

Newmarket-Tay Power Distribution Ltd.

An amalgamation of the former utilities Newmarket Hydro Ltd. and Tay Hydro
Electric Distribution Company Ltd.

This report contains the CDM annual reports for both entities which are now one.

**Newmarket Hydro
RP-2004-0203
EB-2005-0236**

**Conservation and Demand Management Plan
2008 Annual Report**

**Tay Hydro
RP-2004-0203
EB-2004-0512**

**Conservation and Demand Management Plan
2008 Annual Report**

March 20, 2009

Introduction

The goal of the Newmarket Hydro Conservation and Demand Management Plan (CDM Plan) was to create awareness around the importance of energy conservation and to encourage conservation behaviours by all of its customers. From 2004 to 2007 our funds supported this goal by granting access to conservation resources in hopes of achieving a sustained conservation movement throughout our service area. Through education campaigns and incentive programs Newmarket Hydro customers were informed and also encouraged to participate in energy conservation activities.

Newmarket Hydro's budget for its CDM Plan is \$1,267,010.00. We offered several conservation programs targeting customers in all consumer classes.

Residential, commercial and industrial customers were encouraged to conserve through incentive programs and various education initiatives. We put an emphasis on energy conservation in the home through appliance retirement and upgrades as well as switching to compact fluorescent lighting. Residential customers were also offered tools to help monitor their own energy usage and therefore became aware of opportunities to conserve energy.

Newmarket Hydro built a working relationship with the housing providers in Newmarket in the social housing sector. We also successfully engaged members of the commercial and industrial sectors through incentive programs.

There were no activities or additional CDM expenditures in 2008.

Evaluation of the CDM Plan

Newmarket Hydro's expenditures for the total CDM Plan are \$1,255,956 or 99.1% of the total approved budget.

The benefit to cost ratio for all Newmarket Hydro CDM programs is 3.01 for the full three years. The cumulative totals life-to-date are: 5,211,833 kWh saved; 2128 kw saved; expenditures per kWh of \$0.24; and \$590.20 expenditures per kW saved.

Total energy savings as a percentage of total kWh delivered is 0.75% over the three years. The peak demand saved as a percentage of Newmarket Hydro's peak load is 1.47%.

A detailed summary is presented in Appendix "D", which is attached to this report.

Discussion of the Programs

Residential Programs Included:

- *CFL Discount and Giveaway Programs*
- *Keep Cool Room Air Conditioner Appliance Retirement*
- *Energy Star Qualified Appliance Rebate Program*
- *Appliance Retirement Program*
- *Time-of-Use Pilot Project*

Small Business < 50 kW

This program was combined with the Business/Commercial/Industrial program.

Business/Commercial/Industrial

Newmarket Hydro provided incentives to commercial and industrial customers who performed equipment energy-efficiency upgrades and lighting retrofits. The total take-up for this program by the business/commercial/industrial sector was not as successful as originally anticipated.

Social Housing

Newmarket Hydro was very successful in engaging its social housing residential customers. Programs included energy audits, Energy Star appliances, CFL giveaways, electric thermal storage heaters, door upgrades, weather stripping, and caulking. We also funded a pilot project in two electrically-heated housing co-ops in Newmarket. Ten electric thermal storage heaters were installed. The units supplement the existing baseboard heating. Electric thermal storage heating uses off-peak electricity to generate heat energy and stores it in ceramic bricks. The stored heat is then circulated throughout the home during on-peak hours when the cost of electricity and environmental impact of generation are high. In an attempt to spread conservation awareness Newmarket Hydro, in cooperation with members of the social housing community, distributed its first issue of Conservation Comes Home in the fall of 2006. The newsletter focuses on conservation information and tips to be applied in the home and communities at large.

Program Development and Administration

Newmarket Hydro requires administrative support to develop, implement and maintain all of its CDM programs. We also provide customer support via telephone, email, our website and through various public information sessions held throughout the year.

Education Program

Newmarket Hydro operated an extensive education and marketing program, spanning across all programs through the one education budget. The creation of the Newmarket Hydro Conserve logo has allowed us to be recognized in our community as a leader in conservation initiatives. The program was expanded to reach approximately 10,000 elementary school students. A poster contest was

designed and 136 students participated. The winners and runners up were recognized at their school, in the newspaper and with cash prizes. Newmarket Hydro was also involved in a local ecology festival, promoting our conservation programs and various conservation ideas.

System Optimization and Analysis

Newmarket Hydro performed a distribution optimization study to determine where savings can be realized to reduce line and system losses. Study results should lead to the most cost effective way to operate the distribution system in order to reduce the amount of electricity wasted. The final analysis indicated that the system is currently operating efficiently. No operational changes were made.

Lessons Learned

Residential Programs

Newmarket Hydro CDM programs targeting the residential sector proved to be successful.

The CFL discount and giveaway programs created awareness around the benefits of switching to compact fluorescent lighting. We found that practically all the people we talk to at home shows and other presentations are already exclusively using CFLs where possible. The Keep Cool Program was successful in informing the public of the energy and environmental costs of old room air conditioning (RAC) units. In the case of the Energy Star qualified appliance rebate program, the front-loading clothes washer rebate shows the best results. Even though the Energy Star qualified dishwasher with time delay rebate program showed poor results the program was developed in response to requests from our time-of-use pilot project participants. The time delay setting allows for load shifting to off-peak times. The appliance recycling program, yielded a result far greater than any other residential program offered by Newmarket Hydro. The installation of programmable thermostats as part of our time-of-use pilot project yielded the most demand savings achieved by a residential program offered by Newmarket Hydro.

Business/Commercial/Industrial

The incentive program for Newmarket Hydro customers was mildly successful. The program did not yield as much activity as we would have liked (only 4 participants over the three years).

Social Housing

Members of the social housing community showed great enthusiasm in implementing conservation measures in their housing complexes. In support of the needs expressed by the Newmarket housing providers through a working relationship with Newmarket Hydro, we allocated a significant portion of our CDM funds to energy efficiency upgrades within five housing complexes in the

Newmarket area. Depending on each complexes needs, units received energy audits, hot water heater upgrade, door upgrades, caulking, Energy Star refrigerators, CFLs, weather stripping, Energy Star washers, and/or timers. We also saw positive results from our electric thermal storage pilot and hope to relieve some of the burden placed on our customers residing in social housing complexes with electric heat.

Conclusion

The CDM Third Tranche conservation and demand management programs were very successful for Newmarket Hydro. We had excellent participation from our customers in the residential sector and have achieved positive results from all residential programs. Our incentive program for the Business/Commercial/Industrial sector encouraged large users to invest in lighting and system retrofits that reduce operating costs and generate high energy savings. We have successfully engaged members of the social housing community and continue to work closely with those individuals to achieve our conservation goals.

Newmarket Hydro remains in close contact will all of its customers in regard to conservation matters. We continue to refine our conservation programs to meet customer needs and achieve optimum results. As a continuation of our diverse conservation programs we will participate in all conservation programs facilitated by the OPA. Newmarket Hydro has completed a successful year in conservation and demand management and look forward to our future conservation endeavors.

Remaining Balance of Third Tranche Budget

Newmarket Hydro's remaining balance for the total CDM Plan was 0.9% of the original budget, or \$11,054.

Attachments

- Appendix "D"
- PDF electronic copy
- Excel electronic copy of Appendix only

Introduction

Tay Hydro, in its commitment to investing the equivalent of one year of the third installment of its incremental market adjusted revenue requirement, developed and implemented four programmes over the period December 2004 to July 2007. Tay Hydro did this by designing, developing and implementing CDM programs as described below. Tay Hydro amalgamated with Newmarket Hydro in early 2007, and therefore the Tay Hydro report is contained in the Newmarket Hydro report.

The total budget was \$59,000 with actual spending over the three years of \$45,900. Because the System Optimization analysis indicated no significant changes were required, there was no need for capital spending; therefore actual spending was less than planned.

There were no activities, nor expenditures in 2008.

Evaluation of CDM Plan

Tay Hydro's CDM plan consists of four main components:

1. Education and Promotion

Through the use of bill stuffers, coupons, and energy conservation, messages residential and commercial consumers were informed and educated about conservation tips and products available to help them reduce their electricity usage. The coupon programme was aimed toward the residential sector.

2. School Conservation and Safety Promotion

Provided educational and information sessions in the primary schools to instill at an early age, the need for wise energy usage. This would ensure the children promote conservation at home and reduce residential consumption. The in-school sessions also involve a component on electricity safety.

3. System Optimization

Performed a distribution system study to determine where savings could be realized to reduce losses. Recommendations from the study were acted upon to realize the most cost effective savings and reduce the amount of electricity wasted through losses in the distribution system. This benefited all classes of customers. The final analysis indicated that the system is currently operating efficiently, with only minor load balancing changes being made.

4. Plan Research, Design and Development

Designed the plan, researched and evaluated the programmes using an external consultant and internal staff.

Appendix "D" attached, include the evaluation of the programs.

The cumulative totals life-to-date are lifecycle energy savings of 287,481 kWh and a demand savings of 159 kW. The cumulative totals life-to-date for all programmes shows expenditures of \$1.34 per kWh, \$288.68 per kW, with a benefit to cost ratio of 7.08.

Discussion of the Programs

The main part of Tay Hydro's conservation efforts have been the education of the energy using customers. The education focus used at Tay Hydro is two pronged: the students and the parents. Tay Hydro was at all the primary schools and presented an entertaining program to grades 4 through 8. The activities and information were enthusiastically received by students and teachers alike. Not only were "ways-to-save" talked about, but why conservation is good for the world we live in. We found that the young people are very interested and concerned about energy usage, wastage and its effects on their community and their health. The parents receive conservation education through brochures and coupons. The brochures provide them with suggested ways to reduce energy usage and, most importantly to them, ways to lower their Tay Hydro bills. The coupons offer savings on the purchase of various items such as: compact fluorescent lights, programmable thermostats for air conditioners and baseboard heaters, motion detectors, dimmer switches for lights, ceiling fans and LED Christmas lights. The usage of these coupons was tracked and we are very encouraged by the number of redemptions to date; another success.

The combination of the school **and** the parent education programs, complement each other. This two pronged approach reinforces what has been heard and seen on both sides. The dialogue between parents and children regarding energy conservation, helping the environment, family health, and saving money all contribute to the effectiveness of the Tay Hydro approach.

The electricity distribution system Tay Hydro purchased from Hydro One Networks, back in 1999, has shown some ineffectiveness in minimizing system losses. The final analysis of the distribution system indicated the system is currently operating efficiently, with only minor load balancing changes being made.

Lessons Learned

The residential and school programs were successful when analyzed under the TRC guidelines. The participation by the consumers was less than what was hoped. Increased advertising and promotion would have yielded even better results.

The System Optimization program analysis showed that the current system is operating efficiently. This was unexpected, but most welcomed.

Conclusion

Tay Hydro's experiences with the CDM programs have been quite positive, and we have encountered no barriers in their execution.

Remaining Balance of Third Tranche Budget

Tay Hydro's remaining balance for the total CDM Plan was \$13,100.

Attachments

- Appendix "D"
- PDF electronic copy
- Excel electronic copy of Appendix only

Appendix D - Total Life Evaluation of the CDM Plan

Table is to be completed manually by totalling the information from each year of activity

	⁵ Cumulative Totals Life-to-date	Residential	⁶ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Program Development & Administration	Education
Newmarket Hydro 2008											
<i>Net TRC value (\$):</i>	\$ 1,242,152.00	\$ 1,012,310.00	\$ 103,476.00	\$ 86,180.00	\$	\$ 40,186.00	\$	\$		\$	\$
<i>Benefit to cost ratio:</i>	3.01	3.26	2.21	2.92		1.97					
<i>Number of participants or units delivered:</i>	48,774	10,310	1,533	2		254					36,675
<i>Lifecycle (kWh) Savings:</i>	37,389,116	20,928,572	3,977,671	1,677,521		10,805,352					
<i>Total kWh saved (kWh):</i>	5,211,833	3,586,935	290,358	335,504		999,036					
<i>Total peak demand saved (kW):</i>	2,128	1598	30	359		141					
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.75	0.52	0.04	0.05		0.14					
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	1.47	1.10	0.02	0.25		0.10					
¹ <i>Gross C&DM expenditures (\$):</i>	\$ 1,255,956.00	\$ 377,245.00	\$ 385,116.00	\$ 10,110.00	-	\$ 69,776.00	-	\$ 57,400.00	-	\$ 221,535.00	\$ 134,774.00
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.24	\$ 0.11	\$ 1.33	\$ 0.03		\$ 0.07					
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 590.20	\$ 236.07	\$ 12,837.20	\$ 28.16		\$ 494.87					
<i>Utility discount rate (%):</i>	7.625										

¹ Expenditures are reported on cumulative basis.

² Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.

³ Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.

⁴ Please report spending related to 3rd tranche of MARR funding only. TRC calculations are not required for Smart Meters. Actual expenditures for the total third tranche period need to be reported.

⁵ Includes total for the reporting year, plus prior years, if any (for example, 2008 CDM Annual report for third tranche will include 2007, 2006, 2005 and 2004 numbers, if any).

⁶ Includes totals from Low Income programs that fall under both commercial and residential.

Appendix D - Total Life Evaluation of the CDM Plan

Table is to be completed manually by totalling the information from each year of activity

Tay Hydro 2008	⁵ Cumulative Totals Life-to-date	Residential	⁶ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters	Plan Development	Other #2
<i>Net TRC value (\$):</i>	\$ 17,103.00	\$ 17,103.00	\$	\$	\$	\$	\$	\$		\$	\$
<i>Benefit to cost ratio:</i>	7.08	7.08									
<i>Number of participants or units delivered:</i>	265	265									
<i>Lifecycle (kWh) Savings:</i>	287,481	287,481									
<i>Total kWh saved (kWh):</i>	34,248	34,248									
<i>Total peak demand saved (kW):</i>	159	159									
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.04	0.04									
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	1.83	1.83									
¹ Gross C&DM expenditures (\$):	\$ 45,900.00	\$ 12,744.00	\$	\$	\$	\$	\$	\$ 30,918.00	\$ -	\$ 2,238.00	\$
² Expenditures per kWh saved (\$/kWh):	\$ 1.34	\$	\$	\$	\$	\$	\$	\$		\$	\$
³ Expenditures per kW saved (\$/kW):	\$ 288.68	\$	\$	\$	\$	\$	\$	\$		\$	\$
<i>Utility discount rate (%):</i>	7.625										

¹ Expenditures are reported on cumulative basis.

² Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings.

³ Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings.

⁴ Please report spending related to 3rd tranche of MARR funding only. TRC calculations are not required for Smart Meters. Actual expenditures for the total third tranche period need to be reported.

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