



The Corporation of the Municipality of
Callander

**CONSERVATION AND DEMAND
ENERGY MANAGEMENT PLAN
2014 TO 2019**

The Corporation of the Municipality of Callander
Conservation and Demand Energy Management Plan
INDEX

SECTION 1 – PURPOSE

- 1.1 Declaration of Commitment
- 1.2 Vision
- 1.3 Policy
- 1.4 Goals
- 1.5 Overall Target
- 1.6 Objectives

SECTION 2 – ORGANIZATIONAL UNDERSTANDING

- 2.1 Municipal Energy Needs
- 2.2 Stakeholder Needs
- 2.3 Municipal Energy Situation
- 2.4 How We Manage Energy Today
- 2.5 Current Energy Consumption, Cost and GHGs
- 2.6 Current Technical Practices
- 2.7 Renewable Energy Utilized or Planned

SECTION 3 – STRATEGIC PLANNING

- 3.1 Links with Other Municipal Plans

SECTION 4 – STRUCTURE PLANNING

- 4.1 Staffing Requirements and Duties
- 4.2 Consideration of Energy Efficiency for all Projects
- 4.3 Purchases not exceeding \$10,000

SECTION 5 – RESOURCE PLANNING

- 5.1 Energy Leader
- 5.2 Energy Team
- 5.3 Internal Resources
- 5.4 External Consultants and Suppliers
- 5.5 Energy Training

SECTION 6 – PROCUREMENT PLANNING

- 6.1 Energy Purchasing
- 6.2 Consideration of Energy Efficient of Acquired Equipment

SECTION 7 – IMPLEMENTATION PLANNING

- 7.1 Building Standards
- 7.2 Communication Programs

SECTION 8 – INVESTMENT PLANNING

- 8.1 Internal Funding Sources
- 8.2 Creative Approaches

SECTION 9 – IMPLEMENTATION PROCEDURES

- 9.1 Business Procedures

SECTION 10 – PROJECT EXECUTION

- 10.1 Municipal Level
- 10.2 Asset Level

SECTION 11 – REVIEW

- 11.1 Energy Plan Review
- 11.2 Discussion of Progress

SECTION 12 – EVALUATION PROCESS

- 12.1 Energy Consumption
- 12.2 Green House Gas Emission

SECTION 13 – PROGRAMS

SECTION 14 – PROCESSES

SECTION 15 – PROJECTS

Schedule A – Energy Consumption Data

**MUNICIPALITY OF CALLANDER ENERGY CONSERVATION AND
DEMAND MANAGEMENT PLAN
FROM: 2014 TO 2019**

SECTION 1 - COMMITMENT

1.1 Declaration of Commitment:

The Corporation of the Municipality of Callander (Municipality) will allocate the necessary resources to develop and implement an Energy Conservation and Demand Management Plan as required under Regulation 397/11 of the Green Energy Act. Council supports energy planning because it will help avoid cost increases, improve service delivery, and support local industry while protecting human health and the environment. Our Energy Conservation and Demand Management Plan will reduce our energy consumption and its related environmental impact as outlined in our overall target. Staff and Council will ensure that the objectives presented in this plan are achieved and that progress towards those objectives is monitored on an ongoing basis. Staff and Council will update the plan as required under Regulation 397/11 of the Green Energy Act or any subsequent legislation.

1.2 Vision:

We will strive to continually reduce our total energy consumption and associated greenhouse gases (GHGs) through wise and sustainable use of energy and resources, while still maintaining an efficient and effective level of service for our clients and the general public. This will involve a collaborative effort to increase the education, awareness, and understanding of energy management within the Municipality. Total energy consumption includes electricity, natural gas, and oil. This vision can be achieved through the integration of energy efficiency facility infrastructure, operational efficiencies, and building the foundation for a culture of energy awareness and knowledge within the Municipality. While commitment from Council and Senior Management is crucial, everyone has a role in the wise use of energy and to showcase appropriate leadership within corporate facilities and operation.

1.3 Policy:

The Municipality of Callander will incorporate energy efficiency into all areas of our activity including our organizational and human resources management procedures, procurement practices, financial management and investment decisions, and facility operations and maintenance. As a major component of the operating costs of municipal facilities and equipment, energy costs will be factored into the lifecycle cost analysis and asset management analyses and policies of the Municipality. All

departments have clear links to some or all of the goals and objectives of the Energy Conservation and Demand Management Plan.

1.4 Goals:

The Municipality of Callander Energy Conservation and Demand Management Plan was completed to help achieve the following goals:

1. Maximize fiscal resources and avoid cost increases through direct and direct energy savings.
2. Reduce the environmental impact of the Municipality's operations
3. Increase the comfort and safety of staff and patrons of the Municipality's facilities.
4. To create a culture of conservation within the Municipality.
5. To improve the reliability of the Municipality's equipment and reduce maintenance.

1.5 Overall Target:

We will reduce our overall municipal energy consumption (from all facilities and streetlights) by 5% from 2014 (based on baseline data) to 2019.

1.6 Objectives:

In order to meet the strategic goals of the Energy Conservation and Demand Management Plan, there are a number of goals and objectives that align with its development and implementation:

1. Ensure energy efficiency consistency across municipal facilities.
2. Monitor and report on energy consumption in annual intervals. Staff will monitor and verify ROI to enable reinvestment in energy projects and report on energy consumption at this same interval.
3. Better analyze energy costs and look for savings opportunities. This will include looking at energy commodity procurement options and taking advantage of all available resources and funding for energy projects.
4. Raise Staff and Council awareness around energy efficiency. This will include communicating successes to both internal and external stakeholders.

5. Strengthen partnerships with external stakeholders such as electric and gas utilities.
6. Identify and seize renewable energy generation opportunities.

SECTION 2 - ORGANIZATIONAL UNDERSTANDING

2.1 Our Municipal Energy Needs

The Municipality of Callander requires reliable, low-cost, sustainable energy sources delivering energy to the most efficient facilities and energy-consuming technology feasible. The Municipality applies a triple bottom line approach to energy management. Triple bottom line (TBL) accounting expands the traditional reporting framework to take into account social and environmental performance in addition to financial performance. A TBL municipality conceives a reciprocal social structure in which the well-being of corporate, labour and other stakeholder interests are interdependent. A triple bottom line municipality does not produce harmful or destructive products such as weapons, toxic chemicals or batteries containing dangerous heavy metals, for example. A triple bottom line municipality derives economic value after deducting the cost of all inputs, including the cost of the capital tied up. The triple bottom line approach prioritizes a lifecycle cost analysis of products and services procured by the Municipality wherever possible.

2.2 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.

2.3 Municipal Energy Situation

Our assessment of organizational capacity for energy management with respect to energy policy; organizational structure; employee awareness, skills and knowledge; energy information management; communications; and investment practices indicates the following issues:

- Energy use and costs continue to increase and are forecast to increase further.
- Energy is not visible to municipal decision makers such as Council, senior management, front-line staff, and members of the public. This leads to a lack

of understanding of the costs of energy and the opportunities for energy efficiency.

- Occasional efforts are made to raise general staff awareness about energy.
- Additional municipal responsibilities and services have had an important impact on existing facilities and several of these facilities can no longer operate under the existing physical conditions.
- The requirement for this Energy Conservation and Demand Management Plan provides an opportunity to build upon current initiatives such as the Asset Management Plan, Municipal Facility Accommodations Review, Official Plan, and the Downtown Waterfront Revitalization Strategy.

2.4 How We Manage Energy Today

The management of our energy is a combination of energy data management, energy supply management, and energy use management.

Energy Data Management: Our municipal energy data is managed through the Finance and Operations Departments. The data is received via supplier invoices, then tracked and/or monitored using the LAS Energy Planning Tool. Invoices are entered into the EPT Consumption/trends are analyzed Reports are generated.

Energy Supply Management: Our municipal energy is supplied via a number of providers. Electricity is supplied by Hydro One and natural gas by Union Gas on an as needed basis and is priced at the standard rates offered by the provider. Municipal staff will investigate a hedging strategy for purchasing electricity and natural gas through Local Authority Services (LAS).

Energy Use Management: Day to day management of energy has historically happened in an ad-hoc manner. To aid in our efforts to track and reduce energy use the Municipality of Callander plans to utilize the LAS Energy Planning Tool (EPT) in an ongoing manner and to generate and share reports as required.

2.5 Summary of Current Energy Consumption, Cost and GHGs

The current energy usage by building is detailed in Appendix A. Our energy usage is updated monthly in the Energy Planning Tool (EPT) and reported annually to the Ministry of Energy.

2.6 Summary of Current Technical Practices

Our assessment of operations and maintenance practices, facility and equipment condition, and energy performance indicators establishes the following priorities:

- Development of standard operating procedures incorporating energy efficiency optimization.
- Enhancement of preventative maintenance procedures.

- The Municipality has applied for funding under the Trillium Grant to make the following upgrades to the Community Centre: lighting efficiency upgrades in the gymnasium, kitchen, washrooms and corridors; replacement of two (2) rooftop HVAC units which are nearing end of life; kitchen appliance upgrades.

2.7 Renewable Energy Utilized or Planned

Renewable energy is energy which comes from natural sources such as sunlight, wind, and geothermal heat. Utilizing renewable energy can generate a revenue source through the Provincial Feed-in Tariff (FIT) Program or significantly reduce the energy requirements of a building along with the associated greenhouse gases. The Municipality of Callander aspires to show leadership in the promotion and development of renewable energy systems that are compatible with our asset management and land use planning objectives. As a result, we will ensure that any new facilities are constructed to a "solar ready" standard when feasible and we will investigate the potential to develop solar photovoltaic systems on the rooftops of all existing corporate facilities with sound, south-facing roofs.

SECTION 3 - STRATEGIC PLANNING

3.1 Links with other municipal plans

The Municipality of Callander will develop and implement energy policies, organize for energy management, develop the required skills and knowledge, manage energy information, communicate with our stakeholders, and invest in energy management measures. As an integral component of the management structure, the Energy Conservation and Demand Management Plan is to be coordinated with the Municipality's budget planning, strategic plan, purchasing policy, preventative maintenance plans, environmental management plan, asset management plan, and the policy development process

SECTION 4 - STRUCTURE PLANNING

4.1 Staffing requirements and duties

The Municipality of Callander will incorporate energy budget accountability into our corporate responsibilities. We will incorporate energy efficiency into standard operating procedures and the knowledge requirement for operational jobs.

4.2 Consideration of energy efficiency for all projects

The Municipality of Callander will consider life cycle cost analysis in the design procedures for all capital projects. Typically equipment to be considered for this process includes:

- HVAC equipment (e.g. boilers, chillers, pumps, motors etc.)
- Lighting and controls
- Building envelope (e.g. roofs, insulation, windows and doors etc.)
- Water use (e.g. pools, toilets, water reclaim etc.)
- BAS (building automation system) controls
- Process improvements
- Back-up generators
- Any other energy consuming device

These types of projects generally follow 6 steps:

1. Project Identification & Feasibility
2. Energy Audits, Feasibility Analysis or through detailed Condition Assessments.
3. Planning & Budgeting
4. Project Financing, Incentives, Business Case & Approvals
5. Implementation: Tender, Project Execution, Project Management, Commissioning
6. Monitoring & Verification

The intent is to make this LCA analysis part of the Municipality's normal course of business for all facility and operational retrofits, including capital renewal and life cycle replacements projects. Success means incorporating energy efficient options at the initial stages of a project design. This ensures that options for improving energy efficiency are considered, evaluated and quantified in terms of life cycle costing analysis, including cost, maintenance and emission reductions.

SECTION 5 - RESOURCES PLANNING

5.1 Energy Leader

The Chief Administrative Officer (CAO) has been designated as our energy leader with overall responsibility for corporate energy management. Department Heads will provide support and ensure implementation of corporation energy management.

5.2 Energy Team

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 the energy management processes.

5.3 Internal Resources

We will develop criteria for determining whether internal resources can be utilized for the implementation of energy projects.

5.4 External Consultants and Suppliers

We will establish criteria in our Procurement Policy based on our energy goals and objectives for the selection of external consultants and energy suppliers. These criteria will employ triple bottom line principles and ultimately include a lifecycle cost analysis of desired products and services whenever possible.

5.5 Energy Training

The Municipality of Callander will develop and deliver energy training for relevant staff and Council members. Training focused on the energy use and conservation opportunities associated with employee's job functions will be utilized whenever possible. Energy management training will be incorporated into employee orientation and future training opportunities. The Municipality of Callander will utilize both internal and external resources to provide this training.

SECTION 6 - PROCUREMENT PLANNING

6.1 Energy Purchasing

In addition to the conservation of energy, the procurement of energy is equally as important. Proper energy procurement includes: rate optimization, utility account management, supplier choice and evaluation, supply reliability and quality, demand/supply optimization and risk management. The Municipality of Callander 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. A primary objective of this policy will be to provide price stability by fixing future prices. A key deliverable will be to investigate and report back to senior management and Council on energy commodity purchasing programs available to the Municipality.

6.2 Consideration of energy efficiency of acquired equipment

Our purchasing procedures will be modified as required to incorporate energy efficiency into the criteria for selection of materials and equipment.

SECTION 7 - IMPLEMENTATION PLANNING

7.1 Building Standards

Municipality of Callander Staff will develop 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. LEED (Leadership in Energy and Environmental Design) is a green building certification tool administered by CaBGC (Canada Green Building Council), which provides a framework for constructing green/ energy efficient buildings. The LEED rating system addresses the performance of commercial and institutional buildings. Many municipalities have adopted standards such as minimum LEED Silver rating for all new municipally owned new construction projects. Considering LEED for new construction and major renovations makes good business sense, in that a high performance green building vs. conventional inefficient buildings can reduce energy consumption by 25% to 75%, water use reduction by 20% to 50% and reduced environmental greenhouse gas (GHG) emissions by as much as 60%. The Municipality of Callander will investigate adopting such a standard for new buildings and will incorporate any such standard into our revised Energy Conservation and Demand Management Plan.

7.2 Communication Programs

Municipality of Callander staff 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. Activities could include circulating reminder stickers to turn lights off, putting up energy conservation displays, promoting home energy audits, hosting lunch and learns, and conducting Natural Step training.

SECTION 8 - INVESTMENT PLANNING

8.1 Internal Funding Sources

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 versus other

investment needs (life cycle versus simple payback). Energy and operating costs savings, physical asset renewal, improved employee comfort and service delivery, and enhanced environmental protection are all quantifiable benefits of energy conservation and demand management and will be factored in accordingly.

8.2 Creative Approaches

Municipality of Callander staff will investigate, document, and communicate funding sources for energy projects, including government and utility grants and incentives.

SECTION 9 - IMPLEMENTATION PROCEDURES

9.1 Business Procedures

Municipal staff will carry out a comprehensive review of all business processes and modify them as necessary in order to incorporate energy efficiency considerations. The Municipality of Callander will include depreciation of all assets as part of its Asset Management and Capital Planning and will undertake a Lifecycle Cost Analysis of potential new products and services to ensure operating costs are factored into our plans and analyses. Municipal governments apply Lifecycle Cost Analysis as a basis for policy and regulatory development. Current applications include:

- Helping to prioritize programs based on life cycle information
- Making policies consistent among material suppliers, service contractors, and internal departments
- Reducing the impact that government operations have on the environment
- Promoting pricing products and services to accurately reflect "true" costs.

SECTION 10 - PROJECT EXECUTION

10.1 Municipal Level

The administration and implementation of this Energy Conservation and Demand Management Plan will be the responsibility of the CAO and Department Heads. Since we all use energy in our daily activities, it will also be the responsibility of all municipal staff to be aware of their energy use and work towards a culture of conservation. Through staff training and web base energy management tools, staff will be able to see the results of their efforts, and benchmark between corporate facilities and industry standards.

10.2 Asset Level

In order to sustain a corporate culture of conservation, staff must be engaged in an effective awareness and education program. Although Operations staff have the lead responsibility in ensuring facilities operate efficiently, all municipal staff should be familiar with and utilize energy efficient measures where possible. The first step in implementing an energy management program is the completion of energy audits for corporate facilities. Audits involve a technical review of a facility and its operations, the development and analysis of a baseline energy profile for the facility and identification of energy management opportunities and savings. Audits have been conducted on municipal facilities as part of this initial planning exercise and should continue to occur on a regular schedule in the future for new and existing facilities. Another important component of an energy management program is re-commissioning. Over the life cycle of a facility, the mechanical building automation and distribution systems are adjusted from day-to-day to suit user room temperature requirements. Moreover, mechanical distribution or building controls instrumentation is sometime over-looked when renovations take place. Re-commissioning involves examining the original mechanical design and operating specification against any building renovations and recalibrates the settings to suit today's energy efficient standard practices. It also ensures that mechanical operating practices are current and appropriate to maximize building system efficiencies. The use of renewable energy measures can also help reduce overall corporate greenhouse gas emissions by lessening our demand for fossil fuel generated energy (oil, gas or coal). The investment for these types of measures can be significantly greater than conservation initiatives and therefore, should be considered on a case-by-case basis through a cost and environmental benefits analysis. However, it is acknowledged that the use of technologies such as wind, solar and geothermal can show community leadership and help raise awareness of the benefits of utilizing renewable energy.

SECTION 11 - REVIEW

11.1 Energy Plan Review

As part of any energy management strategy, continuous monitoring, verification, and reporting is an essential tool to track consumption and dollar savings and/or avoidance as the result of implemented initiatives. Municipality of Callander staff will develop an annual progress report with energy consumption data and initiatives undertaken within the calendar year and will report to Council. As part the Energy Plan, the implemented processes improvements, program implementation and projects will be documented and reviewed annually to update consumption savings. By regularly monitoring and reporting consumption and dollar savings and/or

avoidance to Departments, the outcomes of their participation in energy management initiatives can be demonstrated, and feedback can be obtained for any new ideas. This monitoring and reporting will also align with the requirements of Regulation 397/11 under the Green Energy Act and/or any subsequent legislation related to energy management.

11.2 Discussion of Progress

The general public will be apprised of energy performance of municipal facilities and the impact of implemented energy management measures where appropriate based on our annual reports to Council.

SECTION 12 - EVALUATION PROGRESS

12.1 Energy Consumption

We will review and evaluate our energy plan, revising and updating it as necessary, on an annual basis based on the Energy Consumption Reports that are submitted to the Ministry of Energy in accordance with Regulation 397/11.

12.2 Green House Gas Emission

Governments at all levels are moving to address emissions of greenhouse gases (GHGs), in light of scientific evidence on how human activities are affecting the world's climate. For more information on the science, see <http://www.ipcc.ch/>. The combustion of fossil fuels in buildings is a major source of GHG emissions that fall under local government influence. Municipalities can lower emissions by improving energy efficiency of buildings and using more renewable energy. The Municipality of Callander is committed to both objectives through the development and implementation of this Energy Conservation and Demand Management Plan (CDM). We will continue to track and report on GHGs as part of our regular reporting on energy consumption and will evaluate progress in this area against our overall reduction target.

SECTION 13 - PROGRAMS

Description	Facility	Contact	Date	Status
Add energy awareness to management meetings			2014-09-01	Active
Details	Energy reports to be distributed to directors and managers on an annual basis. Expected Annual Savings = 1-2%			
New Employee Orientation			2014-03-11	Pending
Details	As part of Orientation Program, provide new staff with energy management training. Appropriate training vehicles include but are not limited to the following: -- Natural Resources Canada Dollars to \$ense Workshops -- RetScreen Training -- LAS workshops and webinars -- ORFA workshops and training courses -- OCWA run education opportunities			
Visual Displays			2014-08-01	Active
Details	Make use of visual displays to demonstrate to staff the implications of current behaviours. Displays can include: -- simple poster and/or screen saver that reminds staff of the municipal energy conservation goal -- reminders around light switches and thermostats to turn off appliances when not in use. Turning off unnecessary lights not only reduces costs to the municipality but it also reduces the light that may be cast up into the sky, benefiting migrating birds, and preserving our view of the stars. -- consumption reports posted in staff lunchroom(s) -- graphic representation of progress made towards energy conservation goal			
Energy Leader			2014-03-11	Active
Details	The CAO has been designated as the Energy Champion within the Municipality of Callander. The Energy Champion is responsible for: -- instilling a culture of energy conservation within their respective workplaces with each occupant and piece of equipment -- developing conservation strategies with facility staff for implementation within each given facility -- share best practices, lessons learned, and innovative energy practices with other team members -- monitor progress towards energy conservation goal and ensure that there is no backsliding			
Employee Engagement			2014-08-01	Pending
Details	Although the adoption of energy efficient technology usually forms the basis for energy conservation projects, there is a behavioural aspect to the energy			

	<p>conservation equation that is often overlooked. The objective of this program is to empower staff and provide them with the education required to adopt behavioural practices that will result in the optimization of facility energy usage. This engagement program will include, but not be limited to, the following items:</p> <ul style="list-style-type: none"> -- Identification of improvements. Staff will be encouraged to submit ideas for process improvements or projects that will reduce the corporate and personal energy consumption. A best practice in this area would be to establish a separate email or virtual community for the posting of these suggestions and that senior management and/or the energy champion review these messages on a pre-determined and regular basis. -- Have different staff walk through facilities on a semi-annual basis. Enabling staff from different departments (or neighbouring municipalities) to walk through another's facility one or twice a year will highlight some wasteful practices that the regular inhabitants have become unaware of. Organizational behaviour research states that staff have become 'blind' to existing practices once they are in a given organization or facility for more than six months. 			
Natural Step Training			2014-03-24	Pending
Details	<p>The Natural Step is a highly respected provider of learning programs based both on a big-picture, science-based understanding of sustainability and some great insights into how adults learn best. The Natural Step Canada has helped more than 25,000 people realize their potential as sustainability practitioners and change agents. The Municipality of Callander should consider offering The Natural Step Canada's Level 1 Sustainability Course: Foundations in Strategy. This workshop offers a hands-on case study using The Natural Step Framework for Strategic Sustainable Development, providing the knowledge and tools to better understand strategy and take a systemic approach to planning and managing sustainability initiatives. This workshop will equip staff to take a sustainability leadership role to capture value, enable innovation, and drive strategy. The current Economic Development Manager for the municipality, Mike Purcell, was a former The Natural Step employee and would be an excellent lead for this program.</p>			

SECTION 14 - PROCESSES

Description	Facility	Contact	Start	End	Status	Cost	Save (ekWh/yr)	Save (\$)	ROI
Life Cycle Costing			2014-03-11	2014-05-09	Pending [0%]	0.00	0	0.00	0
Details	<p>Incorporate life-cycle costing into procurement policy and related processes. Life-cycle cost analysis (LCCA) is a method for assessing the total cost of facility and/or equipment ownership. It takes into account all costs of acquiring, owning, and disposing of a building or building system. LCCA is especially useful when project alternatives that fulfill the same performance requirements, but differ with respect to initial costs and operating costs, have to be compared in order to select the one that maximizes net savings. The Municipality of Callander should update its current purchasing by-law to include sections on green procurement. Green procurement shall be viewed in the context of achieving value for money based on the total life-cycle costs. It requires the inclusion of environmental impact considerations into the procurement process, including planning, acquisition, and disposal. All suppliers and vendors will be required to provide the life-cycle analysis of their products and/or provide those details for the municipal procurement team to complete this analysis.</p>								
Appliance Usage			2014-08-01	2014-08-01	Pending [0%]	0.00	0	500.00	0
Details	<p>Since there is no equipment required to turn appliances off, there are no environmental impacts from product manufacture, shipping or disposal. Appliances are often left on in municipal offices because staff feel their individual impact is insignificant, however, when totalled across the Municipality across a given year the impact can run in the hundreds of dollars for a Municipality the size of Callander. --Turn off all electronic devices such as coffee makers, printers, calculators, phone chargers, etc. at night and on weekends -- Reduce phantom power wherever possible. Phantom energy sucks extra energy from the grid when you aren't looking and you don't need it. Many gadgets, electronic devices and appliances draw power even when they're switched off or not in use, just by being plugged in, and though it may seem trivial, it can add up over time. Chargers for cell phones, digital cameras, power tools and other gadgets draw energy even when they're not in use. Appliances like televisions, computer monitors, and DVD players can also draw power whenever they're plugged into an outlet. All together, phantom energy can account for about 10 percent of an individual home's electricity use. Staff will identify unnecessary plug loads and eliminate phantom power. -- Reduce the usage of portable electric heaters. While this will need to occur concurrently with recommended energy projects to tackle employee comfort issues, this should be a priority issue given the large number of these appliances in use in every municipal facility. For example, a single 1500 watt heater would cost \$300-500 per year to operate if it use during working hours and more if they are let on in off hours.</p>								
Energy Commodity			2014-08-01	2014-08-01	Pending [0%]	0.00	0	3400.00	0

Procurement									
Details	Poor energy procurement decisions can be expensive. Energy prices fluctuate constantly, which can significantly affect your energy bill and performance against budget. By taking a proactive approach to buying energy, you can better control your costs. The Municipality of Callander should examine options to procure energy commodities more efficiently than the de facto method and investigate offerings such as those managed by LAS.								
Power Bars		Manager of Operations	2014-08-01	2014-09-30	Pending [0%]	500.00	0	1000.00	6
Details	-- Purchase power bars with integrated timer and shut offs, SaveONenergy coupons available until December 31 offers \$4 discount. Price ranges from \$20-30 -- Place on desks for awareness and ease of access.								
Increase Rental Rate	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	The Municipality currently rents this space to local residents at a cost of \$25/hour, which includes full access to all amenities. It would be recommended that the Municipality consider increasing this rate to reflect rising energy costs.								
Enhance Procurement Policies			2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	Municipalities purchase a large number of products--all of which require energy and resources to produce, package, transport, use, and dispose. Choosing products with minimal life-cycle impacts can save energy, reduce operating costs, reduce emissions, and increase the market for high performance products. The Municipal Procurement By-Law and related policies are currently being updated. This provides an opportunity to update for new responsibilities and types of analyses including lifecycle costing. The sustainability considerations of Downtown Waterfront Revitalization Strategy (p80-81) should be incorporated into the revised by-law.								

SECTION 15 - PROJECTS

Description	Facility	Contact	Start	End	Status	Cost	Save (ekWh/yr)	Save (\$)	ROI
Use Setbacks on Programmable Thermostat	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	75.00	0
Details	The furnace is controlled by a programmable thermostat located in the viewing area, which allows for adequate set-points to be maintained depending upon whether the space is occupied or not. It may be possible to convert to a higher efficiency unit, however, consider the space is not heavily occupied it may not be economically viable until unit reaches near end of life. Setting back temperatures by 0.5C results in a 2% savings of the heating utility.								
Replace rooftop HVAC units servicing the event hall	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	Replacement of the HVAC units servicing the event hall are being addressed under the Trillium Grant application.								
Replace T12 Lighting in viewing area, change rooms and office space	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	All existing lighting in viewing area, change rooms and office space consists of T12 fixtures. These will need to be replaced with, at minimum, T8 fluorescent fixtures as T12s will no longer be made available. Replacement Cost: approximately \$38/fixture (includes \$12/fixture incentive) Energy Cost Savings: approximately \$5-\$8/fixture annually								
Install Occupancy Sensor	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	Install occupancy within viewing area, change rooms and office space. Replacement Cost: approximately \$260/sensor (includes \$40 incentive) Energy Cost Savings: approximately 30-50%								
Upgrade gymnasium area, bar	Community Centre		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0

space and full service kitchen									
Details	The event hall consists of a gymnasium area, bar space and full service kitchen. The Municipality has applied for funding to make upgrades to this space under the Trillium Grant, which will cover 100% of the cost for the following: - lighting efficiency upgrades in the gymnasium, kitchen, washrooms and corridors - replacement of (2) rooftop HVAC units which are nearing end of life - kitchen appliance upgrades								
HVAC System Upgrade	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	Secondary baseboard heating was being utilized and after interviewing staff it was confirmed that perimeter heating was utilized constantly. It would be recommended to install high U-value, low SHGC windows in an effort to limit the amount of heat loss and heat gain and reduce the load on the mechanical equipment (drastically limiting, or potentially eliminating, the need for secondary electric heat). Both the outdoor and indoor AHUs currently utilize HCFC-22 refrigerant, which will be completely phased out 2020. Therefore, the refrigeration and air conditioning equipment should be replaced within the next 6 years in an effort to avoid costly maintenance repairs. This requires further investigation to decided best action for efficiency upgrades with this equipment (i.e. currently capacities, duct configuration, window sizing, etc.). There are too many variables to give an accurate cost savings estimate. LAS can recommend an HVAC contractor visit the site to provide upgrade options for these systems.								
Replace T12 Lighting	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	380.00	0	80.00	4
Details	Some of the existing fluorescent fixtures have been retrofitted to T8 lamps, however, it would be recommended to further retrofit any existing T12 lamps as these are being phased out and replacements will no longer be made available. Replacement Cost: approximately \$38/fixture (includes \$12/fixture incentive) Energy Cost Savings: approximately \$5-\$8/fixture annually								
Replace Halogen Lighting	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	100.00	0	80.00	1
Details	65 W halogen fixtures were observed in the corridor outside the council chambers. It would be recommended to replace these with 13W LED PAR lamps. Replacement Cost: approximately \$68-\$104 (includes \$14/fixture incentive) Energy Cost Savings: approximately \$80-\$100 annually								
Washroom Lighting	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	100.00	0	150.00	7

Details	Both washrooms utilize (6) 60W incandescent fixtures. It would be recommended to replace these with 13W CFL fixtures. Replacement Cost: approximately \$90-\$105 (no incentive) Energy Cost Savings: approximately \$150-\$200 annually								
Retrofit Exit Signs	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	60.00	0	120.00	6
Details	Currently the exit signs use Incandescent Bulbs. Savings can be realized by retrofitting to LED. Replacement Cost: approximately \$12-\$15 per sign (includes \$8/sign incentive) Energy Cost Savings: approximately \$30/sign annually								
Install Occupancy Sensors	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	All lit space within the administration building should be equipped with occupancy sensors. Replacement Cost: approximately \$260/sensor (includes \$40/sensor incentive) Energy Cost Savings: approximately 30-50% annual savings								
Replace Fire Hall Unit Heaters	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	7000.00	0	0.00	8
Details	Unit heaters could be replaced with energy efficient radiant tube heaters with 2-stage heat and garage door interlock. Replacement Cost: \$5,400-\$7,400 (includes \$300/unit incentive) Energy Cost Savings: approximately 15-25% (natural gas)								
Seal Hose Tower Door	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	500.00	0	0.00	2
Details	Hose tower is an uninsulated space and appears to be a major source of heat loss to the space. It would be recommended to install airtight door seals and insulate existing door damper to prevent losses.								
Install Programmable Thermostat in Training Area	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	2
Details	Install programmable thermostat in training room area in an effort to take advantage of energy savings when the space is unoccupied. Replacement Cost: \$75-\$100 (no incentive) Energy Cost Savings: approximately 1% annually for every degree of set back								
Replace T12 Lighting in	Administration Bldg. / Fire		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	4

Garage Area	Hall								
Details	The garage area utilizes T12 fluorescent fixtures. These will need to be replaced with, at minimum, T8 fluorescent fixtures as T12s will no longer be made available. It would also be recommended to install occupancy within the space. Replacement Cost: approximately \$38/fixture (includes \$12/fixture incentive) Energy Cost Savings: approximately \$5-\$8/fixture annually								
Delamp Fixtures in Training Area	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	0.00	0	68.00	0
Details	The training room currently utilizes T8 fluorescent fixtures; however the space appears to be over-lit. It would be recommended to de-lamp some of existing fixtures. Replacement Cost: maintenance costs Energy Cost Savings: approximately \$17/fixture annually								
Install occupancy sensors in the training room and garage area	Administration Bldg. / Fire Hall		2014-08-01	2014-08-01	Pending [0%]	520.00	0	0.00	4
Details	Install occupancy sensors in the training room and garage area. Replacement Cost: approximately \$260/sensor (includes \$40 incentive) Energy Cost Savings: approximately 30-50% Note: Existing ceiling in garage area contains asbestos. Any recommendations which involve ceiling mounted equipment must factor in the cost of asbestos safety measures.								
Retrofit or Replace PW Garage	Operations Department Garage		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	The Municipality of Callander must soon decide whether to upgrade the existing public works garage or to build a new facility. The current situation of operating a semi-functional garage supplemented by an inefficient portable trailer is inefficient and unsustainable. The existing facility has some serious comfort and health issues to address. The recommendations that follow are based on the assumption that a decision has been made to first address these issues. <u>Mechanical Recommendations:</u> The Operations garage heating and cooling needs are supplied by: 1.) (4) electric resistance baseboard perimeter heaters located in the office and lunch room 2.) (2) natural gas fired unit heaters located in the garage bay area Recommendations: Since the office staff has relocated to the portable trailer, perimeter heaters in the office space should be set at a minimum temperature for unoccupied space (15°C) Unit heaters could be replaced with higher efficiency gas fired with units with 2-stage heating capability and garage door interlock in order to minimize heat loss to the outdoors when the bay doors are open. Both the office and lunch room are equipped with T8 fixtures. Since these are low traffic areas, it would be beneficial to implement occupancy sensors in these spaces. Garage bay								

	<p>area currently utilizes (8) 400W mercury vapor ceiling lamps. It would be recommended to install reduced wattage T5 medium or high bay fixtures with occupancy sensors in the space. Due to occupational health and safety concerns involving inadequate ventilation within the facility, the Municipality has obtained a portable trailer, with an approximate footprint of 900 square feet, which is utilized as office space. The portable trailer utilizes the following electrical loads: - (1) 1500W space unit heater - (8) 750W electric resistance baseboard heaters - (3) 1200W window A/C units - (~16) 32W T8 fluorescent lamps. This equates to approximately 13,233 kWh/year in energy consumption and will cost the municipality approximately \$2,200.00/year to satisfy these consumption requirements. It would be financially viable for the Municipality to invest in remediating the inefficiencies in ventilation at the public works garage in order to mitigate the additional energy costs incurred by the portable trailer.</p>								
Upgrade Streetlights to LED			2014-09-01	2014-09-01	Pending [0%]	0.00	178034	0.00	4
Details	<p>The Municipality of Callander has the potential to reduce the energy consumed by its streetlights from 291,859 kWh to 114,389 kWh by upgrading its network to LEDs. This represents a 61% reduction and it by far the most significant ECM currently available to the Municipality.</p>								
Upgrade Water Treatment Plant	Water Treatment Plant		2014-08-01	2014-08-01	Pending [0%]	0.00	0	0.00	0
Details	<p>OCWA has returned a technical memo with 5 recommendations. Despite the fact that no cost or savings estimates are provided, all 5 are common to this type of facility and likely warrant further investigation.</p>								

Energy Consumption and GHG Emmissions

From: 2012-01-01 To: 2012-12-31

Facility Name	Address	Total Area (m2)	Average Hours/Day	Fuel Types	Consumption	Cost (\$)	Energy (ekWh/yr)	GHG Emissions (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity
Facility Primary Type: Office										
Callander Medical Centre	27 Concession Lot 2	230	6.00	NG	1307.00 m3	0.00	13890.50	2471.05	10.74	60.39 (ekWh/m2)
				Elect.	132800.00 kWh	0.00	132800.00	13019.71	56.61	577.39 (ekWh/m2)
Facility Type Total:						0.00	146690.50	15490.76		
Facility Primary Type: Library										
Callander Library	30 Catherine Street West	100	5.72	Elect.	10855.00 kWh	0.00	10855.00	1064.22	10.64	108.55 (ekWh/m2)
Facility Type Total:						0.00	10855.00	1064.22		
Facility Primary Type: Museum										
Museum	107 Lansdowne St.	160	5.00	NG	5597.00 m3	0.00	59483.67	10581.84	66.14	371.77 (ekWh/m2)
				Elect.	10247.00 kWh	0.00	10247.00	1004.62	6.28	64.04 (ekWh/m2)
Facility Type Total:						0.00	69730.67	11586.46		
Facility Primary Type: Recreation Complex										
Community Centre	1984 Swale Street	1836	5.57	NG	14249.00 m3	0.00	151435.19	26939.54	14.67	82.48 (ekWh/m2)
				Elect.	75360.00 kWh	0.00	75360.00	7388.29	4.02	41.05 (ekWh/m2)
South Shore community Centre	1875 Hwy 654 Unit B	95	2.14	Elect.	5248.00 kWh	0.00	5248.00	514.51	5.42	55.24 (ekWh/m2)
Facility Type Total:						0.00	232043.19	34842.35		
Facility Primary Type: Public Works										
Osprey Lift Stations	Osprey Subdivision	27	24.00							
Main St. N. Lift Station 1	100 Nipissing Street	9	24.00							
Lansdowne Lift Station 2	26 Concession Lot 2	9	24.00							
Bay St. Lift Station 3	26 Concession 3	9	24.00							
Main St. S. Lift Station 4	26 Concession St.	9	24.00							
Marine Drive Pump	18 Marine Dr.	9	24.00							

Station										
Administration Bldg. / Fire Hall	280 Main St. North	706	5.00	NG	5932.00 m3	0.00	63043.97	11215.20	15.89	89.30 (ekWh/m2)
				Elect.	48927.00 kWh	0.00	48927.00	4796.80	6.79	69.30 (ekWh/m2)
Operations Department Garage	100 Nipissing	416	5.00	NG	9492.00 m3	0.00	100878.86	17945.83	43.14	242.50 (ekWh/m2)
				Elect.	37713.00 kWh	0.00	37713.00	3697.38	8.89	90.66 (ekWh/m2)
Operations Garage 2	100 Nipissing St.	360	5.00	Elect.	4966.00 kWh	0.00	4966.00	486.87	1.35	13.79 (ekWh/m2)
Facility Type Total:						0.00	255528.83	38142.08		
Facility Primary Type: Water Treatment Facility										
Water Treatment Plant	100 Nipissing St.	441	24.00	NG	17488.00 m3	0.00	185858.56	33063.28	74.97	185858.56 (ekWh/ML)
Facility Type Total:						0.00	185858.56	33063.28		
Grand Total:						0.00	900706.76	134189.16		

Energy Consumption and GHG Emmissions

From: 2011-01-01 To: 2011-12-31

Facility Name	Address	Total Area (m2)	Average Hours/Day	Fuel Types	Consumption	Cost (\$)	Energy (ekWh/yr)	GHG Emissions (kg CO2e/yr)	GHG Intensity (kg CO2e/m2)	Energy Intensity
Facility Primary Type: Office										
Callander Medical Centre	27 Concession Lot 2	230	6.00	NG	3080.00 m3	0.00	32733.55	5823.13	25.32	142.32 (ekWh/m2)
				Elect.	110080.00 kWh	17406.44	110080.00	10792.24	46.92	478.61 (ekWh/m2)
Facility Type Total:						17406.44	142813.55	16615.37		
Facility Primary Type: Library										
Callander Library	30 Catherine Street West	100	5.72	Elect.	10994.00 kWh	2146.95	10994.00	1077.85	10.78	109.94 (ekWh/m2)
Facility Type Total:						2146.95	10994.00	1077.85		
Facility Primary Type: Museum										
Museum	107 Lansdowne St.	160	5.00	Elect.	13045.00 kWh	2128.14	13045.00	1278.93	7.99	81.53 (ekWh/m2)
Facility Type Total:						2128.14	13045.00	1278.93		
Facility Primary Type: Recreation Complex										
Community Centre	1984 Swale Street	1836	5.57	NG	19415.00 m3	0.00	206338.29	36706.52	19.99	112.38 (ekWh/m2)
				Elect.	67680.00 kWh	12188.87	67680.00	6635.35	3.61	36.86 (ekWh/m2)
South Shore community Centre	1875 Hwy 654 Unit B	95	2.14	oil 1&2	2100.00 L	2100.00	22633.33	5743.83	60.46	238.25 (ekWh/m2)
				Elect.	6227.00 kWh	1391.53	6227.00	610.50	6.43	65.55 (ekWh/m2)
Facility Type Total:						15680.40	302878.62	49696.19		
Facility Primary Type: Public Works										
Osprey Lift Stations	Osprey Subdivision	27	24.00	Elect.	9980.00 kWh	1884.21	9980.00	978.44	36.24	84.58 (ekWh/ML)
Main St. N. Lift Station 1	100 Nipissing Street	9	24.00	Elect.	202560.00 kWh	28518.17	202560.00	19858.98	2206.55	5064.00 (ekWh/ML)
Lansdowne Lift Station 2	26 Concession Lot 2	9	24.00	Elect.	5826.00 kWh	1315.89	5826.00	571.18	63.46	145.65 (ekWh/ML)
Bay St. Lift Station 3	26 Concession 3	9	24.00	Elect.	28939.00 kWh	4603.49	28939.00	2837.18	315.24	723.48 (ekWh/ML)
Main St. S. Lift Station 4	26 Concession St.	9	24.00	Elect.	5857.00 kWh	1318.31	5857.00	574.22	63.80	146.43 (ekWh/ML)
Marine Drive Pump	18 Marine Dr.	9	24.00	Elect.	8170.00 kWh	1642.17	8170.00	800.99	89.00	204.25 (ekWh/ML)

Station										
Administration Bldg. / Fire Hall	280 Main St. North	706	5.00	NG	10217.00 m3	0.00	108584.00	19316.54	27.36	153.80 (ekWh/m2)
				Elect.	51927.00 kWh	7989.90	51927.00	5090.92	7.21	73.55 (ekWh/m2)
Operations Department Garage	100 Nipissing	416	5.00	NG	13563.00 m3	0.00	144144.54	25642.57	61.64	346.50 (ekWh/m2)
				Elect.	37522.00 kWh	6113.92	37522.00	3678.66	8.84	90.20 (ekWh/m2)
Operations Garage 2	100 Nipissing St.	360	5.00	Elect.	4710.00 kWh	1204.79	4710.00	461.77	1.28	13.08 (ekWh/m2)
Facility Type Total:						54590.85	608219.54	79811.45		
Facility Primary Type: Water Treatment Facility										
Water Treatment Plant	100 Nipissing St.	441	24.00	NG	16140.00 m3	0.00	171532.32	30514.72	69.19	1161.36 (ekWh/ML)
				Elect.	202560.00 kWh	28518.07	202560.00	19858.98	45.03	1371.43 (ekWh/ML)
Facility Type Total:						28518.07	374092.32	50373.70		
Grand Total:						120470.85	1452043.03	198853.50		