

The City of St. Thomas Consumption and Demand Management Plan

Introduction

The City of St. Thomas is committed to sustainability including energy conservation and greenhouse gas emissions. The City of St. Thomas has been engaged in energy conservation since 2009, carrying out studies and Consumption and Demand Management (CDM) measures. This first mandated CDM plan is, in fact, a nine (9) year CDM plan spanning the years from 2009 to 2018. This plan will include the results to date as a review or report on the initial part of the program and then proceed with the next steps and the future plan. This will be a dynamic or living document since advances in technology and affordability are being made almost daily. A good plan needs to allow for this and be nimble enough to take advantage of opportunities.

2009 Consumption

The City's energy consumption for 2009 is summarized in Appendix A. This consumption will be used for all required baseline data in planning and results reporting.

Measures taken

The City engaged the services of Genivar to carry out Energy audits of the seven largest and most active facilities at that time: City Hall and Annex, Justice Building, PW admin, Main Fire Station, Pinafore Park Admin Building, Timken Community Centre and Memorial Arena. The audits found energy saving opportunities in all seven of the buildings. The opportunities included, for the most part, replacing equipment and lighting with more energy efficient technologies. The measures recommended are summarized and progress indicated in Appendix A. These are comparatively easy and certain measures, because they save energy without requiring changes to the habits of the building occupants. Those habits weren't raised as part of these reports and, while some minor measures have been taken, behaviour will be the focus of future efforts.

Many of the same or similar measures are applicable to other buildings and other systems throughout the City. In a number of areas, they have been or will be implemented in the course of regular scheduled maintenance, repairs, end of life changes or as distinct projects. Other measures have been implemented as a result of other building condition reports and suggestions and routine observations. Things such as replacing older windows with new energy efficient units, replacing HVAC equipment with more efficient models as they came up for replacement, installing variable speed drives where applicable. We have also been replacing older lights with Led or changing T12 fluorescents to T8 with electronic ballasts throughout all of the City Buildings. The overall list of Demand reduction projects completed to date is provided in Appendix C.

The City has been taking advantage of programs offering incentives and funding as they have been made available, such as Gas Tax or ERIP funding to help offset the capital costs of the changes. The City has spent approximately \$1.2 million on demand reduction projects since 2009.

Results of those measures

2012 consumption

The City's energy consumption for 2012 is summarized, and compared to the consumption in 2009, in Appendix D. Overall annual electric consumption has decreased by 115,706 kilowatt hours and annual gas consumption has dropped by 609,908 cubic Metres. Appendix D reveals that some use has been reduced while others have increased. With no tracking of consumption, it is difficult to say what are the proximate causes of the increases. As the City begins to examine consumption, causes and remedies should be determined.

Several buildings and facilities have been added since 2009. They are listed in Appendix E. Data exists for most of them in 2012, but a few have only just been added and there isn't a complete year of data available.

Goals and Objectives

The City's goals and objectives are to:

Target 15% less than the 2009 base year consumption, or better.

Change staff behavior to make and sustain the gains made.

Implement the remainder of the recommendations of the Genivar Reports.

Consider energy efficiency and sustainability as part of any equipment replacement or new equipment procurement.

Proposed Measures

CDM Committee

The City will form a CDM Committee in 2014 with representatives from all city departments and boards to run the program. The committee will seek new and existing best practices and solicit suggestions from all City staff for energy conservation initiatives. A Champion will be appointed in each department to be accountable for energy consumption and meeting annual targets. The Committee will designate an overall Champion to coordinate and collect information. The overall Champion will be fairly heavily tasked, so it is important that their current workload is not excessive. The champions will work within their departments soliciting suggestions from all staff and engaging them in the program. They will bring those suggestions to the committee as well as their experiences and successes. A comprehensive terms of reference will be developed after the committee is struck with input and feedback from all members. That terms of reference document will be appended to this plan once complete. Further goals and objectives will be developed and will be appended to this plan and included in the Goals and Objectives and the proposed measures as appropriate.

Ongoing and Future Demand Management Initiatives

There are a number of demand management initiatives in the works and more that are merely at the concept stage. The following list is not comprehensive as it only covers some current, ongoing studies and projects. A more comprehensive list will be developed and inserted and the committee goes to work and the corporate knowledge is pooled.

Wastewater Treatment

Staff at the wastewater treatment plant have several initiatives underway or planned. Currently, a project to optimize the quantity of air supplied to the process is being undertaken. The results of the study will permit selection of an appropriately sized blowers and procurement of more efficient blowers will be initiated.

A new dewatering technology for the digested sludge was recently demonstrated at the wastewater treatment plant. It shows promise in being much more energy efficient and quiet. A cost-benefit analysis will be carried out to determine if there is an overall benefit to the technology.

A study and design for new digesters is currently underway. Part of the study is looking at use of the methane gas generated in the digesters to generate some renewable energy.

Water

The water department is preparing for a study which may provide some demand management through the use of variable frequency drives on pumps in the system.

Roads

The City is investigating energy saving technologies to replace the current high pressure sodium lights in the street light system. Once a technology is selected, the replacement project will be commenced.

Others

The other departmental initiatives will be added to this section as a part of the committee work.

Cost and Saving Estimates

It is anticipated that ten percent consumption reduction is possible at very little cost through engaging staff and enlisting their support to change habits.

The demand management initiatives will need to be priced and savings estimated as likely candidates are identified and developed.

Duration of Measures

It is anticipated that any and all measures will be assessed for success and those that work will remain in place for the foreseeable future.

Renewable Energy

Currently, the wastewater treatment plant is generating and using a form of renewable energy. Digester Gas is used both to mix the digesters as well as provide gas to fire the 2,000 Btu per hour boiler for digester heating.

Confirm Approval by Senior Management

City of St. Thomas Council have approved this plan and authorized the Mayor and CAO to sign it.

Mayor

CAO