

SunWize Technologies

Application Bulletin



Application: 4.8 kW Photovoltaic (PV) Hybrid System
Location: Sweetwater Ranch, Toiyabe National Forest, Nevada
Installation Date: December, 1999
Installed By: SunWize Technologies

Description: Sweetwater Ranch generates its own electricity for a remote cattle ranch operation as well as several small homes. Rather than relying on existing party lines, the ranch decided to establish a private telephone network, and called upon GTE to implement the system. GTE responded with a Nortel Access Node capable of handling over 50 independent phone lines and an off-grid, autonomous photovoltaic power supply. SunWize Technologies was selected to design and install a PV hybrid Power Station. Under normal operation, energy is provided entirely by the PV array. A propane generator set is integral to the system, providing N+1 redundancy for the power supply. The genset operates automatically whenever the solar contribution is inadequate, as well as during periodic exercise cycles. The microprocessor-based control sub-system includes a remote monitoring and control feature with a real-time datalogger storing all pertinent system data every 15 minutes.

System Components:

- PV array: 64 – 75 watt PV modules wired at 48 volts DC
- Battery system: 48 volt battery bank of 900 Ah capacity
- 5.5 kW sinewave inverter
- 8.5 kW propane generator
- Charge controller with dial up modem
- Data acquisition system

Comments: • Developed in partnership with Expo Power Systems and GTE Network Services.

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