



# City of Richmond

## Report to Committee

**To:** Public Works and Transportation Committee  
**From:** John Irving, P.Eng, MPA  
Director, Engineering  
**Re:** City of Richmond Energy Statement Initiative



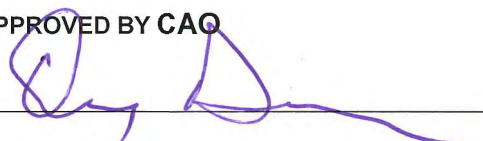
**Date:** August 29, 2016  
**File:** 10-6125-05-01/2015-  
Vol 01

### Staff Recommendation

That the staff report titled "City of Richmond Energy Statement Initiative" from the Director, Engineering, dated August 29, 2016, be received for information.

John Irving, P.Eng, MPA  
Director, Engineering  
(604-276-4140)

Att. 1

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER 	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 
APPROVED BY CAO 	

## Staff Report

### Origin

Following the success of past corporate energy efficiency staff engagement programs, the City of Richmond's Energy Statement Initiative described in this report supports the following Council 2014-2018 Term Goals:

#### #4 Leadership in Sustainability:

- 4.1. *Continued implementation of the Sustainability Framework.*
- 4.2. *Innovative projects and initiatives to advance sustainability.*

Attachment 1, "Energy Statement Ice Centre Example," demonstrates the final proof of the initiative that will be used to engage corporate building stakeholders, and will hopefully help to further improve the energy efficiency of corporate buildings.

### Background

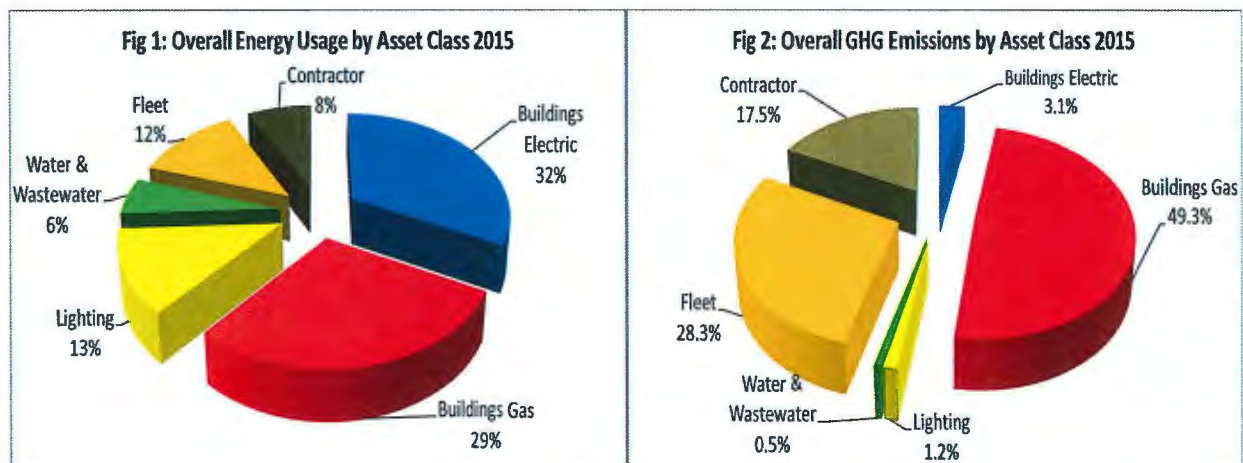
The City's Energy Management Program (EMP) contributes to corporate energy efficiency and reduced greenhouse gas (GHG) emissions. The EMP helps support the City's long term goal of maintaining carbon neutral corporate operations, mainly through decreased natural gas use. The continuing support and enhancement of energy efficiency and reduction initiatives is integral to maintaining the City's Climate Action Charter commitments and overall corporate sustainability.

Energy conservation work at the City and energy related projects have cumulatively saved over 48.0 GWh of energy since 2008 (equal to the energy consumption in 1,200 Richmond single-family homes per year). In this same period, the City has avoided approximately \$2,400,000 in total operational costs and over 6,800 tonnes of greenhouse gas emissions (CO<sub>2</sub>e) (equal to emissions from 2,100 Richmond cars).

### Findings of Fact

#### Energy Statement Initiative Overview

In 2015 energy use at civic buildings accounted for a majority of total reported corporate energy use and greenhouse gas emissions (see Figure 1 and Figure 2 below).



Energy reduction and optimization projects are conducted in collaboration with multiple stakeholders, to ensure that numerous project benefits are achieved from building improvements or infrastructure replacements. Energy management best practices are the responsibility of all staff, and staff are encouraged to play an active role in identifying energy efficiency and reduction opportunities whenever possible.

Over the last five years, through a corporate staff energy engagement program, staff were encouraged to recognize behavioural ways to help reduce corporate energy use. Initiatives were informative and engaging, and included; an ugly sweater contest in the winter time to be able to turn down the thermostat, a stay light by day bright summer initiative to reduce lighting use, and various contests like a monitor shut down challenge.

The Energy Statement Initiative is the next step to further engage with corporate building users by increasing their awareness of energy use and cost. Most corporate monthly energy use billing is centralized, and any review of energy use and costs by select managers is usually done while periodically reviewing their operating budgets. There is currently no regular reporting that is provided to key stakeholders specific to the energy use and costs of the assets that they manage or program.

It has been shown that through simple awareness initiatives, energy use and costs can be reduced. In addition, many jurisdictions in North America have begun to implement benchmarking reporting requirements for buildings in order to compare building types and promote energy use reductions. An energy statement is planned to be shared with select City staff and managers quarterly, so as to inform them of the energy use and cost of an asset that they are involved with, and to provide general energy conservation tips. The energy statement initiative has been introduced to key stakeholder groups within Engineering and Public Works, Community Services and Law and Community Safety at General Manager/managers' meetings to build awareness and solicit feedback. Key staff, who will be the recipients of the quarterly energy statements, will be identified in each area. Having this stakeholder group defined and receiving this information will help to improve corporate energy use engagement opportunities for communicating energy saving initiatives and actions that the City is undertaking.

#### List of Corporate Energy Statements Locations and Infrastructure

The initiative will primarily focus on higher consuming buildings with identifiable key stakeholders, as well as key corporate infrastructure. Below is a list of currently identified locations and infrastructure that are proposed for receiving Energy Statements. This list will be adjusted as needed based on discussions with the appropriate departments.

**Buildings**

Watermania	City Centre Community Police	City Centre CC
Minoru Aquatic Centre	Steveston Community Police Station	South Arm CC
Richmond Ice Centre	Gateway Theatre	South Arm CHI
Minoru Arena	Fire Hall #1 - Headquarters	Thompson CC/CH
Works Yard Complex	Fire Hall #2 - Steveston	West Richmond CC
Steveston CC Complex	Fire Hall #3 - Bridgeport	Branscombe House
City Hall	Fire Hall #4 - Sea Island	Britannia Shipyard
City Hall Annex	Fire Hall #5 - Hamilton	London Farm Historic Site
City Hall West	Fire Hall #6 - Shellmont	Stevenson Museum & PO
Corporate Storage Facility	Fire Hall #7 - Crestwood	Buermann Meeting House
Library/Cultural Centre	East Richmond CH	Terra Nova Barn
Community Safety Building		

**Infrastructure**

Alexandra District Energy Utility	Traffic Signals	Sanitary Pump Stations
City Street Lighting	Traffic Signals	PRV Stations
Pedestrian Signals	Drainage Pump Stations	

**Financial Impact**


None.

**Conclusion**

The Energy Statement Initiative will help bridge the information gap between managers who program and operate City infrastructure and the associated energy use and costs. It will help to improve infrastructure optimization by increasing the number of “eyes” on corporate energy use, so that more anomalies are reported and corrected in a timely manner.



Levi Higgs  
Corporate Energy Manager  
(604-244-1239)



Peter Russell  
Senior Manager, Sustainability and District Energy  
(604-276-4130)

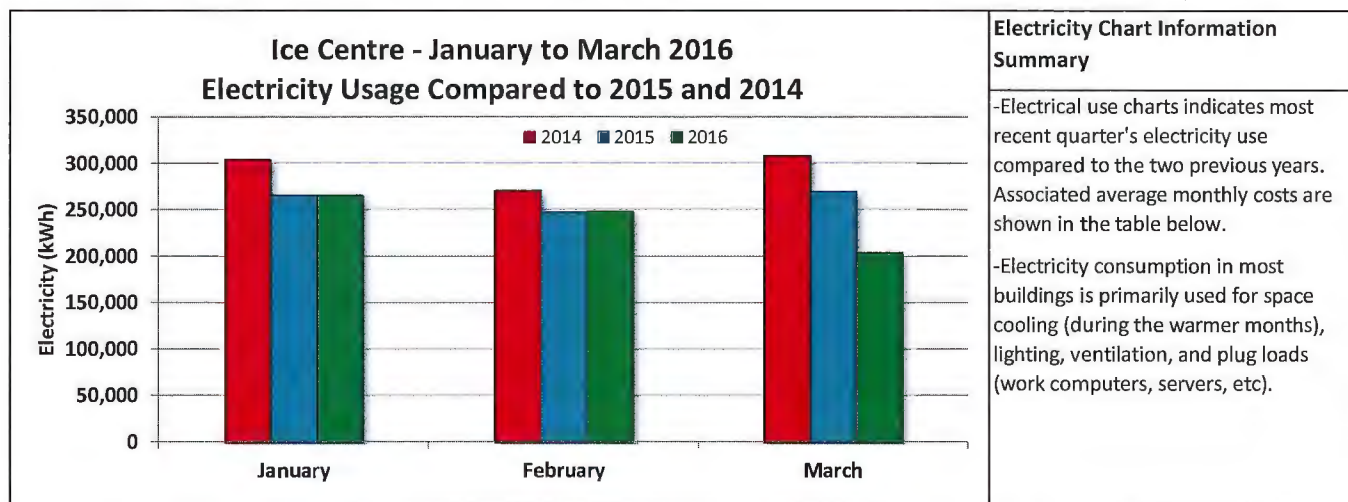
Att. 1: Energy Statement Initiative – Richmond Ice Centre Example



# Ice Centre - 14140 Triangle Rd

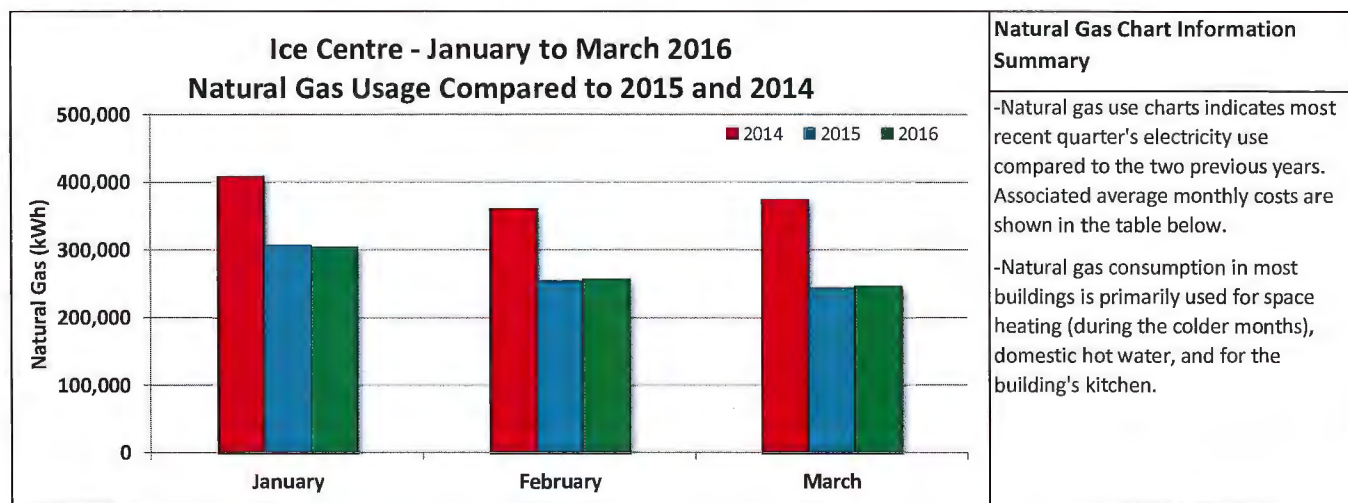
## Energy Statement - Q1 2016

Reporting Time Period: January to March 2016  
 Current Electricity Cost: \$0.095 per kWh (average)



	Jan-14	Jan-15	Jan-16	Feb-14	Feb-15	Feb-16	Mar-14	Mar-15	Mar-16
Elec Usage (kWh)	304,234	265,631	265,571	270,844	247,329	248,437	307,996	269,884	204,083
Electricity Costs (\$)	\$23,098	\$20,917	\$24,664	\$21,932	\$21,226	\$22,218	\$21,957	\$21,022	\$21,487

Current Natural Gas Cost: \$0.023 per kWh (average)



	Jan-14	Jan-15	Jan-16	Feb-14	Feb-15	Feb-16	Mar-14	Mar-15	Mar-16
Nat Gas Usage (kWh)	409,194	307,472	304,556	361,444	254,583	257,361	374,500	243,750	246,194
Nat Gas Costs (\$)	\$12,683	\$9,194	\$7,580	\$15,265	\$7,967	\$5,934	\$12,336	\$7,471	\$5,464

	Jan-14	Jan-15	Jan-16	Feb-14	Feb-15	Feb-16	Mar-14	Mar-15	Mar-16
HeatingDegree Days*	423	384	413	433	296	306	344	296	299
Cooling Degree Days*	0	0	0	0	0	0	0	0	0

\*Heating or cooling degree days are the number of degrees that the average daily temperature is below or above 18°C. This measurement helps to better compare weather dependent energy use for different time periods. As an example, a month with higher heating degrees days will have a higher energy usage as well, due to the extra heating requirement.

If you have any questions concerning this information, please contact the City's Corporate Energy Manager - Levi Higgs at [lhiggs@richmond.ca](mailto:lhiggs@richmond.ca) or 604-244-1239



## Energy Conservation Tips

The City is committed to a culture of continuing improvement and optimization. Get on board and consider these energy savings tips for your building:

- Close blinds in the summer time at the end of the day (keep blinds open in the winter)
- Ensure that equipment and lighting that can be turned off is shut off when leaving a room
- If occupant comfort issues exist in a space, please contact Facilities Mgmt, refrain from using space heaters or portable fan devices
- Encourage staff and occupants to report energy related issues, e.g. fan operating 24/7, mechanical failures, lighting on 24/7, etc.



**Corporate Highlights:** Energy conservation work at the City and energy related projects have cumulatively saved over **48.0GWh** of energy since 2008 (equal to the energy consumption in 1,200 Richmond single-family homes per year). In this same period, the City has avoided approximately **\$2,400,000** in total operational costs and over **6,800 tonnes** of greenhouse gas emissions (CO<sub>2</sub>e) (equal to emissions from 2,100 Richmond cars). Since 2008, the City has received over **\$1,400,000** in external funding that has supported further energy conservation initiatives within the City.



**CONTACT INFORMATION:** The City is constantly looking to maximize opportunities to increase staff and occupant comfort, reduce operational costs, reduce the overall corporate energy use footprint, and obtain external funding support. If you have any lighting and/or equipment related upgrade projects or ideas for upgrades, please contact the Corporate Energy Manager (Levi Higgs at [lhiggs@richmond.ca](mailto:lhiggs@richmond.ca)).