

STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT

REPORT TO: Infrastructure & Recreation
 Committee

MEETING DATE: June 11, 2013

REPORT NO.: EPW.13.053

SUBJECT: Annual Energy and Emissions
 Inventory Reporting

PREPARED BY: Adam McMullin, Environmental
 Initiatives Coordinator

A. Recommendations

THAT Council receive Report EPW.13.053 entitled “Annual Energy and Emissions Inventory Reporting” for their information.

B. Background**Purpose**

As required through the Green Energy Act, 2009, Regulation 397/11, Staff have prepared an annual energy inventory for corporate facilities for the 2011 reporting year. This report must be submitted to the Ministry of Energy and posted to the Town’s website by July 1, 2013.

Staff are providing a summary of the annual inventory reporting to Council prior to the submission deadline for their information.

Reporting Requirements

Municipalities must submit a summary of annual energy consumption and corresponding greenhouse gas emissions for all facilities including administrative buildings, libraries, fire stations, police stations and water and wastewater infrastructure.

All types of energy (electricity, natural gas, fuel oils) must be reported excluding fleet fuel consumption. Operational information such as floor space, operational hours, facility type and so forth is included in the reporting.

The regulation requires the Town to report on energy consumption of owned or leased facilities that are heated or cooled. Additionally, municipalities must report on the energy consumption for facilities that are related to the treatment or pumping of water. The inventory does not include electricity consumed for street lighting, outdoor park facilities and washrooms or outside power outlets.

Summary of Findings

The Ministry of Energy (MOE) provides a template for Municipalities to input their inventory data. Using utility invoice data, Staff have completed the inventory. The MOE form only calculates the energy intensity and greenhouse gas (GHG) emissions for each facility. In addition to the MOE reporting, Staff have conducted additional analysis by assessing utility costs and breaking down the GHG emissions by energy type.

Table 1 summarizes the total energy consumption, GHG emissions and energy cost for Town facilities which must be reported on as outlined in the regulation.

Table 1: Summary of 2011 Energy Consumption, GHG Emissions and Cost for Town Facilities

Energy Consumption (ekWh)	GHG Emission (tonnes eCO ₂)	Cost
3,883,272	742.15	\$558,926.89

The inventory and analysis provides insight into the distribution of energy use and cost by facility within the Town. The Beaver Valley Community Centre (excluding the hall), Craigleith Sewage Treatment Plant, Town Hall, Thornbury Water and Wastewater Plants are the five largest consumers of energy within the Town. Table 2 summarizes the 2011 energy consumption, costs and (GHG) emission associated with these facilities.

Table 2: Summary of 2011 Energy Consumptions, GHG Emissions and Cost by Facility

Facility	2011 Data		
	Energy Consumption (ekWh)	GHG Emission (tonnes eCO ₂)	Cost
The Beaver Valley Community Centre (Arena)	873,278 (22.4%)	108.8 (14.6%)	\$72,037 (12.8%)
Craigleith Sewage Treatment Plant	833,616 (21.4%)	66.7 (8.9%)	\$120,714 (21.5%)
Town Hall	719,264 (18.5%)	104.1 (14.0%)	\$42,821 (7.6%)
Thornbury Water Plant	678,957 (17.4%)	85.6 (11.5%)	\$61,885 (11.0%)
Thornbury Sewage Treatment Plant	569,150 (14.6%)	51.7 (6.9%)	\$57,463 (10.2%)

Note: Values in brackets refer to the % of the total for all included Town facilities.

The Town Hall energy usage is inflated due to the spike of natural gas consumption to heat the facility during construction in the winter months of 2011. At this time the geothermal system was not in operation. Analysis of the 2012 gas billings show almost zero consumption of natural gas, therefore it is anticipated that the total energy usage for the Town Hall in 2012 will be significantly lower than the 2011 figures.

The Craigleith Sewage Treatment Plant is the second largest energy consumer in the Town, but has highest energy costs to operate partly due to its reliance on electricity as the sole source of energy. Excluding the Town Hall, the other major energy consumers within the Town all utilize natural gas for operational or heating purposes, which is a more cost effective source of energy compared to electricity.

The BVCC is the greatest user of energy among Town facilities and also generates the greatest quantities of GHG emissions associated with its energy usage. However, the total energy usage and utility costs of the BVCC has remained steady since 2009 and declined in 2012.

These reductions can be attributed to the recent energy efficiency improvements undertaken at the facility including adding soft-starts to all of the motors, retrofitting all of the facility lighting and installing new dehumidifiers.

Three facilities utilize furnace oil for heating purposes; these include the Ravenna Works Yard buildings and the Ravenna Hall. In 2011, these facilities consumed over 24,000 litres of oil at a cost of \$21,614. The burning of this furnace oil generated 66.9 tonnes of GHG emissions accounting for 9% of the total Town emissions from facilities. Furnace oil is relatively costly and generates more GHG emissions compared to other potential energy sources such as propane. Upgrading the heating systems within the Ravenna Works Yards presents an opportunity to improve energy efficiency while reducing GHG emissions and operational costs.

Energy Management Plan Development Update

Working with the Local Authority Service (LAS) energy audits have been undertaken for the following facilities:

- Beaver Valley Community Centre
- Ravenna Works Yard buildings
- Ravenna Hall
- Thornbury Water Plant
- Thornbury Wastewater Treatment Plant
- Craigeith Sewage Treatment Plant
- L.E. Shore Memorial Library

Moving forward, Staff will review and prioritize the audit recommendations to form a basis of an Energy Management Plan. Staff plan to bring forward a draft plan for Council's review and consideration in the fall of 2013.

Additionally, Staff have recently begun to utilize an online energy tracking tool. The tool will allow the Town to benchmark and compare facility performance, measure and verify savings from energy conservation projects and actively track facility energy consumption. Staff will be able to carry out trend analysis and provide regular reports to facility managers. The tool will provide Staff with the capability to monitor and report on the effectiveness of the initiatives implemented as part of the energy management plan program.

C. The Blue Mountains' Strategic Plan

Fulfilling the requirements outlined in Ontario Regulation 397/11 will help to achieve the Town's Strategic Goal #3 "Develop a municipal energy management plan".

D. Environmental Impacts

Tracking and monitoring of energy consumption, greenhouse gas emissions and utility costs provides the basis to implement energy efficiency and conservation initiatives. These improvement projects decrease energy consumption and greenhouse gas emissions reducing the municipal impact on climate change.

E. Financial Impact

None.

F. In Consultation With

Jeffery Fletcher, Manager of Solid Waste & Environmental Initiatives

G. Attached

None.

Respectfully submitted,

Adam McMullin
Adam McMullin
Environmental Initiatives Coordinator

Engineering & Public Works
Office: 519-599-3131 Ext.264
Fax: 519-599-7723
amcmullin@thebluemountains.ca

Reg Russwurm
Reg Russwurm
Director, Engineering and Public
Works