

# SunWize Technologies

## Application Bulletin



**Application:** 14.4 kW Photovoltaic Hybrid System

**Designed and Installed by:** SunWize Technologies

**Installation Date:** March, 2002

**Location:** Loggerhead Key, Dry Tortugas National Park, Florida

**Description:** This 14.4 kW solar hybrid system provides power for employee housing including air conditioning, refrigeration and potable water production on the island of Loggerhead Key. The new hybrid system, which replaced a prime power generator, uses solar to provide 92% of the power requirements. Facilities on Loggerhead Key include two houses, an historic lighthouse and a number of other small buildings. The park service implemented conservation measures to reduce daily energy use of 150 kWh per day to 50 kWh per day. SunWize's system helps the National Park Service meet their goal of protecting the environment by replacing an inefficient generator system with a clean, renewable source of power. Operation of the hybrid system reduces fuel consumption from 10,000 gallons of diesel per year to 392 gallons of liquid propane per year.

One of the logistical challenges facing SunWize was the transportation of foundation materials to the site via boat and manual labor. To avoid the tremendous effort associated with the transport of materials such as cement and aggregate, SunWize used earth augers as solar array anchor points. The augers were hand installed and exceed specifications for maximum wind loading at 120 mph.

**System Components:**

- 192 - 75 watt Siemens modules
- 48 VDC, 3312 Ah battery bank
- 8 charge controllers
- 4 - 4 kVA inverters, single phase 120/240 VAC, 60 Hz operation
- 17 kW propane generator
- DC routing equipment

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