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Green Power on the Garden Isle

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Photovoltaic (PV) panels are producing "Green Power" on the Navy's Pacific Missile Range Facility (PMRF) at Barking Sands, Kauai. A new street lighting system, powered by PV panels mounted on poles, was installed and is providing non-polluting lighting for personnel and base security.

Since Kauai has one of the highest electrical utility rates in the United States, the PMRF facilities team decided to execute a \$150K project that would meet base requirements and not increase consumption from the island's commercial electric utility grid.

"Due to the increase in fuel prices, the cost of a kilowatt-hour has escalated by as much as 12 cents above the base rate in the past two years," said Christine Nonaka, project manager. "It only made sense to pursue the use of a renewable energy source with a product that has been tested, easy to install and a long warranty period."

PMRF looked to SEPCO, a

Florida-based PV lighting company for the design and components of a system that would help them meet their security requirements. The system includes state-of-the-industry PV panels and very high-efficiency street lighting.

"We've had only rave reviews about how neat the lighting is," said Christine Nonaka, project manager. "Joggers, cyclists and walkers wanted lighting along the roadway leading to the south end of the base to make their physical training sessions safer. By installing the solar-powered lights, we were able to take advantage of all the sunlight we have here on the west side of Kauai and avoid future electric costs, minimize maintenance, as well as meet the needs of the personnel."

Using this system, the PMRF facilities team avoided costly trenching and the installation of over one mile of power cables and new electrical transformers, in addition to many electrical hand holes/boxes required in a traditional street light system. Although costs for the PV street lighting is higher than traditional street lights, the overall project cost-savings, or



Photos by Christine Nonaka

An active streetlight, powered by a PV panel, shines down on PMRF's roadway. Inset - A PV panel being installed on a new light pole.

cost-avoidance, is estimated to be over \$200K. In addition, using these PV panels to produce power will result in more energy savings estimated as

\$3K per year.

There was also an added benefit to this "Green Power" lighting project. The system has full cut-off light fixtures

that force all of the light it produces down to the roadway and the pedestrian/jog path. This feature is terrific from an energy and lighting point of view; however, it also minimizes harm to the native birds that sometimes get confused at night and crash into traditional street lights.

"The angle and intensity of these lights are ideal for the protection of our shearwaters, while safely illuminating personnel on the roadway shoulder," said John Burger, PMRF environmental coordinator.

PV technology has a lifetime of 25 years. The Navy expects the new system at PMRF to save over \$75K in the next two decades, based on no increase in electrical utility rates. With the rapid rise of fuel oil, the savings could increase significantly as the cost of power escalates.

PMRF has a long tradition of active energy efficiency efforts and it shows in this innovative and sustainable energy project. By meeting the needs of the base and its budget, while saving money and energy for the Navy, the command continues to provide energy leadership in Hawai'i.