Kwantlen POLYTECHNIC UNIVERSITY

Sustainability Success Story

New Hot Water Tank cuts summer natural gas use 37% at Richmond Campus

The Challenge

Domestic hot water for the Richmond campus has always been provided by pumping hot water from the large heating boilers through a small storage tank (domestic hot water is hot water used for cleaning and washing).

This approach meant the boiler was on all the time, even during very hot summer weather. Since the energy demand to provide hot water is only about 10% of the energy needed for heating on a cold winter day, it was like taking a large semi-trailer to the store for a litre of milk. The boiler fired to operating temperature and almost immediately shut down. This resulted in both a low efficiency and an operating environment that shortened the life of the boiler.

Our Solution

A separate small boiler was installed to provide only domestic hot water (DHW). This DHW tank is operated during summer months and the large boiler turned completely off for 3 or more months. The pumps serving the heating system can be turned off at the same time (summer months) and save electricity.

Project Cost, Annual Savings and Other Benefits

Project Cost	$19,800
Project Savings	$5,000 per year ($3,750 Natural Gas; $1,300 Electrical(net)
Natural Gas Savings	355 GJ (about ¾ % of our total consumption)
Electrical Savings	26,000 kWh
Simple Payback (years) / Return on Investment (ROI)	4.0 Years / A Return on Investment of 25%
Increased Equipment Life	Will give an estimated 25% increase in life of equipment
Reduced Maintenance Costs	Annual maintenance costs will be reduced (unspecified quantity) with pumps and boilers off
Environmental Improvement - Greenhouse Gas Reduction	Reduced emissions of 27 Tonnes of GHG
Other Benefits	Demonstrates Leadership, Commitment, the Sustainability Process, improved Risk Management benefits.