Kwantlen POLYTECHNIC UNIVERSITY

Sustainability Success Story

Heating Conversion at Horticulture Labs Saves Natural Gas

The Challenge

A 300 M^2 work shed at the Langley Horticulture field labs was heated with hot water piped underground to radiant fin and fan-forced heating units. The piping was underground for almost 100 M and required significant maintenance associated with underground cathodic protection, as well as substantial energy loss in pumping costs and heat loss through the pipes.

On average it cost $3,000 a year for deferred maintenance, annual testing and heat loss through the piping. There was also a potential environmental hazard of treated boiler water leaking into the ground water, regardless of how well we maintained the system.

Our Solution

We installed electric fan forced heaters (either wall or ceiling hung units (photo) and disconnected the piping from the boiler. While developing the project, we included temperature setback thermostats and improved operation of an exhaust fan that meant less energy use, and better air quality.

Project Cost, Annual Savings and Other Benefits

Project Cost	$4,000
Project Savings	$3,300 per year ($150 Electrical; $350 Natural Gas costs; $2,800 Maintenance Savings)
Electricity Savings	3,000 kWh
Natural Gas Savings	32 GJ
Simple Payback (years) / Return on Investment (ROI)	1.2 Years / A Return on Investment of over 80%
Reduced Maintenance Costs	Annual maintenance costs will be reduced by $2,800
Environmental Improvement - Greenhouse Gas Reduction	Reduced emissions of 3 Tonnes of GHG
Environmental Improvement – Other	Reduced transportation & landfill footprint
Reduced Environmental Mercury	A kWh of coal-fired electricity puts substantial mercury in the atmosphere. More efficient products mean less kWh