

Community Energy Leadership Program (CELP) Final Project Report 2015/16:



Ministry of
Energy and Mines

Name of Community: City of Coquitlam
Community Project Name: Lighting and Boiler Retrofit Project
Contribution Agreement (CA) #: CA16MAN0014

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.

Total Project Cost: \$473,244

Total CELP funding support: \$20,000

Percentage of Total Project Cost supported by CELP funding: 4%

Project Start date: August, 2015

Project Completion date: January 14, 2016

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

Community Energy Leadership Program (CELP)

Final Project Report 2015/16:



(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 (eGJ) of combined electricity and natural gas reductions, which is equivalent to 31 tonnes of CO₂.

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.

Links: Not applicable.

Contact info:

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lmora@coquitlam.ca

Photos:

See Attachment 1

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Attachments:

The following documents have been submitted along this report:

- Attachment 1: Photos
- Attachment 2: Budget
- Attachment 3: WCB and Lien documentation for lighting
- Attachment 4: Safety and cost documentation for boiler
- Attachment 5: Energy reduction calculations for boiler
- Attachment 6: Energy reduction calculations for lighting

I Luisa Mora, certify that the information in this report is correct and accurate to the best of my knowledge, and that no information important or relevant to the execution of the Contribution Agreement with the ICE Fund has been omitted. I also permit the Province to utilize the information and photos that I have provided as part of this Final Report (excluding the attached Budget Table) in the summarized form of a CELP Community Case Study on both the ICE Fund and/or CELP public websites.

Signature _____

Date: _____

Signing Authority

Luisa Mora
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Engineering & Public Works Department
City of Coquitlam
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PHOTOS

1. Installed fully condensing boilers at Evergreen Cultural Centre



2. The City removed more than 1,500 lamps and replaced these with higher efficiency technology. Picture below shows the removed inefficient technology.





3. The City removed more than 1,500 lamps and replaced these with higher efficiency technology. Picture below shows an LED lighting application at City Hall



City of Coquitlam
 CELP Funding Interim Report
 Lighting and Boiler Project
 Project Cost Tracking as at March 14, 2016

Overall Project Completion Status: 100% Complete
 Completion Date 14/1/2016

Vendor	Inv. Date	Inv.#	Project Cost Tracking Description	Amount (\$)	Invoice/Incentive Status
Lighting					
Quantum Lighting Inc	1-Jun-15		Lighting Specs and Scope of Work	\$ 2,700.00	Paid
Fraser City Installations	4-Sep-15	7711R	Progress Draw 1	\$ 67,653.50	Paid
Quantum Lighting Inc	31-Oct-15	32600	Construction Review and site inspection	\$ 1,350.00	Paid
Fraser City Installations	28-Sep-15	7731	Progress Draw 2	\$ 85,580.00	Paid
Fraser City Installations	30-Oct-15	7764	Progress Draw 3	\$ 48,205.50	Paid
Fraser City Installations	9-Feb-16	7844	Progress Draw 4	\$ 146,643.68	Paid
Fraser City Installations	11-Mar-16	7858	Holdback	\$ 35,661.75	Paid
Boiler					
Thermenex	21-Oct-15	112	Boiler installation and Comissioning (Labour + Materials)	\$ 85,450.00	Paid
Expenditure:				\$ 473,244.43	

Budget vs. Actual Analysis

Total Budget: \$435,000
 Actual Cost \$473,244
Variance \$ (38,244.43) -9%
 Variance Reason: Slight re-design and additional wiring at RCMP building was required to provide full lighting service from emergency generator

Funding Sources:	Contribution	
	CAD	%
City	342,471	72%
BC Hydro	100,000	21%
CELP	20,000	4%
FortisBC	10,773	2%
Total	\$ 473,244	100%