

REMOTE

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MONITORING APPLICATION

Solar Provides Power for Water Monitoring Sites at Northern Indiana Hydro Plants

SunWize Technologies and SEC Automation recently completed a project to power dissolved oxygen (D.O.) monitoring sites at two hydro plants for the Indiana Utility Regulatory Commission. SunWize engineered solar electric systems operate integrated units of spread spectrum radios and D.O. analyzers. Both aquatic plants and animals depend on dissolved oxygen for survival. Dissolved oxygen concentrations are influenced by many factors including water temperature, the rate of photosynthesis, the degree of light penetration (turbidity and water depth), the degree of water turbulence or wave action, and the amount of oxygen used by respiration and decay of organic matter. Measuring dissolved oxygen is one of the most significant water quality tests to determine the suitability of a stream for fish and many other aquatic organisms.

SEC's customer was in need of an alternative source of power in lieu of the high cost and non-feasibility of commercial power installation for the remote locations along the river. After contacting SunWize and discussing the application, SunWize and SEC Automation agreed that 123-watt solar systems would provide sufficient power for the monitoring sites. SunWize supplied Sharp modules for their efficiency



and reliability in remote locations and provided system engineering services. Design summaries, created by SunWize, assisted SEC with the building and configuration of the solar powered D.O./radio control systems.

Two separate systems consisting of two solar powered remote radios, D.O. analyzers and a master ModBus radio were installed at key locations along the river. The analog signal outputs of D.O. analyzers are wired directly into RTU/radios. The remote radio units transmit the signals to a central ModBus gateway



radio which interfaces with an existing SCADA system to monitor and provide historical trends of the collected data. Anthony Marchio, General Manager, SEC Automation, commented, "Solar is a perfect solution for this application and SunWize provided the solar technical assistance required. The result was a significant cost savings and reliable remote power solution for our customer."



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