to promote distributed energy.

DOE was authorized to provide technical and financial assistance for feasibility studies and for implementation of projects. Funding was authorized at 500,000 per year for feasibility studies and 44 million for project implementation. Unfortunately, Congress has not provided funding for the implementation of this important EPACT provision.

The Southern States Energy Board urges Congress to fully fund this EPACT provision so that insular areas would be able to conduct studies of projects and strategies identified in the assessment report that would significantly reduce their dependence on imported fossil fuels. The economic future of the insular areas depends on their ability to reduce their reliance on costly fossil fuels by increasing the efficiency with which we use such fuels and by exploiting the local renewable energy resources.

In August 2007, Governor deJongh asked the Southern States Energy Board to assist in the development and implementation of a Comprehensive Energy Strategy that will be designed to increase the standard of living for the citizens of the U.S. Virgin Islands by assuring long-term availability of affordable, secure supplies of energy.

A secondary goal of that study—of that strategy, the Virgin Islands will be poised to be a Caribbean and worldwide showcase for the development and use of renewable energy. The Insular Areas Energy Assessment Report has proven to be an important resource for the project team.

A bit on the State Energy Program. DOE's State Energy Program provides grants for the states and territories for energy efficiency and renewable energy programs and projects. States and

territories use the State Energy Program grant funding to address their energy priorities and to adopt emerging renewable energy and energy efficiency technologies.

State Energy Program is the only Federally funded energy program that provides financial and technical assistance directly to the states and territories. The State Energy Program funding allocations to the states and territories is based on an antiquated formula that needs to be updated to reflect the current world energy and economic realities.

The insular areas receive only a minimal amount of funding under the State Energy Program. For example, in 2007, Fiscal Year 2007, the Virgin Islands received 259,000, while the State of Texas received $2,782,000. In fact, the total insular area SEP formula allocation for 2007 was $974,000 vice a total of $44,456,000 for the states.

The Weatherization Assistance Program is another Department of Energy program. Under current Federal statute, the insular areas do not participate in that program. However, if they did participate and used the same formula that's there now, without an update they only receive a small amount of funding and probably wouldn't make a worthwhile program in the insular areas. That funding formula is very old as well and needs to be updated.

The Southern States Energy Board urges Congress to include the insular areas in the weatherization program and direct DOE to update the allocation formula to include criteria such as current energy costs, demographics and climate. And the Southern States Energy Board also encourage Congress to provide a minimum allocation of at least $2 million to the insular areas for this program. This amount of funding will ensure operation of a meaningful program.

The territorial energy offices are an important part of the equation of the insular areas quest to reduce their dependence on imported petroleum and to establish a clean energy economy. The energy policies and programs of the territorial energy offices are vital to ensure economic growth, increased energy efficiency, and an increased reliance on clean——

Mrs. CHRISTENSEN. I am going to have to ask you to wrap up.

Mr. POWELL. Real quick. Thank you, Congresswoman. Just a brief mention of the Hawaii Clean Energy Initiative. This is exactly the type of effort that the insular areas need. We are concerned that the insular areas have been left out of this effort and why the effort was focused on Hawaii without considering other insular areas. The insular areas need the same type of attention. We are interested as to how Hawaii actually got this award without the additional areas being considered.

In conclusion, the Southern States Energy Board is proud of the strong relationship we have enjoyed with the Virgin Islands over the years. We are proud of the relationship with Mr. Smith. He has done a marvelous job in the Energy Office in his capacity as Director. Under his leadership, it's an award winning office, and he's a great asset for the Virgin Islands. Thank you for your leadership.

Mrs. CHRISTENSEN. We allowed you to go over so that you can speak highly of Mr. Smith. Thank you.

[The prepared statement of Mr. Powell follows:]

Statement of James R. Powell, Senior Policy Advisor, Southern States Energy Board, Norcross, Georgia

Madame Chairwoman, Mr. Chairman and members of the Subcommittees, thank you for this opportunity to testify on "Charting a Clean Energy Future for the Insular Areas." Mr. Nemeth would very much like to have been testifying today, but he had a previous commitment outside of the country and requested that I serve as his surrogate.

The Southern States Energy Board (SSEB) is a non-profit interstate compact organization created in 1960 and established under Public Laws 87-563 and 92-440. The Board's mission is to enhance economic development and the quality of life in the South through innovations in energy and environmental policies, programs and technologies. Sixteen southern states and two territories comprise the membership of SSEB: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, North Carolina, Oklahoma, Puerto Rico, South Carolina, Tennessee, Texas, U.S. Virgin Islands, Virginia and West Virginia. Each jurisdiction is represented by the governor and a legislator from the House and Senate. Governor Joe Manchin of West Virginia currently serves as the chair. The U.S. Virgin Islands (USVI) is a member and Governor John deJongh is a member of the Executive Committee.

On December 23rd, 1992, Governor Alexander A. Farrelly, signed Executive Order Number 338-1992 authorizing the USVI to become a member of SSEB. Executive order Number 341-1993 was signed on November 12th, 1993 and then Executive Order 364-1995 was signed on November 16th, 1995 by Governor Roy Schneider.

SSEB was created by state law and consented to by Congress with a broad mandate to contribute to the economic and community well-being of the citizens of the southern region. The Board exercises this mandate through the creation of programs in the fields of energy and environmental policy research, development and implementation, science and technology exploration and related areas of concern. SSEB serves its members directly by providing timely assistance designed to develop effective energy and environmental policies and representing members before governmental agencies at all levels.

SSEB's long-term goals are to:

- perform essential services that provide direct scientific and technical assistance to state governments;
- develop, promote and recommend policies and programs on energy, environment and economics that encourage sustainable development;
- provide technical assistance to executive and legislative policy makers and the private sector in order to achieve synthesis of energy, environment and economic issues that ensure energy security and supply;
- facilitate the implementation of energy and environmental policies between federal, state and local governments and the private sector;
- sustain business development throughout the region by eliminating barriers to the use of efficient energy and environmental technologies; and
- support improved energy efficient technologies that pollute less and contribute to a clean global environment, and protect indigenous natural resources for future generations.

The USVI clearly has opportunities today to move forward in reducing dependence on foreign resources for its energy supply. Over the past ten years, SSEB has provided the USVI with funding to conduct numerous projects related to bioenergy. Most recently, SSEB funded work in the amount of $48,000 to assess the feasibility of collection and cleaning of the landfill biogas to insure the greatest possible use of available biogas resources in the territory.

As all the Nation moves forward, it is important to realize that the insular areas represent an important role and the USVI needs assistance from Congress to work toward a sustainable and clean energy future. Please refer to attachment A for comprehensive description of the work that SSEB with the U.S. Virgin Islands.

Energy Dilemma. The citizens of the Insular areas, including the USVI are currently experiencing some of the highest energy costs in our Nation, perhaps the world. For example, citizens in the USVI are currently paying around 35 cents per kilowatt hour for electricity while citizens in most of the Southeast region of the U.S. pay between 5 to 10 cents per kilowatt hour. Gasoline sells for around $4.15 per gallon on St. Thomas while the price per gallon in the metropolitan Atlanta, Georgia area is around $3.25. With the world price of oil hovering around $106 per barrel these high costs appear to be increasing. Citizens of the Insular areas are forced to spend a higher percentage of their disposable income on energy as compared to people in parts of the continental U.S. Accordingly, many of the citizens

of the Insular areas are forced to make quality of life choices such as purchasing food and medicine or paying a utility bill.

Energy Policy Act and Insular Areas Energy Assessment Report. Section 251 of the Energy Policy Act of 2005 (EPACT) directed the Secretary of Interior, in consultation with the Secretary of Energy and the head of government of each insular area, to update insular area energy plans to reflect findings, with the goals of reducing energy imports by 2012, increasing energy conservation and energy efficiency, and maximizing the use of indigenous resources. The Insular Areas Energy Assessment Report was prepared by the Pacific Power Association for the Department of the Interior and released in the summer of 2006. This report is a comprehensive assessment totaling 453 pages that contains numerous recommendations designed to reduce the Insular areas dependence on imported petroleum and to increase the use of renewable energy resources while improving energy efficiency measures. This broad based assessment should be used as the basis for the Insular areas to develop a comprehensive energy strategy for the future.

Section 252 of EPACT 2005 directed the Secretary of Energy, in consultation with the Secretary of the Interior to assess and report to Congress on projects with the greatest potential for reducing dependence on fossil fuels used to generate electricity, and to promote distributed energy, in the insular areas. DOE was authorized to provide technical and financial assistance, on a matching basis with local utilities, for feasibility studies and for implementation of projects the Secretary of Energy determines are feasible and appropriate. Funding is authorized at $500,000 per year for feasibility studies and $44 million per year for project implementation. Unfortunately, Congress has not provided funding for the implementation of this important EPACT provision and should act to do so in an expeditious manner. In a letter to Congress this month, the heads of government of some Insular areas have requested Congress to "fund feasibility studies of projects and strategies identified in the Assessment that would significantly reduce our dependence on imported fossil fuels, or provide needed distributed generation in remote insular areas. The economic future of our communities depends on our ability to reduce our reliance on costly fossil fuels by increasing the efficiency with which we use such fuels and by exploiting local renewable energy resources."

Comprehensive Energy Strategy. In August 2007, Governor John deJongh asked SSEB to assist in the development and implementation of a Comprehensive Energy Strategy that will be designed to increase the standard of living of the citizens of the Territory by assuring the long-term availability of affordable, secure supplies of energy. A secondary goal is to become a Caribbean and worldwide showcase for the development and use of renewable energy. The Insular Areas Energy Assessment Report has proven to be an important resource for the project team.

Integral to this direct service to the USVI is adequate funding to truly implement an effective comprehensive energy strategy that is sustainable for the future. As part of this service, SSEB works with Mr. Bevan Smith, Director of the VIEO and others as designated to establish clear, realistic goals. As a first step, the USVI has assessed current and future types, amounts and sources of energy imported into the Territory. Additionally, this work will assist in identifying the amount of energy used by various sectors, the cost of energy to the end users and to the extent possible an analysis of how this energy is being used within each sector (e.g. domestic hot water, diesel highway and off-highway use). The intent is also to project the types and amounts of energy that will be required over the next 20 to 30 years in the USVI. Important to implementing the strategy is identification of all potential energy options with a primary focus on renewable energy, energy efficiency and conservation. Once data is collected and analyzed the intent is that potential energy solutions will result in a number of options for implementation in the future. Of course, the implementation of energy plan requires resources and most likely, policy incentives to achieve success.

State Energy Program. DOE's State Energy Program (SEP) provides grants to states and territories for energy efficiency and renewable energy programs and projects. States and territories use SEP grant funding to address their energy priorities and to adopt emerging renewable energy and energy efficiency technologies. SEP is the only federally funded program that provides financial and technical resources directly to the states and territories. With SEP funds and the resources leveraged by them, the state and territory energy offices develop and manage a variety of programs geared to increase energy efficiency, reduce energy use and costs, develop alternative energy and renewable energy sources, promote environmentally conscious economic development, and reduce reliance on imported oil. The program was funded at $36.6 million in FY 2006, $49.4 million for FY 2007 and at S44.5 million for FY2008. However, DOE plans to include on $33 million in the competitive allocations.

SEP funding allocations to states and territories are based on an antiquated formula that needs to be updated to reflect the current world energy and economic realities. The Insular areas receive only a minimal amount of SEP funding under the current allocation formula. For example, in FY 2007 the USVI received $259,000 in SEP funding while Texas received $2,782,000. In fact, the total Insular area SEP funding formula allocation for FY2007 was $974,000 vice $44,456,000 for the states and the District of Columbia.

The Insular areas need every opportunity available to improve energy efficiency, increase of use of renewable energy and to reduce our 100% dependence on imported fossil fuels.

Weatherization Assistance Program. Under current Statue, the Insular areas do not participate in the DOE's Weatherization Assistance Program (WAP). The reasons why the Insular areas were not included when the program began in 1976 is akin to folklore. However, if the Insular areas were included in the program and received a funding allocation under the current formula it would likely be a small amount. In fact, some would question if the funding would be adequate to even operate an Insular area WAP.

The formula used to allocate WAP funding is antiquated and needs to be updated to reflect the current world energy and economic realities. Legislation is required to include the Insular areas in WAP. Congress should consider including the Insular areas in the WAP and direct DOE to update the allocation formula to include criteria such as current energy costs, demographics and climate, Congress should also require DOE to provide a minimum allocation of at least $2 million to the Insular areas. This amount funding would ensure the operation of a meaningful and robust program.

DOE did not request any funding for the WAP in the FY2009 budget request. This reduces heating and cooling costs for low-income families, particularly for the elderly, people with disabilities, and children, by improving the energy efficiency of their homes while ensuring their health and safety. It is essential that Congress fully fund this critical energy assistance program at the FY2008 amount of $227.2 million.

Territorial Energy Offices. The Territorial Energy Offices are an important part of equation in the Insular areas quest to reduce their dependence on imported petroleum and to establish a clean energy economy. The energy policies and programs of the Territorial Energy Offices are vital to ensuring economic growth, increased energy efficiency and an increased reliance on clean renewable energy sources. These offices have become experts on researching, demonstrating and deploying emerging clean energy technologies.

Under the leadership of Mr. Bevan Smith, Director, the VIEO has grown into an award winning organization that manages a multitude of meaningful energy efficiency and renewable energy programs that directly benefit the citizens of the USVI. Some of these popular programs are: building energy program, discretionary grants, energy rebates, and solar energy. In addition, the VIEO holds a number of education outreach events throughout the year that are designed to increase the awareness of the general public on energy efficiency and renewable energy programs and practices. Also, Mr. Smith was instrumental in bringing the best practice of net metering to the USVI. He worked in a collaborative manner with the utility and the Public Services Commission to develop and implement a successful program. At the request of Governor deJongh and the concurrence of the Senate, the VIEO was recently relocated from the Department of Planning and Natural Resources to the Office of the Governor. This important organizational relocation sends a strong message to the Insular areas that the Governor is keenly interested in USVI energy issues.

Hawaii Clean Energy Initiative. According to a DOE press release dated January 28, 2008, DOE and Hawaii joined in a Memorandum of Understanding (MOU) establishing the Hawaii Clean Energy Initiative (HCEI), a long-term partnership designed to transform Hawaii's energy system to one that utilizes renewable energy and energy efficient technologies for a significant portion of its energy needs. The partnership aims to put Hawaii on a path to supply 70% of its energy needs using clean energy by 2030, which could reduce 72% of Hawaii's current crude oil consumption. While a specific amount of funding was not identified, DOE committed to the provision of technical and policy expertise and capabilities to help demonstrate reliable, affordable and clean energy technologies in Hawaii.

DOE agreed to immediately engage experts in clean energy technology development to help Hawaii to launch several projects with public and private sector partners that target early opportunities and critical needs for Hawaii's transition to a clean energy economy, including:

- Designing cost-effective approaches for the exclusive use of renewable energy on smaller islands;
- Designing systems to improve stability of electric grids operating with variable generating sources, such as wind power plants on the islands of Hawaii and Maui;
- Minimizing energy use while maximizing energy efficiency and renewable energy technologies at new large military housing developments;
- Expanding Hawaii's capability to use locally grown crops and byproducts for producing fuel and electricity; and
- Assisting in the development of comprehensive energy regulatory and policy frameworks for promoting clean energy technology use.

The HCEI is the type of attention and dedication that the Insular areas desperately need to help reduce their dependence on imported petroleum and to establish a clean energy economy. Congress should inquire as to why Hawaii was selected non-competitively for this initiative and why the Insular areas were not provided an opportunity to compete. Congress should require DOE to engage the Insular areas with an effort similar to HCEI. The same amount of attention and resources should also be provided to the Insular areas.

Conclusion. SSEB is proud of the strong relationship we have enjoyed with the USVI for over 16 years. We are committed to doing everything within our ability to help the USVI attain a stronger economy and improve the quality of life for its citizens. As mentioned previously, we are working closely with Mr. Bevan Smith, Director of the VIEO. We commend Mr. Smith for his outstanding accomplishments with limited resources. We thank the committee for asking us to participate in this hearing. We believe with Congresswoman Christiansen's leadership equitable opportunities will enable the Insular areas to work toward a sustainable clean energy future that will strengthen the USVI's economy and improve the quality of life for all future generations.

Mrs. CHRISTENSEN. I'd like to thank everyone for their testimony. I will recognize myself for five minutes of questions.

Mr. Nicholson, let me start with you. Some people would say that OTEC is still an unproven technology and maybe that's something that ought to be considered maybe not now but later on. How would you respond to that?

Mr. NICHOLSON. Well, that's true, it is unproven. However, we have our own financing, so the risk is placed on us, not the host client, and the rewards are so great. For example, in Hawaii where we have a proposal for 100 megawatt plant, the investment is $500 million. So the risk is much greater than the one proposed here, which is a smaller plant. But we are going forward with that, and that will probably happen before the plant goes into St. Croix or could go into St. Croix.

I don't think that really should be a factor. I think the decision makers should really try to plan and go forward. We have an insurance company that would guarantee the performance of our first plant. The fact that we have private investors that would put up all the money, that in itself is a confirmation of confidence.

Mrs. CHRISTENSEN. Thank you.

Mr. Resor, one of the maps in your testimony shows parts of Hawaii with less sun than parts of Maine, which is kind of surprising. Do we have similar information for the insular areas?

Mr. RESOR. Yeah. It wasn't included in that particular map. Generally the insulation for the U.S. Virgin Islands is very good. I'm sure that data is available for the third party.

Mrs. CHRISTENSEN. I am going to need everybody to speak a little closer to the mike. I think we were able to hear you, but just——

Mr. RESOR. Just repeat. The same data I'm sure is available from the same third party sources that would show it for each of the insular areas.

Mrs. CHRISTENSEN. Thank you.

Ms. Blaylock, I think the first panel said that the Virgin Islands produces about 400 to 500 tons of trash per day. Does that make waste energy feasible for us?

Ms. BLAYLOCK. That's about the threshold that a waste to energy facility would need in terms of trash volume. Ideally you would—600 tons per day is really the true threshold. The reason for this economies of scale, the more garbage that you bring into the facility, the more energy you can generate, and therefore the more electricity can be sold and offset the cost of the facility's operation.

Mrs. CHRISTENSEN. I would also imagine in that 4 to 500 tons there might be some kinds of trash that would not be able to be used, or do you burn everything?

Ms. BLAYLOCK. We can safely burn all municipal solid waste. In the communities where Covanta has waste to energy facilities, the recycling rates tend to be 20 percent higher than communities that don't have waste to energy. Most of our communities separate their recyclables; however, not all do. And any of the materials that are disposed of at a restaurant or at a private home would be safely handled at an energy-to-waste plant. It's a much better place to send it than to a landfill, certainly.

Mrs. CHRISTENSEN. Absolutely. Thank you for your answer.

Mr. Powell, thank you for Southern States' partnership and support of the U.S. Virgin Islands. We really appreciate it. You mentioned in your letter that some insular areas are sent to Congress asking for funding feasibility studies. Are there specific feasibility studies that have been requested, do you know, and what areas? What kinds of feasibility studies?

Mr. POWELL. Madame Chairman, no, I'm not aware of specific studies that have been requested. I'm aware of a letter that some of the Governors of insular areas actually sent to Congress requesting funding of that EPACT provision.

Mrs. CHRISTENSEN. Is your knowledge of why the territories were excluded from the weatherization program the same as Mr. Smith's or——

Mr. POWELL. Yes, ma'am. Very much, I have been around the Weatherization Assistance Program since the early '90s, and folklore is probably the best way to describe it. The Weatherization Assistance Program when it was initiated was focused on cold weather states. Since then it includes warm weather states. And there is a formula that's designed for both cold weather and warm weather states and which is more reason why the territories should be included.

Mrs. CHRISTENSEN. We will get to work on that. Thank you.

I now recognize Mr. Costa for his questions.

Mr. COSTA. Thank you again, Madame Chairwoman.

Let me begin with Mr. Resor. What does it cost to implement a solar system on the roof of an average family house? In California we are doing a lot of this. As in other western states, the utility companies are providing rebates, as you know, for that purpose.

With $19,000 per capita income here in the U.S. Virgin Islands, obviously it would be more difficult, but give me the breakdown.

Mr. RESOR. Sure. It varies a bit on the scale operation. Rough rule of thumb, if you do a 3 kilowatt system, which is a pretty standard size of residence, you are probably looking at $25,000 to $27,000 dollars for that. Now, if you are doing that—that's the retail price. That's before any Federal tax credit comes into play. If there is a state incentive, or utility incentive, that price is reduced significantly, as it is in California.

Mr. COSTA. The Federal tax credit being?

Mr. RESOR. Right now the Federal tax credit for the residence is only $2,000.

Mr. COSTA. It's 25,000——

Mr. RESOR. 23. But in California, Massachusetts you are often getting another 8 to 10 knocked off.

Mr. COSTA. Knocks it down to about 15?

Mr. RESOR. Right.

The other piece for the U.S. Virgin Islands in your comment about the lower per cap income is I think an obstacle here that would need to be addressed is if that can be financed upfront, where the homeowner wasn't expected to shell that all out, let's call it net $18,000 for the system on day one. And if the same way that could be financed over time, the economics worked out very well, if the electricity you are replacing is costing you more than 35 cents a kilowatt and rising.

Mr. COSTA. So then you would have a system in place for 3 kilowatt. If you implemented that, it will provide all the electricity needs that you would have for your home?

Mr. RESOR. It depends on the——

Mr. COSTA. The system.

Mr. RESOR. The electricity needs of that home. The idea is typically the size of the system not to produce 100 percent of the home's needs. With net metering you can provide the excess factor in the day. Often you look to provide anywhere from 35 to 85 percent. And that just depends on the exact pattern usage how you want to size it.

Mr. COSTA. You speak a lot about net metering. Recently I understand that the U.S. Virgin Islands have implemented a net metering program. How do you think that program would work with——

Mr. RESOR. I think a lot of what we are experiencing working with probably 30, 40 different utilities is the net metering you have to be very careful to the implementation details. What you want to avoid is inadvertently throwing up roadblocks for the consumer, the business in terms of application they have to fill out, how the metering is done. On the surface the net metering looks fine. I don't know the particulars of how it is implemented.

Mr. COSTA. If you could get back to us on that. My time is——

Mr. RESOR. OK.

Mr. COSTA. Ms. Blaylock, you talked about your efforts in other parts of the country and the world. How far along is Puerto Rico's plan to go to an energy-from-waste plant?

Ms. BLAYLOCK. Their solid waste management plan has suggested that that should be part of the future. There are not bids out for——

Mr. COSTA. Those projects that you are involved in, I assume they are private/public partnerships?

Ms. BLAYLOCK. Yes, sir, in every case.

Mr. COSTA. We know what the challenge is economically that the territories here have. How would you pursue or propose a plan or have you for a private/public partnership on waste to energy?

Ms. BLAYLOCK. We haven't proposed one yet, but if we were to do one, it would be a regional approach, which would take trash from all the three islands and potentially depending on the transportation costs from other sources, and——

Mr. COSTA. Are you considering doing so?

Ms. BLAYLOCK. We will be delighted to do so. Right now the RFP that came out recently was just for a 12 megawatt facility and was just looking at 200 tons per day.

Mr. COSTA. I would suggest, in terms of the submission of testimony today, that's one of the takeaways. You will be delighted to provide a proposal?

Ms. BLAYLOCK. Yes.

Mr. COSTA. Very good.

Mr. Nicholson, where has your company successfully implemented a plant? Obviously, it sounds wonderful the description in your testimony. Where have you successfully implemented one?

Mr. NICHOLSON. There has not been an installation of this technology.

Mr. COSTA. That's kind of problematic, don't you think?

Mr. NICHOLSON. First of all, the technology that was invented in 1881.

Mr. COSTA. No. No. I am very familiar with all of these technologies, but you hate to have an area like this with limited resources to be the first experience, because they don't have the resources in terms of the R&D.

Mr. NICHOLSON. They don't need the resources.

Mr. COSTA. I think they do need the resources. $19,000 per capita and the constraints that they are facing, it's important—I'm always looking for best management practices, someone who has actually paved the way, if you understand.

Mr. NICHOLSON. We are putting up the $80 million. We will own and operate the plant.

Mr. COSTA. Have you submitted a proposal?

Mr. NICHOLSON. It's due May 1st.

Mr. COSTA. To the U.S. Virgin Islands?

Mr. NICHOLSON. Yes. And the same thing is true in Hawaii, it's a $500 million investment. We are putting up that money. It's our money. There is no burden or risk to the host client.

Mr. COSTA. It will be interesting to follow up on that. My time has expired clearly.

Mrs. CHRISTENSEN. The Chair recognizes Mr. Shuster for questions.

Mr. SHUSTER. I would like to follow up on, Mr. Nicholson, if you have not built any facilities and you say there is no risk with the capital that you are going to outlay, you are going to have to gen-

erate revenue, and you are going to do that within the public utilities commission operation. I mean, are you going to be able to get the return?

Mr. NICHOLSON. Yes. For an example, in Hawaii it's about $109 million a year revenue stream. There is no energy cost. In the Virgin Islands, it's about $10 million revenue stream for water and—I'm sorry, for power, and about a $8 million a year revenue stream for water. Plus, the island can benefit with diversity by having 500 acres or less, whatever is desirable, of mariculture. They can grow fish, they can grow vegetables. They can become really energy self-sufficient and reduce dramatically their importation of food. There are so many benefits to this technology.

Mr. SHUSTER. I, unlike Mr. Costa, am not familiar with these technologies, but I think I have a clear amount of skepticism. Why hasn't one been built somewhere in the world to date?

Mr. NICHOLSON. First of all, we are the modern-day pioneer in the development of this technology on the commercial basis. It was invented in York, Pennsylvania. We presented it to the U.S. Government before the U.S. Department of Energy was even established. This technology is over 40 years old. We had no political representation or credibility. Senator Sparky Matsunaga from Hawaii grasped the opportunity and hundreds of millions of dollars went to Hawaii. U.S. Department of Energy and Hawaii attempted to compete with our design and failed. We lost 30 years.

We have continued to operate supporting ourselves, funding our ourselves, and we have now raised the money to build these plants throughout the equatorial zone. We don't need government support. We are a private company, we have a private funding, and we are going forward on a commercial basis. And St. Croix has excellent operating conditions for this type of technology.

Mr. SHUSTER. That's music to my ears to hear that you don't require government support. You have small scale testing that's been out there? What have you built that is designed? That always makes me skeptical when it's in design, when it's not in practical application—even on a small scale.

Mr. NICHOLSON. That's a fair question. And the same inventor invented the world's first commercial binder cycle geothermal power plant, just went ahead and built it, and that works on a commercial basis. The Eagle Foundation, which owns my company, has spent millions of dollars developing to come up with the components that go into this cycle. We built and tested those components. We have a complete team of professionals, large engineering firms, one of the largest construction companies in the United States, Naval architectural design firms, insurance companies that guarantee the performance of the first plant.

The people who should be skeptical or worried are the investors. They spent millions of dollars confirming that our technology is sound. They are ready and eager to go forward.

It's so much larger than the small islands throughout the equatorial zone. This is a major opportunity for shipbuilding. For example, we are working with the Governor of Maryland. We have shown the City of Baltimore shipbuilding industry where building six plants per year in Baltimore creates 25,000 jobs. We can do

that in California shipyards; we can do that in Philadelphia. We can revitalize the American shipbuilding industry.

Mr. SHUSTER. It sounds exciting. I look forward to watching closely what you do. The $80 million investment here in the Virgin Islands, what percentage of the electricity would that produce or generate?

Mr. NICHOLSON. I don't know that I have that for sure, but it's probably a third. I am not suggesting—I mean, I have suggested and I think it's possible and realistic to have 30 megawatts of OTEC in St. Croix. But, also, I think the trash is a great idea, recycled trash, and Jaime's technology. It's not a silver bullet for St. Croix or St. Thomas or St. John, but I think OTEC can play a very significant role for this community. It plays a much larger role in the world market and on the national market.

Mr. SHUSTER. I see my time is winding down. I would like to have an opportunity to submit questions.

Mrs. CHRISTENSEN. I think that we would submit questions in writing, unless you have a real burning one that you want——

Mr. SHUSTER. I do have one quick one. 3 kilowatts how big a house is that? 3,000 square feet, how much energy would that—I know it's going to vary from house to house.

Mr. RESOR. 2,000 square foot house or even smaller, you can have it on the roof or it could be ground level. It's very flexible.

Ms. Blaylock, I will submit.

Mrs. CHRISTENSEN. I want to again thank this panel for their testimony and members for their questions, and we are very likely to have additional questions that we will submit in writing and ask for you to respond in writing. Thank you.

The Chair would now like to recognize the third panel, Mr. Nikolao Pula, the Acting Deputy Assistant Secretary for Insular Affairs, the U.S. Department of the Interior, and Mr. Drew Bond, the Director of Commercialization, Office of Energy Efficiency and Renewable Energy at the U.S. Department of Energy.

Mrs. CHRISTENSEN. I know folks are very interested in learning more about the renewable forms of energy, but we need to get started. Thank you.

The Chair now recognizes Mr. Pula for his testimony.

STATEMENT OF NIKOLAO PULA, ACTING DEPUTY ASSISTANT SECRETARY, INSULAR AFFAIRS, U.S. DEPARTMENT OF THE INTERIOR

Mr. PULA. Good afternoon, Madame Chairwoman Christensen, Chairman Costa, and Mr. Shuster and members of the Subcommittees. This is a subject of overriding importance for the insular areas. Well, thank you for the opportunity to testify on charting a clean energy future for the insular areas. This is a subject of overriding importance for the insular areas and the free associated states.

In island communities we see very little air pollution. The wind blows it away. What does not blow away is the escalating cost of fossil fuels. When faced with the need to purchase large-scale electric capacity, officials in the islands however have found it more economic to continue to rely on oil based fuel. Not any more. The high cost of oil means that alternative sources of energy are in-

creasingly attractive from an economic point of view. High energy prices are currently the greatest threat to all of the economies of the insular areas.

I think the last two panelists have said a lot already, so I am going to really cut my testimony short. Besides the potential for alternatives to oil, a second avenue for energy improvement is focused on the management and maintenance practices for existing electric generation facilities. Potential efficiencies could be gained by, one, improving operations and maintenance standards; second, improving load balancing and distribution; and, three, replacing transformers and other distribution systems with more efficient models.

The 2006 report identified steps to reduce overall consumption including adoption and enforcement of building code provisions used by Guam and the Virgin Islands; metered power rates that reward savings and lower usage; promotion of the use of energy efficient appliances and light bulbs; and extension of publicity for the Energy Star programs and maybe more.

We encourage the insular governments and utilities to explore new concepts that may alter energy consumption. For instance, local retailers and wholesalers could arrange bulk purchases of proven alternative systems with financing and repay loans through the utilities' billing processes.

The Department of the Interior has supported efforts to build the capacity and improve the efficiencies that lead to lower costs and lower emissions for delivered electricity. For example, our Operations and Management Improvement Program has invested over $4.7 million in the last three years in the Pacific Lineman Training Program.

Our Capital Improvement Program has supported numerous power projects in the four United States territories. Under Compact II funding, the free associated states are eligible to spend infrastructure sector funds on power projects. Our Technical Assistance program has been the source of funding in the past for resource surveys similar to those outlined in the 2006 report.

The Energy Assessment Report contains valuable data and ideas. A sustained effort is now required to ensure that the options outlined in the study are more fully reviewed and the residents of the insular areas receive any potential benefit as quickly as possible.

In order to stretch the island energy dollar as far as possible, officials from my office of Insular Affairs will be visiting the other territories, including the free associated states to discuss ways to implement the most promising energy options.

On Thursday we met with Governor deJongh and presented him with a $50,000 grant to aid investigation of realistic energy measures that would benefit the Virgin Islands. Our Interior team also yesterday met with and discussed promising technology with government officials in the Virgin Islands to more aggressively see these ways to help out.

Because of initiative shown by the Governor and with some of his staff, we met with Bevan Smith and Carl Knight, and other colleagues, including my colleague from the Energy Department here, Drew Bond, and we had a very good meeting yesterday discussing these issues.

We believe that effort expended in the energy area can bring significant energy pay off in the form of lower utility costs for residents and businesses, and may possibly pave a way for new industry in some of the islands. As Co-Chairs you are to be applauded for your leadership you have shown on this critical issue on energy. And I thank you for your effort and support and for inviting me to testify today.

Mrs. CHRISTENSEN. Thank you, Acting Deputy Assistant Secretary.

[The prepared statement of Mr. Pula follows:]

Statement of Nikolao I. Pula, Acting Deputy Assistant Secretary of the Interior for Insular Affairs

Co-chairs and members of the Subcommittees on Insular Affairs and Energy and Mineral Resources, thank you for the opportunity to testify on Charting a Clean Energy Future for the Insular Areas. The Insular Areas include the United States territories of the United States Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (CNMI); and the freely associated states of the Republic of the Marshall Islands, the Federated States of Micronesia (FSM), and the Republic of Palau.

In island communities, we see very little air pollution. The wind blows it away. What does not blow away is the escalating cost of fossil fuels. Most people in the islands would like to utilize clean energy. When faced with the need to purchase large-scale electric capacity, officials in the islands, however, have found it more economic to continue to rely on oil based fuel. Not any more. The high cost of oil means that alternative sources of energy are increasingly attractive from an economic point of view.

High energy prices are currently the greatest threat to all of the economies of the United States and affiliated insular areas. The high cost of electricity depletes the wallets of island residents and the finances of local governments and businesses. In those islands where the cost of electricity is subsidized by the local government, we are approaching a crisis. Increasingly substantial portions of the local government budgets are being siphoned off for fuel to run their electric power plants. In the CNMI, for example, where the annual budget is approximately $160 million, $80 million is spent on fuel for its power plants.

The rising price of oil has made alternative sources of power more economic. It has also highlighted the long-standing need for existing equipment to give us its best performance and efficiency.

Pursuant to the Energy Policy Act of 2005, the Department of the Interior published the *United States of America Insular Areas Energy Assessment Report* in 2006. Copies of the report were made available to the Congress. The report analyzes the energy situation in each United States territory and freely associated states, in detail. The report deals with both the supply and the demand sides of the energy equation.

ENERGY SUPPLY

On the supply side, some alternative technologies already have been proven to be commercially viable; others may be available in the future.

- **Solar.** Given current power costs, solar can be cost effective for small scale and individual residential use. Solar sets are already in use on isolated islands in the Pacific to power small scale activities such as dispensaries and offices. Residential customers everywhere in the insular areas could purchase solar sets to place on their homes or property and connected to the local power grid through a "net metering" system. The Virgin Islands and American Samoa have already begun exploring such systems.
- **Wind.** With constant wind, the islands hold a great deal of potential for wind generation of electricity. This is a proven technology that can be cost effective. There are, however, two issues that must be addressed before pursuing wind generation projects in the United States-affiliated insular areas. The first is a concern about tropical cyclones; all four United States territories experience these powerful storms, and careful consideration should be given to hardening any wind generation project against them. The second issue to consider is the need for detailed wind resource studies prior to embarking on any deployment of the technology. This is explained in the 2006 report.

- **Geothermal.** Geothermal is a technology that is coming of age for volcanic areas. The United States Navy uses geothermal power for some of its installations. Northern California, Iceland, and the Philippines all have major geothermal installations that are producing electricity. What California, Iceland and the Philippines all have in common are active volcanoes that power their geothermal energy production. The CNMI, and possibly Guam, may be able to benefit from geothermal power over in the future. Feasibility studies are under way to quantify the geothermal resource in the region.
- **OTEC.** Ocean Thermal Energy Conversion (OTEC) is a technology that, in the future, may play a significant role in providing electricity on a large scale for our islands. Three of the four territories and parts of the freely associated states are in locations where the undersea topography is favorable for the development of such systems. This technology, however, has not been deployed on an industrial scale for power production. Until a commercial project is completed, questions remain about the costs associated with the development of these systems.
- **Biofuels and Biogas.** Although the islands lack the land area necessary for large-scale biomass production, several areas in the Pacific already use copra oil to fuel vehicles and machinery. The 2006 report also noted that there was some potential in certain areas for biogas recovery from solid waste and wastewater plants, and that recovery systems should be considered for inclusion in future upgrades and construction of these facilities.
- **Coal.** It has been over 100 years since the chiefs of Tutuila and Manu'ua ceded their islands to the United States, enabling the United States Navy to use American Samoa as a coaling station. While the energy assessment did not focus on coal, it may be time to reconsider it.
- **Nuclear.** The generation of electricity in nuclear power plants is quite large scale but may not be cost effective for any of our islands with their small populations.

Besides the potential for alternatives to oil, a second avenue for energy improvement is a focus on the management and maintenance practices for existing electric generation facilities. Most of the insular areas have paid considerable attention to these issues in recent years.

Potential efficiencies could be gained by (1) improving operations and maintenance operations standards, (2) improving load balancing and distribution on the existing grids, and (3) replacing transformers and other distribution systems with more efficient models. The CNMI, for example, is in the midst of an overhaul of most of its generating base. When the overhaul is complete, CNMI officials estimate that they will save over $2 million a month in fuel and lubrication costs.

ENERGY DEMAND

The 2006 report identified a range of steps that can be taken by the insular areas to reduce overall consumption and create long-term savings for utility customers. These suggested steps include:

- Adoption and enforcement of building code provisions used by Guam and the Virgin Islands.
- Modification or institution of metered power rates that reward savings and lower usage.
- Promotion of the use of energy-efficient appliances and light bulbs, which collectively represent some of the largest sources of consumer usage.
- Promotion of the use of systems, such as solar water heaters, to replace electrically-heated systems, including the possible financing of bulk purchases of systems that electric utility customers could finance over time as they pay lower utility bills.
- Expansion of publicity for the Energy Star program to bring great savings to citizens in the insular areas because of the exceedingly high cost of electricity.

Outreach and education will be critical. Some may balk at the up-front costs associated with adopting alternative energy solutions, even if the longer-term savings far outweigh the up-front costs. We encourage the insular governments and utilities to explore new concepts that may alter energy consumption. For instance, local retailers and wholesalers could arrange bulk purchases of proven alternative systems with financing and repay loans through the utilities' billing processes.

INTERIOR SUPPORT FOR ENERGY INNOVATION

The Department of the Interior has long supported electricity producers in the islands in their efforts to build the capacity and improve the efficiencies that lead to lower costs and lower emissions for delivered electricity.

- Our Operations and Management Improvement Program (OMIP) has invested over $4.7 million in the last three years in the Pacific Lineman Training Pro-

gram and the efforts of the Pacific Power Association to develop a cadre of knowledgeable, professional linemen that provide their communities with safe and efficient electricity transmission.

- Our Capital Improvement Program (CIP) has supported numerous power projects in the four United States territories. We are currently reprogramming unused CIP funds, a good deal of which will be used for power-related projects including the refurbishment of the generators in the CNMI.
- Under Compact II funding, the freely associated states of the Marshall Islands and the Federated States of Micronesia are eligible to spend infrastructure sector funds on power projects.
- Our Technical Assistance (TA) program has been a source of funding in the past for resource surveys similar to those outlined in the 2006 report. Early this year, CNMI Governor Benigno Fitial requested and received a TA grant (supported by the CNMI Washington Representative Pedro Tenorio) for $300,000 to continue research on fresh water production for agriculture by using the cold thermal properties of deep ocean water. In March, the CNMI submitted a $500,000 TA request to undertake assessment of geothermal resources on the islands of Pagan and Saipan that could yield low-cost electricity and industrial potential for the territory.

FOLLOW-THROUGH

The Energy Assessment Report contains valuable data and ideas for addressing the energy challenges that we are currently experiencing. A sustained effort is now required to ensure that the options outlined in the study are more fully reviewed and the residents of the insular areas receive any potential benefit as quickly as possible.

In order to stretch the island energy dollar as far as possible, officials from the Office of Insular Affairs will visit each of the United States territories and freely associated states to discuss ways to implement the most promising energy options outlined in the Energy Assessment Report.

On Thursday, Secretary Kempthorne's Deputy Chief of Staff, Doug Domenech, and I met with Governor John P. de Jongh, Jr., in St. Thomas to present him with a $50,000 grant from the Office of Insular Affairs to aid investigation of realistic energy measures that will benefit the residents of the Virgin Islands. The grant was made in response to a request from the Governor. Our Interior team then met with other local government officials to discuss the Insular Areas Energy Assessment Report and promising technology. The Government of the Virgin Islands is to be praised for moving aggressively on the energy issue. Because of the initiative shown by the Governor and his staff, we look forward to a good working relationship as we seek out practical energy solutions.

At the end of this month, staff and I fly to the CNMI to discuss the CNMI portion of the report. OIA officials will later visit Guam, American Samoa, and the freely associated states.

We believe that effort expended in the energy area can bring significant economic pay off in the form of lower utility costs for residents and businesses, and may possibly pave the way for new industry in some of the islands.

We appreciate the leadership the co-chairs have shown on this critical issue of energy. Thank you for your effort and your support. I would be happy to answer any questions you may have for me.

STATEMENT OF DREW BOND, DIRECTOR, COMMERCIALIZATION, OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY, U.S. DEPARTMENT OF ENERGY

Mr. BOND. Thank you, Madame Chairwoman, Mr. Chairman, members of the Subcommittee. Thank you for the opportunity to testify on behalf of the Department of Energy's Office of Energy Efficiency and Renewable Energy. It's an honor to be here.

My name is Drew Bond, and I am the Director of our Commercialization and Deployment activities within DOE's Office of Efficiency and Renewable Energy. First, let me give a brief explanation of the commercialization team that I lead within EERE, as we call ourselves. In 2006, Assistant Secretary Karsner assembled for the first time a team of individuals reporting directly to him, that fo-

cuses on aggressive commercialization and deployment of our technologies. Briefly what this means is that we are charged with the responsibility of increasing the pace, the success rate, and the scale in which renewable energy and efficient energy technologies move from the R&D to the market changing products and processes. Among our many initiatives, this is a consorted effort to expand the use of clean energy in island communities.

My testimony today will discuss the Energy Policy Act of 2005 provisions relative to insular areas, as well as the department's recent announcement of the Hawaii Clean Energy Initiative, which is a model for the type of focused commitment necessary to change the predominant source of energy in islands and territories, nations, and insular areas from imported oil to clean sustainable energy sources.

As you well know, Section 251 of the Energy Policy Act of 2005 required that the Secretary of Interior in consultation with the Secretary of Energy and the head of the government of each insular area to update the 1982 Territorial Energy Assessment. The implementation of this EPACT requirement resulted in an updated report developed and made available by the Department of the Interior in the fall of 2006.

The report reaffirmed the original finding that insular areas face unique challenges in the reliance of imported energy as well as high fuel and energy prices. Island's coping with these problems stand to benefit greatly from the end use efficiency measures and the expansion of renewable energy production. Territories can use the information from Section 251 assessment to develop an advanced energy plan, and use the DOE State Energy Program grant funds to act on these findings.

I would like to share with the committee our work in Hawaii, which serves as a possible example that could be translated for use in insular areas. On January 28, 2008, of this year, the Department of Energy and the State of Hawaii signed a memorandum of understanding that launched the Hawaii Clean Energy Initiative and put Hawaii on the path to supply 70 percent of its energy needs with renewable sources by 2030.

While this is a dramatic increase compared to the state's legal renewable portfolio standard requirement of 20 percent by 2020. Hawaii is uniquely positioned to achieve the accelerated goal because of its high electricity prices and dependence on oil for energy. Oil supplies approximately 90 percent of Hawaii's total energy and 84 percent of energy generation.

DOE's approach to performing its role in this partnership is threefold. First, working groups; second, partnership projects; third, clean energy transformation. First, the working groups strive to integrate the department's technical and policy expertise with Hawaii based knowledge and project relation resources.

Second, partnership projects test and validate concepts laid out by the working groups such as solving grid integration and financing challenges for wind, solar, geothermal and ocean thermal energy resources.

Third and most importantly, lessons learned through the working groups and partnership projects will guide what new regulations and laws may be needed to incentivize intelligent investments

by capital markets, by energy suppliers and by energy consumers. Transforming Hawaii to have a cleaner more diverse and sustainable energy portfolio.

These efforts are expected to help Hawaii progress toward increased use of cleaner energy as well as to help demonstrate existing and new technology at a significant scale, to help stimulate new investment to promote rapid asset turnover, and to help improve standards of service, energy service delivery and energy security. Likewise, this model could be replicated for territories.

Underpinning all of these efforts is the need for the State of Hawaii to redefine its regulatory policy framework in a way that transforms its own energy infrastructure. Current utility regulations and rules in Hawaii and elsewhere make it difficult for investor owned utility or co-ops to profit from things like non-utility renewable generation from customer owned distributed generation and from energy efficiency. All of which are critical to the success of this partnership.

Achieving Hawaii's Clean Energy Initiative goals would require reconsideration of how Hawaii's electric system is regulated, redesigning electricity and gas rates and tariffs, and changing the regulation and opportunities for electricity substitutes, including energy efficient solar hot water heaters, solar photovoltaic, and future grid-affecting technologies, such as plug-in hybrid electric vehicles.

Cooperation between the Department of Energy and Hawaii to achieve the objectives of this partnership will mean that many people that visit the state for the scenic beauty that only islands can provide will also be able to see a functional, renewable energy economy. If successful, the Hawaii Clean Energy Initiative would serve as an integrated demonstration model for insular areas, for U.S. territories, and for other island communities globally.

Madame Chairwoman, Mr. Chairman, this concludes my prepared statement. I am happy to answer any questions.

[The prepared statement of Mr. Bond follows:]

Statement of D. Drew Bond, Acting Director of Commercialization and Deployment, Office of Energy Efficiency and Renewable Energy, U.S. Department of Energy

Madame Chairwoman, Mr. Chairman, Members of the Subcommittees; thank you for the opportunity to testify on behalf of the Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) regarding our efforts that contribute to Charting a Clean Energy Future for the Insular Areas.

First, let me give the Committee a brief explanation of the commercialization team that I lead in EERE. In 2006, Assistant Secretary Karsner assembled for the first time a team of individuals reporting directly to him that focuses on commercialization and deployment of our technologies as part of the Department's balanced approach achieving its goals and meeting its mission. Briefly, what this means is that our program is targeted to help increase the pace, success rate, and scale at which renewable and efficient energy technologies move from R&D to market-changing products and processes. Among our many activities is a concerted effort to help expand the use of clean energy in island communities. My testimony today will discuss the Energy Policy Act of 2005 provisions relative to insular areas. In addition I will discuss the Department's recently established Hawaii Clean Energy Initiative. Although Hawaii is not an insular area, DOE believes this is an example of a type of focused effort that could be translated to help change the predominant source of energy in island territories, nations, and insular areas from oil to renewable or alternative energy sources.

As you know, Section 251 of the Energy Policy Act of 2005 (EPACT) required the Secretary of the Interior, in consultation with the Secretary of Energy and the head of government in each insular area, to update the 1982 Territorial Energy Assess-

ment. The implementation of this EPACT requirement resulted in an updated report developed and made available by the Department of the Interior in the fall of 2006. The report reaffirmed the original finding that insular areas face unique challenges in their reliance on imported energy as well as high fuel and energy prices. Islands coping with these problems stand to benefit from end-use efficiency measures and the expansion of renewable energy production. Territories can use the information from the Section 251 Assessment to develop an advanced energy plan, and use DOE State Energy Program (SEP) grant funds to act on the findings. SEP provides grants to the states and territories to design and carry out their own renewable energy and energy efficiency programs and to fund energy projects managed by state energy offices.

I would like to share with the Committee our work in Hawaii, which could serve as a possible example that could be translated for use in insular areas. The Department's work with the State of Hawaii is an example of a collaborative effort to combat the energy issues characteristic of insular areas. On January 28, 2008, The Department of Energy and the State of Hawaii signed a Memorandum of Understanding (MOU) that launched the Hawaii Clean Energy Initiative (HCEI) and put Hawaii on a pathway to supply 70 percent of its energy needs with renewable energy sources by 2030. Achieving this objective could reduce the State's crude oil consumption significantly. Though not legally binding, the HCEI significantly increases the commitment of Hawaii beyond the State's legal renewable portfolio standard requirement of 20 percent by 2020. Hawaii is uniquely positioned to achieve the accelerated goal and help demonstrate technologies that, once demonstrated in a fully integrated way, could be used elsewhere.

Pocketbook issues are foremost in making Hawaii the ideal test bed for a renewable energy economy. Islands are often hit the hardest by high oil prices. Oil supplies approximately 90 percent of Hawaii's total energy and approximately 84 percent of its electricity generation.[1] Hawaii also has some of the highest electricity prices in the nation, making it an apt proving ground for clean energy technologies that are not fully cost-competitive elsewhere in the country.

The Department of Energy's role in the HCEI is to provide expertise, third-party objectivity, and resources to the process. DOE provides expertise through Department staff, national labs, and private partners dedicated to R&D in renewable energy, energy efficiency, and electricity delivery; and most importantly, in the emerging area of system level integration of clean energy technologies. DOE expects that Hawaii will need to employ an integrated systems approach if it is to achieve the HCEI goals. The Department can also assist in convening and facilitating public/private sector collaborations that could help address barriers to renewable and efficiency technology advancement in the State.

DOE's approach to performing its HCEI roles is based on three areas: working groups, partnership projects, and clean energy transformation. First, the working groups are small, collaborative teams focused on long-term, intelligent energy solutions. Convened around topics of energy generation, energy delivery, transportation, and end-use efficiency, these groups strive to integrate the Department's technical and policy expertise with Hawaii-based knowledge and project resources. Second, partnership projects test and validate concepts laid out by the working groups, such as solving grid integration and financing challenges for wind, solar, geothermal, and ocean thermal energy sources. Third and concurrently, lessons learned through the working groups and partnership projects are expected to help Hawaii in its consideration of potential changes to state-level regulations and laws, with the goal of promoting a clean energy transformation that could help incentivize intelligent investment by capital markets, energy suppliers, and energy consumers. These efforts are expected to help Hawaii progress toward increased use of cleaner energy as well as help demonstrate existing and new technology at scale, help stimulate new private sector investment to promote asset turnover, and help improve standards of service, energy service delivery, and energy security.

To put the HCEI into action, immediately following the MOU signing, DOE staff held meetings with utilities' and island co-ops' senior management, business leaders, military officials, and policy and regulatory leaders. These meetings were part of the effort to engage experts in clean energy technology development to help Hawaii launch several projects with public and private sector partners that target early opportunities and critical needs for Hawaii's transition to a cleaner energy economy, including:

- Designing cost-effective approaches for the exclusive use of renewable energy on smaller islands;

[1] Sources: Energy Information Administration and State of Hawaii Strategic Industries Division.

- Designing systems to improve stability of electric grids operating with variable generating sources, such as wind power plants on the islands of Hawaii, Kauai and Maui;
- Minimizing energy use while maximizing energy efficiency and renewable energy technologies at new large military housing developments;
- Expanding Hawaii's capability to use locally grown crops and byproducts for producing fuel and electricity; and
- Assisting in the development of comprehensive State energy regulatory and policy frameworks for promoting clean energy technology use.

DOE believes that underpinning all of these efforts is the need for the State of Hawaii to change its regulatory and policy framework to drive the necessary changes throughout its energy infrastructure. Current utility regulation and rules in Hawaii make it difficult for an investor-owned utility or a co-op to profit from non-utility generation, extensive renewable and distributed (customer-owned) generation development, and energy efficiency—all of which are critical to the success of the HCEI. Achieving HCEI goals will require not only reconsideration of how Hawaii's electric system is regulated, but also a redesign of electricity and gas rates and tariffs, and changes in the state's regulation and opportunities for electricity substitutes including energy efficiency, solar hot water heating, solar photovoltaics, and future grid-affecting technologies such as plug-in hybrid vehicles. Governor Lingle elevated the issue of advantageous regulatory and policy changes in her State of the State Address, and announced a separate cabinet agency to address Hawaii's energy future.

Cooperation between the Department of Energy and Hawaii to achieve the objectives of the HCEI will mean that the many people who visit the State for the scenic beauty that only islands can provide will be able to see a functional renewable energy economy as well. Employing renewable technologies at scale, in an integrated manner is an important step toward attaining advanced energy goals. The HCEI takes a preliminary step in the pursuit of clean, sustainable energy solutions for an island setting. If successful, the HCEI could serve as an integrated example for insular areas, U.S. territories and other island communities globally.

Madame Chairwoman, Mr. Chairman—this concludes my prepared statement, and I am happy to answer any questions the Committee Members may have.

Mrs. CHRISTENSEN. Thank you both for your testimony. And I recognize myself for questions.

Mr. Bond, maybe you could answer the question about why—what was it about Hawaii that made this initiative start there? How did it come about?

Mr. BOND. That's a great question. The short answer is the leadership at the state level. The Governor has been very progressive in pushing for changes within the state, not only at the policy level but at the State Regulatory Commission, working with the legislature on a great bipartisan basis, and also pushing the state utility to change its way of thinking. Because what this really involves is, it requires the existing state monopoly to change its business model so it actually can make money off of the things that it's not use to making money off of, things like using less energy.

Mrs. CHRISTENSEN. And have there been any discussions about changing the state's energy program formulas or including the territories in the WAA program? And would Department of Energy support that change? And are you in agreement—is that the reasons that we heard, are those the only reasons that we might have at some point said we did not want to participate as far as, you know, those would be the only reasons why we would not be in the program?

Mr. BOND. Madame Chairman, that's my understanding. With my focus as Director of Commercialization and Deployment, that's not really in my purview. I do understand that ESA 2007 did apparently change the definition of the state and how—whether or

not a territory would be eligible for the programs. My understanding is that that legislative fix has now happened to allow territories to be able to apply.

Mrs. CHRISTENSEN. And in many instances I tried to get Homeland Security to put state and territories. They insisted that when they put state, it meant state and territories. What you are saying is in recent legislation state includes territories?

Mr. BOND. That is my understanding, yes.

Mrs. CHRISTENSEN. So we just need to work on the formula.

Mr. Pula, can we realistically expect more funding from the Department of Energy to help in the development of alternatives? With the Department of the Interior.

Mr. PULA. I was just going to say, absolutely yes.

Mrs. CHRISTENSEN. Is the Department of the Interior prepared to help the territories financially to a greater extent of the development?

Mr. PULA. Thank you, Congresswoman. I think lately, as you probably well know, our focus have been on economic development and accountability; but with the energy situation, which is basically kind of a crisis come up in the last year or so, in my testimony I mentioned about, for example, in CNMI, their budget was for '08 was 160 million, and cost of fuel for them alone was 80 million. And so we've now received requests from the areas. I am really thinking seriously of focusing the resources that we have on the energy crisis.

As I also mentioned, that's why we had the meeting yesterday. This is a great hearing, beginning of hearings, as mentioned in your earlier statement. We are going to go over to the other areas. Really Mr. Bond and I discussed yesterday that when we get back to Washington, we are going to try to bring our resources together, both departments to see what we can do and help out.

Mrs. CHRISTENSEN. That addresses the long-term problem, but as you heard from Mr. Miller, the issue is lowering the cost. Do either of you have any recommendations or in your opinion what else can be done to help residents with the cost of paying for this utility?

Mr. PULA. Let me yield to my colleague.

Mr. BOND. I guess one comment I would make, part of the mindset change that's needed at the utility level is looking beyond the first initial cost of investment in technology and looking to the life cycle cost of technology. In other words, renewable energy technologies, particularly wind and solar, geothermal, even ocean energy, they—the feedstock is virtually free once you make the initial investment of the capital. And so I think you do have to be careful to make promises that this will result in cheaper energy in the near term future. But I think what's more important in the near term is diversifying the energy mix to a securing reliability, and then lower cost to energy certainly can come with the right investment.

Mrs. CHRISTENSEN. Mr. Pula.

Mr. PULA. The only thing I would like to add, as you emphasize on the word "realistically" and "time," on any budget cycle, as we know, if I were asked the question to bring forward something that will go to the administration budget process, I will have to work really hard with all the insular areas, the territories to come up

with a plan. If I was going to propose something for the administration's plan through OMB in the process, as you well know, we got to have something from our areas that justifies being able to do that. And I think that's the focus in my mind. So a lot relies on our relationship in working with the folks in energy.

Mrs. CHRISTENSEN. Thank you. My time is up.

I now recognize Chairman Costa for his questions.

Mr. COSTA. Thank you very much, Madame Chairwoman.

Mr. Pula, the Office of Insular Affairs has a number of grant programs for insular areas. Do you know roughly what percentage of those grants has gone to power projects in recent years and how they spread out over the territories?

Mr. PULA. I don't have the number off the top of my head, but I can provide that for you.

Mr. COSTA. Please find that information for the committee.

You talked about the necessity of developing a plan. Of course, I have an interest of what I think are a host of options that are available in terms of looking at renewable resources. I do believe you have to have a plan first. I understand that you been with the department for most of your career, and that means you are not an appointee, so you are going to be around after next year; correct?

Mr. PULA. Correct.

Mr. COSTA. I believe you're happy as well.

But that means that you have some consistency. Don't you think we really ought to be working with all the insular territories to deal with this? I mean, we know that energy is not going to get cheaper. We know that they have a host of renewable resources, and as was spoken about a moment ago, the Hawaii plant seems to really meet what we need to be doing for the other insular territories.

Mr. PULA. Absolutely. I myself haven't heard of the Hawaii plant until yesterday in our meeting. It was a great meeting——

Mr. COSTA. We need to coordinate, and I will be happy to do that with the Subcommittee Chairwoman to see how we can get that same sort of comprehensive effort, so we could look at, for example, whether or not the detailed resources of wind studies have been performed here. You think they have been?

Mr. PULA. Over here?

Mr. COSTA. Yes.

Mr. PULA. In our meeting yesterday, yes, there are some, very little.

Mr. COSTA. What about the unused Capital Improvement Program, what funds are there and when do you reprogram? And do you do that with the consent of the territories in which those funds were originally intended for?

Mr. PULA. For the Capital Improvement?

Mr. COSTA. Right.

Mr. PULA. There is a set amount. It's only 27 million for the four territories.

Mr. COSTA. If they are not used, how do you reprogram?

Mr. PULA. If they are not used?

Mr. COSTA. Yes.

Mr. PULA. Primarily it goes sort of like a competitive way that we have done in the last three years, and goes to the four territories. Usually when they get it, then they use it for their projects, but it's no year money.

Mr. COSTA. What you are saying it's always used then? There is never any unused funds?

Mr. PULA. In some of the territories, for example, CNMI, they don't spend it as fast as they can, because of many other problems. What we are trying to do—right now I just meant, for example, in CNMI I met with the Governor in February and basically told him that's where they need to spend their money prioritizing, is power and water with their situation.

Mr. COSTA. I think the old plan is what we got to get back to, because it's how you integrate a comprehensive plan that you ultimately find solutions. My time is moving here.

Mr. Bond, you ever think about changing your first name?

Mr. BOND. Several times. I tried to slip it in one of my children.

Mr. COSTA. My name is James. Maybe I need to change my last.

I noticed that the Energy Information Administration doesn't keep data for insular areas the way it does for states. Why is that?

Mr. BOND. It's a good question.

Mr. COSTA. I mean, you treat them almost like they are foreign countries. I don't want to go too far down that road, because I am sure I would be fighting for the home folks. I am not running for election here. Please explain.

Mr. BOND. I would love to be able to explain. However, I don't have an explanation just given my role.

Mr. COSTA. Don't you think we ought to change that?

Mr. BOND. I think it's something I will be happy to explore and report back to you with the energy division of the agency.

Mr. COSTA. I think you ought to report to the Chairperson of the Subcommittee. I will be willing to sign a letter and add to that, because, frankly, it doesn't make any sense to me. These are U.S. citizens we are talking about.

Maybe I might come down and run.

Wouldn't it be helpful if the EIA treated—I don't want to belabor this point, but it seems to me frankly the Department of Energy has a responsibility here, and we ought to pursue the multi-strategy just as you explained in Hawaii. I mean, that's what I would like to see as one of the primary takeaways from today's hearing. When do you think we need to do that.

Mr. BOND. I think in terms of the partnership that we had in Hawaii from the beginning, we have marked the success of that partnership with how we are able to replicate that success. So it doesn't benefit the rest of the United States, and all of our citizens if it only benefits Hawaii. So to find ways to further replicate that, we are happy to be able to work with the committee and with any of the insular areas to do that.

Mr. COSTA. I just want to commit every resource that we have within our Subcommittee on Energy and Mineral Resources to working with the Chairwoman with her Subcommittee to see that that happens.

And I want to thank you, Congresswoman Christensen, for this hearing today and for allowing us the opportunity to be better in-

formed. I think it's clear what we need to do on our part to try to better enhance our insular territories to deal with these challenges and give my commitment to do whatever we possibly can together.

Mrs. CHRISTENSEN. Thank you, Mr. Chairman.

The Chair now recognizes Mr. Shuster.

Mr. SHUSTER. Thank you very much. My question is to Mr. Bond. Your view on sea solar power technology, what's your view on that? It sounds promising. Your view on that type of technology, the OTEC technology we heard about earlier, what's the Energy Department's view of that is?

Mr. BOND. It's actually an area where the Department of Energy is just setting up its program as a result of the Omnibus Bill that funded our '08 budget. There is $10 million allocated for further research and development within this area. Where I would come down is to say that our goal really is to create an environment where any renewable and alternative form of energy can be competitive.

And so we don't view our role as picking winners in technology. We view our role as more trying to further the commercialization of the technologies and ensuring that the market exists. So rather than the Department of Energy commenting specifically of which technology will and wouldn't work, it really depends on many circumstances, and there is a lot of factors that go into that.

Mr. SHUSTER. I guess, I don't know what to take away from that. Is there a positive view toward that technology?

Mr. BOND. I think the potential within that sector is tremendous, and studies have shown this in terms of where you look at the different technologies and where they are in the commercialization time frame. It's clearly when it's furthest along the line of all the technologies. Solar is moving quickly behind that, and so in terms of getting the technologies cost competitive, which is our real goal within our programs, there certainly are some technologies that have been out there, tested and proven in the marketplace longer, that are farther in the R&D stage, and more in the commercialization stage. The potential is tremendous.

Mr. SHUSTER. Thank you.

Question to Mr. Pula on the grid we talked earlier a little bit and I asked the question. And I don't know if you—probably your department will be involved, but if we are talking about attaching—connecting the grid with other Caribbean islands and which means other countries, other locations. How would that process work though? Because it just seems to me the economies of scale, if you can band together, you can build one facility and it will power seven islands, twenty islands. What's the process for doing that, and is that something you are looking at the Office of Insular Affairs to be considered?

Mr. PULA. Thank you for the question. Let me just say, recently I was approached by the folks in CNMI, and they are really interested in geothermal because in the Northern Islands they have the volcanoes, and there is about 300 miles, if they were to lay a cable to get, you know, the source, it cost about a million dollars a mile. That's what they were telling me, in that area.

And yesterday we kind of discussed the potential here with some other islands that may have some geothermal energy. I was asking

those kind of questions. I think we don't have the answers. We are looking into those kinds of things and seeing, of course, with the limited resource we will have to look into this.

And to answer your question, I mean, if the potential is there, it is there and it could be worked in coordination with the other areas, because I think the Navy was thinking about an interest in Guam in getting their energy from CNMI, from the northern volcanoes. That would be something to do. Here if there is available energy in the same form from other islands, we will be happy to look into that.

Mr. SHUSTER. Speaking of geothermal energy, in the territories here—I am stepping out of bounds of myself and knowledge. I have to stick closely to my script here. The geothermal energy typically you think of larger plants, binary plants. I understand there is—you can tap into geothermal heat exchange system by drilling holes. Is that something that's being explored here in the territories?

Mr. PULA. I haven't had time to ask those questions of our folks here. But, again, they were drilling for water and they came upon one of the holes and that steam came up, and they always thought that volcanic line trenches were farther away. So now the scientists at USGS are saying, well, maybe it is closer and there is possibility to have that. Again, we are asking people at USGS, we will be talking to our colleagues here at Energy and see what we can come up with.

Mr. SHUSTER. Thank you very much.

Mrs. CHRISTENSEN. I thank the witnesses for their testimony. We will have questions submitted in writing, and we will ask for you to respond to those questions in writing as well.

I want to take this opportunity to thank all of the witnesses for their valuable testimony and the members for their questions.

In closing, I'd like to just make a brief closing statement. Of course, the reason for this hearing is to be able to establish a record in the Congress. This is a formal hearing of the Congress of the United States in Frederiksted, St. Croix. And this record will serve as the basis for our being able to request the assistance from our colleagues in Congress to help you, my constituents, as well as the residents of the other insular territories to cope with the very high cost of electricity, and many of course of who are on fixed incomes and have to decide between buying food or paying their electric bills.

There is really nothing like hearing from the leaders in the field and the representatives of the constituents themselves. So I want to again thank Chairman Costa and Congressman Shuster for being willing to come and to listen, and to thank those who testified for putting a face on the issues here in the territory and helping to point out not only some of the unique challenges that we face but some of the equities that the territories face as we try to address the needs and concerns of our constituents.

The record for this hearing will remain open—let me see how long—for ten days. As you might recall from previous hearings, we welcome written testimony, and that written testimony if received within those ten days, becomes just as much as an official part of this hearing record as the testimony you heard this morning.

And so then if there is no further business, this hearing stands adjourned.

[Whereupon, at 12:43 p.m., the Subcommittee was adjourned.]

[List of additional material submitted for the record follows:]

List of Documents Submitted for the Record

Statements submitted for the record by the following individuals and organizations have been retained in the Committee's official files.

- Mr. Jason Budsan
- Mr. Malcolm W. Ford
- St. Croix Renaissance Group, LLP

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