



Government of the United States Virgin Islands

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Testimony for Proposed Consideration and Amendments To Bill# 31-0067

Presented to the Senate Committee on Energy and Environmental Protection

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The Honorable Senator Samuel Sanes, Chairman, other Senators present, other testifiers, and to the listening and viewing audience, good day. My name is Aminah Saleem, and this testimony is submitted in my capacity as Deputy Director of the Virgin Islands Energy Office within the Office of the Governor. I also acknowledge the presence of the Energy Office Director Elmo Roebuck Jr., and senior staff Patricia Lord, Grants Program Coordinator - State Energy Program ("SEP") and Leila Muller, Grants Program Coordinator - Weatherization Assistance Program ("WAP").

The Committee has asked that the Virgin Islands Energy Office ("VIEO") provide an update on the net metering program and feed in tariff bills. My testimony is as follows:

The Virgin Islands Energy Office was established by Executive Order 182-1974 to devise and execute energy policy. The mission of the Virgin Islands Energy Office is to promote sustainable energy policies in the Virgin Islands encompassing energy production, distribution and consumption through training, outreach, financial incentives, and technical assistance. The VIEO establishes, monitors, and coordinates the integration of policies relating to conservation, use, control, distribution, and allocation of energy with respect to all energy matters.

The VIEO has four strategic priorities: 1) reduce the cost of energy, 2) increase efficiency of energy use and production, 3) increase fuel diversity, and 4) promote clean energy production. Those priorities are crucial in order to reach the territory's goal of reducing our dependency on fossil fuel for power production by 60% before the year 2025. Key to these efforts is the government leading by example.

As such, the USVI has rapidly achieved a status of having one of the highest PV penetrations of island jurisdictions internationally. USVI is now positioned as a clear leader in the Caribbean region. At the same time, USVI is at the frontier of

current experience and practice. There is a strong argument to support continued PV market growth in order to achieve territory goals and preserve the economic development gains that have been made (e.g. through solar job growth). At the same time, there is a need to clearly define goals and next steps before there are unintended either technical or economic consequences.

Background

- The US Virgin Islands (USVI) has demonstrated leadership in the field of renewable energy with the goals of energy security, energy independence, and consumer price reductions.
- The Senate passed Act 7075 in 2009, which set a target that 25% of peak demanded generating capacity would come from renewable energy by 2020, 30% by 2025, and the majority (i.e. 50%+) after 2025. Act 7075 also strengthened net metering legislation, which allows electricity customers to get credit for the power they export into the grid from their own renewable energy generators. Act 7075 included a cap of 10 megawatts (MW) of generating capacity for St. Thomas, St. John, and Water Island, and 5 MW for St. Croix.
- The USVI also set a target to reduce fossil fuel dependence 60% by 2025 as part of a memorandum of understanding with the US Department of Energy (DOE) as part of Energy Development in Island Nations (EDIN) initiative.ⁱ

Progress to Date

During the past several years, the USVI has explored alternative energy sources such as wind, waste to energy, biogas, and solar photovoltaic (PV) systems. PV panel prices have decreased 75% since 2009ⁱⁱ and PV systems are now lower than \$3.00/watt in some Caribbean jurisdictions.ⁱⁱⁱ The market for PV in the USVI has increased rapidly in the past few years because of these price declines, the fact that PV is comparatively easy to site, and because the high retail rates make PV cost competitive. The net metering policy has also been a key driver for PV market growth.

The EDIN Roadmap set a goal to achieve 9 MW of PV across the territory by 2025.^{iv}

Based on data from Virgin Islands Water and Power Authority (WAPA) and input from the Department of Planning and Natural Resources, both the caps on St. Thomas/St. John/Water Island and St. Croix are close to being reached. There has been uncertainty about the total amount of PV that is "in the pipeline" because of the lack of clearly defined queuing rules (see Appendix 1). With recent rounds of DPNR permit approvals completed at the beginning of 2015, however, it appears that the Territory is close to having 15 MW of PV installed in the near term.

In addition to these 15 MW of rooftop PV, another 0.45 MW is installed at the airport^v and 3 MW is planned at the University of the Virgin Islands.^{vi} WAPA has previously attempted to bid out 18 MW of solar under long-term contract^{vii}, and a 4 MW plant was completed in Spanish Town on St. Croix in partnership with WAPA in 2014.^{viii} The private sector is also exploring solar development, with the Starwood Hotels and NRG announcing plans for a 1 MW plant on the Westin in St. John.^{ix} In total, the USVI is closing in on 20 MW of installed PV capacity, with announced plans for close to 40 MW.

Challenges Ahead

With 20 MW, the USVI would be at 200 watts per capita of PV – or approximately 4 times higher than the US average and on par with that of California. At 40 MW per capita, the USVI would be on par with world leader Germany on a per capita basis. Unlike California and Germany, however, USVI is an island state that is not interconnected to other islands or to the US mainland. As a result, high penetrations of variable renewable energy in the USVI could create both technical and financial challenges – in addition to creating economic opportunities.

A study from the US National Renewable Energy Laboratory (NREL) concluded in 2011 that “a maximum of 7.6 MW of PV generation can be readily added on St. Thomas, and 4.9 MW can be added on St. Croix. Additional PV may be installed after interconnection engineering studies verify that system operation is not compromised.”^x The USVI has progressed beyond the engineering constraints estimated by NREL.

The diesel generating fleet in the USVI is well-positioned to balance the variable output of PV generators at low penetrations. Higher penetrations of PV, however, may cause both technical and financial challenges in the USVI. On the technical side, higher PV penetrations may create voltage fluctuations and stability issues, increase diesel generators wear and tear, and decrease generator efficiency, among other issues. Technical solutions for these challenges, such as load shedding, smarter inverters, storage, improved forecasting, and updated system planning are readily available – but may come at a cost.^{xi} On the financial side, net metering systems erode the revenue that WAPA uses to pay for its fixed costs (e.g. utility poles and wires) because customers purchase less from the grid. If PV penetrations are high enough, they could also necessitate WAPA to shut down some of its generators. Although plant shutdowns would contribute to emissions reductions goals, the fact that WAPA still has to pay debt service on the plants could create a “stranded asset” problem.

Short Term Recommendations

- As a first step, there is a great need to reconcile the queue and move projects that are unlikely to be built out of the line. This freed up capacity should then be made available in the near term for additional development in order to create additional opportunities for consumers and for solar businesses. Questions about the queuing process is, present issues, and recommendations are attached to this testimony as Appendix I.
- Placing requirements on applicants applying for permits for renewable projects to make their existing building or new construction energy efficient first. This will also reduce the amount of PV capacity needed and allow for more penetration. There are examples of this in numerous jurisdictions.

Long Term Comprehensive Recommendations

The Virgin Islands Energy Office has secured technical assistance from U.S. Department of Energy, Sun Shot Program consultants to facilitate and assist in the launching of an Energy Roundtable, which will start in May 2015. This Energy Roundtable will convene public and private stakeholders around the opportunities and challenges of near-term energy transitions. The Roundtable, which is currently under development, would bring together Government and Legislative policymakers, the utility, the public, and civil society in order to:

- Develop a shared understanding of the many technical, societal and economic issues facing the islands and their energy system (e.g. through joint fact finding);
- Collaboratively identify consensus goals around what the future energy systems of the USVI could look like;
- Identify critical path near-term and long-term barriers to meeting these goals;
- Devise implementation strategies that advance common stakeholder goals.

In closing other jurisdictions that are facing the same high renewable energy penetrations are also engaging in multi-stakeholder dialogue in order to address the unprecedented challenges and benefits presented by rapid PV market growth. These jurisdictions include the Reforming the Energy Vision process in New York,^{xii} the Future Grid Forum process in Australia, and the Electricity Markets 2.0 stakeholder proceedings in Germany. Together, these dialogues may help provide pathways forward through the significant change that is shaking the energy industry not just in the USVI, but globally.

This concludes my testimony. I am prepared to answer your questions.

Appendix I: Queuing for Distributed Generation in the US Virgin Islands

About Queuing

- Queuing rules exist in most markets where there is limit or cap to the amount of development that can take place. The key questions include:
 - When can you get in the queue? As soon as the project is fully completed? Or as soon as the project submits an application (i.e. before being built)?
 - How can you get in the queue? First come, first served? A lottery?
 - What are the requirements for staying in the queue? Hitting development milestones? Paying a fee to get in line (or extend your time in line?)
 - Should there be a limit on certain types of projects in the queue (e.g. residential vs. governmental?)
- There is a tradeoff between the amount of queuing regulations and the administrative burden of managing the queue.

Queuing considerations in the USVI

- Progress towards the cap is currently measured according to the number of PV installations that are connected to the grid by WAPA.
- However, DPNR is responsible for issuing permits for PV plants to build – technically, DPNR must continue to issue permits to eligible projects even if those permits would potentially be significantly in excess of the cap (if they were all interconnected)
- There is a lack of real time communication from WAPA to DPNR about the status of the cap and a potential need for joint monitoring of applications and their status in both the permitting and interconnection lines. In July 2014, for example, DPNR put a moratorium on new PV permits while the queue was reconciled.^{xiii} Permitting has since resumed, but the issue of communication remains.
- There is also no clear rule as to how to clear “phantom” projects out of the queue – anecdotally, many PV projects speculatively applied for permits without real plans for construction in order to hold a place in line during the “rush” following that the cap was about to be filled

- There are no rules about how the DPNR queue will be refilled if projects are removed from it
- The Energy Office, WAPA, and other stakeholders are receiving a significant number of inquiries from market participants and policy makers not only as to the status of specific projects (i.e. will the project that I have invested in be built?) but also about future directions of the program

Steps forward

- Following recent staff transitions, there is an opportunity for Energy Office, DPNR, and WAPA staff to form an inter-agency working group and evaluate the queuing process as it currently exists, including the communications channels between DPNR and WAPA.
- This working group could benchmark the current process against processes in other jurisdictions and then identify the key issues that should be addressed, as well as the pros and cons of ways to address them.

ⁱ <http://energy.gov/eere/downloads/us-virgin-islands-infographic>

ⁱⁱ http://www.irena.org/DocumentDownloads/Publications/IRENA_RE_Power_Costs_2014_report.pdf

ⁱⁱⁱ <http://www.greentechmedia.com/articles/read/four-facts-you-should-know-about-the-caribbean-solar-market>

^{iv} <http://www.nrel.gov/docs/fy11osti/51541.pdf>

^v http://www.pv-tech.org/news/solarworld_installs_450kw_system_on_us_virgin_islands

^{vi} http://www.uvi.edu/administration/administration-and-finance/energy_management.aspx

^{vii} <http://virginislandsdailynews.com/news/terminated-reassigned-contracts-delay-65m-wapa-solar-projects-1.1642187>

^{viii} <http://renewableenergycaribbean.com/2014/07/24/nrg-energy-purchases-4-mw-solar-facility-on-st-croix-usvi/>

^{ix} <http://www.nrg.com/renew/projects/solar/starwood-hotel-resorts/>

^x <http://www.edinenergy.org/pdfs/51294.pdf>

^{xi} <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/26BE8A93967E604785257CC40066B91A?OpenDocument>

^{xii} <http://www3.dps.ny.gov/W/PSCWeb.nsf/All/26BE8A93967E604785257CC40066B91A?OpenDocument>

^{xiii} <http://virginislandsdailynews.com/news/st-thomas-st-john-district-hits-cap-for-solar-and-wind-power-1.1753781>