

CITY OF BURNABY – ENERGY RETROFIT CASE STUDY

Summary of Results

- Energy Performance Contract for 49 municipal buildings
- Project Cost: \$5.6 million
- Energy and Operational Savings: \$450,000 annually (14% savings)
- CO2 emissions reduction of 1481 tonnes
- Project Initiated: 2003
- Completed: September 2006

Background

The City of Burnaby has consistently demonstrated its commitment to preserving and promoting its livability for future generations to inherit. As a past winner of the Fraser Basin Council Overall Sustainability award, Burnaby was recognized for its efforts to integrate environmental protection, community livability and economic development.

It is no surprise that one of the areas the City has focused on is its municipal buildings. The City called this its “EnergyFit” program, and embarked on a retrofit program for a portfolio of 49 buildings, representing 90% of the buildings owned by the City. These buildings include all of the typical municipal uses, such as swimming pools, skating rink, recreation centres, and office buildings.

Burnaby also made efforts under their EnergyFit program to engage employees and create awareness of actions they could take to save energy.

Project Details

As the first municipality to carry out a comprehensive, portfolio-wide energy retrofit in BC, Burnaby was breaking new ground. After extensive work by finance staff in 2003 to develop a business case, the City went through a process of selecting an Energy Services Company (ESCO) to provide a bundle of energy services, including energy auditing, retrofit plan development and oversight of the energy retrofits.

Facility upgrades were underway in 2004, and completed by September 2006, including:

- High efficiency lighting
- Water conservation measures
- Building envelope upgrades
- Thermal pool covers
- Automation (control system) upgrades
- High efficiency boiler and furnace replacements

Energy savings are guaranteed through an Energy Performance Contract with the ESCO, with a guaranteed annual savings of \$450,000. The project also achieved additional energy savings of \$360,000 during the construction phase, with a commensurate reduction in CO2 emissions of 1481 tonnes.

The \$5.6 million project was financed by the City of Burnaby through their capital budget, less incentives from utilities and the federal government.



The benefits to the residents of Burnaby went beyond energy savings. Local hockey players and ice skaters were impressed with the improved lighting levels and harder ice surface in the retrofitted Kensington Arena.

Lessons Learned

Burnaby has been very pleased with the results of the project, and found that the retrofits have generally been carried out with minimal disruption to employees and those using facilities.

The energy saving measures have generated very positive feedback. For example, the new reflective low-emissivity ceilings at Kensington and Burnaby Lake Ice Arenas have provided not only energy savings but also an overall 30% improvement in lighting levels and a harder ice surface. Local hockey players and ice-skaters are very impressed!

Key lessons learned in the process of developing the project:

- Burnaby assigned a staff person full-time to the management of the Energy Performance Contract, a critical success factor that they felt was important for other communities to consider.
- Energy conservation is a continual endeavor. In order to have an effective energy conservation and greenhouse gas reduction program post-retrofit, a full-time staff person is required to maintain the Energy Performance Contract, manage energy consumption and other conservation projects.
- Burnaby recognized that in order to maximize energy and financial savings, there was a need to maximize behaviour change with the staff. As such, EnergyFit Days were held for staff in 2004, 2005 and 2006, and is envisaged to be an annual event.
- Burnaby has started to promote energy conservation with its residents, as well. In 2006, over 1,000 residents attended an Energy Fair, lectures regarding energy conservation and tours of energy-efficient buildings and “green” sites. Burnaby has also been promoting the Energy Savings Plan for homeowners.