



Energy Department Helps Advance Island Clean Energy Goals

U.S. Virgin Islands Signs Solar Deal Worth \$65 Million

Like many islands around the world, the U.S. Virgin Islands (USVI) is nearly 100% dependent on fossil fuels, leaving it vulnerable to global oil price fluctuations that can have devastating economic effects. On the other hand, it has abundant renewable resources, a relatively small population, and the political will to transform its energy economy, making it an ideal place to showcase the technical and economic viability of renewable energy.

The U.S. Department of Energy (DOE) and its National Renewable Energy Laboratory (NREL) have been instrumental in advancing the territory's effort to reduce its dependence on oil and build a clean energy economy. By leveraging financial support from DOE's Office of Energy Efficiency and Renewable Energy and technical assistance from NREL over the past two years, the USVI has succeeded in realistically assessing its clean energy resources and identifying the most viable and cost-effective solutions to its energy challenges—resulting in a \$65 million investment in solar in the territory.

Committing to Cut Fossil Fuel Use 60% by 2025

Faced with electricity prices more than four times higher than the U.S. average, USVI Gov. John P. de Jongh Jr. set an aggressive goal in 2010 to reduce the territory's dependence on fossil fuel 60% by 2025. He was committed to developing the USVI's renewable energy resources and increasing its energy security. But there were a variety of hurdles to overcome—not the least of which were a faltering economy, insufficient expertise in renewable energy, and a need for unbiased and experienced guidance in clean energy technology deployment.

In February 2010, the governor signed a memorandum of understanding with DOE and the U.S. Department of the Interior launching the Energy Development in Island Nations (EDIN) initiative's USVI pilot project. As an EDIN project partner, the USVI was able to tap into a broad spectrum of technical assistance and project development support from DOE and NREL.

DOE and NREL technical experts worked with a diverse set of public and private stakeholders to identify the territory's baseline energy use and help determine how the USVI could best meet its 60% goal by deploying a combination of wind, solar, waste-to-energy, landfill gas, and energy efficiency



Virgin Islands Water and Power Authority (WAPA) executives sign power purchase agreements (PPAs) with three solar companies to construct 18 megawatts (MW) of solar energy in the USVI. Seated from left to right: WAPA Executive Director/CEO Hugo V. Hodge Jr.; Frances Yuhas, authorized representative for SunEdison LLC; Bill Morrow, general manager for North America of Lanco Group and vice president of Lanco Solar International (U.S.) Inc.; Mark Lonkevych, senior vice president and general manager at Toshiba International Corporation. Standing from left to right: Lt. Gov. Gregory R. Francis, WAPA Board Chair Juanita R. Young, Gov. John P. de Jongh Jr. *Photo from WAPA*

technologies. This baseline energy assessment pointed to solar resource development as an important first step on the road to meeting USVI's aggressive clean energy goal.

Attracting Quality Developers

Drawing upon the deep technical expertise and project development experience NREL brought to the table, WAPA was able to reduce the risks associated with renewable energy development, attract quality developers, and ensure that proposed solar projects could be financed successfully. Funding and technical support for the project enabled the U.S. Virgin Islands Energy Office and WAPA to:

- Identify optimal sites for solar photovoltaic (PV) systems
- Identify policy and regulatory changes that would address project barriers such as uncertainty around interconnection procedures and agreements
- Update the USVI's solar resource assessment to more accurately gauge the potential impact of solar energy in the territory
- Model the WAPA grid and develop a strategy to avoid grid integration issues by distributing PV systems geographically
- Model the effects of high-penetration renewable energy on the existing WAPA generation system and grid.

Thanks to the support DOE and NREL provided throughout the procurement process, which included reviewing the 27 proposals WAPA received in response to its request for proposals for solar project development, the utility signed six PPAs on June 4, 2012—one with Toshiba International Corporation, one with Lanco Solar, and four with SunEdison—for a combined 18 MW of solar energy.

Raising the Bar for Renewable Energy Penetration

By the end of 2013, the three companies will invest a combined total of \$65 million to install six roof- and ground-mounted PV arrays—three on St. Croix and three on St. Thomas. The PV systems will generate 9 MW of solar power in each district, which WAPA will purchase at an average cost of approximately \$0.18 per kilowatt-hour over the 25-year term of the projects. Not only is this significantly lower than what it would cost the utility to produce the

SunEdison: DOE and NREL Project Development Support “Invaluable”

“Their ability to share technical expertise and lessons learned from working with a variety of different solar developers ultimately ensured the best partners were selected for the project, and that a fair and successful outcome was achieved for WAPA and the USVI.”

—Sean Kiernan, vice president and general manager of North America Utility Scale Development, SunEdison

same amount of diesel-generated power at its plants, but it represents a groundbreaking shift in the territory's energy economy—and a new standard for community renewable penetration.

On St. Croix specifically, 9 MW of solar power represents nearly 20% of the island's peak demand, an impressive level of renewable energy penetration for a community of its size.

“I don't know of another area or jurisdiction anywhere that has that significant of a portion of its peak demand in a renewable resource such as solar, so this is not only a significant event for the territory but for solar energy everywhere,” said WAPA Executive Director Hugo Hodge Jr.

Charting the Course to a More Secure Energy Future for Islands

Through its leadership on the clean energy front, DOE is charting the course to a more secure energy future for islands around the world. The USVI's successful renewable projects provide a model for other islands to follow in developing their renewable resources, showcase the technical and economic viability of high-penetration renewable energy on islands, and guide other island communities in fundamentally changing the way they generate and use energy.

For more information on the Energy Department's efforts to advance island clean energy goals, visit: eere.energy.gov/deployment

Front page photos (l-r) Don Buchanan, VI Energy Office (VIEO), NREL/PIX 20124; Don Buchanan, VIEO, NREL/PIX 19568; Don Buchanan, VIEO, NREL/PIX 19338

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