



**2008
Conservation
and
Demand Management
Annual Report**



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1. Introduction

Kitchener-Wilmot Hydro Inc. (KWHI) is a local distribution company that is responsible for distributing electricity to more than 84,200 homes and businesses within the City of Kitchener and the Township of Wilmot.

On March 17, 2005, the OEB (OEB or the Board) approved KWHI's Conservation and Demand Management (CDM) plan with a budget amount of \$2,350,000 (RP-2004-0203 / EB-2005-0193).

Subsequently, on March 21, 2005, the OEB issued KWHI's rate order for the 2005 rate year (RP-2005-0013 / EB-2005-0042) granting the LDC its final instalment of MARR of \$2,340,264.

By September of 2007, KWHI had completed its required investment in CDM of \$2.35M. For the remainder of the year, KWHI continued to invest in its CDM programs and by December 2007, had invested \$2.5M in total, exceeding the investment required by the Board.

KWHI's CDM program approved by the OEB was guided by the following key principles:

- The plan included a mix of utility-side and customer-side programs. In addition, the programs were targeted at or benefited all customer rate classes.
- The plan addressed some or all of the other priorities identified by the Minister, such as addressing low income customers.
- The plan built on existing programs and leveraged funding, where possible.
- The plans allowed for flexibility in expenditures to allow KWHI to avoid potential lost opportunities and to respond to changing circumstances.

Distributor CDM activities must address both the efficiency with which its customers use electricity as well as the efficiency of the distribution system itself. Consequently, KWHI's CDM plan included both utility-side programs and customer-side programs (capital and operating).

Each program, whether capital or operating, was evaluated on its own merits to ensure it met the OEB's TRC test requirements before implementation. KWHI believes that detailed analysis of all potential activities must be undertaken in order to implement programs that are sustainable and effective in achieving long-term energy savings.

2. Evaluation of the CDM Plan

KWHI's CDM programs show a positive TRC value, demonstrating that these programs were successful in achieving our electricity conservation goals by reducing both energy (kWh) and peak demand (kW). The overall effectiveness of all of the programs undertaken by KWHI produced the following total returns (see Appendix D):

- Net TRC value: \$7.56 million
- Energy savings to date: 30,422,994 kWh
- Annual energy savings: 13,901,637 kWh and 2,879 kW, which accounts for:
 - 0.74% of the total kWh delivered and,
 - 0.95% of KWHI's peak demand in 2008
- Gross CDM expenditures: \$2.34 million
- Expenditure per kWh saved: \$0.08
- Expenditure per kW saved: \$813.13

3. Lessons Learned

- Distribution system improvements play a key role in energy conservation. Distribution systems losses can have a significant impact on the overall efficiency of the system.
- Feedback from customer education workshops has been very encouraging and positive and it has been suggested that more customer education programs should be undertaken in the future. Customers want to know and understand how to conserve.
- Customer education is a key component in creating a conservation culture in the Province of Ontario. A lot of energy and money can be saved by teaching consumers how to conserve energy; however, the use of the TRC test as a measurement tool does not incorporate the benefits stemming from proper consumer education.
- There are few programs in the Province of Ontario that deal primarily with the General Service < 50 kW class (mostly small businesses).
- High capital investment costs and slow payback can be a serious deterrent to businesses investing in energy conservation assets. Offering financial assistance to this group increases the likelihood that they will pursue such projects, which can reap substantial energy savings for the Province.
- Power factor correction programs can generate significant savings for the customer but may not be fully understood. More benefits would flow from such programs if coupled with customer education.
- There are many potential projects available for funding but not all may realize potential positive TRC values or short pay-back periods.
- Each of the programs undertaken by KWHI (with the exception of those primarily education-based) had positive TRC values. This indicates that KWHI's CDM portfolio was highly successful. KWHI's approach of running the TRC test on each potential program prior to implementation ensured the positive results would continue.

4. Conclusion

KWHI received Board approval of its CDM Plan on March 17, 2005 (RP-2004-0203 / EB-2005-0193) with a total budget of \$2,340,264. Through the course of its CDM program, KWHI paid careful attention to stay within the guidelines as set out in the Order as issued by the Board.

In September 2007, KWHI completed its requirement to spend \$2.34M on Conservation and Demand Management activities. We believe that this money was spent wisely and has yielded the desired results.

KWHI is pleased that the electricity savings that were generated through its CDM programs will continue to generate savings well into the future and benefit society as a whole.

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	Other #1	Other #2
<i>Net TRC value (\$):</i>	\$ 7,565,328.94	\$ 2,414,304.21	\$ 29,601.92	\$ 1,320,089.08	\$ 851,116.68	\$ 141,539.15	\$	\$ 2,808,677.90		\$	\$
<i>Total Benefit</i>	\$11,426,355.53	\$ 2,864,056.20	\$ 179,231.92	\$ 2,725,057.73	\$ 1,465,564.68	\$ 221,695.31		\$ 3,970,749.69			
<i>Total Cost</i>	\$ 3,861,026.59	\$ 449,751.99	\$ 149,630.00	\$ 1,404,968.65	\$ 614,448.00	\$ 80,156.16		\$ 1,162,071.79			
<i>Benefit to cost ratio:</i>	2.96	6.37	1.20	1.94	2.39	2.77		3.42			
<i>Number of participants or units delivered:</i>	7,900	1,575	392	2,999	1,015	6		1,913			
<i>Lifecycle (kWh) Savings:</i>	186,640,185.2	43,023,673	3,193,683	32,817,124	33,733,600	0		73,872,105			
<i>Total kWh saved (kWh):</i>	30,422,994.3	8,383,683	1,356,625	9,178,566	3,558,096	0		7,946,025			
<i>Total peak demand saved (kW):</i>	2,878.1	184.67	48.02	946.94	39.14	322.34		1,337.00			
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	1.58%	0.43%	0.07%	0.48%	0.18%	0.00%		0.41%			
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.95%	0.06%	0.02%	0.31%	0.01%	0.11%		0.44%			
¹ <i>Gross C&DM expenditures (\$):</i>	\$ 2,340,264.08	\$ 247,748.66	\$ 182,200.00	\$ 499,127.30	\$ 240,423.00	\$ 35,333.97		\$ 1,109,388.62		\$ 26,042.53	\$
² <i>Expenditures per kWh saved (\$/kWh):</i>	0.08	0.03	0.13	0.05	0.07	-		0.14		\$	\$
³ <i>Expenditures per kW saved (\$/kW):</i>	813.13	1,341.58	3,794.25	527.09	6,142.64	109.62		829.76		\$	\$
<i>Utility discount rate (%):</i>	7.28%										

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.