toronto hydro electric system

Toronto Hydro-Electric System Limited

Conservation and Demand Management

2008 Annual Report

Ontario Energy Board File No. RP-2004-0203/EB-2004-0485

March 31, 2009

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1. Introduction

On December 10, 2004 the Ontario Energy Board ("Board") issued its Decision in the RP-2004-0203 proceeding, with respect to six (6) applications filed by the Coalition of Large Distributors ("CLD") comprising Enersource Hydro Mississauga, Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream Inc., Toronto Hydro-Electric System Limited ("Toronto Hydro") and Veridian Connections. On February 3, 2005, Toronto Hydro received the Board's Final Order under docket number RP-2004-0203 / EB-2004-0485 to invest $39,765,559 on its CDM Plan.

The Board's Decision indicated that annual reporting "should be done on a calendar year and should be filed with the Board no later than March 31st of the following year" and would be subject to a public review. On December 21, 2005 the Board issued a Guideline for Annual Reporting of CDM Initiatives that explained more fully the requirements. On February 2, 2009 the Board issued the "Requirements for Annual Reporting of CDM Initiatives". This report has been prepared in accordance with those guidelines and requirements.

Toronto Hydro concluded its CDM programs in 2007 after exhausting its Third Tranche funding and issued its final annual report for 2007 on March 31, 2008. This report summarizes the results for the three year program. Starting in 2007 Toronto Hydro transitioned to CDM programs funded by the Ontario Power Authority ("OPA").

2. Evaluation of the CDM Plan

This report has adopted the new classifications prescribed in the Board's requirements dated February 2, 2009. Best efforts were applied to modify previous reported results to accommodate the change in market classifications reflected in Appendix D. The specific changes in classification include:

I. Transfer the results for small commercial customers from "Residential and Small Commercial (<50 kW)" to "Commercial";

II. Break out "Institutional" from "Commercial"; and

III. Reclassify expenditures as identified in Appendix D.

Refer to Appendix D for an evaluation of Toronto Hydro's CDM Plan from 2005 to 2007.

3. Discussion of the Programs

As mentioned in the introduction to this report, there were no CDM programs funded by the Board rolled out in 2008. Please refer to Toronto Hydro's 2005, 2006 & 2007 annual reports submitted to the Board for programs details.

4. Lessons Learned

Working Together

A Steering Committee was created among CLD members in 2005 to provide oversight, coordinate joint actions and promote the sharing of ideas, experiences and costs. The benefits of this joint action are numerous and over the past years have provided the following advantages:

Purchasing power:

- Together, the CLD group represents about 40% of the Province's electricity load. Accordingly, the group commands the attention of the marketplace when seeking vendors to support its CDM programs. The joint purchasing power of the CLD has provided it with access to the most innovative products and services available, at very competitive costs.

Consistent messaging:

- The adoption and promotion of the powerWISE brand by the CLD members has provided significant benefits. The development of this single brand that is recognized by consumers and synonymous with energy efficiency was leveraged to maximize the reach and penetration of CDM initiatives, in a way that could not be achieved by each member LDC on its own. Consistency of branding and messaging contributed to program credibility and consumer's willingness to engage in conservation and demand management programs.

Cost Sharing:

- While local electricity markets and customer contacts often deserve and demand customized treatment, other aspects of CDM programs are common and lend themselves to cost sharing. The CLD members agreed early on to a standard cost sharing formula to ensure that benefits were fairly allocated. Sharing costs has enabled individual CLD members to help minimize program costs through the life of the project to the end of 2007.

Exchange of Ideas/Approaches:

- Customers' attitudes towards energy use are not homogeneous. Achieving a conservation culture in Ontario required experimentation with varied and diverse approaches. Working in partnership, the CLD members have learned from each other's successes and setbacks. For example, Toronto Hydro's launch of its ***peaksaver*** program in late 2005 offered proof that many customers were willing to participate in an air conditioner load control program for a nominal financial reward. This success translated into a broader scale program across all CLD service areas in 2006 and continued into 2007 and beyond as an OPA program.

Market Conditions

One of the key findings for all market segments is the need for LDCs to continue to communicate, educate and engage customers and be a provider of information to their local market. Emerging technologies and an increase in service providers have created the need and opportunity for LDC's to work with and assist customers in understanding the technologies and the impact and value these technologies can have on their businesses. As reported previously the following lessons were reaffirmed and expanded through the life of the program:

- It was evident, particularly from the Home Depot and Fridge Unplugged programs that residential customers are eager to learn about, and install, more energy efficient measures. It is important to educate residential customers on the financial impact and quick return provided by conservation solutions. Future use of real time, in home, energy monitors will offer customers an effective tool to better understand and manage their energy consumption, particularly when time of use pricing comes into effect.

- In the commercial, industrial and institutional sectors it was surprising to learn that many companies have not installed energy savings measures in order to reduce power costs. It was found that capital investment decisions must have a very fast payback, typically less than two years. The CDM incentive made energy efficiency projects viable for a significant number of customers.

- A key lesson learned from the powerWISE Business Incentive Program (now the Business Incentive Program) is that it takes significant and direct interaction with commercial customers for this type of program to flourish.

- There are a number of larger customers that have generators used for back-up power requirements. Working with these customers we were able to retrofit these installations to make the generators available for dispatch on peak. This capability can significantly reduce summer peak loads.

- Toronto Hydro was able to design and install the ***peaksaver*** load management system whereby customers' air conditioning units can be managed to reduce summer peak demand. Effective promotion of the program resulted in approximately 20 per cent implementation of this program in the marketplace in 2007. Continued rollout of this program under the OPA funding mechanism has expanded implementation to 25 per cent of the available market at the end of 2008.

  Toronto Hydro installed 47,731 ***peaksaver*** switches by the end of 2008; when the switches are activated at 35 degrees Celsius, demand in Toronto can be reduced by 57.5 megawatts.

- In the Social Housing Program, it became very evident that the needs of low income housing tenants must be addressed. Social and low income housing customers are typically spending a greater percentage of their income on utilities or rent and can least afford to retrofit their unit or purchase efficient appliances. Education in this sector is critical. Fortunately CDM incentives were committed to Toronto Community Housing Corporation & Social Housing Service Corporation in order to specifically address these issues, but there is opportunity to implement other initiatives.

- CDM program development does take time. It requires extensive research of industry and market best practices as well as environmental issues, which must be thoroughly addressed up front in order to ensure long-term sustainable conservation success.

- Public education is a critical element as the province continues to work towards building a culture of conservation. It is important to continue to balance the need for short-term results while fostering a long-term conservation attitude.

Regulatory Environment

It is clear that CDM programs require and will benefit from continuity and consistency of funding. The funding transition that occurred in 2007 created a period of uncertainty which disrupted programs at the beginning of the year followed by a ramping up in mid year. The result was a loss of momentum in conservation programs savings and customer confusion.

The energy industry must coordinate the individual efforts of its many organizations to ensure that program delivery is efficient, readily available and understood by all customers. Most customers do not understand the relationship among the various organizations within the energy industry. Any attempt to deliver programs to the end customer by different groups only confuses the customer and suggests a lack of industry coordination. Clarity regarding the roles of the LDCs, Electricity Distributors Association (EDA), the Board, the OPA, and the Independent Electricity System Operator (IESO) would be beneficial in this regard.

Total Resource Cost (TRC) analysis has transitioned to a new modified TRC analysis tool and measures list (introduced mid 2008) and has been applied to all OPA funded programs. The new TRC tool uses revised avoided costs and updated assumptions. It is recommended that research be conducted to determine the impact and how best to integrate behavioural values into economic models and tools used in evaluating energy conservation programs. This would enable the development and implementation of programs that address market education and behaviour and provide a more accurate economic model for conservation by recognizing the impact and value of change in human behaviour.

5. Conclusions

Toronto Hydro developed and concluded an effective conservation and demand management program and generated impressive results using Third Tranche of MARR funding. In addition, the experience provided considerable amount of learning which led to process and program design improvements which in turn contributed to the conservation achievements.

Toronto Hydro was able to maximize results by working with the CLD, which provided a significant advantage in knowledge and resource sharing, efficiency and cost effectiveness. As market experience was gained, the CLD was able to fine-tune its individual CDM plans for mutual benefit.

Toronto Hydro enjoyed highly recognized successes with two particular internally developed programs. The ***peaksaver*** program and the Summer Challenge program both proved to be very popular with customers and were implemented by the OPA across the Province in 2007. The ***peaksaver*** program continues to be a province wide program and a cornerstone of a family of demand response programs developed by the OPA.

The constraints facing the provincial electricity supply and distribution systems are well known and have created a heightened sense of urgency for all users to contribute to better management of our electricity demand. Customers are recognizing the value of conserving electricity and Toronto Hydro's role in delivering CDM programs locally is well established. Toronto Hydro is committed to helping lead the evolution to a culture of conservation in this province and will work with the regulator, the OPA, and other members of the CLD to achieve this goal.

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	Overall Program Support	Other #2
Net TRC value ($):	*$ 98,432,860*	$ 61,463,492	-$ 394,098	$ 45,846,849	$ 308,365.85	$ -	$ -	- 7,236,704	$ -	- 1,787,754	$
Benefit to cost ratio:	*2.44*	3.24	0.91	3.28	1.17	N/A	N/A	0.58	N/A	N/A	
Number of participants or units delivered:	*667,460*	605,552	N/A	61,887	20	N/A	N/A	1	N/A	N/A	
Lifecycle (kWh) Savings:	*1,670,986,691*	603,509,287	70,274,506	771,493,662	30,149,386	N/A	N/A	265,834,357	N/A	N/A	
Total kWh saved (kWh):	*262,371,278*	161,445,284	4,578,316	54,776,990	4,930,129	N/A	N/A	41,218,874	N/A	N/A	
Total peak demand saved (kW):	*68,520*	34,176	525	26,509	422	N/A	N/A	7,413	N/A	N/A	
Total kWh saved as a percentage of total kWh delivered (%):	*0.33%*	0.21%	0.006%	0.07%	0.006%	N/A	N/A	0.05%	N/A	N/A	
Peak kW saved as a percentage of LDC peak kW load (%):	*0.46%*	0.23%	0.004%	0.18%	0.003%	N/A	N/A	0.05%	N/A	N/A	
[1] *Gross C&DM expenditures ($):*	$ 39,760,398	$ 28,852,145	$ 1,209,738	$ 8,102,476	$ 377,424	N/A	N/A	$ 413,383	N/A	$ 2,014,970	$
[2] *Expenditures per KWh saved ($/kWh):*	$ 0.15	$ 0.18	$ 0.26	$ 0.15	$ 0.08	N/A	N/A	$ 0.01	N/A	N/A	$
[3] *Expenditures per KW saved ($/kW):*	$ 580	$ 844	$ 2,303	$ 306	$ 895	N/A	N/A	$ 56	N/A	N/A	$

Utility discount rate (%):	5.36%

[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 commerical and residential.