



**SAULT
COLLEGE**

Energy Conservation and Demand Management Plan 2014-2018

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Ontario Regulation 397/11 under the Green Energy Act requires public agencies, including municipalities, municipal service boards, school boards, universities, colleges and hospitals, to report their energy consumption and greenhouse gas (GHG) emissions and develop an Energy Conservation and Demand Management (ECDM) Plan to outline actions that will improve energy performance over a five-year period.

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OVERVIEW

The Ontario government has committed to help public agencies manage and understand their energy consumption. Ontario Regulation 397/11 under the Green Energy Act requires public agencies, including municipalities, municipal service boards, school boards, universities, colleges and hospitals, to report their energy consumption and greenhouse gas (GHG) emissions and develop an Energy Conservation and Demand Management (ECDM) Plan to outline actions that will improve energy performance over a five-year period.

The following ECDM Plan has been developed by Sault College to fulfill the Ministry requirement and support the College's ongoing energy management efforts. The purpose of the Plan is to help Sault College understand the impact of its operations on greenhouse gas emissions, educate the campus community, seek ideas and involvement, develop energy related strategies, policies and procedures, reduce greenhouse gas emissions and energy costs.

This Plan is considered a living document and will be reviewed and updated on an ongoing basis to ensure successful implementation over the next five years.

KEY COMPONENTS

The ECDM Plan is designed to meet the current energy needs and obligations of Sault College. The Plan is intended to be a guide in the development of an energy management program and will evolve as the College's energy needs are better understood. Staff behaviours influence energy consumption. An improved understanding of the College's energy consumption will require improvements in awareness and management. Energy efficiencies will be integrated into Capital and Operational decisions at Sault College.

The College's approach to energy management is as follows:

- Education and awareness
- Minimize or eliminate waste
- Improve efficiencies
- Optimize energy supply
- Reporting and Benchmarking

GOALS AND OBJECTIVES

Sault College's ECDM Plan's was designed to improve energy efficiency, reduce operating costs, and reduce our negative impact on the environment by reducing greenhouse gas emissions. These actions are to be carried out without adversely impacting the College's operations. All College staff will be integral to the success of this energy management plan.

The College supports the following energy management goals:

- Encourage reduced energy consumption in the College through education and awareness
- Minimize energy usage throughout the various areas of Operation, including Purchasing (within financial constraints)
- Maximize energy efficiency through sound energy management in Sault College's strategic, capital, and operational decisions
- Maximize the use of Operational budgets by ensuring that facilities are operating efficiently

The objective of this plan is to reduce costs and greenhouse gas emissions by improving the management of the College's energy consumption. Recognizing that the College's enrolment and activity fluctuates year to year and the physical size of the campus changes, part of the objective is setting a conservation target that will see the College reduce its 2011 energy consumption per square foot by 3% by the end of 2018. Keeping the square footage constant and based on 2011 consumption and pricing, this would equate to a savings of approximately 6.8 cents/sqft or an annual savings of \$32,500.

MEASURING SUCCESS

The ECDM Plan will be measured and success will be based on the following

- Achieving the cost savings outlined
- Reducing greenhouse gas reported
- Achieving the ECDM Plan's energy consumption target
- Energy management is part of the strategic, capital, and decision making process

REPORTING AND BENCHMARKING

The ECDM Plan will allow the reporting necessary for the College to meet the regulatory requirements of Ontario Regulation 397/11 under the Green Energy Act. The College will Benchmark against historical data and other Colleges to evaluate performance.

HISTORICAL ENERGY INITIATIVES

Historically, Sault College has made significant improvements (when financially able) to the building envelope, equipment, lighting, and building control to reduce costs and improve energy efficiencies. The following list of initiatives was undertaken with significant consideration to energy conservation:

- Installation of a 32 kWh wind turbine (2007)
- E-Wing electrical infrastructure upgrade (2007)
- G&J Wig roof replacement (2007)

- Building management system upgrade (2008)
- College wide lighting retrofit and occupancy sensors (2008)
- A-Wing roof replacement (2008)
- H-Wing roof replacement (2009)
- F-Wing demolition (inefficient space) (2009)
- Steam Boiler replacement (2010)
- L-Wing roof replacement (2011)
- Energy retrofits, shower heads, low flush toilets (2010)
- Boiler conversion, electric to gas (2010)
- K-Wing roof repairs (2011)
- L-Wing boiler upgrade (2012)
- Residence heating and ventilation upgrades (2013)

In addition to the above projects, the College's major capital projects (75,000 sqft academic building, and 55,000 sqft health & wellness building and hub,) from 2011 to 2014 included energy efficient systems/alternatives during design and construction.

CURRENT ENERGY CONSUMPTION

See *Appendix A* for Energy Consumption and Greenhouse Gas Emissions reported for 2011 & 2012

ENERGY MANAGEMENT ACTIONS

The ECDM Plan is considered a living document and will be reviewed and updated on an ongoing basis to ensure the energy management action plan developed will address the goals and objectives set out. A more intense analysis is needed to provide direction to assess cost saving opportunities, more defined and measurable targets, and corporate priorities and timelines

The energy management actions can be broken down as follows:

Administrative

- Form an energy committee or working group with representation from various college areas to develop goals, energy related policies, procedures, guidelines, and strategies
- Monitor the ECDM Plan
- Identify energy saving opportunities
- Conduct benchmarking, lifecycle cost analysis
- Develop an energy management policy to set minimum energy performance standards for operations, purchasing criteria, renovations and retrofits, new construction
- Review funding opportunities for energy projects

- Review opportunities with energy metering and monitoring

Behavioural

- Develop and implement an energy management awareness and education program for the college community
- Measure energy awareness before and after the launch of the awareness and education program
- Communicate energy success stories to encourage good practices and provide learning opportunities

Future Energy Initiatives

The Historical Energy Initiatives section of Sault College's ECDM Plan reflects strong energy management practices through focusing on improvements that reduce cost and energy consumption. Future initiatives will continue to focus on efficiencies and improvements. The development of an Energy Management Policy will provide a more comprehensive process to evaluate and prioritize opportunities, and enhance the knowledge and understanding of energy management principles that influence decisions for procurement, capital, and operational investments. Recognizing the need to continue in this path, the College's annual budget makes provision for projects that will enhance energy efficiency and management. The College fiscal plan for years ahead will include investments in building envelope improvements, electrical infrastructure improvements, mechanical equipment replacements or retrofits, renewable energy alternatives, and building control.

The table in **Appendix B** identifies initiatives for the 2014 year but 2015 through 2018 remain blank as the timing of initiatives will be more clearly defined after the Administrative action and analysis more clearly identify the direction of physical changes to the Campus.

APPENDIX A

Energy Consumption & Greenhouse Gas Emissions

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Sault College: Energy Consumption and Greenhouse Gas Emissions Reporting (January - December 2011)

Operation Name	Operation Type	Address	City & Postal Code	Total Floor Area (sqft)	Average Hours Per Week	Electricity Purchased & Consumed (kWh)	Natural Gas Purchased & Consumed (m3)	TGHG Emissions (kg)	Energy Intensity (ekWh/sqft)
Main Campus	Administrative offices and related facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	103,749	45	1,259,960	173,731	429,257	29.9
Main Campus	Classrooms and related facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	127,170	45	1,544,391	212,951	526,162	29.9
Main Campus	Laboratories	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	166,422	45	2,021,080	278,679	688,564	29.9
Main Campus	Student recreational facilities and athletic facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	33,661	60	408,789	56,367	139,272	29.9
Main Campus	Library	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	20,025	56	243,190	33,533	82,854	29.9
Hangar 1	Laboratories	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	12,608	45	133,587	63,607	130,944	64.2
Hangar 2	Administrative offices and related facilities	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	12,043	45	65,321	15,447	34,430	19.1
Hangar 2	Classrooms and related facilities	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	1,679	45	9,107	2,154	4,801	19.1
Total				477,357		5,685,425	836,469	2,036,285	

Sault College: Energy Consumption and Greenhouse Gas Emissions Reporting (January - December 2012)

Operation Name	Operation Type	Address	City & Postal Code	Total Floor Area (sqft)	Average Hours Per Week	Electricity Purchased & Consumed (kWh)	Natural Gas Purchased & Consumed (m3)	TGHG Emissions (kg)	Energy Intensity (ekWh/sqft)
Main Campus	Administrative offices and related facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	103,749	45	1,286,569	173,731	452,023	30.2
Main Campus	Classrooms and related facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	127,170	45	1,577,008	212,951	554,067	30.2
Main Campus	Laboratories	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	166,422	45	2,063,764	278,679	725,082	30.2
Main Campus	Student recreational facilities and athletic facilities	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	33,661	60	417,423	56,367	146,658	30.2
Main Campus	Library	443 Northern Ave.	Sault Ste. Marie, P6B 4J3	20,025	56	248,326	33,533		30.2
Hangar 1	Laboratories	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	12,608	45	95,703	49,282	102,365	49.1
Hangar 2	Administrative offices and related facilities	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	12,043	45	99,691	16,205	40,212	22.6
Hangar 2	Classrooms and related facilities	475 Airport Rd.	Sault Ste. Marie, P6A 5K6	1,679	45	13,899	2,259	5,606	22.6
Total				477,357		5,802,383	823,007	2,026,012	

APPENDIX B

Future Energy Initiatives

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Sault College: Future Energy Initiatives (2014-2018)

FEI	Location	Opportunity	Description
2014			
FEI-01	Main Campus	Building Envelope Efficiency	Replace C-Wing roof (Maint Shop, Stores)
FEI-02	Main Campus	Mechanical Efficiency	Replace G-Wing boilers
FEI-03	Main Campus	Control Efficiency	Upgrade Building Management System
FEI-04	Main Campus	Electrical Efficiency	LED visitor parking lot upgrade
FEI-05	Hangar	Building Envelope Efficiency	Hangar door seals, rails replacement
FEI-06	Residence	Mechanical Efficiency	Upgrade ventilation to 2 nd floor
2015			
2016			
2017			
2018			

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