REDHAWK ENERGY

Case Study

Solar Power System for Railroad Wayside Application

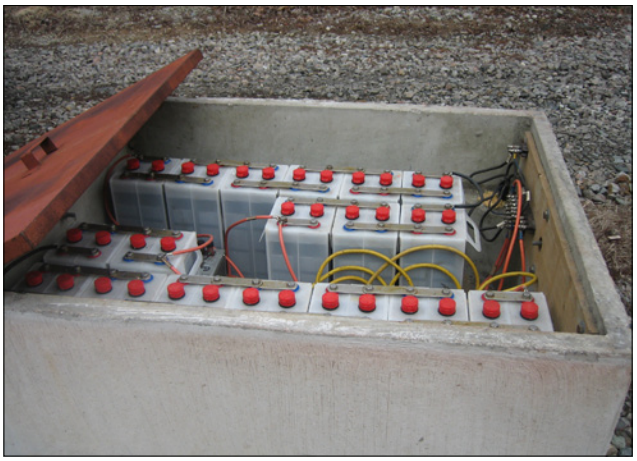
Customer Motivation:

Seeking an economical alternative to extending utility power to railroad wayside signaling and communication applications.

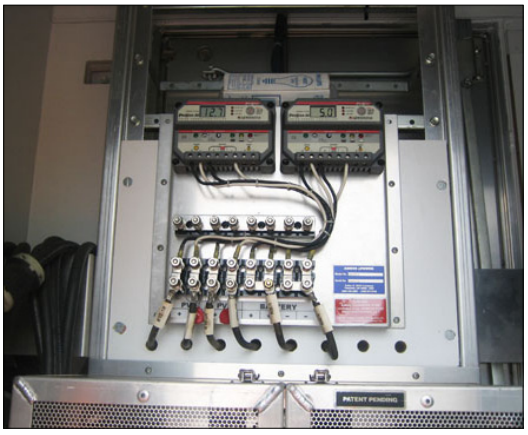
System Overview:

The R498-12-P solar power system was designed using high quality components and combined in a manner to ensure proper system operation under the range of expected on-site conditions and loading for this remote railway signaling application (pictured top right). This system features an aluminum pole equipped with all necessary hardware/crossarms to mount and support the solar array. A 16' ladder option and pre-wired top and base terminal boxes were also included.

The subarrays were pre-assembled and mounted on a common framework that included panel rails and an output junction box with wiring harnesses connected to the terminal box at the top of the pole. The array was designed for a tilt angle of 45-55 degrees from horizontal and positioned with adequate clearance of the railroad track and with a clear exposure to the southern hemisphere.



A battery bank (pictured middle right) consists of 2 parallel strings of 9 cells with a total capacity of 555 amp hours for back-up days. Regulation of the 12 volt solar array output is provided by a dual 30 ampere *ProStar* photovoltaic controller assembly (pictured bottom right) mounted on a metal baseplate with circuit test links and AAR terminals. The controller monitors the voltage of the battery bank and controls the subarray output to prevent overcharging of the batteries.



Environmental Impact

The system provides a reliable, proven source of DC power by converting sunlight directly into electricity. Solar power systems are clean energy producers with no waste or byproduct emissions and no ongoing fueling requirements.

Financial Impact

In most cases extending utility power to areas along the wayside (especially remote locations) can cost 3-4 times the price of a stand-alone photovoltaic (solar) power system.

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