ENERPRO SYSTEMS

Case Study: Xenex on Twelfth

Highlights include:

- 31% reduction in gas consumption from business as usual figures
- 59.7% reduction in hot water consumption from business as usual figures
- Annual reduction of 372 tons of greenhouse gas emissions
- $41,595 savings per year
- $310,000 total capital cost (7.5 year payback)
- No subsidy required

Xenex on Twelfth:
Achieving 372 tons annual reduction in greenhouse gas emissions

Project Overview

Calgary's Xenex on Twelfth Avenue has reduced gas consumption by 31% from business as usual figures following implementation of Enerpro's Intelligent Energy Management System (iEMS), completed in February 2009. Enerpro worked with developer Bucci Developments Ltd. to create a portfolio of energy management measures to reduce gas and water consumption.

Enerpro's customized iEMS for Xenex included metering for domestic hot water and electricity, mechanical system optimization and heating and cooling allocation.

In addition, the Sinclaire Multi-Storey Water Distribution System was implemented for piping domestic cold water (DCW) and chilling water (CHW) as well as domestic hot water (DHW) and heating water (HTGW). The system uses fewer pumps, resulting in reduced energy use and operational costs.

The Opportunity

Overall climate change targets in Canada have been set at a 17% reduction in greenhouse gas emissions from 2005 levels by 2020. Enerpro's iEMS is able to drastically reduce energy consumption in multi-use residential buildings using an integrated approach to energy management.

Xenex on Twelfth

Integrated management of gas, electricity and water consumption

Integrated Approach

Enerpro achieves its mission of "creating value from energy" by incorporating the following elements in its iEMS:

- Reducing energy and water consumption
- Increasing awareness of building residents
- Allocating energy costs fairly and accurately
- Improving energy efficiency of mechanical systems
- Cost of energy upgrades equal to savings (recovery within 7.5 years)

Enerpro's iEMS Solution for Xenex

Following an energy analysis of the building, Enerpro designed an integrated solution specific to Xenex.

Components of iEMS designed for Xenex include:

- Monitoring and optimization of mechanical systems
- In-suite meters for domestic hot water, electricity, heating and cooling

Building Type:
Multi-unit residential strata
Number of Units:
150
Mechanical systems:
2 standard boilers for domestic hot water and make-up air unit,
4 pipe fan coil
Baseline consumption:
12,000 GJ gas/ year
Consumption after iEMS:
8,296 GJ gas/ year
Savings:
3,704 GJ/ year
$41,595/ year

- Digital controls for domestic hot water, heating and cooling allocation

These components, together, make up iEMS.

Critical Success Factors

- Cross-utility intervention
- Integration of mechanical systems
- Individual awareness of consumption

Results

- Reduced energy consumption of mechanical systems
- Increased lifespan and reduced maintenance of mechanical equipment
- Increased efficiency of mechanical systems
- Reduced operating costs

Lessons Learned

Substantial reduction in greenhouse gas, replicable, no subsidy required

- The integrated approach at Xenex has proven to drastically reduce gas and water consumption, reducing greenhouse gas emissions by 372 tons in the first year
- The energy savings achieved at Xenex are typical for the application of iEMS. Enerpro's custom designed iEMS has the potential to replicate the results from Xenex at any multi-use residential building regardless of existing energy systems, age, or size
- No subsidy was required. The capital cost of the iEMS can be paid for within the savings provided over 7.5 years

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