

# Application Brief



## Customer

A leading Power Company with 10,000 employees and annual revenues over \$15 billion that supplies over 40,000 megawatts of energy to millions of users across the United States and Canada.

## Systems Integrator

Arther Business Products (ABP)

[www.artherbusinessproducts.com](http://www.artherbusinessproducts.com)

## Location

North America

## Industry

Power: Renewable Energy

*“As the wind industry continues maturing, owners of wind farms must implement industrial grade networking equipment that provides consistent uptime and longevity to keep operations running smoothly. Equipment should be easily configurable and hardened for extreme wind farm environments so critical SCADA information is not lost. When a loss of SCADA information occurs, the behavior of the wind turbines and farm as a whole may be compromised.”*

*- Phillip H. Arther, ABP President*

## Project Scope

With over 7,500 megawatts of renewable energy being generated from 9,000 wind turbines located at 75 sites across the United States and Canada, a leading North American Power Company required more optimal networking communications to improve wind farm operations and avoid costly downtime. Its current SCADA system was utilizing a serial multi-drop string network that not only had data limitations, but was also experiencing reliability issues during temperature fluctuations.

## Solution

The Power Company’s mission was to upgrade its wind farm communications system, which included fiber optics, serial servers and Ethernet switches. After evaluating a number of different options, Red Lion’s Sixnet SLX series of industrial Ethernet switches was selected for its rugged reliability. The project was completed in two phases with new hardware being installed followed by the transition from old equipment to the new communications system.

Deployed at the core of the wind turbine-to-SCADA communications system, the Red Lion Sixnet Ethernet switches manage and process control signaling, condition-based monitoring and data collection. The industrial switches also allow IP-enabled devices to be used throughout the turbine with the fiber optic network providing noise suppression.

## Benefits

Located in environments subject to fluctuating temperatures, humidity, vibration, dust and electromagnetic interference from rotating generators and radio transmitters, wind turbines require industrial-grade equipment. Red Lion’s Sixnet switches – tested to comply with the most demanding industrial standards – provide the rugged reliability and high performance vital to meeting extreme wind farm conditions.

Designed for fault tolerance, the switches use dual-independent power supplies and are fully compatible with fiber optic ring network topologies. Built-in redundancy ensures wind farm data automatically gets rerouted should equipment fail. In fact, switch performance under electrical transient fault conditions makes it one of the most reliable elements in the wind turbines.

Compatible with both multimode and single-mode fiber, the switches offer plug-and-play simplicity when interfacing between the ring network and a SCADA system. The use of ring technology also enables turbine maintenance to be performed without communication loss. Additionally, new turbines can be seamlessly networked without downtime. This scalability coupled with ease of use enables the Power Company to benefit from real-time deterministic performance and around-the-clock security.

## Products

Model	Description
<a href="#"><u>SLX6RS-4ST</u></a>	6 port Ethernet switch (4 RJ-45 and 2 multimode fiber ports)
<a href="#"><u>SLX6RS-5ST</u></a>	6 port Ethernet switch (4 RJ-45 and 2 single-mode fiber ports)
<a href="#"><u>SLX6RS-3934ST</u></a>	6 port Ethernet switch (4 RJ-45, 1 multimode fiber and 1 single-mode fiber)
<a href="#"><u>ET-PS-024-02</u></a>	2 Amp 24vdc power supply

## Network Diagram

