Fall 2011

Federal Construction MAGAZINE

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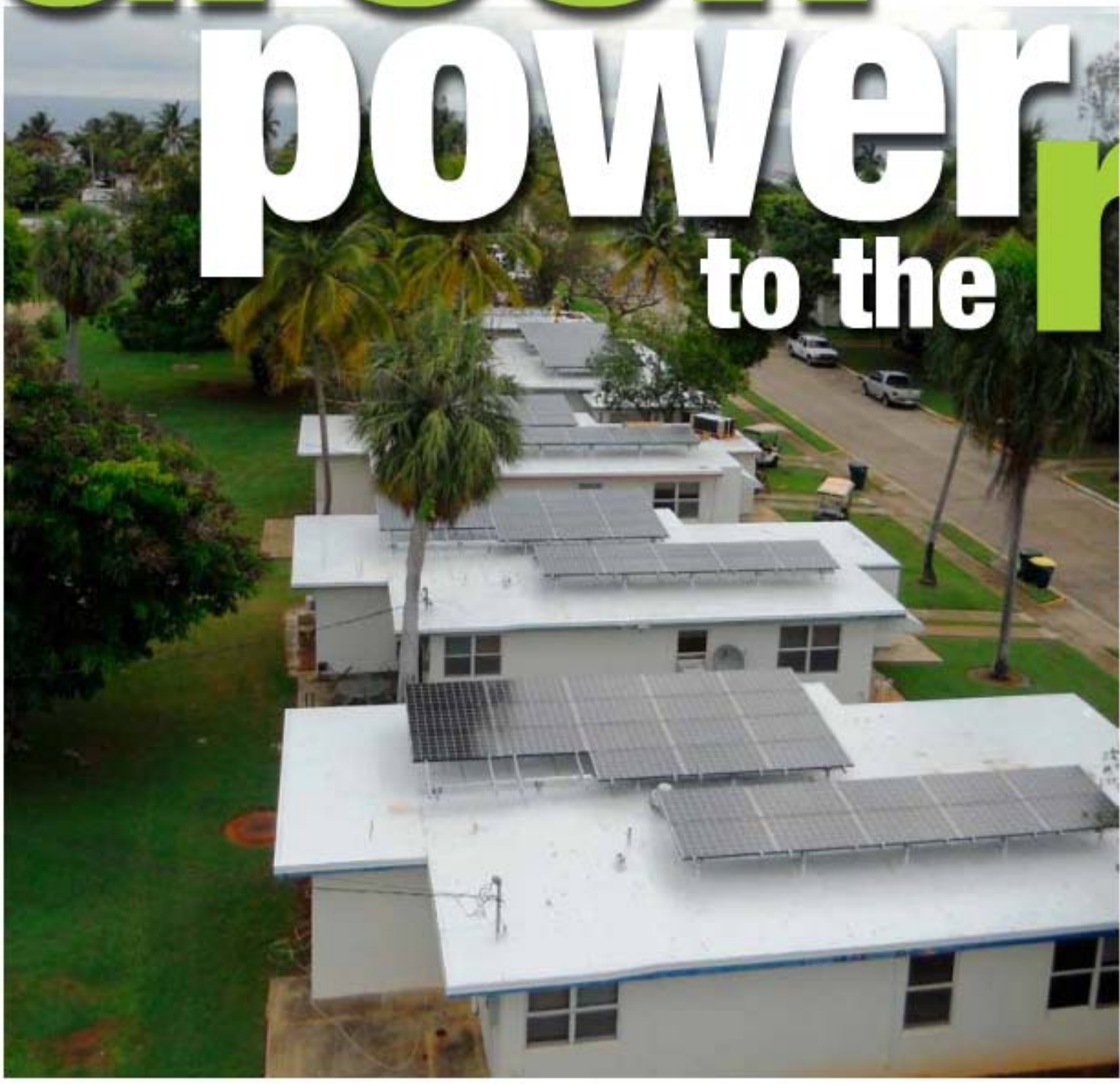

USCG's renewable energy project lands 270 jobs and 40 percent less in utility costs

By Kevin Vaughn

Four U.S. Coast Guard sites in Puerto Rico are getting more than a facelift. They're getting a $50 million green overhaul for an investment of $13.8 million. During the next nine months, more than 270 workers will renovate 35 buildings and 411 housing units at Sector San Juan, Rio Bayamon housing, Air Station Borinquen and Air Station Borinquen housing.

rescue

The plan is to install 2.89 megawatts of photovoltaic (PV) panels and implementing multiple other energy conservation measures (ECMs). This will enable the Coast Guard to redirect $1 million of their annual energy spend from brown to green power sources and save $1.1 million in energy spend annually, a 40 percent savings.

Schneider Electric is delivering the project through an energy savings performance contract (ESPC) that's the first of its kind to combine the Renewable Energy Services Agreement (RESA) financing structure within an ESPC finance vehicle. The unique financing structure enabled the extension of the renewable energy financing term beyond 10 years to 23 years, which complements the longer renewable energy paybacks.

Funding the investment for the PV systems also relied upon a $6.5 million U.S. Department of the Treasury grant, which was set to expire on December 31, 2010. Schneider Electric successfully fast-tracked the development of the project in order to meet that deadline, completing development of the PV systems in six months.

"This ESPC is truly a win-win for the Coast Guard and local Puerto Rican communities," says Daniel Gore, program manager for the U.S. Coast Guard Energy Program. "On one hand it is designed to yield specific benefits to the Coast Guard, such as increased renewable energy production and improved facility performance. On the other, the project is generating positive effects on the Puerto Rican economy. With unemployment rates above the national average, job creation and the ancillary economic benefits are especially helpful."

For the Coast Guard, multiple ECMs are being implemented under the standard DOE ESPC indefinite delivery indefinite quantity (IDIQ), including installation of variable refrigerant

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volume air conditioning, building automation system upgrades, lighting retrofits, solar window tinting and water conservation measures.

For these ECMs, Schneider Electric measures baseline and post-retrofit conditions and provides savings and performance guarantees to the federal government for the full term of the 23-year contract. In addition, the Coast Guard requested Schneider Electric also develop a PV solution under the RESA in order to maximize the benefits by extending the contract term and capitalizing on available tax incentives.

This RESA is a financing method based upon third-party ownership of the renewable energy assets, within the DOE's ESPC contract, to capture various tax incentives and renewable energy credits. Since the federal government is a non-taxable entity, third parties are used to finance the project, own the renewable energy assets and monetize the credits.

In this case, the third party will take ownership of the PV systems, as allowable under the DOE ESPC IDIQ, and will capture and pass along the Treasury grant benefits to the Coast Guard.

"It is no secret that energy costs are steadily growing while Federal budgets are continually shrinking, so it is imperative that agencies identify creative solutions for difficult obstacles," Gore says. "The high cost of electricity, coupled with the instability of the island's utility grids and the aging condition of the local Coast Guard facilities, afforded a unique opportunity to be creative. The typical challenges were all evident: cost, schedule and resources. By structuring the project to take advantage of the U.S. Treasury grant for renewable energy installations, while combining the solar technology additions with planned roof repairs, the Coast Guard lowered the overall cost of the project.

"By tackling this project in 2011, the Coast Guard assured that its benefits will be in alignment with Federal energy management goals and deadlines," he adds.

A helping hand

Schneider Electric developed and is managing construction of more than 300 PV systems on the facilities, resulting in guaranteed production of more than four million kilowatt-hours annually through the RESA. By replacing brown power with PV-generated green power, the Coast Guard not only reduces GHG emissions but also improves the reliability of its electrical distribution system, especially important in hurricane belt of the Caribbean.

More than 5 million kilowatt-hours resulting in $1.1 million annual savings is guaranteed from the standard ECMs and new cool roofs that will reduce the annual cooling load of the buildings by 3.9 billion British thermal units.

The roof surfaces of 240 facilities were prepared for the cool roof technologies by first undergoing asbestos abatement and removal or relocation of roof-mounted equipment

such as A/C condensers and solar hot water units. Cool roofs, based upon two-ply membrane technology, were then installed including reflectivity, improved drainage and additional insulation, which help alleviate chronic roof repair, maintenance and replacement issues while improving safety and occupant comfort. As an additional comfort and protection to the Coast Guard's men and women stationed in Puerto Rico, the project provides each of the housing units with a 23-year warranty.

In mid-September, Air Station Borinquen was 60 percent installed and began producing electricity – a major milestone for the project as the systems had to be commissioned and accepted by the local utility before production could begin. The first PV systems at Rio Bayamon have since gone into production as well.

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The project is the largest photovoltaic endeavor ever for the Coast Guard and is the largest ESPC Schneider Electric has announced. Additionally, the project supports Puerto Rico's Green Energy Strategy and helps the Coast Guard comply with requirements in recent legislation and executive orders to increase the use of renewable energy, improve energy efficiency and reduce greenhouse gas emissions.

"Within the Coast Guard, this project is significant not only because of its scale, but also because of its scope," Gore says. "By targeting renewable energy installations, infrastructure upgrades and energy conservation measures, the Coast Guard has successfully combined innovative technology with reduced maintenance burdens – an ideal project model." ■

Kevin Vaughn is the federal energy solutions program manager for Schneider Electric.