

**City of Niagara Falls**

**5 Year Corporate Energy Management  
Plan**

**Final Report**

May 16, 2014

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## ***Preface***

The Energy Management Plan was the result of internal reviews by municipal staff with the City of Niagara Falls, led by Carmen Mignelli, Kathy Moldenhauer and Todd Harrison. Their analysis was facilitated by Sue Forcier, Sean Perry, and Katie Potts from Niagara Peninsula Energy Inc. The resulting Energy Management Plan represents a considered and careful plan to understand and manage the Energy needs of the municipality for the period from 2014 to 2018.

## ***Executive Summary***

This report outlines the Energy Management Plan (“EMP”) for the City of Niagara Falls (“Niagara Falls”) located in the Golden Horseshoe area of Ontario.

The EMP will comply with the requirements of Ontario Regulation 397/11 Energy Conservation and Demand Management Plans under the Green Energy Act (“GEA Regulation”). The first requirement was met on July 1, 2013 with Niagara Falls’ submission of baseline energy consumption (electricity and natural gas) for the “heated or cooled” municipal facilities. 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 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.

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

### **Plan Development**

As part of the initial task in 2013, Niagara Falls worked closely with its utility Niagara Peninsula Energy Inc. (“NPEI”). An energy plan blueprint was developed focusing on the largest energy consuming sites of the 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 EMP has been brought together as a comprehensive plan that is both practical and achievable.

### **The Result**

Together with our allies, the City of Niagara Falls staff has been able to identify goals, actions and measures that will ensure our 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 1.5% per year (7.5% reduction by 2018) and that success will be achieved by setting a standard payback period for investments in energy efficiency of 5 to 6 years as outlined in this report.

## ***Background***

Niagara Falls is located in the Golden Horseshoe area of Ontario, and is a border city with two border crossings, situated along the western bank of the Niagara River. Niagara Falls is a strong tourist city, dominated by the Niagara Falls, a world famous set of three large waterfalls on the Niagara River. This natural spectacle attracts millions of tourists to Niagara Falls annually. Niagara Falls' population was 82,997 at the 2011 census, and occupies a land area of 81 square miles, with a population density of 1,025 per square mile. The City of Niagara Falls was originally incorporated in 1856 under the “Town of Clifton”, changed to “Town of Niagara Falls” in 1881, then amalgamated with the Village of Niagara Falls (Drummondville or Niagara Falls South) in 1904 and incorporated as the “City of Niagara Falls”.

Niagara Falls has 30 municipal buildings that are heated or cooled, with the GEA Regulation requiring energy consumption for these 30 buildings to be reported annually to the MOE. The total energy costs (electricity and natural gas) in 2012 for these 30 facilities were approximately \$1,975,000. 54% of the total energy use of the 30 facilities is consumed by two locations, specifically the McBain Community Center and the Gale Center.

Niagara Falls is faced with increasing infrastructure costs for roads and bridges, increasing energy costs and the burden of downloaded provincial costs. As such, Niagara Falls must explore all avenues for cost savings, including energy efficiency projects.

## ***The Process***

As part of the preparation of the 2013 submission, Niagara Falls began a planning exercise to develop an EMP blueprint. This document served as a framework of activities for the past year. It included input from staff and allies, targeting the larger energy users and identifying viable energy efficiency projects.

Discussion also began regarding target levels for energy reduction, renewable energy options, and a structured approach to energy tracking as well as the measurement and evaluation of project impacts.

With the assistance of a consulting firm, Metatech and Associates, this blueprint and a number of Level 1 energy audits were completed one year ago.

For the past 12 months staff has participated in numerous activities to drill deeper into the topic and determine specific areas to be included in the EMP.

These steps included:

- Five detailed energy audits of large facilities.
- 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 on the Niagara Falls' finances and has identified practical steps to move forward.

### ***Measuring Energy Consumption***

This report contains a brief summary of the data filed by Niagara Falls 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 heated and/or cooled facilities in 2011 were approximately \$1,975,000.
- The Municipality's Energy Use Indices ("EUI") was 40.6 ekWh/SF.
- The 'baseline' for targets is 2011, the first year that Niagara falls reported to the Ministry.

In the year 2012, Niagara Falls spent approximately \$1,900,000 on natural gas and electricity for its heated and/or cooled facilities. Total energy costs spent by the municipality are lower even though the cost per unit of energy increased over 2011. This was partially due to weather but also partially due to some energy conservation initiatives that were done by Niagara Falls in an effort to lower energy consumption and costs. It can be 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.

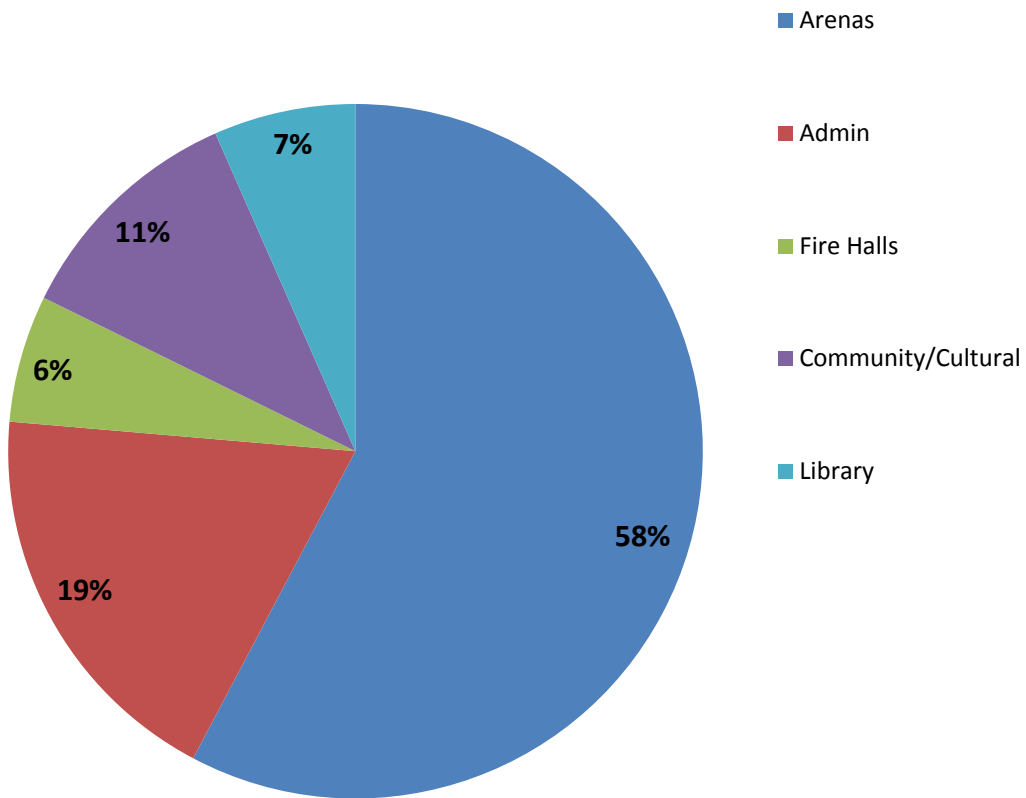
Major changes in 2012:

- The full time operation of the Niagara Falls History Museum. The new museum opened near the end of 2011 using only a small amount of energy in 2011 (79,253 ekwhs). However, full time use in 2012 produced an increase in energy use to 622,982 ekwhs, which would be a 2.2% increase in all City consumption.
- Niagara Falls staff has also been concentrating on operational processes at the Gale Center, a four pad ice rink built to concentrate most community ice needs into one central facility. Through a number of operational improvements implemented in 2012, the Gale Center decreased energy use by 12% from 2011, or a reduction of over 1,500,000 ekwhs. This energy reduction more than offset the increased load created by the opening of the Niagara Falls Historical Museum.

Overall, there is a substantial variance in energy intensity of the facilities operated by Niagara Falls. Some are within and beating 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 Niagara Falls facilities:

## 2011 % of City Electricity Use



### ***Guiding Principles of Energy Management***

#### **Energy Management Plan Process and Development**

The EMP is meant to serve as a basis for energy and utility-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, affect positive environmental changes and to provide improved returns when spending taxpayers' dollars.



## **Taking a Strategic Approach**

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

## **Obtaining Solid Economic Returns**

Energy management investments will yield solid economic returns that often meet Niagara Falls' standard requirements (Internal Rate of Return of 18%) when applied through the Niagara Falls' capital budgeting process. Niagara Falls will apply consistent financial analysis methods that consider life-cycle to reduce total cost of facility ownership and operation.

## ***The Business Case for Strategic Energy Management***

Below are the central business rationales for Niagara Falls' pursuit of strategic energy management.

### **Improved Financial Health and Operating Cost Reduction**

Strategic energy management presents a highly leveraged opportunity to reduce operating costs and positively impact Niagara Falls' bottom line as well as decrease the tax base levy paid by constituents. 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 on Niagara Falls facilities directly affects the taxes paid by property owners.

### **Strengthened Community Leadership and Environmental Stewardship**

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

## **Establishing Purchasing Specifications for Energy Efficient Equipment and Services**

Consider establishing and consistently using 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 unitary HVAC equipment).
- Establish efficiency standards for design and construction, and for building operations and maintenance services.

## **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 the existing equipment that is already efficient. By only operating equipment when it is needed, substantial energy reductions can be accomplished. An excellent example is the decision made in 2012 to only keep three ice pads operating throughout shoulder and summer months at the Gale Center. There was not enough community demand for ice rental to justify keeping all of the ice pads operational for 12 months of the year, and substantial energy use was avoided by following through with that decision.

There are quite possibly numerous other opportunities to implement low or no cost measures and processes to reduce energy use.

## **Past Energy Management Activities**

Niagara Falls has historically been very active and aware of energy and sustainability initiatives. In 2011, Niagara Falls completed numerous lighting retrofits at smaller facilities, by taking advantage of the Small Business Lighting program incentives offered by the Ontario Power Authority (“OPA”). Niagara Falls also took a major step forward at City Hall, by completing a detailed energy audit on the entire facility in 2011, and following this up with a Detailed Engineering Study on equipment replacements and other upgrades for the HVAC system including the cooling plant. Construction of this project began in 2013 with completion targeted for mid 2014.

The five-year EMP 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 Niagara Falls has been active in pursuing energy efficiency in 2012 or years prior. **Therefore, 2011 is the baseline year for this plan.**

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

- Energy efficient lighting upgrades at nineteen sites using the OPA Small Business Lighting initiative.
- Energy audit and Detailed Engineering Study at City Hall.
- Energy audit completed at Coronation Center.
- LED lighting retrofit at City Hall.
- Operational changes at Gale Center to significantly lower energy use.
- Lighting retrofits at four Fire Halls.

Niagara Falls has also been active in the year 2013 and a list of partially completed projects that were specifically implemented to lower energy costs include:

- City Hall HVAC system re-design including cooling plant replacement, ventilation and pumps equipment replacement, variable frequency drives, building automation.
- Lighting retrofits at two Fire Halls.

### **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, Niagara Falls has always been cognizant of the need to conserve energy. A list of the types of actions that have led to tangible, but difficult to quantify savings are as follows:

- Staff routinely turn off lights in unused areas.
- Efforts are made to consider energy use in all aspects of day to day operations.
- Municipal Council has played a lead role by clearly demonstrating its interest in innovation, energy efficiency and maximizing the use of energy resources.

### **Present Energy Initiatives**

The GEA Regulation focusses on heated or cooled municipal facilities 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 Niagara Falls, whose current plans for 2014 include a major investment for the replacement of 200 high intensity discharge street lights with new LED units. While it is understood this initiative is outside of the scope of the present EMP, the projected savings of approximately 132,000 kWh represents a financial savings to Niagara Falls of \$26,500 per year at current rates. The project was also facilitated by one-time capital incentives from OPA, facilitated by NPEI, of \$6,800.

Another major energy efficiency project is the building of a new transit/bus terminal. Members of Niagara Falls Council and staff worked with the architects and were adamant that the new building was designed to be energy efficient, showing excellent long term vision to manage and lower energy costs for years to come. The project has been pre-approved through the OPA's High Performance New Construction ("HPNC") incentive, and upon post project measurement and verification, the project could be eligible for between \$30,000 and \$40,000 in incentives under the HPNC program. Energy use Simulations have forecasted energy savings of over 3,600,000 ekWhs compared against the energy use of a base case building.

### ***Goals for Future Energy Management***

Niagara Falls is hoping to set an annual energy reduction target of 1.5% of all energy reduced annually, which would result in a five-year reduction from the baseline of 7.3%.

The goal is based on a list of potential projects that have been identified, but also showing regard for the fact that implementation of these projects is dependent upon funding, which has a finite limit.

Niagara Falls has limited capital reserves to fund capital projects to improve energy efficiency, so each project would have to receive council approval based upon cost and pay-back period prior to any commitment to move ahead with the project.

The table on following page lists current and proposed future energy efficient projects, with retrofit costs, incentives available, energy reductions, cost savings, and the year the project is planned to be completed.

Project	Cost	**Incentives	ekWhs Reduced	***Energy Savings	2014	2015	2016	2017	2018
Gale Center HVAC	\$300,000	\$80,000	1,428,200	\$122,000	X				
Central Library Lighting	\$25,000	\$3,500	70,000	\$9,000		X			
Chippawa Arena Lighting	\$12,000	\$1,300	25,000	\$3,300		X			
Gale Center Lighting	\$300,000	\$44,000	457,000	\$60,000		X			
*McBain Lighting	\$70,000	\$7,200	116,000	\$14,500		X			
Fire Stations Lighting & Controls	\$90,000	\$30,000	84,000	\$11,000				X	
*McBain HVAC & Controls	\$200,000	\$25,000	420,000	\$30,200			X		
Coronation center RTU/HVAC	\$20,000	\$4,200	21,000	\$2,700	X				
Soccer Club boilers-fuel conversion	\$80,000	\$2,000	80,000	\$12,000					
Armoury Boiler	\$15,000	\$1,000	65,000	\$2,000			X		
Willoughby Town Hall Boiler	\$15,000	\$1,000	65,000	\$2,000					X
Chippawa Town Hall Boiler	\$15,000	\$1,000	65,000	\$2,000					X
Street Lighting LED retrofit Pilot	\$200,000	\$7,000	132,000	\$26,500		X			
Central Library RTUs	\$80,000	\$4,000	60,000	\$8,000	X				
City Hall Chiller,VFDs and HVAC	\$1,000,000	\$56,000	280,000	\$37,000	X				

\*- Niagara Falls pays only 20% of the operating costs of McBain Community Center, the above numbers reflect only 20% of the business case metrics for the project.

\*\* Incentive amounts based on OPA 2011-2014 incentive programs

\*\*\* Energy Cost Savings based on 2013 rates and do not include escalated rates over time

## ***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 ROI are in the 20% + range.

Some municipalities have capital reserve fund accounts that can be utilized to borrow capital funds from to pay for energy efficiency projects. Niagara Falls does not have a capital reserve fund specifically for energy efficiency projects. Each proposed project is scrutinized by senior staff and Council to ensure it is a viable and profitable project over the long term. As infrastructure capital needs needs far outweigh the available capital funding available, this is the most cost effective and responsible way to manage the use of Niagara Falls' capital funds.

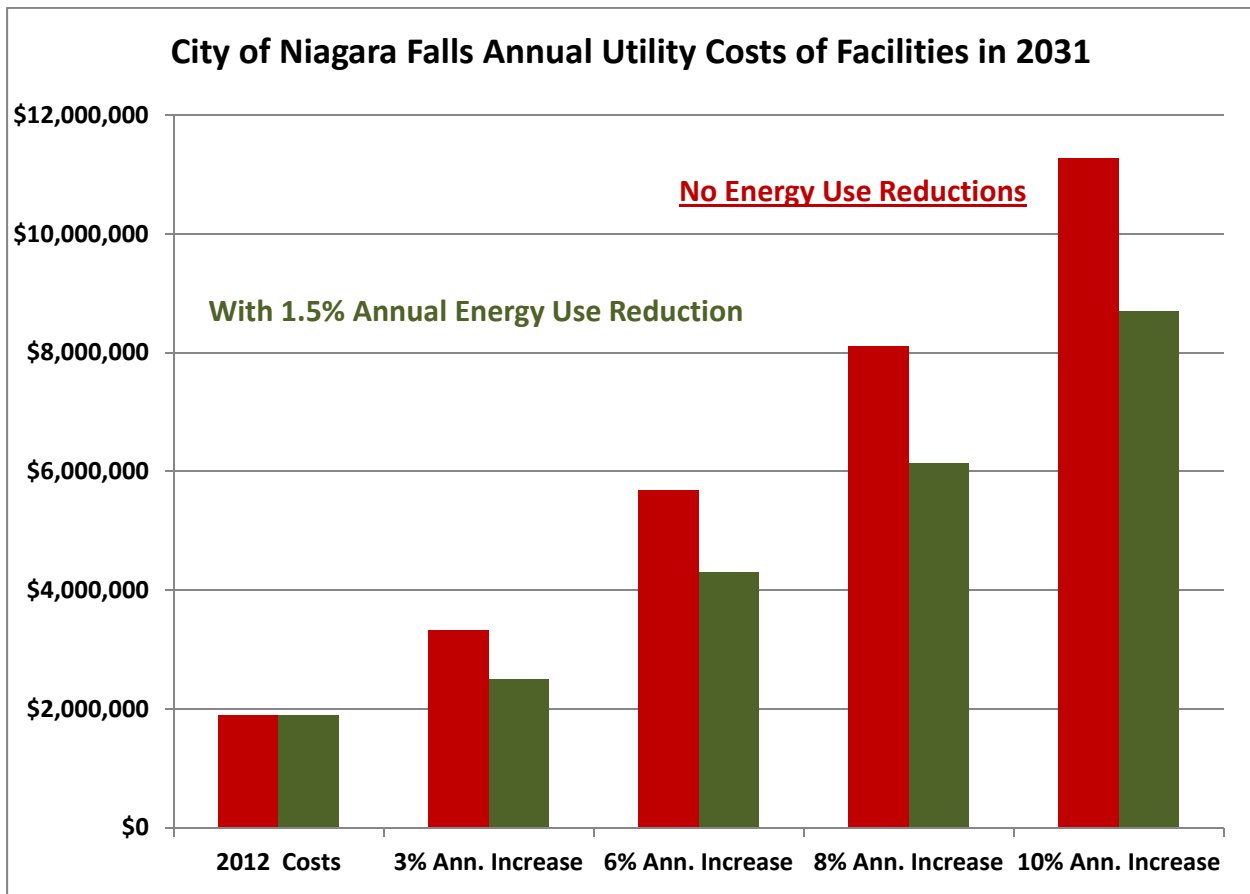
NPEI, through the OPA's "saveONenergy" conservation programs provides capital incentives for undertaking energy-reducing capital projects. The sixteen capital projects proposed in the above table could provide over \$400,000 in capital incentive rebates. Niagara Falls may roll the incentives forward to put towards future energy efficiency projects.

Occasionally capital projects that needed to be completed due to failing or the end of life expectancy of the equipment, can be turned into an energy efficiency project. The three boiler 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 or contractor.

There are sixteen potential capital project options above; thirteen of which has a return on investment within typical municipal payback expectations. These thirteen projects could reduce Niagara Falls energy consumption by 12% over 5 years should they all be implemented as proposed. However, it is questionable that all can be completed due to capital shortfalls. Niagara Falls will attempt to contemplate each project and move ahead only with the projects that most feasible given the capital resources available.

## Why Set Energy Reduction Targets?

This report sets a reduction target of 1.5% annually. The graph below demonstrates the potential financial reward of forward-thinking energy reduction. 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%, 6%, 8% and 10%, respectively. The graph compares those projected costs with, and without, achieving the energy reduction target set out in this report. Assuming a 6% increase in the cost of energy, the difference in total cost of energy in 20 years between zero conservation and 1.5% annual conservation is approximately \$1,400,000 annually. That represents a huge opportunity, given that the total energy costs in 2012 were \$1,900,000.



## ***Other Energy Matters***

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

### **Backup Generation**

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

Fire Halls are presently well protected with back up gen sets capable of keeping them functioning as required during short of long duration outages.

The City Hall gen set is due for replacement in the short term future. Sizing of the gen set and capacity requirements are presently under review. Fuel source is a second consideration being considered, the option of natural gas and its related benefits may make it a more suitable choice. Further, the suitability of natural gas gen sets' flexibility as a peak load operating unit may provide the additional benefits to make it the preferred option.

The McBain Center presently utilizes an appropriately sized gen set to provide proper exit given an outage, as well as limited operating capabilities. Consideration may be given to add generator capacity to this site if the business case and payback is deemed acceptable. This possibility will be considered within the five year EMP activity.

There may be an opportunity to utilize these assets to participate in the Demand Response ("DR3") initiative with the OPA. This initiative may be transferring 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 ("CofA") would be required, as would slight modifications to the equipment itself. The simple payback of such actions would appear to be within acceptable



limits for Niagara Falls. This option may be studied in more depth as part of the five year plan activity.

Should there be an opportunity to work with NPEI , Niagara Falls would be willing to entertain being part of an aggregated pool of gen sets that could be bid into a program such as the present DR3 initiative.

## **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.*

Niagara Falls currently has zero renewable energy projects, with no projects using renewable power nor any renewable energy generation projects.

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

Niagara Falls 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 Niagara Falls.

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 of the past ten years and the decent payback of five to eight years it would appear to fit within the required ROI.

## ***Conclusion***

The government of Ontario has reported that electricity prices will increase over the next five to ten years. What we don't know is exactly how high electricity prices will rise. On the same day in December 2013, three media reports all claimed substantial electricity price increases over the next three to ten years. The Financial Post reported prices will increase 33% over the next three years, The Toronto Sun reported price increases of 42% over five years, and 54% over the next nine years, and CTV reported price increases of almost 50% over the next three years. All three media outlets wrote these reports after the unveiling of Energy Minister's long term energy plan.

Knowing that these three differing reports were derived from the same information, an accurate prediction of energy price increases cannot be made, except for knowing that it will be substantial. Municipalities face a fundamental problem in keeping up with these increasing costs as their revenue will not increase near the rate of energy price increases.

The most efficient way for municipalities to tackle these price increases, without lowering municipal service levels, is to decrease the amount of energy used.

Niagara Falls is well aware of the mounting pressures ahead on finances, and have become proactive in completing a five year energy management plan with a target of reducing energy by over 7.5 % during the next five years. A number of preliminary energy audits and studies have already been undertaken, with more planned in the years to come.

Niagara Falls takes the mandated requirements of the GEA Regulation very seriously and will comply with these regulations. Niagara Falls also takes the issue of fiscal responsibility to the taxpayer revenue very seriously; with the goal of merging these two objectives in an efficient and effective manner. The key to hitting these targets will be the availability of capital to complete many of the proposed energy efficiency projects. Niagara Falls staff understands the importance of controlling and managing energy use wisely and will continue to do their best to conserve wherever possible.

Niagara Falls fully plans on achieving the energy reduction targets, and will work hand in hand with NPEI and Enbridge Gas for additional conservation expertise and incentive funding to reach this goal.

## Appendix "A"

### City of Niagara Falls' 2011 Energy Reporting Template

Energy Consumption and Greenhouse Gas Emissions Reporting - for 2011									
Confirm consecutive 12-month period (month-year to month-year)	January 2011 to December 2011								
Type of Public Agency (Sector):	Municipal <span style="color: red;">Please fill in the mandatory fields indicate</span>								
Agency Sub-sector	Municipality								
Organization Name	City of Niagara Falls								
Operation Name	Operation Type	Address	Area of the Indoor Space in which	# Hours Per Week	Electricity	Natural Gas	GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	
Gatsby Administration Centre	Administrative offices and related facilities, incl	512 Smithson Avenue	361,280.00	40	#####	410,325.00000			Click above cell to
Gale Center	Indoor ice rinks	4171 Fourth Ave	203,950	126	6,209,894	606,827	1,644,075.04093	62.06970	
Cummings sportsplex/Chippawa arena	Indoor ice rinks	9000 Sodom Rd	33,502	84	627,056	52,375	149,186.03393	35.33178	
Jack Bell arena	Indoor ice rinks	6570 Frederica St	30,028	84	156,234	12,678	36,468.11951	9.69007	
McBain Center	Indoor swimming pools	7150 Montrose Rd	72,823	126	799,626	111,299	274,394.94807	27.22336	
Coronation Rec Center	Community centres	5925 Summer St	9,048	84	136,436	23,278	54,924.91131	42.42148	
NF Armoury	where equipment or vehicles are maintained, r	5049 Victoria Ave	6,066	84	34,727	27,085	53,985.81310	53.17847	
Sylvia Place Market Pavillion	Cultural facilities	5943 Sylvia Place	4,584	84	22,634	8,993	18,813.14541	25.78748	
Oakes Park-grandstand/garage	Indoor courts for playing tennis, basketball or o	5700 Morrison St	15,173	84	97,923	846	9,433.29684	7.04633	
NF Musical Theater	Performing arts facilities	4990 Walnut Street	5,247	84	20,035	7,602	15,975.34645	19.21619	
home for girls soccer pavillion	Indoor courts for playing tennis, basketball or o	6783 Kalar Rd	4,800	84	211,823	0	16,945.84000	44.12979	
Market Pavillion	Cultural facilities	4500 Park St	4,536	84	22,463	0	1,797.04720	4.95218	
Niagara Transit	ices and related facilities, including municipal	4320 Bridge Street	7,600	84	600,991	127,956	289,996.34841	258.01037	
City Hall	ices and related facilities, including municipal	4310 Queen Street	48,684	40	1,079,810	80,005	237,644.43074	39.64517	
NF Service Center	ices and related facilities, including municipal	3200 Stanley Ave	89,217	40	488,965	135,811	295,885.14110	21.65881	
Fairview office/admin	ices and related facilities, including municipal	4500 Stanley Ave	9,772	40	46,365	23,144	47,465.90889	29.91555	
Old Pks & Rec admin bldg	ices and related facilities, including municipal	7565 Lundy's Lane	3,829	40	9,678	13,013	25,376.93795	38.64635	
Chippawa Town Hall	ices and related facilities, including municipal	8198 Cummington Sq	3,043	40	17,544	7,378	15,352.56601	31.53327	
Old Battleground Hotel	Community centres	6151 Lundy's Lane	1,917	40	7,640	6,991	13,828.59576	42.74338	
Willoughby Township Hall	Community centres	11211 Sodom Rd	3,760	40	4,639	5,635	11,024.77355	17.16121	
Fire Station #1, main	ire stations and associated offices and facilitie	5815 Morrison St	21,919	168	358,917	39,332	103,075.49956	35.44544	
Fire Station #4, bantingRd	ire stations and associated offices and facilitie	8696 Banting Ave	7,279	168	94,083	15,913	37,612.15385	36.15914	
Fire Station #3	ire stations and associated offices and facilitie	3401 Dorchester Rd	5,366	168	59,506	7,979	19,845.77923	26.89245	
Fire Station #2, McLeod Rd	ire stations and associated offices and facilitie	7036 McLeod Rd	5,613	168	85,028	3,738	13,869.39573	22.22600	
FS #5, Crowland	ire stations and associated offices and facilitie	11208 Sodom Road	11,721	168	68,861	0	5,508.91680	5.87505	
Fire Station #6	ire stations and associated offices and facilitie	8061 Shisler Rd	4,270	168	26,560	0	2,124.80000	6.22014	
St John Ambulance Station	ulance stations and associated offices and facil	5734 Glenholme Ave	3,719	168	24,359	0	1,948.72000	6.54988	
Central Library	Public libraries	4848 Victoria Ave	47,000	84	673,222	41,143	131,643.82666	23.62725	
Stamford Library	Public libraries	3643 Portage Road	10,000	84	69,917	8,704	22,049.36221	16.24210	
Chippawa Library	Public libraries	3763 main	4,000	84	57,263	0	4,581.04000	14.31575	

***Appendix "B"***  
***Ontario Regulation 397/11***

## Green Energy Act, 2009

### ONTARIO REGULATION 397/11 ENERGY CONSERVATION AND DEMAND MANAGEMENT PLANS

**Consolidation Period:** From January 1, 2012 to the [e-Laws currency date](#).

No amendments.

*This is the English version of a bilingual regulation.*

#### 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”) O. Reg. 397/11, s. 1.

#### Application

2. Sections 4, 5 and 6 apply only to public agencies prescribed by section 3. O. Reg. 397/11, s. 2.

#### 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. O. Reg. 397/11, s. 3.

#### 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. O. Reg. 397/11, s. 4 (1).

(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. O. Reg. 397/11, s. 4 (2).

#### 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. O. Reg. 397/11, s. 5 (1).

(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. O. Reg. 397/11, s. 5 (2).

(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 mega watt hours per mega litre of water treated and distributed, if the operation is a water works,
  - ii. the annual mega watt 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. O. Reg. 397/11, s. 5 (3).

(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. O. Reg. 397/11, s. 5 (4).

(5) In preparing its annual Energy Consumption and Greenhouse Gas Emission Template, a public agency may exclude its energy consumption and greenhouse gas emissions relating to its temporary use of an emergency or back-up generator in order to continue operations. O. Reg. 397/11, s. 5 (5).

(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. O. Reg. 397/11, s. 5 (6).

(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. O. Reg. 397/11, s. 5 (7).

(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. O. Reg. 397/11, s. 5 (8).

**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. O. Reg. 397/11, s. 6 (1).

(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. O. Reg. 397/11, s. 6 (2).

(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. O. Reg. 397/11, s. 6 (3).

(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. O. Reg. 397/11, s. 6 (4).

7. OMITTED (PROVIDES FOR COMING INTO FORCE OF PROVISIONS OF THIS REGULATION). O. Reg. 397/11, s. 7.

TABLE 1

Column 1 Item	Column 2 Type of public agency	Column 3 Operation
1.	Municipality	1. Administrative offices and related facilities, including municipal council chambers. 2. Public libraries.

		<ul style="list-style-type: none"> <li>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.</li> <li>4. Ambulance stations and associated offices and facilities.</li> <li>5. Fire stations and associated offices and facilities.</li> <li>6. Police stations and associated offices and facilities.</li> <li>7. Storage facilities where equipment or vehicles are maintained, repaired or stored.</li> <li>8. Buildings or facilities related to the treatment or pumping of water or sewage.</li> <li>9. <u>Parking garages.</u></li> </ul>
2.	Municipal service board	<ul style="list-style-type: none"> <li>1. Buildings or facilities related to the treatment or pumping of water or sewage.</li> </ul>
3.	Post-secondary educational institution	<ul style="list-style-type: none"> <li>1. Administrative offices and related facilities.</li> <li>2. Classrooms and related facilities.</li> <li>3. Laboratories.</li> <li>4. Student residences that have more than three storeys or a building area of more than 600 square metres.</li> <li>5. Student recreational facilities and athletic facilities.</li> <li>6. Libraries.</li> <li>7. <u>Parking garages.</u></li> </ul>
4.	School board	<ul style="list-style-type: none"> <li>1. Schools.</li> <li>2. Administrative offices and related facilities.</li> <li>3. <u>Parking garages.</u></li> </ul>
5.	Public hospital	<ul style="list-style-type: none"> <li>1. Facilities used for hospital purposes.</li> <li>2. Administrative offices and related facilities.</li> </ul>

O. Reg. 397/11, Table 1.

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