City of Sarnia

Energy Conservation and Demand Management Plan

July 1, 2014

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Preface

The Energy Conservation and Demand Management Plan (hereinafter referred to as the "Energy Management Plan") was the result of internal reviews by municipal staff with the City of Sarnia representing each operational department. Their analysis was facilitated by Bluewater Power. The resulting Energy Management Plan represents a considered and careful plan to understand and manage the energy needs of the municipal corporation for the period from 2014 to 2018. This plan is not a general plan for the community, but a tool for the municipal corporation to manage its energy consumption in order to reduce its carbon footprint and to control its energy costs for heated and cooled facilities.

The Energy Management Plan was considered and approved by City Council on June 9, 2014.

1.0 Executive Summary

This report outlines the Energy Management Plan for the City of Sarnia ("Sarnia") located in the Southwestern area of Ontario.

The Energy Management Plan will comply with the requirements of Ontario Regulation 397/11 entitled "Energy Conservation and Demand Management Plans" passed under the Green Energy Act ("GEA Regulation"). The first requirement was met on July 1, 2013 with Sarnia's submission of baseline energy consumption for the Reportable Facilities (as that term is hereinafter defined). This exercise involved the tracking and reporting of energy usage for the year 2011.

This report, and the data analysis that took place in compiling this report, represents the second requirement under the GEA Regulation, and is due to be filed by July 1, 2014. This report contains a summary of the 2012 energy consumption data which must be filed with the Ministry of the Environment ("MOE"), as well as a five year Energy Management Plan outlining planned activities for the period from 2014 to 2018. In accordance with Subsection 4(2)(2) the plan shall include *"a description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the public agency's operations and for managing the public agency's demand for energy, including a forecast of the expected results of current and proposed measures".*

The exercise of developing an Energy Management Plan has spawned an interest in a more structured approach to energy management, tracking both energy consumption and spending, utility rates and project results. Although Sarnia has been proactive in the past regarding energy efficiency, this initiative provides more structure and format to the on-going activities.

1.1 Plan Development

As part of the initial task in 2013, Sarnia worked closely with Bluewater Power to understand its baseline energy consumption for both electricity and natural gas. An energy plan blueprint was developed focusing on the largest energy consuming municipally-owned facilities. This provided a starting point which has been expanded upon over the course of the past year. In-depth staff interviews and group meetings were conducted. Input has been provided by all staff, from finance to operators to the management team. As a result, the Energy Management Plan has been brought together as a comprehensive plan that is both practical and achievable.

1.2 The Result

Together with our partners, the City of Sarnia staff has been able to identify goals, actions and measures that will ensure the City maintains the services that are needed, while using energy in the most responsible manner. Our success over the next five years will be measured against a target energy savings of 2.0% per year (10% reduction by 2018). In order to achieve that target, this Energy Management Plan identifies opportunities in the form of potential projects (on page 17) that demonstrate a 2.0% annual reduction is attainable for Sarnia. Each project will be assessed by Council as part of the normal budget processes, so the inclusion of specific projects in specific years in this plan is for illustrative purposes to provide comfort that the target is achievable.

This Energy Management Plan also addresses two models for using reserve funds to finance energy savings. Each financing tool assumes an annual contribution to the reserve to be determined by Council, with financial savings from energy reductions either reinvested entirely in the reserve fund ("fast out" model) or shared between the reserve and current operating costs to deliver immediate tax reductions ("shared savings" model). This plan does not recommend one model over the other, but provides Council with the freedom to choose on a project-by-project basis. What this Energy Management Plan does demonstrate is that by utilizing either funding model, the cost of achieving a 2% annual reduction requires new capital in the range of $906,000 to $1,105,000 in total over five years, where energy savings are used to finance new capital. The cumulative result of energy savings at the end of the five-year period is forecast to be approximately $413,000 annually, which Sarnia can choose to use in the year 2019 to reduce taxes or reinvest in further energy saving projects.

This Energy Management Plan is intended to serve as a guide for staff and Council during the capital planning and budgeting process. The results of Sarnia's efforts will be reflected in energy data required to be filed with the MOE each July 1st of this plan. The role of monitoring progress will fall upon an Energy Management Committee of staff to be appointed by Council from time-to-time. That committee will ensure that both the capital projects and behavioural changes outlined in this Energy Management Plan are maintained on a continuing basis because managing energy costs is important to both environmental and financial good stewardship.

2.0 Background

Sarnia is located in southwestern Ontario, and is a border city connecting with Port Huron, Michigan. Sarnia is located on the southern shore of Lake Huron at its southernmost point where it flows into the St. Clair River, and it is the largest city on Lake Huron.

Sarnia's population was 72,366 at the 2011 census, and occupies a land area of 63.59 square miles, with a population density of 1,138 per square mile. The City of Sarnia was originally incorporated in 1856 under the "Town of Sarnia" and then incorporated as the "City of Sarnia" in 1914.

An Energy Management Plan under O.Reg 397/11 focuses on buildings or facilities owned or leased by the municipality that are either heated or cooled, or are related to the treatment or pumping of water or sewage (together defined as "Reportable Facilities"). As such, this plan relates to Sarnia's 33 municipal buildings that are heated or cooled, 46 various pumping stations, as well as one large sewage treatment center (Water Pollution Control Center or "WPCC"). The total energy costs (electricity and natural gas) in 2012 for these 80 facilities were approximately $2,870,000. Of that total energy cost, the two main energy users are the Water Pollution Control Center and associated pumps representing 46% of all energy consumed, and Arenas (including the RBC Centre) representing 32% of all energy consumed. Clearly, those two groups represent the greatest opportunity for achieving energy savings, but the remaining 22% also warrant attention in this plan.

Sarnia is faced with increasing infrastructure costs for roads, bridges, sewer and water, as well as increasing energy costs affecting all of its facilities. As such, Sarnia must explore all avenues for cost savings, including energy efficiency projects. In that sense, this plan represents an important financial tool for the City of Sarnia.

3.0 The Process

As part of the preparation of the 2013 submission, Sarnia began a planning exercise based upon an Energy Management Plan blueprint provided by Bluewater Power, with the assistance of an engineering consulting firm. The blueprint and a number of Level 1 energy audits served as a framework for activities over the past year.

Discussion began in the fall of 2013 to work toward setting a target level for energy reduction based on an assessment of potential projects and the availability of finances. The discussion was also required by the GEA Regulation to include discussion of behavioural based approaches to reduced energy consumption, as well as the role for back-up generation and renewable energy.

The Energy Management Plan process represents a structured approach to energy tracking as well as the forecasting of potential project impacts. Sarnia staff has participated in numerous activities, including:

- Five detailed energy audits of large facilities with a third-party
- Walk-through audits of selected sites
- Lighting designs of facilities with primarily lighting load
- Surveys of past and future activities
- Interviews with key staff

This process has contributed to the building of a common vision with respect to energy, has enhanced staff understanding of the costs and impact of energy use on Sarnia's finances and has identified practical steps to move forward.

4.0 Measuring Energy Consumption

This report contains a brief summary of the data filed by Sarnia in compliance with the GEA Regulation. The data demonstrates that utility and energy related costs are a significant part of overall operating costs:

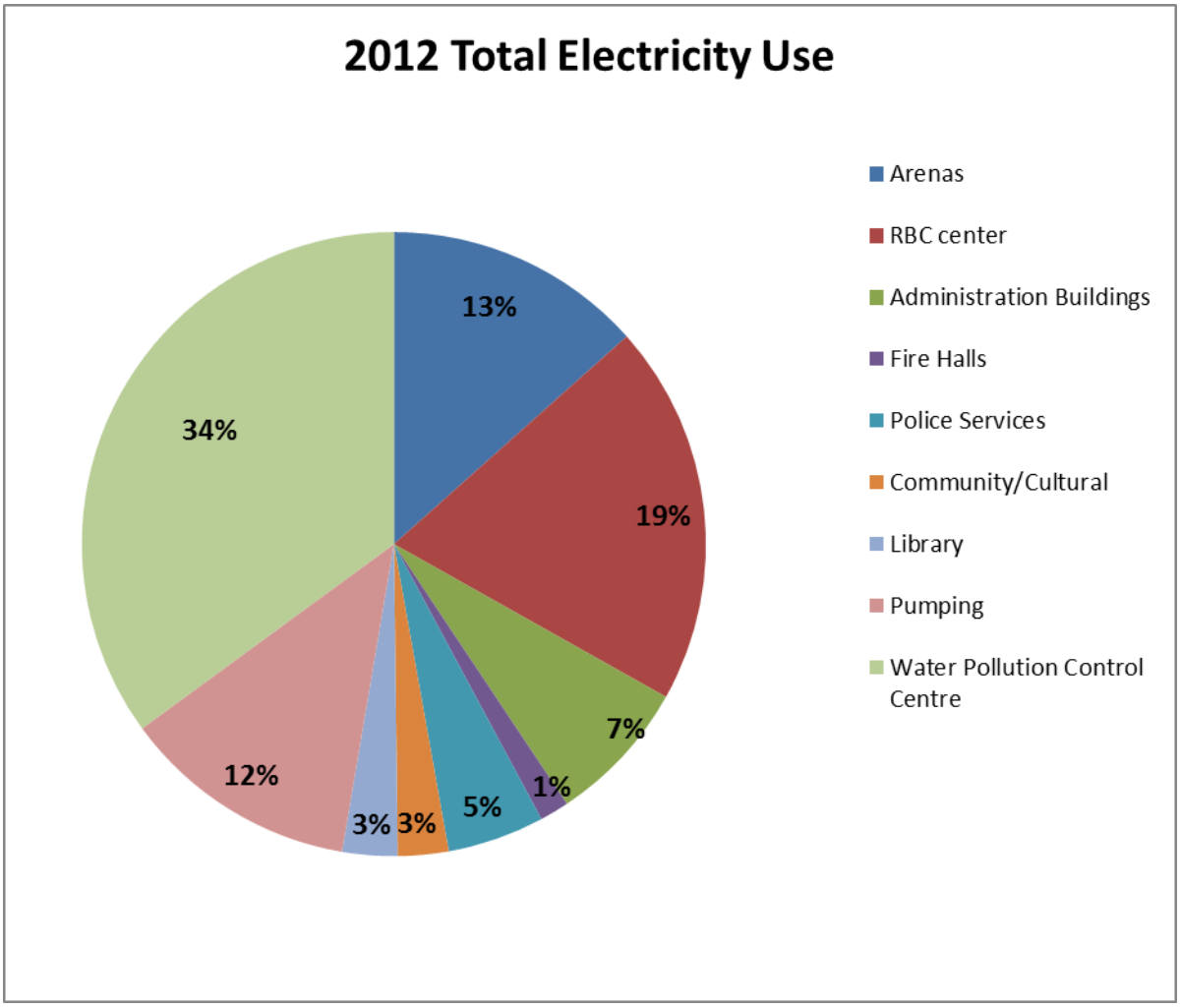
- Reported Utility costs for Reportable Facilities in 2012 were approximately $2,870,000.
- The Municipality's Energy Use Indices ("EUI") was 38.4 ekWh/SF *(EUI is a measurement standard enabling a client to benchmark their facilities against similar sites. The natural gas commodity is concerted to equivalent kWn so as to develop a common energy measuring unit, which is made more uniform by dividing the square footage of the building. The lower the ekWh/ft^2 the better the facility is performing from an energy perspective).*
- 2012 will be the baseline from which energy reductions are measured because the RBC Centre were not included in 2011 data, but will be included in 2012 to better track energy as the City takes on an operational role with the RBC Centre in 2014.

In the year 2012, Sarnia utility costs for Reportable Facilities increased because of the inclusion of the RBC Centre in 2012 data for the reasons set out above, and because the Police Station has also been added to the City's data for 2012. For those reasons, it is difficult to compare the two potential base years. Regardless of the difference in data sources, it is generally difficult to compare energy costs year over year due to the impact of weather on air conditioning and heating load. However, it is typical for municipalities to see an increase in energy costs as they expand existing facilities or add new services.

Overall, there is a substantial variance in energy intensity of the facilities operated by Sarnia. Some are within or better than the normal range of like municipal facilities, but others are higher than the municipal average for similar facilities.

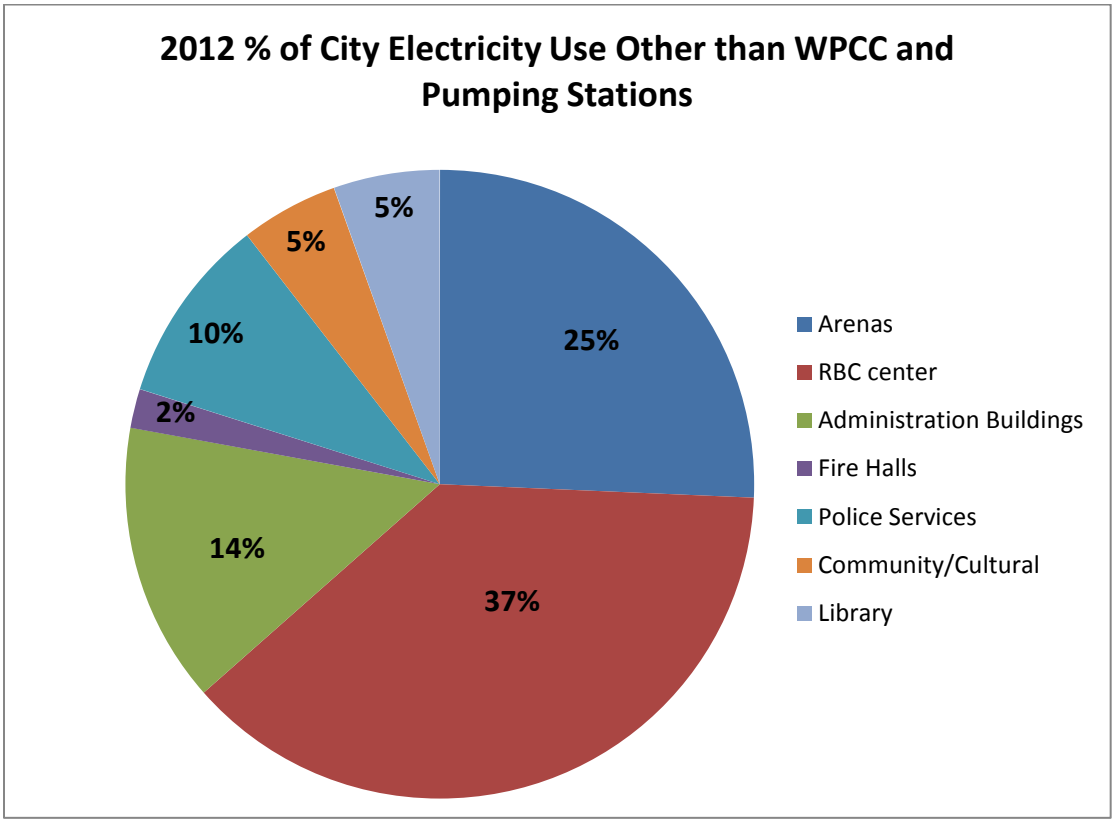
A number of current and future projects are planned to tackle the challenge of the higher energy intensity facilities, which will be discussed in more detail later in this document.

The graph below illustrates where energy is used throughout Sarnia facilities:



The amount of electricity used at the pumping stations and the Water Pollution Control Centre ("WPCC") represents 46% of total electricity used by all Reportable Facilities. If we remove these facilities, we are left with 54% of energy being used by heated and cooled facilities.

The chart that follows shows the detailed breakdown of energy users within the heated and cooled facilities.



The chart demonstrates that 62% of the electricity consumed by the heated and cooled facilities is consumed at the City-owned arenas. It is worth noting that the four ice pads represented under the heading of "Arenas" (Sarnia Arena, Germain, and Clearwater) represent less energy than the two ice pads at the RBC Centre. There are differences in the type of operations at the RBC Centre when compared to the remaining City-owned arenas, but the level of energy consumption at the RBC Centre clearly represents an opportunity going forward that warrants close examination. In that regard, we note that the RBC Centre was not reported with the City of Sarnia's 2011 baseline data but, since the City will be involved in the operation of the RBC Centre at some level going forward, we have reported the energy consumption from 2012 as part of the City's baseline. That is the primary reason why we have selected 2012 as the baseline from which future energy reductions will be measured.

5.0 Guiding Principles of Energy Management

5.1 Energy Management Plan Process and Development

The Energy Management Plan is meant to serve as a basis for energy and capital-related decisions in the coming years. The main goal is to outline the strategies for implementing improvements to facilities and operations that reduce energy costs. This will be accomplished by both planning energy-related capital projects, and also viewing all operational and capital decisions with a mind toward energy efficiency. The overall goal is to affect positive environmental change and to identify opportunities for improved financial returns when spending taxpayers' dollars.

5.2 Taking a Strategic Approach

While the municipality actively manages energy costs by implementing opportunities as they are identified, Sarnia can significantly improve its energy-related performance by acting strategically. Internalizing energy management into our organization's every-day decision-making and operating procedures will help to ensure substantial and long-lasting reductions in energy use and improve the financial bottom line by optimizing the money spent on energy.

5.3 Obtaining Solid Economic Returns

Energy management investments will yield solid economic returns. Projects will generally be funded from reserves with operating savings against budget being returned to reserves to be used in future energy management projects. Sarnia will apply consistent financial analysis methods that consider project life-cycle to reduce the total cost of facility ownership and operation.

5.4 Improved Financial Health and Operating Cost Reduction

Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact Sarnia's bottom line, as well as decrease the tax levy paid by taxpayers. Further, investments in energy projects are easier to forecast reliably than savings or revenue increases expected from other investments. The bottom line is that reducing operating costs in Sarnia facilities directly affects the taxes paid by property owners.

5.5 Strengthened Community Leadership and Environmental Stewardship

Energy management is a visible and public commitment to the community and environment. Through strategic energy management, Sarnia can provide leadership in promoting sustainable communities, efficient business practices, and environmental stewardship.

5.6 Establishing Purchasing Specifications for Energy Efficient Equipment and Services

Energy management should consider purchasing specifications that minimize life-cycle costs for energy efficient equipment and services.

- Establish efficiency specifications for standard equipment routinely replaced (e.g. lights, motors, and HVAC equipment).
- Establish efficiency standards for design and construction, as well as for building operation and maintenance services.
- Use a life cycle approach when evaluating project quotes during the RFP process.

5.7 Improving the Performance of Building Operations

Understanding where and when each facility uses energy is paramount to sound energy management. Throughout this document we discuss possible capital projects and capital funding mechanisms, but it is extremely important to manage the energy use of existing equipment. For example, by operating equipment only when it is required, substantial energy reductions can be accomplished. Sarnia's decision to keep Sarnia and Germain Arenas closed until 3:00 p.m. each day and diverting early day ice rentals to Clearwater Arena is a successful example of that strategy impacting positively on both refrigeration and lighting costs.

There are very likely to be numerous other opportunities to implement low or no-cost measures and processes to reduce energy use. By making energy consumption a top-of-mind item for each department, the structured approach outlined in this Energy Management Plan will financially benefit each department and the City overall.

6.0 City of Sarnia Energy Management History

6.1 Past Energy Management Activities

Sarnia has historically been very active and aware of energy and sustainability initiatives. In 2011, Sarnia completed numerous lighting retrofits at smaller facilities by taking advantage of the Small Business Lighting program incentives offered by the Ontario Power Authority ("OPA"). Sarnia also took a major step forward at its Water Pollution Control Centre by participating in the OPA incentives program for the installation of large variable frequency drives on the aeration blowers. The process now measures the dissolved oxygen in the tanks and supplies the exact amount of air required to optimize the process. Construction of this project began in 2013 with completion and full operation targeted for mid-2014.

The five-year Energy Management Plan represented in this report provides an excellent opportunity to both reflect upon past successes and develop plans for future initiatives.

The GEA Regulation requires the year 2011 or 2012 to be the baseline upon which a municipality is measured for achieving further targeted energy savings. This creates an artificial starting point and can have the effect of downplaying the significance of prior energy efficiency efforts. It is important to point out, therefore, that Sarnia has been active in pursuing energy efficiency in 2012 and years prior. However, the City has also expanded its service offering by moving into a more operational role with the RBC Centre starting in 2014; while the baseline data for 2011 has already been filed, the RBC Centre has been included with the City's Reportable Facilities in 2012. **Therefore, 2012 is the baseline year for this plan.**

A list of completed projects that were specifically implemented to lower energy costs include:

- Low E ceilings at Arenas in 2005
- Occupancy sensors at City Hall and Public Works sites to control lighting in 2007
- Controls at Arena in 2008
- Sarnia Transit HVAC replacement in 2007
- Sarnia Transit hot water heater upgrade in 2013
- Sarnia Transit garage lighting retrofit in 2014
- EMS at Clearwater for building automation 2008
- Energy efficient lighting upgrades at Brights Grove Library in 2010
- City Hall lighting retrofit to T8s in 2010
- Clearwater Arena dehumidifier replacement in 2010
- Pump VFDs at Devine St pumping station in 2011
- 13 Small Business Lighting program retrofits completed in 2012
- Garage and office lighting at Public Works site upgraded in 2012

- Sarnia Arena dehumidifier upgrade in 2012
- City Hall rooftop replacement with high efficiency unit in 2013

6.2 Behavioural and Cultural Initiatives

Often lost in a more technical analysis of energy needs are the "soft" initiatives that involve behavioural change. As with the "Culture of Conservation" the Province of Ontario is attempting to achieve, Sarnia has always been cognizant of the need to conserve energy. A list of the type of actions that have led to tangible, but difficult to quantify, savings are as follows:

- Staff routinely turn off lights in unused areas, including areas where motion sensors have been installed.
- Purchasing decisions take into account energy efficiency.
- Efforts are made to consider energy use in all aspects of day to day operations. The primary example cited of certain arenas closing during daytime hours so that rentals are diverted to Clearwater Arena in order to optimize use and save energy.

6.3 Present Energy Initiatives

The GEA Regulation focusses on Reportable Facilities (heated and/or cooled municipal facilities and pumping stations) and, therefore, does not include consideration of measures related to outdoor lighting. Nevertheless, most forward thinking municipalities are tackling the challenge of streetlights. This includes Sarnia, whose current plans for 2014 include a major investment for the replacement of 1,723 high intensity discharge street lights with new LED units. While it is understood this initiative is outside of the scope of the present Energy Management Plan, the projected savings of approximately 1,757,175 kWhs and the related maintenance impact represents a financial savings to Sarnia of over $223,738 per year at current rates and including maintenance savings. The project was also facilitated by one-time capital incentives from OPA, facilitated by Bluewater Power, of $87,858.

7.0 Goals for Future Energy Management

Sarnia hereby sets an annual energy reduction target of 2.0% of all energy reduced annually, which would result in a five-year reduction from the baseline in 2012 of 10%. The goal is based on a list of potential projects that have been identified below, but also having regard to the fact that implementation of these projects is dependent upon staff to manage the projects and funding, both of which have a finite limit. That is to say that Sarnia has a significant opportunity to achieve energy efficiency, but the achievement of the target will require a focused effort.

It is important to put the energy reduction target into perspective because a 10% energy reduction over five years could be seen by some as a daunting goal. In fact, the City of Sarnia has already achieved significant savings from two projects alone. One project, being the LED Streetlight project in 2014, does not count toward the target because outdoor lighting is not a Reportable Facility, but would have achieved approximately half of the five year energy reduction on its own. The other project, that being the blowers at the Water Pollution Control Centre, does count toward the target as the project is being completed in 2014 and it represents a 1.9% energy reduction. Therefore, in setting this plan, the City of Sarnia knows that it has already achieved one-year's worth of its energy reduction target with one project in the year 2014.

The two tables below demonstrate those projects in detail.

LED Street Light conversion	**Cost**
Cost	$730,393
Incentives	$87,858
kWhs saved	1,757,175
Energy Savings	$223,738
Payback (Simple)	2.9
% Reduction of Total Energy	**5.2%**

Variable Frequency Drives on Aeration Blowers at WPCC	**Cost**
Cost	$325,000
Incentives	$125,000
kWhs saved	625,000
Cost Savings	$71,875
Payback (Simple)	2.8
% Reduction of Total Energy	**1.9%**

Municipalities generally have limited reserves to fund capital projects to improve energy efficiency. The list of projects set out in the table that follows represents a list of potential projects considered during the development of the Energy Management Plan. The costs, incentives, and energy savings (both ekWhs and financial savings) are estimates based on consideration of the facilities and their current usage, but without the benefit of detailed engineering. Whether a particular project is pursued by Sarnia will be decided by City Council as part of its normal budgeting processes. That in mind, the table that follows places a marker in the form of an "X" under the year where each project might be considered.

Finally, we note that each individual project below requires detailed engineering and, in some cases, the project listing is simply a placeholder. For example, City staff have identified that they will explore the processes at the Water Pollution Control Centre that is found in a Detailed Engineering study at an estimated cost of $70,000 (of which $50,000 would be funded by the OPA) and a placeholder for the introduction of changes to the process at an "unknown" cost. Likewise, the City is only now taking greater responsibility for the operation of the RBC Centre, so it seems likely there will be projects both large and small over each of the next five years of this plan, but the identity of those projects is not yet known.

Project	**Cost**	***Incentives**	**ekWhs Reduced**	****Energy Savings**	**2014**	**2015**	**2016**	**2017**	**2018**
Sarnia Arena Lighting***	$100,000	$13,000	165,000	$24,000		x			
Sarnia Library Lighting	$90,000	$13,500	140,000	$21,000			x		
Clearwater Arena Compressor control***	$50,000	$25,000	150,000	$18,000		x			
Sarnia Arena Compressor controls***	$40,000	$20,000	120,000	$13,000		x			
Police Building Chiller	$110,000	$20,000	100,000	$12,000			x		
City Hall Energy audit	$20,000	$10,000			x				
Waste Water process Detailed Engineering	$70,000	$50,000				x			
Various lighting	$80,000	$15,000	100,000	$14,000			x		
City Hall upgrade	$120,000	$30,000	150,000	$20,000			x		
Change to process at Water Pollution Control Centre	unknown							x	
Boilers: **** • Police building • Sarnia Library • Water waste water • City Hall • Strangway • Fire Halls	tbd						x	x	x
Rooftop HVAC: **** • RBC Center • Sarnia Library • Fire Halls	tbd						x	x	x
RBC Center	unknown				x	x	x	x	x

* Incentive amounts based on OPA 2011-2014 incentive programs
** Energy Cost Savings based on 2014 rates
*** Pending outcome of arena study
**** The cost and savings are driven by each particular site; the cost, associated savings and the year in which the work takes place will be by council upon further consideration by City Staff

8.0 Energy Management Committee

The City of Sarnia will implement an Energy Management Committee to create and maintain a methodical focus on energy costs. This Committee will provide a vehicle for key staff from critical departments to track energy budgets, update energy related projects and develop accountability for achieving energy reduction targets. The committee will have the lead responsibility and accountability for monitoring and achieving energy reduction targets.

The proposed committee shall be established by City Council upon finalization of this Energy Management Plan having regard to the following structure:

- One key staff person from major energy consuming departments (Public Works, Community Services, and Clerks/Facilities) shall be required to participate
- One key staff person from Financial Services shall be required to participate
- One key staff person from all other departments, as well as the Police Services Board, shall be required to participate from time-to-time as determined by the Committee

The specific mandate for the proposed committee shall be established by the Committee, in consultation with City Council upon creation, based generally on the following:

- Track energy spending by department
- Analyze and prioritize projects for consideration by Council on an annual basis
- Identify potential projects to consider in the future
- Consider a corporate strategy for back-up generators
- Creation of an energy awareness strategy for City staff
- Reporting and tracking all utility incentives

Participation and education will be solicited from utility partners, both electrical and gas suppliers, to ensure up to date information on incentive programs, energy rates and other available assistance. Active participation from these partners will make the Energy Management Committee that much more effective.

9.0 Capital Funding

In this current age of low interest rates and low yields on bonds and investments, a 20% or higher return on investment is an attractive proposition. Reviewing the above table the majority of the proposed projects represent a very attractive simple return on investment in the range of approximately 20% annually.

Some municipalities have capital reserve fund accounts that can be utilized to effectively "borrow" capital funds to pay for energy efficiency projects. Sarnia does have a small Energy Reserve Fund specifically for energy efficiency projects. Each proposed project is scrutinized by senior staff and Council to ensure it is a viable and will deliver a fair return over the long term.

Bluewater Power, through the OPA's "saveONenergy" conservation programs provides capital incentives for undertaking capital projects that reduce electrical consumption. Similarly, Union Gas has certain programs to manage demand for natural gas. The 13 capital projects proposed in the above table could attract in excess of $200,000 in capital incentive rebates from the OPA alone.

It is also important to remember that energy-efficiency upgrades can often be complementary to normal needs driven by assets failing or reaching end of life. The boiler, rooftop HVAC units, and police building chiller projects in the table above represent this type of efficiency project. The capital plan and condition assessment call for the replacement of the equipment, however, by upgrading the new equipment to an energy efficient model, it becomes an energy efficient project. Only the incremental capital required to upgrade to an efficient model over the base case model needs to be attributed to the energy project payback. Due diligence in the procurement stage is necessary though, to ensure that only proposals for an efficient replacement are considered in awarding the project to a successful bidder.

There are 13 potential capital project listed above. Each of the projects has a return on investment within typical municipal payback expectations. These 13 projects could reduce Sarnia's energy consumption by 10% over five years should they be implemented as proposed.

However, achieving those savings will require careful shepherding by the Energy Management Committee. The projects noted above are considered "proposed" and each is subject to Council approval through the normal capital budgeting process of the municipality.

Sarnia does have funds available in a small Energy Reserve fund, but Sarnia is also prepared to access from other available reserves where such borrowing is justified. The LED street lighting retrofit, for example, is being financed out of the Capital Revolving Reserve Fund. Staff has stated that normal or small energy efficiency projects can also be funded directly from the

capital budget. In all cases, funds are limited and, hence, each project will require Council approval based upon detailed costing and analysis of the pay-back period.

Municipalities that have reserve fund accounts can utilize capital funds from these accounts to effectively self-finance energy efficiency projects with "capital loans" from reserves. It is important for these "capital loans" to be paid back to the reserve fund utilizing the cost savings or avoided energy costs that result from the energy efficiency upgrades. The question remains whether those funds are to be returned to the reserve entirely so that they can finance future capital investments ("fast out" basis) or shared between the reserve fund and current budget so that savings partially finance future capital and partially reduce taxes ("shared savings" basis).

9.1 "Fast out" basis: All savings are paid back into the reserve in order to replenish the reserve for future capital projects and ensure the pay-back period is minimized. The tables below illustrate how the "fast out" option could materialize and achieve the 2.0% annual reduction target using numbers representative of the types of projects that will be considered spread evenly over the five year period.

Fast Out option						
	2014	**2015**	**2016**	**2017**	**2018**	**5 Year Total**
Total Project Spend	$400,000	$400,000	$400,000	$400,000	$400,000	**$2,000,000**
Incentives	$0	$75,000	$75,000	$75,000	$75,000	$300,000
Operating Savings	$0	$76,250	$155,550	$238,022	$323,793	$793,615
Net New Capital	$400,000	$248,750	$169,450	$86,978	$1,207	**$906,385**
Incentives	$75,000	$75,000	$75,000	$75,000	$75,000	$375,000
Incremental Annual Energy Savings	$76,250	$79,300	$82,472	$85,771	$89,202	$412,995
Cumulative Annual Energy Savings	$76,250	$155,550	$238,022	$323,793	$412,995	**$412,995**
Energy Reduction (ekwhs)	710,665	710,665	710,665	710,665	710,665	**3,553,327**
% Reduction	**2%**	**2%**	**2%**	**2%**	**2%**	**10%**

By transferring the annual utility savings and the capital incentives back into the energy reserve account to use for future capital expenditures, the amount of new capital necessary over five years to achieve $2,000,000 of capital energy project spending is only $906,385. The result of directing $906,385 in reserve fund capital to energy reduction projects would reduce total energy consumption by approximately 2% per year, resulting in estimated financial savings of $413,000 per year by 2018 that could be used either use to reduce taxes or reinvest in further energy saving projects.

9.2 "Shared savings" basis: Financial energy savings are shared between the current year to reduce O&M with the effect of reducing the current tax levy, with the remainder being returned to the reserve for future capital projects. The percentage of savings can vary based on the desire to balance current taxes and future capital needs. The tables below illustrate how the "shared savings" option could work using a 75/25 sharing between reserve/ratepayer and

numbers representative of the types of projects that will be considered spread evenly over the five year period.

Shared savings option	2014	2015	2016	2017	2018	5 Year Total
Total Project Spend	$400,000	$400,000	$400,000	$400,000	$400,000	**$2,000,000**
Incentives to reserve	$0	$75,000	$75,000	$75,000	$75,000	$300,000
Operating Savings from Reserve	$0	$57,188	$116,663	$178,517	$242,845	$595,211
Net New Capital	$400,000	$267,813	$208,338	$146,484	$82,155	**$1,104,789**
Incentives	$75,000	$75,000	$75,000	$75,000	$75,000	$375,000
Incremental Annual Energy Savings	$76,250	$79,300	$82,472	$85,771	$89,202	$412,995
Cumulative Savings to Reserve	$57,188	$116,663	$178,517	$242,845	$309,746	**$309,746**
Savings Shared with Ratepayers	$19,063	$38,888	$59,506	$80,948	$103,249	**$103,249**
Energy Reduction (ekwhs)	710,665	710,665	710,665	710,665	710,665	**3,553,327**
% Reduction	**2%**	**2%**	**2%**	**2%**	**2%**	**10%**

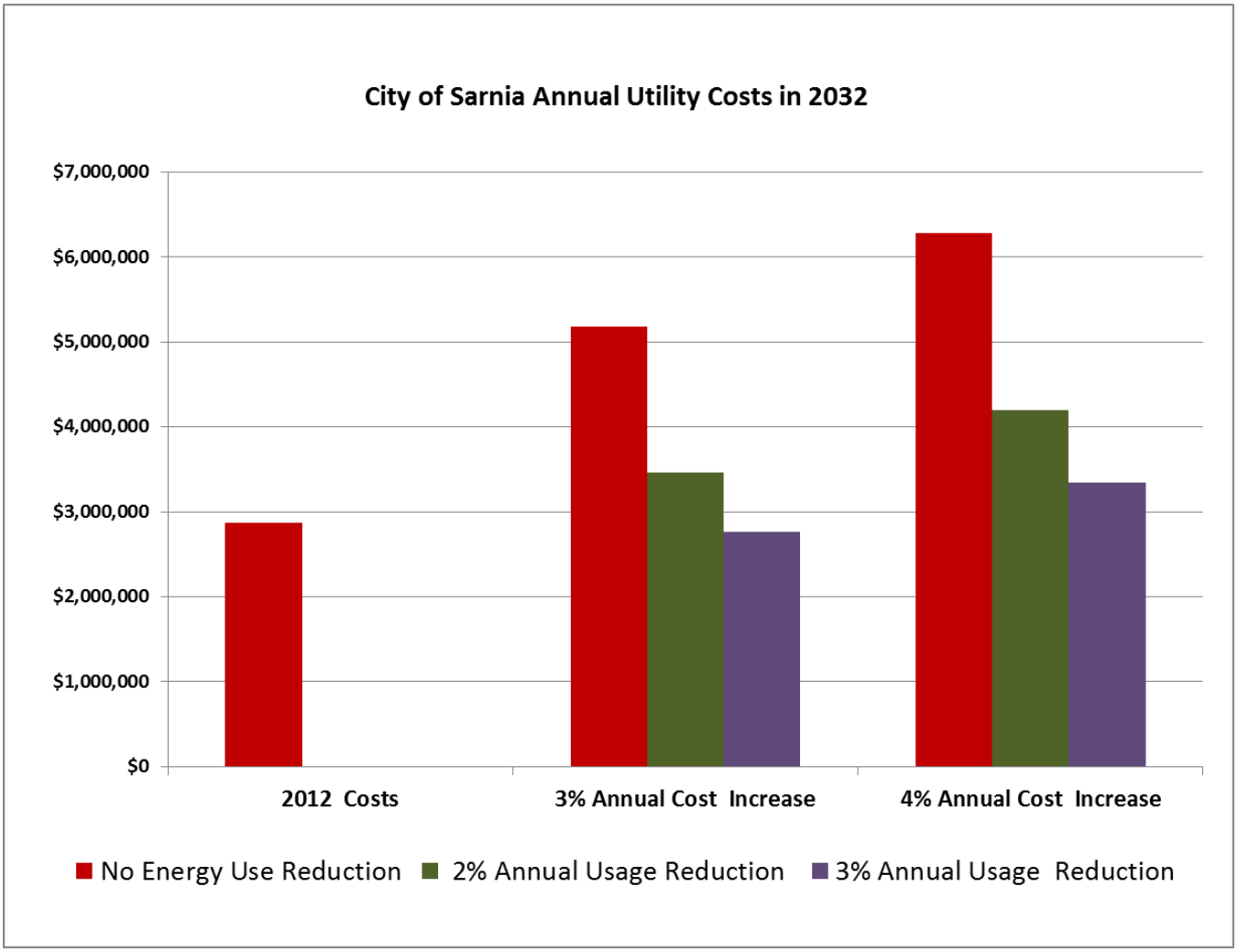
Under this scenario, the amount required from capital reserve funds increases from $906,385 to $1,104,789 over five years; however the 2% annual energy reduction also delivers approximately $103,000 of cumulative savings back to Sarnia ratepayers over the five years of the plan.

This Energy Management Plan does not seek to choose one financing model over another. Whether savings are used exclusively to finance future capital under the “fast-out” model, or shared with ratepayers under the “shared-savings” model, will be decided on a project-by-project basis. The availability of either tool, however, is important to the achievement of the goals of this Energy Management Plan in a sustainable manner.

9.3 Why Set Energy Reduction Targets?

This report sets a reduction target of 2.0% annually. The graph below demonstrates the potential financial reward to the municipality for forward-thinking energy planning. The graph shows the differences in the total annual cost of energy in 20 years’ time, using a variety of annual energy rate increases of 3% and 4%, respectively. The graph compares those projected costs with, and without, achieving the energy reduction target of 2% each year over 20 years (for illustrative purposes, the graph also shows a 3% energy reduction target).

What the graph demonstrates is that it is possible to manage energy costs through aggressive energy conservation. Even assuming a 4% annual increase in the cost of energy, the difference in total cost of energy in 20 years between zero conservation and 2.0% annual conservation is the difference between energy costs increasing by 119% over 20 years or increasing by 46% over 20 years. If we look to the more conservative 3% annual increase in the cost of energy, we see that an aggressive 3% annual reduction in energy consumption is able to largely offset the increase in energy prices over 20 years.



In other words, energy conservation is not simply a means of reducing the City of Sarnia's environment footprint, but it is also a critical financial tool for managing costs.

10.0 Other Energy Matters

The Guideline on Preparing an Energy Management Plan requires a municipality to turn its mind beyond energy reduction targets to address other matters related to energy. In the case of Sarnia, two matters are worth addressing related to backup generation and renewable energy generation.

10.1 Backup Generation

Sarnia is currently reviewing its back up power needs at a number of its facilities.

Fire Halls are presently well protected with back-up generators capable of maintaining functions as required during short or lengthy power outages. The Sarnia Police Services presently utilize an appropriately sized generator to provide full services in the event of an outage. It protects the full site including the emergency operations center. Sarnia Transit has back up power at both its building and fuel pumping station, and Public Works and the Water Pollution Control Centre have generators sufficiently sized to permit full operation.

The City Hall generator is due for implementation in the short term. Sizing of the generator and capacity requirements are presently under review. Fuel source is a second consideration being investigated; the option of natural gas and its related benefits may make it a more flexible option if the investment can be justified.

There may be an opportunity to utilize these assets to participate in the Demand Response ("DR3") initiative with the OPA. This initiative may be transferred to the Independent Electrical System Operator ("IESO") within the next year. With either entity, the potential benefit of operating the backup generator during peak times of provincial load may prove beneficial. A change to the Certificate of Air ("C of A") would be required, as would slight modifications to the equipment itself. This option can be studied in more depth as the five year plan unfolds.

10.2 Renewable Generation

The GEA Regulation states specifically: *Within the five year plan, the municipality will provide*

- *A description of any renewable generation facility operated by the public agency and the amount of energy produced on an annual basis by the facility.*
- *A description of the ground source energy harvested, if any, by ground source heat pump technology operated by the public agency.*
- *The solar energy harnessed, if any, by thermal air technology or thermal water technology operated by the public agency.*

- *The PROPOSED PLAN, if any, to operate heat pump technology, thermal air technology or thermal water technology in the future.*

Solar options exist to lease rooftop space and remove the performance risk from Sarnia and put it onto the solar developer. This option provides guaranteed payments for 20 years and requires absolutely no investment from Sarnia. Buildings with larger rooftops such as the community centre or arenas could be investigated as options.

Sarnia may decide to investigate options for the implementation of other renewable technology projects at the facilities. The initiatives may take a variety of forms from ground source heat pump to solar thermal systems retrofitted into existing sites.

Technology such as solar thermal may be viable for the larger water consuming facilities. These systems require no waiting time or connection to outside entities and are simple and effective. This technology may be studied further for its application within Sarnia.

Opportunities may exist at various sites for the implementation of ground or water source heat pump systems. A viable option may be an existing site that is in need of a replacement for its heating/cooling system. Given the maturation of the technology over the past ten years and the payback of five to eight years it would appear to fit within the required Return on Investment.

11.0 Conclusion

The City of Sarnia is a corporate entity with significant assets and an overall energy budget in the range of $3.0 million annually. Sarnia recognizes that energy prices, both natural gas and electricity, will increase over the next five to ten years and create pressure on the City's finances. One of the most effective ways for municipalities to tackle these price increases, without lowering municipal service levels, is to decrease the amount of energy used.

Through this Energy Management Plan, the City of Sarnia declares that it will proactively manage its energy costs by setting a target of reducing energy by 10 % over the next five years. A number of preliminary energy studies have already been undertaken and a list of potential projects has been developed. Both demonstrate that the energy reduction target is achievable. The key to hitting these targets will be the availability of capital to complete projects in a planned manner and through a financing tool that permits savings to be returned, in full or in part, to the reserve fund from which the capital was funded. In this manner, the City of Sarnia will build upon its energy efficiency successes over the next five years of this plan.

Monitoring progress toward the energy reduction target will be the responsibility of the Energy Committee of the City of Sarnia to be established under this Energy Management Plan. That committee will ensure accountability within each department for energy budgets, prioritize energy efficiency projects for capital spending, as well as monitor and report progress on the achievement of the 2% annual energy reduction target.

Appendix A - City of Sarnia's 2012 Energy Reporting Template

Press TAB to move to input areas. Press	Energy Consumption and Greenhouse Gas Emissions Reporting - for 2012											
Confirm consecutive 12-mth period (mth-yr to mth-yr)	January 2012 to December 2012											
Sector												
Agency Sub-sector												
Organization Name	City of Sarnia	Please fill in the mandatory fields indicated in red, in addition to submitting data on your energy usage.										
									ergy Type and Amount Purchased and Consumed in Natural Ur			
									Electricity		Natural Gas	
Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Quantity	Unit	Quantity	Unit
Bell Building & lights	Administrative offices and related facilities, including municipal council chambers	250 EXMOUTH ST	Sarnia	N7T 5M9	20,000	Square feet	40		64,684	kWh		
City Hall	Administrative offices and related facilities, including municipal council chambers	255 CHRISTINA ST N.	Sarnia	N7T 7N2	42,180	Square feet	40		863,690	kWh	71,983	Cubic meter
SMAA office	Administrative offices and related facilities, including municipal council chambers	660 BRIGHT STREET	Sarnia	N7T 4G6	2,903	Square feet	40		27,232	kWh		
Electricity McLean Center	Administrative offices and related facilities, including municipal council chambers	499 FRONT STREET N	Sarnia	N7T 7N8	3,224	Square feet	40		10,029	kWh	6,772	Cubic meter
Parking office	Administrative offices and related facilities, including municipal council chambers	226 WELLINGTON ST	Sarnia	N7T 1G8	2,449	Square feet	40		14,555	kWh	3,818	Cubic meter
backshops Clearwater Amea	Indoor ice rinks	1400 WELLINGTON ST	Sarnia	N7T 1J2	60,465	Square feet	84		1,105,772	kWh	116,269	Cubic meter
Germain Arena	Indoor ice rinks	170 SYCAMORE DR	Sarnia	N7T 4K7	27,289	Square feet	84		448,622	kWh	31,436	Cubic meter
Sarnia Arena	Indoor ice rinks	134 BROCK ST S.	Sarnia	N7T 5Z1	40,368	Square feet	84		852,506	kWh	50,185	Cubic meter
Lawrence House	Community centres	127 CHRISTINA ST S.	Sarnia	N7T 5T7	5,750	Square feet	84		35,318	kWh	3,990	Cubic meter
Newton Center	Community centres	1479 MCCRIE ST	Sarnia	N7S 3M3	1,157	Square feet	84		7,681	kWh	2,176	Cubic meter
Kinsmen Center	Community centres	Kinsmen Ctr	Sarnia	N7T 2T2	8,443	Square feet	84		33,631	kWh	7,992	Cubic meter
Unit 7	Community centres	ROAD	Sarnia	N7S 5A1	2,525	Square feet	84		33,076	kWh	983	Cubic meter
#3 Fire	Fire stations and associated offices and facilities	HALL	Sarnia	N7V 3K8	4,082	Square feet	168		28,286	kWh	8,788	Cubic meter
Fire	Fire stations and associated offices and facilities	240 EAST ST N.	Sarnia	N7T 6X7	15,317	Square feet	168		108,614	kWh	33,885	Cubic meter
Fire	Fire stations and associated offices and facilities	6360 TELFER RD	Sarnia	N7T 7H4	4,093	Square feet	168		27,826	kWh	5,744	Cubic meter
Fire Hall	Fire stations and associated offices and facilities	1410 WELLINGTON ST	Sarnia	N7T 1J2	8,197	Square feet	168		78,299	kWh	10,155	Cubic meter
Fire Hall	Fire stations and associated offices and facilities	666 SCOTT RD	Sarnia	N7T 8G3	6,035	Square feet	168		29,411	kWh	11,005	Cubic meter
Library	Public libraries	124 CHRISTINA ST S.	Sarnia	N7T 5T6	38,158	Square feet	40		488,638	kWh	50,654	Cubic meter
Library	Public libraries	2587 HAMILTON RD	Sarnia	N7T 8G3	3,766	Square feet	40		23,239	kWh	4,879	Cubic meter
Transit	Storage facilities where equipment or vehicles are maintained, repaired or stored	1169 MICHENER RD	Sarnia	N7S 4W3	38,933	Square feet	40		227,045	kWh	63,899	Cubic meter
Operation Workyard	Storage facilities where equipment or vehicles are maintained, repaired or stored	LINE	Sarnia	N7T 7H3	5,760	Square feet	40		40,063	kWh	18,906	Cubic meter
Camp Saredaca	Cultural facilities	2065 BLACKWELL RD	Sarnia	N7T 7H4	1,540	Square feet	40		17,465	kWh		
Strangway Centre	Performing arts facilities	260 EAST ST N.	Sarnia	N7T 6X7	9,031	Square feet	40		161,181	kWh	25,325	Cubic meter
Tecumseh building, pool	Indoor recreational facilities	320 RUSSELL ST S.	Sarnia	N7T 6S4	5,031	Square feet	40		89,559	kWh	9,895.00000	Cubic meter
LOTTIE NEELY PARK	Cultural facilities	1500 LONDON LINE	Sarnia	N7T 7H2	18,928	Square feet	40		13,390	kWh		
651 DEVINE St.	Storage facilities where equipment or vehicles are maintained, repaired or stored	651 DEVINE St.	Sarnia	N7T 1W9	11,062	Square feet	40		12,303	kWh	22,905.00000	Cubic meter
252 EAST ST N.	Storage facilities where equipment or vehicles are maintained, repaired or stored	252 EAST ST N.	Sarnia	N7T 6X7	8,400	Square feet	40		66,133	kWh	47,242.00000	Cubic meter
FERRY DOCK - CN	Storage facilities where equipment or vehicles are maintained, repaired or stored	FERRY DOCK - CN	Sarnia	N7T 7L8	7,982	Square feet	40		4,024	kWh		
Clifford Pump Station	Facilities related to the pumping of sewage	100 Clifford St.	Sarnia	N7T 8C4	2,100	Square feet	40	44.14455	8,167	kWh		
Sarnia Centennial Workshop	Storage facilities where equipment or vehicles are maintained, repaired or stored	125 EXMOUTH	Sarnia	N7T 7W8	1,980	Square feet	40		17,481	kWh	2,946.00000	Cubic meter
Penhuron Sewage Station	Facilities related to the pumping of sewage	2489 HAMILTON ROAD	Sarnia	N0N 1C0			56	206.2921	38,164	kWh		

Press TAB to move to input areas. Press	Energy Consumption and Greenhouse Gas Emissions Reporting - for 2012											
Confirm consecutive 12-mth period (mth-yr to mth-yr)	January 2012 to December 2012											
Sector												
Agency Sub-sector												
Organization Name	City of Sarnia	Please fill in the mandatory fields indicated in red, in addition to submitting data on your energy usage.							ergy Type and Amount Purchased and Consumed in Natural Ur			
									Electricity		Natural Gas	
Operation Name	Operation Type	Address	City	Postal Code	Total Floor Area	Unit	Avg hrs/wk	Annual Flow (Mega Litres)	Quantity	Unit	Quantity	Unit
Brights Grove Lagoons	Facilities related to the pumping of sewage	2923 LAKESHORE ROAD	Sarnia	N7T 7H4			56	588.81948	47,386	kWh	33.00000	Cubic meter
Green St Sewage pump	Facilities related to the pumping of sewage	2015 Marion Ave	Sarnia	N7T 2K5			56	613.54650	83,276	kWh		
Huronview Sewage pump Station	Facilities related to the pumping of sewage	- BG LAGOON	Sarnia	N7T 7H4			56	184.98615	34,222	kWh		
Devine St. Pump Station	Facilities related to the pumping of sewage	651 DEVINE ST	Sarnia	N7T 1W9			56	789.98187	726,520	kWh		
Pump Station	Facilities related to the pumping of sewage	ST	Sarnia	N7T 7H3			56	1586.65116	293,530	kWh		
Plank road Pump Station	Facilities related to the pumping of sewage	879 Plank Road	Sarnia	N7T 7H5			56	776.16750	218,470	kWh		
Clark drain Pump Station	Facilities related to the pumping of water	RD	Sarnia	N7T 7H4			56	268.04127	49,588	kWh		
Talfond Pump Station	Facilities related to the pumping of sewage	918 TALFOURD ST.	Sarnia	N7T 1B7			56	399.28818	73,868	kWh		
Lou's Pump Station	Facilities related to the pumping of sewage	1569 LONDON LINE	Sarnia	N7T 7H2			56	348.24149	64,425	kWh		
Exmouth Pump Station	Facilities related to the pumping of sewage	900 EXMOUTH ST	Sarnia	N7T 7W8			56	117.73932	21,782	kWh		
Upper Canada Pump Station	Facilities related to the pumping of water	955 UPPER CANADA DR	Sarnia	N7T 1C3			56	208.30674	38,537	kWh		
Murphy Road Pump Station	Facilities related to the pumping of sewage	900 Murphy Road	Sarnia	N7S 4X7			56	182.25440	33,717	kWh		
LeCaron Pump Station	Facilities related to the pumping of sewage	1500 LECARON AVE	Sarnia	N7V 3J3			56	182.76941	33,812	kWh		
Murphy Road Pump Station	Facilities related to the pumping of sewage	1642 MURPHY RD	Sarnia	N7S 2Z3			56	209.54946	38,767	kWh		
Michigan Ave Pump Station	Facilities related to the pumping of sewage	1396 Michigan Ave	Sarnia	N7S 2Z3			56	160.71952	29,733	kWh		
Sandy Lane Pump Station	Facilities related to the pumping of sewage	1265 SANDY LANE	Sarnia	N7T 4G7			56	159.32566	29,475	kWh		
McCaw Pump Station	Facilities related to the pumping of sewage	1550 Rowe avenue	Sarnia	N7T 2X7			56	153.66065	28,427	kWh		
Pump Station	Facilities related to the pumping of sewage	RD	Sarnia	N7T 7H2			56	143.89802	26,621	kWh		
Elrick Pump Station	Facilities related to the pumping of sewage	1587 Mills St	Sarnia	N7S 3N8			56	99.40081	18,389	kWh		
Heritage Park Pump Station	Facilities related to the pumping of water	ROAD	Sarnia	N7T 7H2			56	103.21853	19,095	kWh		
Devine St Pump Station	Facilities related to the pumping of sewage	200 DEVINE ST	Sarnia	N7T 1T2			56	172.07194	31,833	kWh		
Maple Pump Station	Facilities related to the pumping of sewage	598 Maple Street	Sarnia	N7T 6X7			56	0.00000	0	kWh		
London Line Pump Station	Facilities related to the pumping of sewage	1803 LONDON LINE	Sarnia	N7T 7H2			56	103.69995	19,184	kWh		
Exmouth Lambton Mall Pump Station	Facilities related to the pumping of sewage	1393 EXMOUTH ST	Sarnia	N7S 3Y1			56	70.88542	13,114	kWh		
Giffel Road Pump Station	Facilities related to the pumping of sewage	1323 GIFFEL RD	Sarnia	N7S 3K8			56	66.83818	12,365	kWh		
Briarfield Pump Station	Facilities related to the pumping of sewage	860 MICHIGAN AVE	Sarnia	N7V 1L6			56	74.45684	13,775	kWh		
Holland Street Pump Station	Facilities related to the pumping of water	1020 ROSEDALE AVE	Sarnia	N7S 1Z3			56	61.57622	11,392	kWh		
East Street Pump Station	Facilities related to the pumping of water	280 EAST ST N.	Sarnia	N7T 6X7			56	0.00000	0	kWh		
Pump Station	Facilities related to the pumping of water	MICHIGAN	Sarnia	N7V 1L6			56	12.98844	4,103	kWh		
Rosedale Pump Station	Facilities related to the pumping of sewage	807 ROSEDALE AVE	Sarnia	N7V 2A4			56	47.52005	8,791	kWh		
Kaymar Pump Station	Facilities related to the pumping of sewage	2639 KAYMAR CRES	Sarnia	N0N 1C0			56	37.95334	7,021	kWh		
Rapids Parkway Pump Station	Facilities related to the pumping of sewage	1002 RAPIDS PARKWAY	Sarnia	N7S 2Z3			56	35.87654	6,637	kWh		
1350 Plank Pump Station	Facilities related to the pumping of sewage	1350 PLANK RD	Sarnia	N7T 7H3			56	30.90006	5,717	kWh		
Chippewa Park Pump Station	Facilities related to the pumping of water	1010 Deguise Drive	Sarnia	N7S 6L3			56	26.44978	4,893	kWh		
Pump Station	Facilities related to the pumping of water	RD	Sarnia	N7T 7H2			56	100.00214	13,642	kWh		
Pump Station	Facilities related to the pumping of water	1847 LONDON RD	Sarnia	N7T 7H2			56	0.00000	0	kWh		
Station	Facilities related to the pumping of sewage	1859 LONDON LINE	Sarnia	N7T 7H2			56	25.05032	4,634	kWh		
Augusta Drive Pump Station	Facilities related to the pumping of sewage	161 AUGUSTA BLVD	Sarnia	N7W 0A2			56	16.23373	3,003	kWh		
Airport Road Pump Station	Facilities related to the pumping of sewage	1500 AIRPORT RD	Sarnia	N7W 1B6			56	11.41399	2,112	kWh		
Len Ave Pump Station	Facilities related to the pumping of sewage	1474 LEN AVE PARK	Sarnia	N7S 3N1			56	0.97402	180	kWh		
Nelson Street Pump Station	Facilities related to the pumping of sewage	ST	Sarnia	N7T 5S3			56	0.92364	171	kWh		
Scott Road Pumping Statin	Facilities related to the pumping of sewage	495 SCOTT RD.	Sarnia	N7T 8G3			56	20.20260	3,737	kWh		
Sewage	Facilities related to the pumping of sewage	LONDON LINE	Sarnia	N7T 7H2			56	46.98265	8,692	kWh		
Mayfair Pump Station	Facilities related to the pumping of sewage	28 MAYFAIR DR	Sarnia	N7S 1K9			56	364.90066	67,507	kWh		
Water Pollution control center	Facilities related to the treatment of sewage	333 ST. ANDREW St.	Sarnia	N7T 0A8			56	11359.79506	6,853,242	kWh	424,585.00000	Cubic meter
Errol Road Pump Station	Facilities related to the pumping of sewage	566 ERROL RD W	Sarnia	N7V 2G7			56	29.39984	5,439	kWh		
DOW PEOPLE PLACE	Community centres	135 FRONT ST.	Sarnia	N7T 5S3	24,000	Square feet	40		79,534	kWh	4,352.00000	Cubic meter
Police	Police stations and associated offices and facilities	555 Christina Street	Sarnia	N7T 7X6	40,000	Square feet	168		901,160	kWh	88932.00000	Cubic Meter
RBC Centre	Indoor ice rinks	1455 London Line	Sarnia	N7T 7H2	86,000	Square feet	84		3,541,934	kWh	426834.00000	Cubic Meter

Appendix B

ONTARIO REGULATION 397/11

made under the

GREEN ENERGY ACT, 2009

Made: August 17, 2011
Filed: August 23, 2011
Published on e-Laws: August 25, 2011
Printed in *The Ontario Gazette*: September 10, 2011

ENERGY CONSERVATION AND DEMAND MANAGEMENT PLANS

Definitions

1. In this Regulation,

"municipal service board" means,

(a) a municipal service board or joint municipal service board established or continued under the *Municipal Act, 2001*,

(b) a city board or joint city board established or continued under the *City of Toronto Act, 2006*, or

(c) a joint board established in accordance with a transfer order made under the *Municipal Water and Sewage Transfer Act, 1997*; ("commission de services municipaux")

"post-secondary educational institution" means a university in Ontario, a college of applied arts and technology in Ontario or another post-secondary educational institution in Ontario, if the university, college or institution receives an annual operating grant; ("établissement d'enseignement postsecondaire")

"public hospital" means,

(a) a hospital within the meaning of the *Public Hospitals Act*, or

(b) the University of Ottawa Heart Institute/Institut de cardiologie de l'Université d'Ottawa; ("hôpital public")

"school board" means a board within the meaning of the *Education Act*. ("conseil scolaire")

Application

2. Sections 4, 5 and 6 apply only to public agencies prescribed by section 3.

Public agencies

3. The following are prescribed as public agencies for the purposes of the Act:

1. Every municipality.
2. Every municipal service board.

3. Every post-secondary educational institution.

4. Every public hospital.

5. Every school board.

Energy conservation and demand management plans

4. (1) A public agency shall prepare, publish, make available to the public and implement energy conservation and demand management plans or joint plans in accordance with sections 6 and 7 of the Act and with this Regulation.

(2) An energy conservation and demand management plan is composed of two parts as follows:

1. A summary of the public agency's annual energy consumption and greenhouse gas emissions for its operations.

2. A description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the public agency's operations and for managing the public agency's demand for energy, including a forecast of the expected results of current and proposed measures.

Summary of annual energy consumption and greenhouse gas emissions

5. (1) Subject to subsection (2), a summary of the public agency's annual energy consumption and greenhouse gas emissions must include a list of the energy consumption and greenhouse gas emissions for the year with respect to each of the public agency's operations that are set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs and that are conducted in buildings or facilities the public agency owns or leases that,

(a) are heated or cooled and in respect of which the public agency is issued the invoices and is responsible for making the payments for the building or facility's energy consumption; or

(b) are related to the treatment or pumping of water or sewage, whether or not the building or facility is heated or cooled, and in respect of which the public agency is issued the invoices and is responsible for making the payments for the building or facility's energy consumption.

(2) If only part of a building or facility where an operation is conducted is heated or cooled, the public agency's summary referred to in subsection (1) must only include energy consumption and greenhouse gas emissions for the part of the building or facility where the operation is conducted that is heated or cooled.

(3) The public agency's summary referred to in subsection (1) must be prepared using the form entitled "Energy Consumption and Greenhouse Gas Emissions Template" that is available from the Ministry and must include the following information and calculations for each of the public agency's operations:

1. The address at which the operation is conducted.

2. The type of operation.

3. The total floor area of the indoor space in which the operation is conducted.

4. A description of the days and hours in the year during which the operation is conducted and, if the operation is conducted on a seasonal basis, the period or periods during the year when it is conducted.

5. The types of energy purchased for the year and consumed in connection with the operation.

6. The total amount of each type of energy purchased for the year and consumed in connection with the operation.

7. The total amount of greenhouse gas emissions for the year with respect to each type of energy purchased and consumed in connection with the operation.

8. The greenhouse gas emissions and energy consumption for the year from conducting the operation, calculating,

   i. the annual megawatt hours per mega litre of water treated and distributed, if the operation is a water works,

   ii. the annual megawatt hours per mega litre of sewage treated and distributed, if the operation is a sewage works, or

   iii. per unit of floor space of the building or facility in which the operation is conducted, in any other case.

(4) If a public agency conducts, in the same building or facility, more than one operation set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs, it shall make a reasonable allocation of the amount of energy purchased and consumed for the year among each of those operations.

(5) In preparing its annual Energy Consumption and Greenhouse Gas Emission Template, a public agency may exclude its energy consumption and green house gas emissions relating to its temporary use of an emergency or back-up generator in order to continue operations.

(6) On or before July 1, 2013, every public agency shall submit to the Minister, publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office the public agency's Energy Consumption and Greenhouse Gas Emission Template for operations conducted in 2011.

(7) On or before July 1 of each year after 2013, every public agency shall submit to the Minister, publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office the public agency's Energy Consumption and Greenhouse Gas Emission Template for operations conducted in the year following the year to which the last annual Template related.

(8) The following information, if applicable, must also be submitted, published and made available to the public with every Energy Consumption and Greenhouse Gas Emission Template:

1. If the operation is a school operated by a school board,

   i. the number of classrooms in temporary accommodations at the school during the year, and

   ii. whether there is an indoor swimming pool in the school.

2. If the public agency is a public hospital, whether a facility operated by the public hospital is a chronic or acute care facility, or both.

Energy conservation and demand management measures

6. (1) On or before July 1, 2014, every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office,

(a) the information referred to in subsection 6 (5) of the Act with respect to each of the public agency's operations set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs;

(b) the information referred to in paragraph 2 of subsection 4 (2) of this Regulation with respect to each of the public agency's operations set out in Table 1 of this Regulation for the type of public agency to which the public agency belongs; and

(c) the following information:

(i) information on the public agency's annual energy consumption during the last year for which complete information is available for a full year,

(ii) the public agency's goals and objectives for conserving and otherwise reducing energy consumption and managing its demand for energy,

(iii) the public agency's proposed measures under its energy conservation and demand management plan,

(iv) cost and saving estimates for its proposed measures,

(v) a description of any renewable energy generation facility operated by the public agency and the amount of energy produced on an annual basis by the facility,

(vi) a description of,

(A) the ground source energy harnessed, if any, by ground source heat pump technology operated by the public agency,

(B) the solar energy harnessed, if any, by thermal air technology or thermal water technology operated by the public agency, and

(C) the proposed plan, if any, to operate heat pump technology, thermal air technology or thermal water technology in the future,

(vii) the estimated length of time the public agency's energy conservation and demand management measures will be in place, and

(viii) confirmation that the energy conservation and demand management plan has been approved by the public agency's senior management.

(2) In addition to publishing and making available the required information with respect to the operations mentioned in clauses (1) (a) and (b), a public agency may also publish information with respect to any other operation that it conducts.

(3) On or before July 1, 2019 and on or before every fifth anniversary thereafter, every public agency shall publish on its website and intranet site, if it has either or both, and make available to the public in printed form at its head office all of the information that is required to

be published and made available under subsection (1), the Energy Consumption and Greenhouse Gas Emission Template that is required to be submitted and published on or before July 1 of that year and the following information:

1. A description of current and proposed measures for conserving and otherwise reducing energy consumption and managing its demand for energy.
2. A revised forecast of the expected results of the current and proposed measures.
3. A report of the actual results achieved.
4. A description of any proposed changes to be made to assist the public agency in reaching any targets it has established or forecasts it has made.

(4) If a public agency initiated energy conservation measures or energy demand management measures before July 1, 2014, the public agency may also include in its first plan information on the results of those measures.

TABLE 1

Column 1	Column 2	Column 3
Item	Type of public agency	Operation
1.	Municipality	1. Administrative offices and related facilities, including municipal council chambers.
		2. Public libraries.
		3. Cultural facilities, indoor recreational facilities and community centres, including art galleries, performing arts facilities, auditoriums, indoor sports arenas, indoor ice rinks, indoor swimming pools, gyms and indoor courts for playing tennis, basketball or other sports.
		4. Ambulance stations and associated offices and facilities.
		5. Fire stations and associated offices and facilities.
		6. Police stations and associated offices and facilities.
		7. Storage facilities where equipment or vehicles are maintained, repaired or stored.
		8. Buildings or facilities related to the treatment or pumping of water or sewage.
		9. Parking garages.
2.	Municipal service board	1. Buildings or facilities related to the treatment or pumping of water or sewage.
3.	Post-secondary educational	1. Administrative offices and related facilities.

	institution	
		2. Classrooms and related facilities.
		3. Laboratories.
		4. Student residences that have more than three storeys or a building area of more than 600 square metres.
		5. Student recreational facilities and athletic facilities.
		6. Libraries.
		7. Parking garages.
4.	School board	1. Schools.
		2. Administrative offices and related facilities.
		3. Parking garages.
5.	Public hospital	1. Facilities used for hospital purposes.
		2. Administrative offices and related facilities.

Commencement

7. This Regulation comes into force on the later of January 1, 2012 and the day it is filed.