Energy Management Information Systems (EMIS) Case Study

Earth Rangers ramps up energy efficiency with StruxureWare Energy Advanced

Schneider Electric Solution

- EMIS Platform: StruxureWare Energy Advanced
- Hardware: EGX300, PM750, PM 820 meters
- Services: System design, installation and commissioning

Customer Profile

Located in Toronto, Canada, Earth Rangers is a non-profit organization that believes in the power of kids to take action to help protect wildlife. The Earth Ranger facility is certified Gold under LEED for new construction. The facility is a showcase of cutting edge building technology such as energy metering, smart automation and controls, innovative water and wastewater management, solar generation, green roofs, and geothermal heating and cooling. This innovative building center receives over 200,000 guests per year that tour the facilities to learn best practices in green building and renewable energy technologies.

Customer Challenges

Earth Rangers identified several challenges:

- When commissioning or troubleshooting system changes, large consumption points in the facility have to be manually monitored
- Data from the ION Enterprise system is manually entered into an MS Excel Facility Scorecard worksheet, a process that is both tedious and error prone
- The existing touch screen panel used to animate building energy performance during facility tours is too technical for most consumers, and is generally not suitable as public facing communication
- No ability to verify utility billing data
Customer Objectives

Schneider Electric recommended Energy Advanced to meet Earth Rangers needs. Energy Advanced provides Earth Rangers with an integrated platform, offering:

- Facility Operations personnel to the tools to identify, analyze, and report on energy savings and sustainability initiatives
- An attractive, easy to understand public facing display (Kiosk) to help communicate energy achievements to visitors of the center and corporate website
- Near-real time system by system breakdown, with alarms for thresholds
- Ability to use power metering data within BAS to make or inform HVAC decisions
  - Demand limiting of large loads, load shedding
  - Self-diagnostics – for preventative maintenance
  - Cross referencing energy metering with BAS data for diagnostics (current vs. air flow, pumping pressures etc)
  - Real-time COPs for ground source heat pump
- Trend data across systems
  - Ex. Outdoor temperature vs. heat pump consumption and demand
- Monitor wages (Water, Air, Gas, Electricity...)
- Benchmark the different building/floors to find best practices
- Ability to verify utility billing data

Solution Implementation

Installation of the software was completed in October 2011 by EMIS² and the Schneider Electric Canada Country organization. The solution included;

- Integration of energy and related building data from the existing BMS
- Integration of energy data from the existing ION Enterprise system
- Web-based interface for remote data viewing of Earth Ranger Center facility performance
- Intuitive, powerful tool to create key performance indicators, reports and calculations
- User training for Earth Rangers personnel
- Professional services to elicit, document and execute functional specifications
**Enterprise Architecture**

**Customer Benefits**

The Energy Advanced system had just been installed, but Earth Ranger has experienced the following immediate benefits;

- Lighting upgrades are being tracked to quantify savings
- Plans are in place to upgrade/replace data centre cooling system, and removal of a redundant ups in the data centre in underway as a result of seeing the data centre energy scorecard.
- Since Earth Rangers is now looking at energy data on a regular basis, they have improved their maintenance of BAS sensors. They now realize sooner when a sensor has gone out of calibration.
- Installing the Energy Advanced system has allowed Earth Rangers to target multiple credits under LEED EB

**Key Success Factors for Schneider Electric**

The Earth Rangers Team, in collaboration with a consulting firm, evaluated solutions from Schneider Electric and Siemens. Schneider Electric was selected because of our comprehensive offer: Siemens could not provide the full offer scope.
**Customer quote:** "Energy Advanced allows us to visualize integrated information from different platforms. At the click of a mouse, up to date energy metering and building automation tracking information are brought together into a package that is understandable to a building operator, manager, or the general public."

- Andy Schonberger, Director, Earth Rangers Centre

**Additional Information:**

For more information about this customer solution please contact: Emis.info@schneider-electric.com