Burman Energy Consultants Group

Township of Chapleau Five Year Conservation and Demand Management Plan

O.Reg. 397/11 – July 1, 2014

Burman Energy
2/27/2014

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EXECUTIVE SUMMARY

Burman Energy has developed this Conservation and Demand Management (CDM) Plan for the Township of Chapleau. This Plan has been designed to facilitate the conservation activities in the municipality and the Township's goal to meet the requirements of the Green Energy Act O. Reg. 397/11, due July 1st, 2014.

This report represents the Five Year Conservation and Demand Management Plan for the Township of Chapleau for 2014-2019. The CDM Plan uses the 2011 baseline Greenhouse Gas (GHG) report as submitted on July 1, 2013, as required by O.Reg.397/11, to identify the present state of energy management in the Township of Chapleau. The Plan outlines the desired state of energy management, and includes recommendations to set goals and targets, aimed at continually improving and managing energy use within the municipality.

The CDM Plan is afforded the benefits of the results of thorough facility energy audits conducted in the premises of the Township of Chapleau. Additionally, monetary incentives from the OPA, accessible through Chapleau PUC as delivery agent, support the decisions to move forward with the implementation of these initiatives.

The Plan identifies the possible measures and opportunities to implement key improvements, geared toward managing energy consumption and costs. By achieving the set targets for GHG emissions reduction and Energy savings, the Township of Chapleau will be moving toward to its preferred state, as identified in the Goals/Objectives section of this Plan.

INTRODUCTION - BACKGROUND

CLIMATE CHANGE ACTION PLAN

In 2007 the Ontario Government announced Greenhouse gas (GHG) reduction targets as part of its "Climate Change Action Plan".

Base Year – 1990	176 million tons of GHG
Target: 2014	Reduction of 6% (below 1990 levels)
Target: 2020	Reduction of 15% (below 1990 levels)
Target: 2050	Reduction of 80% (below 1990 levels)

Since 2007 a slight decrease was noted, in part due to phasing out coal plants. Adding to the decrease was the recession where energy consumption decreased, reflecting in decreased emissions from 2007-

2009. Initially the recession contributed to the realization of these target reduction goals. However, from 2009-2010 with the increase in economic activity, levels have started to rise again and clearly the challenge remains to continue economic growth, while reducing emissions. This was the impetus for the government action, when they set legislation via the Green Energy Act, influencing public agencies to be part of this solution.

GREEN ENERGY ACT - O.REG. 397/11: REQUIREMENTS FOR MUNICIPALITIES

Conservation is considered Ontario's most environmentally friendly and cost effective resource, and is part of the province's plan to build a clean, modern, reliable energy system.

This new regulation under the Green Energy Act requires public agencies to:

- **Report annually** on energy use and greenhouse gas emissions, beginning July 1, 2013, and post that information online
- **Develop five-year energy conservation plans** starting July 1, 2014, and post those plans on line
- **Post annual reports** on the agency's website and make printed versions available for the public.

ENERGY CONSERVATION AND DEMAND MANAGEMENT PLANNING PROCESS

Environmental concerns are providing a driving force for local municipalities to change the way energy use and energy costs are viewed. Energy must now be considered as manageable input to the business process, much like any other resource cost.

The first step in managing energy costs is to capture information critical to energy management planning. This formalizes the process involved in understanding the relative magnitude of energy costs, the possible ways to reduce energy use, energy targets that are likely to be achievable, and other associated activities that need to occur. This Conservation and Demand Management (CDM) Plan provides the "big picture" view as an ongoing framework for optimizing overall energy use and achieving success.

CDM Planning is intended to be a process of "continuous improvement." The Township of Chapleau has implemented a closed-loop feedback approach in managing the municipal conservation process in an effort to demonstrate the results that will justify further investment in efficiency. The following diagram shows the circular steps that have been adopted into the planning process:

- Printed form, available for the public, at Town Hall

A cover letter, signed by the Council confirming approval of the CDM plan, and affirming commitment to implementing the Plan is included.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

- The Township of Chapleau is on its way to the implementation of a robust CDM Culture
- The Township of Chapleau has completed energy audits supporting the investment decision in technologies to reduce electricity expenditures
- Reasonable targets have been set, and appear to be achievable by the analysis done with the facility assessments
- A structured implementation approach has been outlined to secure the success of the CDM initiative

RECOMMENDATIONS

- Facilitate the CDM team and the key stakeholders through stakeholder analysis and active input
- Develop a CDM Program
- Revise plan as required based on the collected performance data
- Revisit the energy assessments toward the end of the 5 year period to set a successful future planning

APPENDIX A

GHG Report – 2011 (as submitted July /2013, and forming the baseline "present state" from which the CDM Plan is derived)

GHG Report – 2012 (as required to be included, but not submitted-due July 1/2014)

APPENDIX B

CDM Plan details

APPENDIX A

	Energy Consumption and Greenhouse Gas Emissions Reporting - for 2011														
Confirm consecutive 12-month period	01/2011 TO 12/2011														
(Sector):	Municipal	Please fill in the													
Agency Sub-sector	Municipality														
Organization Name	TOWNSHIP OF CHAPLEAU														
								Energy Type and Amount Purchased and Consumed in Natural Units						Total (These columns will calculate when file is Saved)		
Operation Name	Operation Type	Address	Total Floor Area of the Indoor Space in which Operation is Conducted		Average # Hours Per Week	Annual Flow (Mega Litres)	Electricity		Fuel Oil 1 & 2		Propane		GHG Emissions (Kg)	Energy Intensity (ekWh/sqft)	Energy Intensity (ekWh/Mega Litres)
Moore Arena	Indoor ice rinks	Maple Street	49,779	Square feet	108		893,018	*kWh*	3,556	Litre			81,140	19	
Centennial Museum	Cultural facilities	Monk Street	1,538	Square feet	48		3,596	kWh					288	2	
Water Plant	Facilities related to the treatment of water	Water Plant Road	5,985	Square feet	168	362	594,573	kWh					47,566	99	1,642
Sewage Treatment Plant	Facilities related to the treatment of sewage	Riverside Drive	992	Square feet	168	406	153,065	kWh					12,245	154	377
Riverside Lift Station	Facilities related to the pumping of sewage	Riverside Drive	450	Square feet	168	406	148,334	kWh					11,867	330	365
Lisgar Lift Station	Facilities related to the pumping of sewage	Lisgar Street	392	Square feet	168	28	13,681	kWh					1,094	35	483
Dufferin Lift Station	Facilities related to the pumping of sewage	Dufferin Street	392	Square feet	168	71	34,182	kWh					2,735	87	483
Public Works Garage	Storage facilities where equipment or vehicles are maintained, repaired or stored	Martel Road	6,520	Square feet	40		1,467	kWh			17,699	Litre	27,444	19	
Civic Centre	Administrative offices and related facilities, including municipal council chambers	Pine Street	4,483	Square feet	40		72,270	kWh					5,782	16	
Fire Hall	Fire stations and associated offices and facilities	Pine Street	6,028	Square feet	168		97,191	kWh					7,775	16	
Public Library	Public libraries	Pine Street	4,946	Square feet	32		79,746	kWh					6,380	16	

APPENDIX B-1

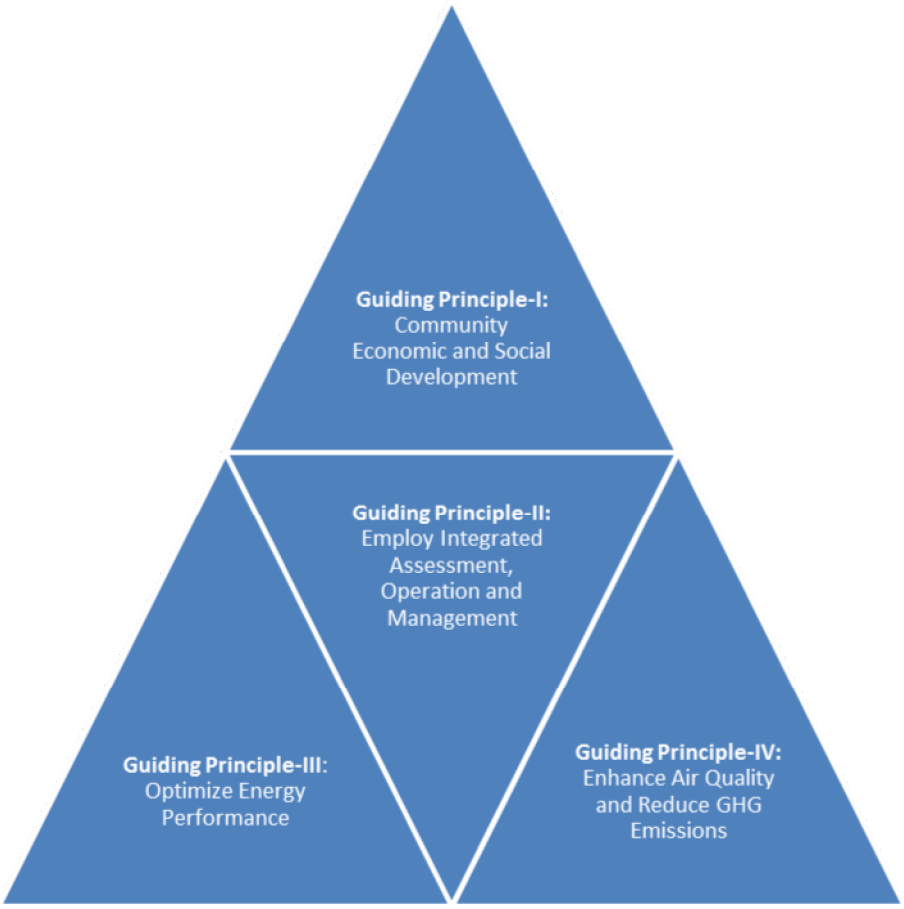
Operation	Type	MEASURES					
		Lighting Retrofit	Non-lighting Retrofits and Optimization				
			Building controls	Replace pumps	Replace Motors	VFD	Other
Moore Arena	Indoor ice rinks	X	X			X	De SuperHeat
Centennial Museum	Cultural facilities	X					
Water Plant	Facilities related to the treatment of water	X		X		X	De Stratification Fans
Sewage Treatment Plant	Facilities related to the treatment of sewage	X			X		
Riverside Lift Station	Facilities related to the pumping of sewage	X		X			
Lisgar Lift Station	Facilities related to the pumping of sewage	X		X			
Dufferin Lift Station	Facilities related to the pumping of sewage	X		X			
Public Works Garage	Storage facilities where equipment or vehicles are maintained	X					Radiant Heaters
Civic Centre	Administrative offices and related facilities	X					De Stratification Fans
Fire Hall	Fire stations and associated offices and facilities	X					
Airport	Transportation	X					
Public Library	Public libraries	X					De Stratification Fans

APPENDIX B-2

Operation	Type	Location	Size	Hours	Electrical Consumption [kWh]	Target	Priority	Implementation Time	Savings	
									Energy Savings [Kwh]	Cost savings per year
Moore Arena	Indoor ice rinks	Maple Street	49,779.00	108	893,018	24%	High	1-2 years	214,324.32	$23,575.68
Centennial Museum	Cultural facilities	Monk Street	1,538.00	48	3,596	35%	Low	4 years	1,258.6	$138.45
Water Plant	Facilities related to the treatment of water	Water Plant Road	5,985.00	168	594,573	20%	High	1-2 years	118,914.6	$13,080.61
Sewage Treatment Plant	Facilities related to the treatment of sewage	Riverside Drive	992.00	168	153,065	4%	High	1-2 years	6,122.6	$673.49
Riverside Lift Station	Facilities related to the pumping of sewage	Riverside Drive	450.00	168	148,334	3%	High	1-2 years	4,450.02	$489.50
Lisgar Lift Station	Facilities related to the pumping of sewage	Lisgar Street	392.00	168	13,681	0.40%	Low	4 years	54.724	$6.02
Dufferin Lift Station	Facilities related to the pumping of sewage	Dufferin Street	392.00	168	34,182	9%	High	1-2 years	3,076.38	$338.40
Public Works Garage	Storage facilities for equipment	Martel Road	6,520.00	40	1,467	7%	Medium	3 years	102.69	$11.30
Civic Centre	Administrative offices and related facilities	Pine Street	4,483.00	40	72,270	1%	Medium	3 years	722.7	$79.50
Fire Hall	Fire stations and associated offices and facilities	Pine Street	6,028.00	168	97,191	1%	Medium	3 years	971.91	$106.91
Airport		5 Concession	3,726	84	37,036	13%	High	1-2 years	5,000	$550.00
Public Library	Public libraries	Pine Street	4,946.00	32	79,746	1%	Medium	3 years	797.46	$87.72

APPENDIX C

Below are the Conservation and Demand Management Guiding Principles used by the Town of Chapleau



GUIDING PRINCIPLE I: COMMUNITY ECONOMIC AND SOCIAL DEVELOPMENT

- ✓ Invest in energy efficient technologies or local renewable energy projects that will stimulate the local economy.
- ✓ Invest in projects that will create direct and indirect employment in the local community.
- ✓ Explore future revenue streams, incentives and financial benefits for the community.

GUIDING PRINCIPLE II: EMPLOY INTEGRATED ASSESSMENT, OPERATION AND MANAGEMENT

- ✓ Implement sustainable operations and maintenance practices, to be integrated with other sustainability processes.

- ✓ Incorporate sustainable operations and maintenance practices within the appropriate business procedures.
- ✓ Assess existing condition and operational procedures of buildings and major building systems and identify areas for improvement.
- ✓ Establish operational performance goals for energy conservation and GHG emissions reduction and ensure incorporation of these goals throughout the day-to-day operations.
- ✓ Incorporate energy conservation education and ensure that it is carried out on a regular basis.
- ✓ Enhance facilities operations and maintenance as needed, using employee feedback and suggestions.

GUIDING PRINCIPLE III: OPTIMIZE ENERGY PERFORMANCE

- ✓ Demonstrate energy efficient operations.
- ✓ Use energy efficient products where available (e.g. Energy Star listed products).
- ✓ Implement renewable energy on site where possible.
- ✓ Install building level and equipment level electricity meters to track and continuously optimize energy performance.
- ✓ Consistently track and analyze energy performance data.
- ✓ Set visionary targets and refine roadmap actions.
- ✓ Undertake economically viable energy conservation initiatives

GUIDING PRINCIPLE IV: ENHANCE AIR QUALITY AND REDUCE GHG EMISSIONS

- ✓ Eliminate the use of ozone depleting compounds where alternative environmentally preferable products are available.
- ✓ Prohibit tobacco smoking within the building and within 25 feet of all building entrances, operable windows, and building ventilation intakes.
- ✓ Enhance healthier community living with improved local air quality.

ILLUSTRATIVE ENERGY CONSERVATION PYRAMID