Hybrid Cycle Charge For US Coast Guard

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The United States Coast Guard (USCG) operates a series of remote monitoring stations along the Alaskan Coast. These stations require unattended, uninterrupted power sources. The existing systems consisted of wide variety of hybrid power configurations, which had proven unreliable and costly to operate.

The solution: Mechron's Cycle Charge system. Mechron worked with the USCG to upgrade the existing system by replacing the prime power system with a Hybrid Cycle Charge system. When combined with the solar array, the Cycle Charge system provides uninterrupted power with the minimum possible fuel consumption.

To prove the benefits of the Hybrid Cycle Charge system, a prototype system was designed and installed by Mechron at the Robert Barron site on the Alaskan coast. The Robert Barron system consists of two 24 VDC, 160 A auto-start generators connected to a battery bank supplying prime power to the site. In the harsh arctic environment, solar arrays frequently do not receive sunlight due to seasonal conditions. When the solar array is unable to generate sufficient current to keep the station batteries charged, the auto-start generators operate when required to maintain the batteries above a predetermined level of charge. This approach maximizes battery life while minimizing generator set run time. The Robert Barron site was equipped with Cycle Charge View SCADA software, which provides complete remote operation, monitoring and data trending. The Cycle Charge View software allows for central operation and monitoring of all sites from one program. Communications for the system include RS232 broadcast system and dial-up; an Internet option will soon be available.

The Robert Barron site clearly demonstrated the advantages of the Hybrid Cycle Charge approach. Based on the success of the prototype system, an additional 16 sites were commissioned.