



# County of Dufferin – Energy Management Plan

## 1 EXECUTIVE SUMMARY

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The Environment, Conservation and Demand Energy Management Plan was undertaken to respond to the Green Energy Act, Ontario Regulation 397/11 made under the Green Energy Act, 2009 and published on August 25, 2011, requiring all public agencies to prepare an Energy Conservation and Demand Management Plan (“the Energy Management Plan”).

The Energy Management Plan has two parts:

- A listing of the annual energy consumption and greenhouse gas emissions for each of the public agency’s facilities. The first listing was completed by July 1, 2013 for the 2011 calendar year, and is due annually thereafter.
- A description of previous, current and proposed measures for reducing the public agency’s energy consumption and a forecast of expected results. The first description is due July 1, 2014, and is due every five years thereafter.

## 2 BACKGROUND AND DISCUSSION.

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### **Our Understanding of the Current Situation**

The County of Dufferin through its design processes, and ongoing facilities management model has been following best practices with respect to Energy Demand Management. This is borne out by the GHG #s which are derived from our reporting to the province. *Table 1.1*

The Energy Management Program is built upon information that describes the current status of the organization on two dimensions: its business practices, and its energy use practices. The strategic energy management plan includes these information outputs.

### **Organizational**

#### **Stakeholder Needs:**

Internal stakeholders (Council, CAO, staff) need to be able to clearly communicate the corporate commitment to energy efficiency, and to develop the skills and knowledge required to implement energy management practices and measures. External stakeholders (the Province, community citizens and groups) need the municipality to be accountable for energy performance and to minimize the energy component of the costs of municipal services.

#### **Our Municipal Energy Needs:**

We need reliable, low-cost, sustainable energy sources delivering energy to the most efficient facilities and energy-consuming technology that is feasible under our budgetary constraints.

#### **How We Manage Energy Today:**

The management of energy consumption and the energy performance of our facilities and equipment are the responsibilities of Treasury (cost management), and Facilities (operations, and capital projects).

In 2006 the County of Dufferin participated in an Energy Audit of all County owned facilities. This audit, and the related results were distributed to County Council in Oct of that year. It indicated the following points:

*The Facilities / Maintenance staff with the County currently are using the best accepted practices from an energy standpoint.*

- *Through the use of Building Automated Systems, set-back thermostats, and motion sensors.*

- *As older equipment / lighting reaches the end of its life span it is being replaced with higher efficiency equipment.*
- *Capital projects that involve building equipment, or envelope have energy saving criteria as a part of the specification.*
- *Staff at all County locations are being educated on energy use as it applies to their areas, and are encouraged to save energy where possible.*

*The report delivered by Ainsworth showed that given current practices, little savings could be realized in County facilities. The recommendations that have been put forward can be addressed under the operating budget, with no capital funding. It also reaffirms that the resolve of the Facilities / Maintenance staff, with the continued support from Senior Management, and Council in this initiative has been a worthwhile endeavor.*

This audit, and subsequent report has been used as a framework going forward as our Energy Management Plan.

Our early adoption of technology, including building automation systems, geothermal HVAC, light coloured roofing, retrofit of older, higher consuming lighting, and upgraded building envelopes as a corporate standard has been used and highlighted within the Facilities Management field as a case study example of best practices with regards to energy.

In 2008 the County of Dufferin Facilities Division participated in a benchmarking study conducted by LAS, using the *AUDIT++* program. This study built on the existing data we has collected in 2006, and effectively then put it against benchmarks set across the province in facilities of similar types, and usage categories. The results of this were favorable.

In 2011 / 2012 the County, in conjunction with Enbridge conducted an audit of single family units energy use, and through this audit, and an envelope inspection, effected improvements to the building envelope to realize energy savings. While housing is exempt from the reporting, under O-Reg 397-11, it illustrates our commitment to energy conservation, prior to the Green Energy Act coming into force.

Our continued use, and leverage of energy efficient technology is present in the design of the 2011 addition located at 55 Zina St. Orangeville, included in the design were the use of T5 and LED lighting systems, occupancy sensors for offices, and other areas, ICF construction, R50 roof, and the use of geothermal heating and cooling systems.

Our building performance ( energy footprint per square foot) against provincial benchmarks for GHG emissions. 2011 figures.

2011	County of Dufferin	Provincial benchmark
Administration facilities	6.4813	8.39
Cultural Facilities	5.4069	7.18
Garages	10.1983	8.19

\*\*\* Note. The North garage was identified in 2013 as requiring upgrades. This resulted in in-floor heating, new roofing, and insulated overhead doors being installed during the 2013 calendar year.

## 3 THE CDM PLAN

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The Action Planning phase of activity flows logically out of the Data Collection and Analysis phase in that:

- Knowledge of the situation leads to goals and objectives
- Goals and objectives need broad strategies, and Actions need to be designed to carry out the strategies.
- Action planning means specifying the measures and activities that will be implemented, the personnel who will be accountable for the various tasks, the resources required, the time line or schedule for implementation, and the means of evaluation.

### 1. Strategic

- Long term strategic issues : Strategic level issues addressed in this plan are organizing for energy management, developing required skills and knowledge, managing energy information, communicating with our stakeholders, and investing in energy management measures.
- Links with other municipal plans: As an integral component of the management structure, the energy management plan is coordinated with the municipality's budget planning process, its preventative maintenance plans, and the overall asset management plan.

### 2. Leadership

- Energy leader: We have designated the facilities Division as holding overall responsibility for corporate energy management.
- Key individuals: We will identify staff members and personnel from our critical service providers who carry significant responsibility for energy performance or who can make essential input to energy management processes.

### 3. Structure

- Integration of energy management with other management processes: We will coordinate energy management planning and information management into organizational strategic planning and budget development.
- Accountability for energy: We will assign overall accountability for corporate energy performance to the Director of Properties with the Facilities division as the lead resource.

#### **4. Resources**

- Staffing requirements and duties: We have incorporated energy efficiency into operating procedures and the knowledge requirements for operational jobs.
- External consultants and energy suppliers: We will establish criteria based on our energy goals and objectives for the selection of external consultants and energy suppliers.

#### **5. Development of Energy Projects**

- Internal assessments: We will develop a methodology for the internal assessment of the energy performance of municipal facilities and their energy loads and a process for identifying and cataloguing energy efficiency opportunities.
- Staff suggestions: We will implement a dynamic process for the submission and processing of staff suggestions for energy efficiency improvements.
- Energy audits: We will establish the criteria for energy audits of municipal facility and carry out such audits on our facilities on a three - year cycle.
- Feasibility studies: We will define the requirements of feasibility studies to be conducted on selected measures proposed in energy audits as a basis for making implementation decisions.
- Opportunity selection criteria (process): We will define the financial criteria (in terms of simple payback period and internal rate of return) to be used for the screening of and implementation of proposed measures respectively

## 6. Capacity Building

- **Communication programs:** We will develop a communication strategy that creates and sustains awareness of energy efficiency as a corporate priority among all employees, and conveys our commitment and progress to our stakeholders. \*
- **Energy Awareness Training:** We will develop and deliver training focused on the energy implications of employees' job functions and the day-to-day opportunities for conserving energy found in the workplace and at home.\*
- **Energy Skills Training:** We will develop and deliver skills training for operators, maintainers and other employees that have "hands-on" involvement with energy consuming systems in order to enhance their capacity to achieve energy efficiency improvements.\*
- **Business Procedures:** We will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate energy efficiency considerations.\*

\*Completion by 1 July 2015

## 7. Procurement

- **Energy purchasing:** We will develop a procedure for the negotiation of energy purchase contracts that appropriately addresses our cost considerations, available energy services, energy quality and reliability, and other performance factors.
- **Consideration of energy efficiency of acquired equipment:** Our purchasing procedures continue to reflect our organizational goals to incorporate energy efficiency into the criteria for selection of materials and equipment.
- **Consideration of energy efficiency for all projects:** We incorporate life cycle cost analysis into the design procedures for all capital projects.

- **Standards for new buildings:** We have developed criteria for the design and/or acquisition of new buildings that include energy performance factors and that use as appropriate the principles embedded in performance standards such as LEED and the Model National Energy Code for Buildings

## **8. Method of implementation of energy projects**

- **Internal implementation:** We will develop criteria for determining whether internal resources can be utilized for the implementation of energy projects. As projects are developed.
- **Creative approaches:** We currently investigate and document options for the implementation of energy projects that utilize public-private partnerships, creative financing arrangements including energy performance contracting, and other creative approaches.

## **9. Investment in Energy Projects**

- **Investment criteria:** We will develop and/or clarify as necessary the financial indicators that are applied to investment analysis and prioritization of proposed energy projects, taking due consideration of the priority given to energy efficiency projects vis à vis other investment needs. This will be incorporated into projects at design phase.
- **Financial analysis conducted:** We will develop a template for the cost - benefit analysis of proposed energy management measures and for tracking the financial impact of implemented energy projects. These parameters will be applied against data collected and reported.
- **Budgetary resources for energy projects:** We will integrate energy projects into our capital planning and budget development procedures.
- **Capital:** Criteria for the allocation of capital resources to energy projects will be incorporated into our annual capital planning procedures.
- **Other sources of funds for energy projects:** The Facilities Division will be mandated to investigate, document and communicate funding sources for energy projects, including government and utility grants and incentives.



## 10. Monitoring

- Ongoing monitoring of consumption: We will use data collected by Treasury to set energy specific targets for underperforming facilities. This will be reviewed annually.
- Measurement and verification of energy projects: We will adopt standard methods for savings verification and incorporate a measurement and verification (M&V) plan into all energy projects. This will be completed at the outset of any projects.

## 11. Reporting

- Reporting for the GEA: We will monitor and respond to reporting requirements for the Green Energy Act.
- Reports to stakeholders (community): Our external communication strategy will include quantitative reports regarding energy performance of municipal facilities and the impact of implemented energy management measures.
- Reports to Council: We will generate an annual summary energy performance report from data collection and apprise Council of the progress made towards our corporate energy goals and objectives.
- Reports to accountable staff: Staff that are accountable for energy performance will be provided with timely and regular reports from the data collected at a level of detail that reflects their spheres of influence.
- Reports to energy users: Department managers, operations and maintenance lead hands, and other key energy users will be provided with timely and regular energy consumption reports generated from the data collected by Treasury.

## **Execution**

This is the point at which the commitment of the organization, all of the assessment activity, and the planning work pay off. The Energy Action Plan provides a priority list of activities — the initiatives that address the role of people and the impact of business practices on the energy performance of the organization — and projects — the measures that include technology and/or operational changes having a direct energy efficiency benefit — for implementation. Execution is a “project management” function, which matches implementation needs with the requisite human and financial resources.

### **1. Energy Activities**

- Municipality level: We will carry out the required development of business procedures and communication programs and implement them methodically according to the planned time lines within the resource constraints that apply
- Facility (asset) level: We use department and facility energy team representatives to facilitate the implementation of facility level business procedures and communication initiatives, including energy performance reporting

### **2. Priorities**

- To formally open dialogue with staff, stakeholders, and Senior management regarding energy management training, policy, and initiatives.
- To audit GHG data by facility, against known benchmarks to determine building performance, and to subsequently identify if opportunities exist for improvement. This will be done annually as part of the reporting.
- Identifying initiatives put forth by the province, and utilities, to determine if programs exist where funding / assistance in implementing energy projects.
- To develop training and awareness programs to be delivered to staff, stakeholders, and tenant base, to ensure a culture of energy reduction can be developed at an organizational level, with support. This will be completed by Dec 31, 2014, and will be incorporated as an ongoing training and awareness program.
- To continue to build on existing energy practices, and identify further areas that can be developed.