Community Energy Leadership Program (CELP)
Stories of Success

City of Coquitlam:

LIGHTING AND BOILER RETROFIT PROJECT

Total Project Cost: $473,244	**Energy savings**: 2,660 GJ/year
Total CELP funding support: $20,000	**GHG reductions:** 31 tonnes/year of CO_{2e}

Summary of Project: *The City of Coquitlam implemented a major lighting retrofit at three sites and upgraded a large boiler plant in order to achieve their climate action goals of reducing emissions 30% below 2007 levels.*

Partners / Collaborators / Technology Providers / Contractors: In addition to the Ministry of Energy, partners to this project included BC Hydro, who contributed approximately $100,000 to the project for installing energy efficient lighting fixtures; FortisBC who contributed $10,773 for installing an efficient boiler system. Both parties fund projects that reduce demand on their distribution systems.

The City of Coquitlam ('City') engaged Quantum Lighting to provide consultation services for the lighting portion of the project. They provided technology recommendations and assisted with the verification of installation.

The City also engaged Fraser City Installations (FCI) as its lighting contractor through an RFP process. FCI ensured that the fixtures installed were wired correctly and functioning properly.

For the boiler portion of the project, IMEC Mechanical Ltd (IMEC) was selected as the contractor to integrate the boiler system into an existing energy-sharing project. IMEC installed and commissioned the boiler.

Background:

With a population of approx. 140,000, Coquitlam is the fifth largest municipality located in Metro Vancouver. The City established a climate action target in 2007 to reduce emissions by 30%. This target is the driving force behind this (and other) energy management projects. In addition, the City values sustainability through conservation.

The lighting and boiler project was developed to address inefficient systems and reduce operating costs. The lighting portion of this project increased efficiency by adding control to meeting rooms and utilizing LED technology which also increases the life of the equipment. The boiler project removed 2 over-sized units that were replaced with fully modulating high-efficiency units.

This project features buildings that are used by the community in many capacities, such as recreation, arts, and public safety. The retrofits will improve comfort conditions and improve security and visibility at night.

In terms of project planning and approval, the City's Strategic Energy Management Plan (SEMP) enables staff to continuously investigate potential energy and emissions reduction ideas. These ideas

are turned into projects once the scope and business cases are complete. Council allocates a recurrent annual budget to energy management.

The Lighting & Boiler retrofit project was identified in the SEMP, and partial budget was secured through funds Council had allocated to building energy retrofits. The City was able to meet the complete project budget by leveraging partners' contributions of approximately $130,000.

Innovation:
The Public Safety (RCMP) Building is using an innovative application of LED lighting. Typically office spaces use fluorescent tube lighting. However, given that this building operates 24/7 this application allows for lower maintenance costs due to the LEDs longer life. This is the first RCMP building in the Lower Mainland to use this lighting application.

The goal of the project is reducing GHG emissions to achieve Climate Action targets. To ensure the City receives reliable energy savings, the City chose low-risk, proven technologies for the proposed project.

This project is highly replicable, and will encourage the further development of energy-efficient lighting and boiler technologies.

Outcomes:
The Lighting and Boiler Retrofit project will save the City 1,985 equivalent Giga Joules (GJ) of combined electricity and natural gas reductions, which is equivalent to 31 tonnes of CO_2.

The project created approximately 1,000 hours of employment during the construction phase, employing electricians, HVAC mechanics, plumbers and general labourers. The Evergreen Cultural Centre pays for its own utilities through a grant provided by the City. The utility cost savings associated with this project will reduce financial requirement for operations which could result in a benefit to the community groups using the space.

"The City's economic benefit from utility cost savings will ultimately be passed on to the community via enhanced programs and services."

Project Reflections:
The City worked with an existing partner to implement the boiler retrofit. This portion of the project was efficiently completed due to their extensive knowledge of the City's Facilities and systems.

The City ran into a few issues with the lighting project, related to the wiring configuration in the RCMP building. Despite testing the technology, some of the configurations did not meet protocol to provide safe and reliable lighting when using the electrical supply from the backup generator. This feature is pivotal to the RCMP building, which is designed to continue its full functions in the event of major natural disasters.

In the future, the City will perform extensive spot-testing of any proposed changes to emergency buildings.

Contact info:
Luisa Mora, Energy Manager
City of Coquitlam
lmora@coquitlam.ca | T: 604-927-3582