

CASE STUDY

BUILDING AUTOMATION CONTRACTORS

Smart Energy!

KeySpan's New Energy Monitoring & Data Services Application Harnesses "Open" Technology to Enable Energy Intelligence At Wyckoff Heights Medical Center

Energy consumption and energy efficiency are topical matters in today's challenging economy. For most businesses, cost from energy usage represent the vast majority of the total cost of operations, which inherently drive an economic imperative for reducing expenditure, improving profitability and achieving better value. Accountability in energy management is very effective in significantly reducing the outlay attributed to energy and operational anomalies.

Achievement of best practice energy management is the culmination of many activities across all facets of a company's operation, and can be integrated into other management schemes, e.g. quality, safety, environment, or be achieved through a stand-alone energy management system.

Wyckoff Heights Medical Center is a voluntary not-for-profit teaching institution offering comprehensive health services to the people of the City of New York.

The hospital has approximately 509,000 square-feet and includes a bed complement of 350. To discover where the hospital could save on energy expenses, they first needed to examine its energy profile-what it costs, how much energy is used, and where it is used. Gathering energy use data, together with information about hospital operations,

would form a baseline of the facility's current energy use, which could then be used to measure the success of future improvements. An existing KeySpan Energy customer, the hospital emerged as a prime candidate to introduce the utility provider's new energy management solution, the Energy Monitoring & Data Services (EMDS) application.



Project Team

Owner: Wyckoff Heights Medical Center, Brooklyn, New York

System Developer: KeySpan Energy

A member of the Standard & Poor's 500 Index, KeySpan is the largest distributor of natural gas in the Northeast serving 2.5 million customers. KeySpan is also the largest investor-owned electric generator in New York State and operates the Long Island Power Authority's electric system serving 1.1 million customers.

System Architecture

EMDS is an extrapolation model, incorporating LonWorks® Protocol, which uses data from utility meters to monitor energy use in the industrial, commercial and service sector. The system is developed in such a way that for each holding of the aforementioned population, con-

(Continued)

Key Benefits

The calculation of the share of the different energy sources in the total energy consumption makes it possible to isolate and determine anomalies due to, for example, heating and cooling. In addition to HVAC, this scalable solution is expandable to lighting, and security systems. Moreover, the system creates an instrument for property owners to evaluate the impact of energy saving actions on the energy consumption of individual operations within a business venture. It can be an essential element of a facility's effective energy management plan. Tracking and monitoring will help to confirm savings from existing efficiency investments and identify new opportunities for savings, set up a database for cost control and benchmarking as well as check billing accuracy.



sumption data is collected and streamlined in real-time over the internet to any location in the world, thereby allowing subscribers to calculate the energy utilization for different aggregates. The technology allows both new and existing installations of KeySpan metering products to be web enabled and connected via the internet or private intranet to proprietary reporting systems—providing corporate administrators and facility managers with cost effective tools to enable the exchange of information between facility management systems and enterprise information management systems. Ideal for recording of utility consumption from pulsing meters, the system has an unlimited memory capacity for consumption data, and is complemented with the flexibility for user defined recording periods.

Installation

At Wyckoff, KeySpan employed the services of T.E.C. Systems Inc., which, in its capacity as an experienced Building Automation Systems Integrator, would facilitate the means of communicating data from utility meters at the facility to the EMDS application that would optimize such data for dissemination over the internet. To that end, T.E.C. Systems furnished and populated the facility with Echelon's iLON-100 servers: a device that bridges data from a LonWorks network to the internet for monitoring and control through standard web browsers. Utility meters are retrofitted to provide a pulse output signal representative of the energy being utilized, e.g. 1kWh/pulse for electric, 100 CuFt/pulse for gas. Pulses are monitored and logged by the iLON-100 servers. Data is transmitted on user-defined intervals to the EMDS application via the Simple Object Access Protocol (SOAP (XML protocol)) for long term archiving, aggregation, alarming, and presentation.

Client-Side Access

All information logged can be accessed from any authorized PC on the hospital's existing site network by RJ45 twisted pair connection. An authorized hospital personnel has the ability, through a standard web browser, to access the application and view the collected data. Views include energy usage graphs, and reports. In addition, the iLON also serves as a Hyper Text Transfer Protocol (HTTP) server for system configuration and an HTTP Common Gateway Interface (CGI) Query mechanism to automatically input data into spreadsheet programs such as Microsoft Excel.

The EMDS Advantage

For Wyckoff, implementation of the EMDS application is the commencement of a planned expansion of the hospital's energy management program into an integrated information platform to collect and analyze facility information. This capability will enable staff to diagnose, recommend, and execute timely solutions that help reduce costs, increase system reliability, and improve facility environment. Further more, establishing a tracking and monitoring system for energy use will develop consumption patterns revealing the time-of-use, peak usage and usage efficiency. In addition, Tracking and monitoring will help to confirm savings from existing efficiency investments and identify new opportunities for savings, set up a database for cost control, and benchmarking. This information will be an effective tool for reporting information to administrators, facility managers and major users. For the facility manager, analyzing energy consumption will provide a base to ensure a facility's energy resources are used to their maximum advantage. For administrators, a load profile of the facility is a major advantage in negotiating utility rates.

T.E.C. Systems Incorporated

54-08 Vernon Boulevard, Long Island City, NY 11101



02/04 Printed in the USA

©T.E.C. Systems 2004 All rights reserved

