



# REPORT TO COUNCIL

To: **Mayor Schaffer and Councillors**

Subject **2016 Corporate Energy & GHG Emissions Inventory**

Report #: 17-067

From: Development Services & Economic Development Department

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## RECOMMENDATION:

THAT the 2016 Corporate Energy & Greenhouse Gas Emissions Inventory and 2016 Climate Action Revenue Incentive Program (CARIP) Report be received for information.

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## PURPOSE:

To present the 2016 Corporate Energy & GHG Emissions Inventory and 2016 CARIP Report.

## POLICY:

Corporate Strategic Plan- Identifies Sustainability as a key focus area: *To create a sustainable community through responsible financial, social, and environmental planning and policies.*

Sustainability Framework- Identifies “Energy, Climate Change & Air Quality” as a focus area.

Corporate Energy and GHG Emissions Plan- Establishes target for the reduction of corporate energy consumption and GHG emissions (target is to reduce 2018 corporate GHG emissions by 134 tonnes from forecast level) and identifies initiatives to reduce energy consumption and GHG emissions.

Official Community Plan- Contains GHG reduction target from Corporate Energy and GHG Emissions Plan and expresses commitment to pursue carbon neutral operations in accordance with the B.C. Climate Action Charter.

## COMMENTS/ANALYSIS:

### 1. Background

The City of Langley monitors its corporate energy consumption and greenhouse gas (GHG) emissions in accordance with the City's Corporate Energy & GHG Emissions Plan and its commitments under the B.C. Climate Action Plan and FCM's Partners for Climate Protection program. The City also submits a report each year as part of the province's Climate Action Revenue Incentive Program (CARIP).

### 2. 2016 Corporate Energy & GHG Emissions Inventory

The Corporate Energy & GHG Emissions Inventory accounts for all of the City's energy consumption and CO<sub>2</sub>e (carbon dioxide equivalent) emissions from its corporate operations.

#### *2016 Corporate Energy & GHG Emissions Inventory*

Energy Type	Consumption	Energy	Costs	CO <sub>2</sub> e Emissions
Electricity	3,379,724 kWh	12,167 GJ	\$334,255	33.8 tonnes
Natural Gas	6,163 GJ	6,163 GJ	\$62,183	231.1 tonnes
Biodiesel 5	123,418 litres	4,774 GJ	\$153,039 <sup>1</sup>	320.6 tonnes
Gasoline	60,743 litres	2,105 GJ	\$71,677 <sup>1</sup>	147.7 tonnes
<b>Total</b>		<b>25,081 GJ</b>	<b>\$623,517</b>	<b>733.2 tonnes</b>

<sup>1</sup>Estimated cost

In accordance with CARIP requirements, energy consumption and GHG emissions resulting from contracted services are also included in the inventory. The contracted services components of the above totals are broken out in the table below.

#### *2016 Energy Consumption & GHG Emissions Contracted Services*

Energy Type	Consumption	Energy	Costs <sup>2</sup>	CO <sub>2</sub> e Emissions
Biodiesel 5	45,419 litres	1,757 GJ	\$56,320	119 tonnes
Gasoline	3,650 litres	126 GJ	\$4,307	9 tonnes
<b>Total</b>		<b>1,883 GJ</b>	<b>\$60,627</b>	<b>128 tonnes</b>

<sup>2</sup>Estimated Cost

A detailed breakdown of accounts by sector is attached to this report for information.

### 3. GHG Emissions Progress 2008-2016

The table below shows the City's carbon emissions from corporate operations since 2008. In order to enable year to year comparisons, emissions from contracted services are not included in the figures since data from contractors are only available for 2012-2016. While the report shows progress towards meeting the City's corporate target, the results should be received with some caution since annual variations can be significant. Weather, staffing levels, capital projects, community development and economic activity can all influence corporate energy consumption and GHG emissions, making year to year comparisons difficult.

#### *Direct GHG Emissions<sup>3</sup> 2008 – 2016 (Tonnes CO<sub>2</sub>e)*

Energy Type	2008	2009	2010	2011	2012	2013	2014	2015	2016
Electricity	89	92	50	50	52	50	35	33	34
Natural Gas	395	414	367	347	372	335	300	276	231
Biodiesel 5	244	201	209	171	195	151	189	186	202
Gasoline	115	112	125	114	127	139	139	137	139
<b>Total</b>	<b>847</b>	<b>824</b>	<b>752</b>	<b>683</b>	<b>747</b>	<b>677</b>	<b>664</b>	<b>632</b>	<b>605</b>

<sup>3</sup>Excludes emissions from contracted services (2012 – 138 t, 2013 – 150 t, 2014 -192 t , 2015 - 72t, 2016 – 127t, 2008-2011 – not calculated).

### 4. 2016 Corporate Emissions Analysis

Direct corporate emissions fell slightly from 2015 to 2016 as energy consumption declined in the building sector, more than offsetting an increase in the vehicle sector. Emissions from contracted services, meanwhile, increased from 72 tonnes CO<sub>2</sub>e to 128 tonnes. The significant increase was attributable to two factors:

- One additional contractor met the minimum Provincial threshold (contract value >\$25,000) for inclusion in CARIP reporting
- The City's hydrovac contractor reported emissions of 60 tonnes CO<sub>2</sub>e

### 5. 2016 CARIP - Carbon Neutral Accounting

The City reported its 2016 GHG emissions to the province under the Climate Action Revenue Incentive Program (CARIP) on May 26, 2016. Although its corporate emissions totalled 733 tonnes CO<sub>2</sub>e, the City was able to offset 520 tonnes by deploying carbon credits from household green waste diversion. As a result, the City of Langley reported a "carbon footprint" of 213 tonnes CO<sub>2</sub>e (see table below).

### *2016 CARIP - Carbon Neutral Accounting*

<b>Emissions</b>	<b>CO<sub>2</sub>e (Tonnes)</b>
Local Government Services (Direct)	605.0
+ <u>Contracted Services (Indirect)</u>	<u>128.0</u>
Total	733.0
 <b>Credits</b>	
<u>2016 Organic Waste Diversion<sup>4</sup></u>	<u>520.0</u>
Total	520.0
 <b>Balance</b>	
Total Emissions	733.0
- <u>Total Credits</u>	<u>520.0</u>
= <i>Carbon Footprint</i>	213.0

<sup>4</sup>Allocation per May 12, 2017 Metro Vancouver report

It is worth noting that credits for the Vancouver Landfill Gas Capture Optimization Project (353 tonnes in 2015) were no longer available to municipalities in the region in 2016. As a result, the City and most other Metro Vancouver municipalities failed to achieve carbon neutrality in 2016.

#### 6. 2017 GHG Reduction Initiatives

Consistent with previous years, Council has budgeted funds in 2017 (\$20,000 – Sustainability Initiatives) to offset the City's carbon emissions. This provides the option to purchase carbon credits from the Pacific Carbon Trust in order to achieve carbon neutrality. In practice, however, the City has used this funding for GHG reduction projects that also lower the City's energy costs. In recent years, the City has funded a number of lighting replacement projects (substituting high efficiency fixtures and LED lighting) in this manner. In 2016, the boiler at Al Anderson Memorial Pool (the greatest source of emissions from natural gas in the corporate inventory) was replaced with a high efficiency system to reduce the City's carbon footprint and energy costs. The following projects are examples of corporate GHG reduction initiatives in 2017:

- City Hall LED Lighting Retrofits
- LED Streetlight Replacement (203 Street, 56 Avenue)
- Vehicle Replacement (Plug-in Hybrid)

#### 7. Community and Corporate Energy & GHG Plan Updates

The City adopted its Corporate and Community Energy & Greenhouse Gas Emissions Plans in 2010. The plans include targets for reductions in CO<sub>2</sub>e emissions

which were incorporated into the Official Community Plan. The existing plans used GHG emissions inventories for 2007 (corporate plan) and 2008 (community Plan) as their baselines for ten year action programs comprising lists of reduction initiatives designed to achieve emissions targets for 2017 and 2018. Since both plans are nearing the end of their lifespans, staff have included in the proposed 2018 Financial Plan (capital budget) the preparation of new energy and GHG reduction plans. The plans would include new targets for community and corporate GHG emissions and recommended reduction initiatives for the period 2018-2028.

### **BUDGET IMPLICATIONS:**

The cost to prepare the 2016 Corporate Energy & Greenhouse Gas Emissions Inventory and CARIP report was \$1,470. The project was funded under the Development Services & Economic Development Department's 2017 operating budget (Sustainability Initiatives). Following completion of the 2016 Corporate Energy & Greenhouse Gas Emissions Inventory, \$18,530 remains in the budget and will be applied to corporate energy and GHG reduction projects.

### **ALTERNATIVES:**

N.A.

Respectfully Submitted,



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Roy M. Beddow, MCIP, RPP  
Deputy Director of Development Services &  
Economic Development

Concurrence:



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Darrin Leite, CPA, CA  
Director of Corporate Services

Attachment(s):

1. 2016 Corporate Energy & GHG Emissions by Energy Type
2. 2016 Corporate Energy & GHG Emissions by Sector

**CHIEF ADMINISTRATIVE OFFICER'S COMMENTS:**

I support the recommendation.



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Francis Cheung, P. Eng.  
Chief Administrative Officer