



***Greater Sudbury Hydro Inc./
Hydro du Grand Sudbury Inc.***

Conservation & Demand Side Management Plan

**Request for Final Order
January 13, 2005**

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Introduction

Greater Sudbury Hydro Inc (GSHi) recognizes the importance of the new legislation, Bill 100, concerning Conservation and Demand Management Plans (CDM), and, although it does not come without many challenges, GSHI is committed to provide full efforts in order to effectively meet the market need.

Greater Sudbury Hydro identifies CDM Programs focusing on energy efficiency and conservation that are largely based on the realization that lifestyle and cultural change play a significant role in achieving success.

This plan is designed in accordance with the Minister's letter of May 31, 2004 and in conjunction with Procedural Order #1, published October 5/04.

Background

The Minister has authorized distributors to apply for their third installment of market adjusted revenue requirement (MARR), stipulating approval is conditional upon a financial commitment to invest an amount equal to one year's incremental returns in conservation and demand management activities.

On May 31, 2004, the Minister wrote to electricity distributors pursuant to section 79.6 of the Ontario Energy Board Act, 1998 to allow them to proceed to the Ontario Energy Board (the Board) with applications to establish deferral accounts within which to track expenditures on conservation and demand management initiatives. In addition thereto, this letter clearly identifies acceptable programs and key areas of focus for the distributor's consideration when establishing Energy Conservation and Energy Efficiency Plans/Programs.

On October 5, 2004, the Ontario Energy Board published Procedural Order #1 (RP-2004-0203) establishing the structure for Applications by distributors, under the Ontario Energy Board Act, 1998, for approval of Conservation and Demand Management Plans. This order specifically addresses: (i) opening deferral accounts; (ii) development expenses; (iii) applications for plan approval; and, (iv) filing requirements.

Concept

Greater Sudbury Hydro Inc's Conservation and Demand Management budget, as determined by the third tranche of MARR, is the equivalent of about \$1.3 million and GSHi commits to investing this amount towards such during the prescribed period as set out by the Ontario Energy Board (Jan 1, 2004 to September 30, 2007).

Greater Sudbury Hydro recognizes the seriousness of promoting energy conservation and has, therefore, put its best efforts forward to develop an aggressive Conservation and Demand Management Plan that will encourage community involvement. The budgetary figure for this plan is \$2.2 million, representative of the MARR adjustment inclusive of PILS. Greater Sudbury Hydro formally requests the Board to approve the plan so that \$1,263,658.60 can be applied against such programs. It is understood that funds expended in excess of the prescribed allowance are the sole responsibility of Greater Sudbury Hydro. Given this, Greater Sudbury Hydro will assess the feasibility of these projects on a continuous basis to ensure viability of each. Changes in conditions such as market, technology, and regulatory decisions may make it necessary to revise the plan from time to time.

Our mission is to realize kWh savings through Energy Conservation and Energy Efficiencies; and, Greater Sudbury Hydro intends to fulfill this mission by delivering programs that include a mix of conservation assets and educational programs. The implementation of these programs will require the re-deployment of existing personnel.

In the electric energy industry today, there is a much greater need for public awareness than ever before to use electricity more efficiently. As a result, the implementation of this plan focuses largely on community involvement by creating a high level of visibility and responsiveness in order to contribute to the Minister of Energy's goal to reduce Ontario's demand for electricity by 5% by 2007.

Strategy

Our strategy is to build a driven community to ensure the Minister's goal becomes a success. Our strategy is based around:

1. Leveraging Partnerships
2. Community Involvement: Be sure the community is actively involved and supportive of energy conservation.
3. Making strategic capital investments in appropriate conservation technology.
4. Ongoing education and focused communication.

Programs

Interactive Smart Meter Pilot

“Seeing is Believing . . . Reacting is Achieving”

This pilot program incorporates a fully integrated system of hardware and software and network interfaces to offer an advanced point to point two way communication system. Greater Sudbury Telecommunication Inc’s fibre optic network will interactively interface with the Smart/Interval Meter and Load Controlling Devices, located at the customer’s site and will provide the Gateway that is capable of delivering, to both the customer and the utility with consumption and pricing data in near real time data.

The Gateway system will provide customers with significant advantages. This system will integrate and utilize live data and near real time diagnostics to abet decisions and allow forward planning to prove beneficial energy conservation. This coupled with a proposed tiered rate structure will enhance customer interaction / involvement.

Advantages:

1. Information on Demand:

- Ability to acquire near real time data from SMART metering including electric, water and natural gas meters.

2. Two Way Communication:

- Interactive application allows more than just viewing

Some of the unique utility advantages will be:

1. Information on Demand:

- Ability to access 3rd party database and deliver it to customer in near real time (ie Market Pricing, Provincial Peak)

2. Two Way Communication:

- Ability to manage and operate load control devices on demand over an Internet feed.
- Ability to read meters (electric & water) remotely and upload directly to billing system.

Challenges:

Greater Sudbury Hydro acknowledges the fact that it will face many challenges with respect to the administration of this project, such as:

1. Availability of technology for a fully integrated system
2. Implementation of a successful pilot project will be a massive undertaking
3. Customer resistance

This program will focus on customer education. The Gateway allows the delivery of customer specific information. The information will be displayed in an easily understandable and usable format through a display unit installed at the customer site. This gives the customer the ability to control, and subsequently reduce their load, at critical peak periods as identified.

Budget:

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Operating Exp	\$40,000	\$ 25,000	\$15,000	\$80,000
Capital	\$615,000	\$0	\$ 0	\$615,000
Total	\$655,000	\$25,000	\$15,000	\$695,000

Leveraging Existing Conservation Programs

“Destination Conservation”

The City of Greater Sudbury is spearheading an education program that targets youth. This program is currently being delivered to Grade 5 students whose curriculum focuses on energy conservation. Greater Sudbury Hydro recognizes the importance of education at a young and impressionable age.

Greater Sudbury Hydro in participation with the City of Greater Sudbury shall provide each child with a “home kit” containing samples of energy saving tools to be used in their home. Sharing these teaching materials with their families will create a level of cognizance within the residential sector.

GSHi will enter into strategic partnerships with existing conservation program providers and will promote such programs by introducing them to the utility’s customer base. Promotion will include, but not limited to, providing seed money, face to face meetings, bill stuffers, conferences and seminars.

Advantages:

This program targets a broad market as it brings an incentive to conserve energy into each home.

Budget:

	2005	2006	2007	Total
Operating Exp	\$35,000	\$35,000	\$35,000	\$105,000
Capital	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$35,000	\$35,000	\$35,000	\$105,000

“Conservation Message Centre”

Greater Sudbury Hydro Inc particularly wants to emphasize community awareness on using energy efficiently. We shall achieve this by a cohesive marketing program that concentrates on advertising and publicity geared to effectively communicate with the customer. We want to educate our customers to think “Energy Conservation”. We aim to accomplish this through a Full Colour Message Display Centre. This highly visual display will be erected in a high profile area located on one of the main thoroughfares in the City of Greater Sudbury.

This fully flexible dynamic video center, having the ability to display data via text, picturesque objects, or a combination thereof, will serve as a mechanism for widespread community involvement and awareness by constantly providing updated information for all energy consumers within the City of Greater Sudbury.

One absorbs through repetition whether it is knowingly or subliminally.

Budget:

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Operating Exp	\$10,300	\$10,700	\$11,000	\$32,000
Capital	\$175,000	\$ 0	\$ 0	\$175,000
Total	\$185,300	\$10,700	\$11,000	\$207,000

Load Control Initiative

"Shed a Kilowatt"

GSHI's largest sub-stations include voltage regulators as part of their equipment compliment. This voltage regulation equipment, with a minor investment in controlling hardware and software, will afford GSHi an opportunity to reduce demands through voltage reduction during times of peak Provincial Transmission System utilization. Together with the significant data acquisition capability garnered through GSHI's SCADA system, GSHI's System Operators can optimize their ability to reduce or curtail peaking load shapes while ensuring that negative system disturbances, due to low voltage, are minimized.

Budget:

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Operating Exp	\$36,000	\$16,500	\$17,000	\$69,500
Capital	\$15,000	\$ 0	\$ 0	\$15,000
Total	\$51,000	\$16,500	\$17,000	\$85,500

Distribution System Optimization

“Cool Down the Hot”

Greater Sudbury Hydro will map and analyze its distribution system using Milsoft Engineering Analysis Software in conjunction with the GAMUT GIS Mapping System in order to identify opportunities for system enhancements. Through mathematical modeling, an optimal distribution system configuration will identify areas of concern. GSHI will take the necessary corrective action to reduce these losses. GSHI can optimize system efficiency by: (i) appropriately planning system “open points”; (ii) appropriately sizing and changing out conductor; (iii) installing capacitor banks; and, (iv) optimizing the loading of distribution transformers. Although these efficiency gains will be difficult to measure, the purpose is to maximize capacity and decrease losses over time.

Advantages:

The overall distribution system losses are reflected in the distribution costs billable to all customers. The benefits realized by reducing the losses are twofold – (i) to the utility - a reduction in system demand; and, (ii) to the customer - a reduction in costs.

Budget:

	2005	2006	2007	Total
Operating Exp	\$110,000	\$15,900	\$16,400	\$142,300
Capital	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$110,000	\$15,900	\$16,400	\$142,300

Distributed Generation / Standby Generation

“Collect the Gases”

Greater Sudbury Hydro will pursue partnership opportunities with the City of Greater Sudbury to collect and utilize the gases from the Sudbury Landfill site for load displacement generation. The City of Greater Sudbury has conducted studies and predetermined there to be a twenty (20) year supply of gases. The gases used for generation from the Landfill site could produce up to 3 megawatts of new renewable power.

The collection and combustion of landfill gas will reduce the greenhouse gas emissions being released into the atmosphere and use it beneficially to produce renewable energy.

This initiative will also facilitate the development and implementation of opportunities in the areas of micro-turbines, wind power, fuel cells and solar power.

Financial contributions or equity investments equal to 20% of financially viable projects will be undertaken.

Advantages:

This cutting edge technology will provide additional capacity to reduce the Provincial peak by producing electricity that can then be delivered to the electrical grid.

Budget:

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Operating Exp	\$60,000	\$65,600	\$65,600	\$191,200
Capital	\$ 0	\$640,000	\$ 0	\$640,000
Total	\$60,000	\$705,600	\$65,600	\$831,200

Electric Thermal Storage (ETS)

Greater Sudbury Hydro will develop a pilot retrofit program that offers incentives to customers with dwellings that are heated by electric forced air or electric baseboard heaters. The intent is to capitalize on demand reduction by moving this load from peak periods to off peak periods.

The benefits of such program will be realized when time of use rates become effective.

Budget:

	<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>Total</u>
Operating Exp	\$40,000	\$45,000	\$50,000	\$135,000
Capital	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$40,000	\$45,000	\$50,000	\$135,000

Conclusion

Greater Sudbury Hydro is ready to embark on this new revolution of Conservation and Demand Management. GSHi has finished the planning process of evaluating and shaping choices and is now focused on initiating action by launching this plan to contribute to the Province's conservation and demand management goals.

Greater Sudbury Hydro believes this plan demonstrates new paradigms of demand management that will have a lasting impact on the community.

This plan was derived in accordance with the Minister's letter of May 31, 2004 and in conjunction with Procedural Order #1, published October 5/04, and Greater Sudbury Hydro Inc respectfully awaits the Board's approval.

Contact Information

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Conservation & Demand Management Plan Summary by Year

Program Name		2005	2006	2007	Total Operating Exp	Total Capital Exp	Grand Total
Seeing is Believing ...	Operating	\$40,000	\$25,000	\$15,000	\$80,000		
	Capital	\$615,000				\$615,000	
Destination Conservation	Operating	\$35,000	\$35,000	\$35,000	\$105,000		
	Capital	\$0	\$0	\$0		\$0	
Conservation Message Centre	Operating	\$10,300	\$10,700	\$11,000	\$32,000		
	Capital	\$175,000				\$175,000	
Shed a Kilowatt	Operating	\$36,000	\$16,500	\$17,000	\$69,500		
	Capital	\$15,000	\$0	\$0		\$15,000	
Cool Down the Hot	Operating	\$110,000	\$15,900	\$16,400	\$142,300		
	Capital	\$0	\$0	\$0		\$0	
Collect the Gases	Operating	\$60,000	\$65,600	\$65,600	\$191,200		
	Capital	\$0	\$640,000			\$640,000	
Electric Thermal Storage	Operating	\$40,000	\$45,000	\$50,000	\$135,000		
	Capital	\$0	\$0	\$0		\$0	
		\$1,136,300	\$853,700	\$210,000	\$755,000	\$1,445,000	\$2,200,000

Expenditure Breakdown Expressed as a % of Total:

Operating Expense	34%
Conservation Asset	66%

Note: Conservation & Demand Management Budget, as determined by the third tranche of MARR, is about \$1.2 million