



## REPORT

**REPORT TO:** Mayor Bonnette and Members of Council

**REPORT FROM:** Damian Szybalski, Manager of Sustainability

**DATE:** May 20, 2014

**REPORT NO.:** PDS-2014-0037

**RE:** Mayor's Community Energy Plan (Project Update #5)  
Final Corporate Energy Plan  
File No.: D27-CO

### **RECOMMENDATION:**

THAT Report No. PDS-2014-0037, dated May 20, 2014 regarding the final Corporate Energy Plan, be received;

AND FURTHER THAT the final Corporate Energy Plan, including the Town's 2012 energy data, attached under separate cover to Report No. PDS-2014-0037, be approved;

AND FURTHER THAT Town staff be directed to submit the Corporate Energy Plan and the 2012 energy data to the Province and make it publically available, as per the *Green Energy Act*;

AND FURTHER THAT the resources required to successfully implement the Corporate Energy Plan as well as the broader Mayor's Community Energy Plan on an on-going basis, be brought forward and considered as part of the annual capital and operating budgeting process.

### **PURPOSE OF REPORT:**

The purpose of this report is to obtain Council approval of the final Corporate Energy Plan, hereafter referred to as the "CEP".

## **BACKGROUND:**

As detailed in Report No. PDS-2014-0021 (dated April 17, 2014) which was approved by Council on May 13, 2014, the CEP is one of two key components which make up the broader Mayor's Community Energy Plan. Under the *Green Energy Act*, the Town's CEP as well as data on its 2012 energy use must be submitted to the Province by July 1, 2014.

The second component of the Mayor's Community Energy Plan is the Local Action Plan which has a community-wide focus, and will provide recommendations for reducing community energy use and greenhouse gas emissions. The Local Action Plan is being finalized and Town staff anticipate reporting on the draft shortly.

Town staff have provided prior updates on this project via:

- PDS-2014-0021: <http://haltonhills.ca/calendars/2014/PDS-2014-0021.pdf>
- PDS-2014-0005: <http://haltonhills.ca/calendars/2014/PDS-2014-0005.pdf>
- PDS-2013-0053: <http://haltonhills.ca/calendars/2013/PDS-2013-0053.pdf>
- PDS-2013-0045: <http://haltonhills.ca/calendars/2013/PDS-2013-0045.pdf>

## **COMMENTS:**

### **1. Energy Efficiency as a Valuable Opportunity**

North American municipalities are increasingly focusing on energy as a strategic priority to reduce operating costs, prepare for rising utility costs, and to demonstrate their commitment to long-term sustainability. In Ontario, the provincial government is allocating significant resources to energy conservation, providing energy consumers with significant incentives to upgrade their facilities and equipment.

Investing in energy management and implementing the actions identified in the CEP will provide valuable opportunities for the Town of Halton Hills. Not only is the Plan expected to result in energy intensity and greenhouse gas savings, but it can also provide opportunities for staff and community engagement, lower risk exposure, and demonstrate Town leadership.

The Town's annual electricity and natural gas costs are significant and hence an important opportunity to reduce energy use and associated utility costs. Implementation of the CEP is projected to generate \$1,156,545 in Net Present Value for the Town.

### **2. Updates to the Corporate Energy Plan**

Since presenting the draft CEP to Council on April 28, 2014, the draft was again circulated to the project's Steering and Technical committees for review.

Following this review, only minor refinements were identified and subsequently incorporated into the final CEP, including:

- Improving the definition of Net Present Value (NPV) in order to better articulate the significant financial benefits anticipated to accrue to the Town from the implementation of the CEP.

The NPV is a way of assessing the financial benefit of spending the capital funds on an energy conservation measure. The NPV includes all of the cumulative energy cost savings that will be realized by implementing the measure over the lifespan of the measure, taking into account expected increases in energy prices, based on government estimates. The NPV also takes inflation into account by including the value of the original capital cost multiplied by a standard interest rate (in this case, 5%). Thus, if a NPV is positive, it means that the capital cost investment on the energy efficiency measure is better than putting the money into an investment with a 5% rate of return. If the NPV is negative, the energy efficiency measure is not considered a good investment from a financial perspective.

- Clarifying the resources needed (and their responsibilities) to successfully implement the CEP and the broader Mayor's Community Energy Plan.
- Refining the wording of some of the actions.
- Updating references to renewable energy.
- Updating the timing of the CEP to be from July 2014 to July 2019 in order to better match the completion of the Mayor's Community Energy Plan and submission to the Province.

### **3. Corporate Energy Plan (CEP)**

#### **3.1 Overview**

In light of the fact that Report No. PDS-2014-0021 (approved by Council on May 13, 2014) provided a detailed overview of the CEP as well as the fact that the final CEP only contains minor refinements, the following section only highlights key components of the CEP. For more details, the reader is encouraged to review Report No. PDS-2014-0021.

The CEP has three key objectives:

- The Town of Halton Hills is a national leader in the efficient management of energy in its corporate operations.
- The efficient use of energy is part of the day-to-day activities of Town staff.

- The Town's environmental and financial sustainability are improved through energy management initiatives that are Practical, Affordable, Reasonable, Educational, and Enforceable (i.e. "PAREE Principle").

The Corporate Energy Plan (CEP) is focused on the Town's corporate operations. Starting in 2014, the CEP outlines a 5-year roadmap for successful energy management, focusing on electricity, natural gas and fleet fuel use. It addresses building operations, technology, vehicle fleet, people behaviour, processes, organizational measures and information sharing. The CEP meets the Town's obligations under the *Green Energy Act*. Overall, it aims to ensure that new and existing Town facilities are built and operated as efficiently and sustainably as possible. It builds on the Town's existing commitment to energy conservation.

Between 2014 and 2019, implementation of the CEP's recommended technical actions is projected to translate into:

- 13% to 17% improvement in energy intensity<sup>1</sup>; and
- 16% to 20% reduction in greenhouse gas emissions.

The above targets are intended to guide the Town's energy management efforts. They are in line with targets established by other municipalities. While the results of the energy audits completed on Town facilities suggest that the above targets are achievable, due to uncertainty about whether the recommendations identified in the audited Town facilities will be transferable to unaudited buildings<sup>2</sup>, a target range from 80% to 100% of the estimated reductions has been recommended. Therefore, the energy intensity reduction target is 13% to 17% and the greenhouse gas emissions reduction target is 16% to 20%.

Beyond the above targets, it is estimated that converting all Town streetlights to LED technology can achieve an additional 30% electricity reduction.

### **3.2 Recommendations**

About 90 priority actions are recommended for implementation between 2014 and 2019. Recommended actions are divided into high-priority organizational and technical actions. Organizational actions directly impact the Town's energy performance, enable the technical measures, and relate to behaviour change and the resources needed for successful ongoing management of the Town's energy use. The technical actions take into account the facility energy audit results, project costs, available incentives, reduced utility costs, rates of return and ease of implementation. Technical actions include

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<sup>1</sup> Energy intensity is measured in terms of the amount of electricity used per square foot of Town facility. The measurement is described as the number of kilowatt-hours per square foot of Town facility space (ekWh/sq.ft.) In 2012, based on Town facilities subject to the requirements of the *Green Energy Act*, the average energy intensity of Town facilities was 34.5 ekWh/sq.ft.

<sup>2</sup> The audits were completed on seven Town facilities of a variety of types so that measures from these seven facilities could be extrapolated across all Town buildings.

plumbing upgrades; heating, ventilation and air conditioning optimization; installing lighting controls; building envelope upgrades; and lighting retrofits.

The recommended actions are organized into three categories:

- Year 1 actions (see Section 3 of the CEP)
- Years 2-3 actions (see Section 4 of the CEP)
- Years 4-5 actions (see Section 5 of the CEP)

Figure 1 summarizes the recommended five-year action plan.

**Figure 1: Summary of Corporate Energy Plan Priority Actions**

<b>Timeframe</b>	<b>Year 1 (short-term)</b>	<b>Years 2-3 (medium-term)</b>	<b>Years 4-5 (long-term)</b>
Energy intensity reduction target (ekWh/sq.ft)	8.3%	6.9%	1.5%
Greenhouse gas emission reduction target (kg)	11% <sup>3</sup>	8%	1.4%
Projected Investment (Net capital cost)	\$49,808	\$99,587	\$101,244
Net present value (all measures)	\$616,270	\$498,795	\$41,480

### 3.3 Capital Investments and Savings

Implementation of the CEP will require a capital investment by the Town. However, this investment is anticipated to yield significant returns.

Full implementation of the technical measures in all applicable Town facilities will require a total investment of about \$250,639 or about \$50,100 in annual net capital costs in each of the five years.<sup>4</sup> Ultimately, this investment is projected to translate into \$1,156,545 in net present value.

### 3.4 CEP Implementation

Successful implementation of the CEP will require several inter-related measures to be put in place. Aside from the important roles to be played by the Staff Sustainability

<sup>3</sup> The energy intensity and greenhouse gas emission reduction targets are based on the implementation of all of the recommended technical actions over a five year period.

<sup>4</sup> The capital costs only include the costs associated with the technical measures. Additional costs will be required to implement some of the organizational measures which may include retaining third-party contractors, auditing additional facilities, training costs and purchasing an Energy Management System. Other costs associated with organizational actions will be mainly in the form of staff time.

Team, Operations and Maintenance staff, and ongoing communication and engagement, the four key implementation measures are:

- Dedicated staff to implement the CEP: This resource would lead the implementation of the CEP as well as the broader Mayor's Community Energy Plan. Key responsibilities would include:
  - Oversee and monitor implementation.
  - Lead the five-year review and update of the CEP.
  - Track and report on progress.
  - Implement communication and engagement tools.
  - Develop and deliver training and behaviour change programs.
  - Assist the central facilities management staff person and the Staff Sustainability Team in fulfilling their roles.
  - Assist with monitoring *Green Energy Act* compliance.
  - Lead the implementation of the broader Mayor's Community Energy Plan which will include a significant community focus and be accompanied by a specific set of recommendations.
  - Ensure alignment with the Community Sustainability Strategy.
  
- Central facilities management role: This resource would oversee energy management within all facilities. Responsibilities would include:
  - Oversee energy management at all Town facilities.
  - Lead the implementation of technical actions.
  - Act as a resource for all Operations and Maintenance staff.
  - Manage the Town's Energy Management System.
  - Assistance with training and staff engagement programs.
  - Monitor ongoing *Green Energy Act* compliance.

Currently, there is no consistent centralized energy management of facilities across all Town departments and facilities. Although funding is available to hire an embedded energy manager via the Ontario Power Authority, it is only available until the end of 2015. Ultimately, it would be most effective to have a permanent Town staff dedicated to the role of energy management.

Many municipalities have a dedicated staff person responsible for energy management, including the Town of Caledon, Town of Oakville, City of Burlington, City of Pickering, City of Hamilton and the City of Brantford.

- Energy Management System: The current practice of utility data collection at the Town is very resource intensive, and involves requesting and verifying data from multiple sources, both internally and externally. To provide quality, timely and readily accessible data in a useful format, the Town should investigate options for an Energy Management System. Various options for such systems are available and vary depending on their capabilities and the amount of effort required by Town staff versus external resources. Incentives may be available towards the purchase of an Energy Management System.

Municipalities that have effectively managed their energy data, and achieved energy and cost savings have purchased and are using an Energy Management System.

- **Review:** The CEP will be reviewed annually and comprehensively updated at the end of its five-year term. Among other things, the annual review will serve to:
  - Track implemented activities.
  - Track results.
  - Update the CEP based on new data, such as new energy audits and lessons learned.
  - Identify priority actions for the next year.
  - Provide a status report.
  - Meet requirements of the *Green Energy Act*.

#### **4 Next Steps**

Next steps include:

- Submit the CEP and the Town's 2012 energy data to the Province as per the *Green Energy Act*.
- Complete the Local Action Plan (community component).
- Consolidate the CEP and the Local Action Plan into one seamless Plan – the Mayor's Community Energy Plan.
- Prepare a summary of the Plan as an easy reference for the general public.

#### **RELATIONSHIP TO STRATEGIC PLAN:**

Sustainability is one of ten Council priorities identified in the Town's Strategic Action Plan, and repeatedly referenced throughout the Strategic Plan's Strategic Objectives and Strategic Actions. Therefore, the completion of the Mayor's Community Energy Plan will better enable the Town to fulfill its many sustainability objectives, including those directly related to energy. In particular, Strategic Action B.5.(h) which reads: "Develop a Community Energy Plan, in cooperation with Halton Hills Community Energy Corporation."

#### **FINANCIAL IMPACT:**

The CEP makes a strong business case for continued investment in energy conservation. Implementation of the CEP is anticipated to generate \$1,156,545 in net present value. Incentives are available to the Town to assist with the Plan's implementation.

In terms of how the CEP and the broader Mayor's Community Energy Plan will be implemented, Town staff recommend that additional resources required for successful implementation be considered as part of the upcoming capital and operating budget process.

## **COMMUNICATIONS IMPACT:**

The CEP contains a large amount of technical information. This is partly due to the need to meet prescribed requirements of the *Green Energy Act* and the underlying technical data.

Recognizing the need to make the CEP accessible and relevant to Town staff and the wider community, Town staff will:

- Develop a practical Communication Plan;
- Prepare a short executive summary; and
- Prepare outreach materials.

## **SUSTAINABILITY IMPLICATIONS:**

By focusing on energy conservation, efficiencies, and greenhouse gas emission reductions, the CEP supports three areas of community sustainability:

- Resilient Economy;
- Healthy and Diverse Environment; and
- Responsive and Effective Government.

There is alignment between the CEP and the Community Sustainability Strategy, specifically the focus areas of:

- Diversified and Resilient Economy
- Energy
- Air Quality and Greenhouse Gas Emissions
- Green Economy
- Infrastructure
- Land Use
- Transportation

The CEP and the broader Mayor's Community Energy Plan also relate to numerous Green Plan recommendations, including #25, 26, 31, 39, 43, 44, 48, 60, 66 and 67 which relate to energy and water efficiency, new development practices, energy management, LEED® building design, renewable energy and greenhouse gas emission reductions. There are also synergies with the Town's Strategic Plan, Official Plan, Green Development Evaluation Checklist, Green Development Standards, and the climate change report prepared by the Town Environmental Advisory Committee.

The Plan's recommendations are anticipated to benefit future generations through a focus on efficiency, conservation, renewable energy and greenhouse gas emission reductions. Successful implementation is anticipated to translate into financial benefits through improved energy efficiency in municipal operations.



## **CONSULTATION:**

The project's Steering and Technical committees were engaged throughout the project. In addition, various modes of community engagement were used for the CEP and the broader Mayor's Community Energy Plan, including workshops, staff interviews, staff survey, engagement at community events, newspaper ads, newspaper article, Social Media, Media Releases, Mayor's announcements, website postings, presentations to community stakeholders, and youth presentations at Town summer camps.

## **CONCLUSION:**

This report highlighted one of the two key components that will make up the Mayor's Community Energy Plan – the Corporate Energy Plan.

Building on the Town's past successes and many existing efforts, the CEP is anticipated to materialize in improved efficiencies, utility cost savings, improved energy management, future cost avoidance, lower greenhouse gas emissions and continued municipal leadership. The Plan also positions the Town in compliance with the *Green Energy Act*.

Through the CEP, it is recommended that by 2019, the Town achieve:

- 13% to 17% improvement in energy intensity; and
- 16% to 20% reduction in greenhouse gas emissions.

Sustained and comprehensive effort is anticipated to yield significant positive results.

Respectfully submitted,

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