Testimony of Virgin Islands Water & Power Authority
Joint Oversight Field Hearing on
"Charting a Clean Energy Future for the Insular Areas"
Subcommittees on Insular Affairs and on Energy and Mineral Resources of the Committee on Natural Resources of the U.S. House of Representatives
St. Croix, U.S. Virgin Islands
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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 untaken 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.

2. The same is true for coal.

3. Similarly, the absence of large areas for crop production makes reliance on biofuels impractical in the Virgin Islands

4. Hydroelectric and nuclear power generation are also not options here.

5. 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.

6. 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 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 miniscule 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

A. 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 exhorbitant 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 utility 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.