

2006 LDC CDM program results



**2006 LDC CDM program results:
A review of the local distribution companies' 2006
annual reports on Conservation and Demand
Management**



INDECO 

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1 Background

Each year the Chief Energy Conservation Officer (CECO) is required to prepare an annual report on progress in meeting provincial conservation and demand management targets. As part of fulfilling this requirement in 2006, the CECO introduced a scorecard approach to reporting on savings achieved, including savings achieved by local electricity distribution companies (LDCs) through CDM.

There are numerous actors involved in promoting the transition to a Conservation Culture in Ontario, including the Ontario Power Authority through its programs and outreach activities, provincial and municipal conservation programs, and others. The local electricity distribution companies (LDCs) have been one of the key players in promoting electricity conservation, in response to a requirement from the Minister of Energy that to attain their third instalment or tranche of a Market Adjusted Rate of Return (MARR) they must spend the equivalent of one year's third tranche on conservation and demand management (CDM) initiatives by the end of September 2007. Plans were submitted to the Ontario Energy Board (OEB), and the Board approved plans totalling just over 160 million dollars.

As part of their approvals of these plans, LDCs were required to report annually to the OEB on their CDM activities, and the OEB provided guidelines for their reporting. Among the requirements are to report on spending and results. These include direct spending from the approved plan budgets, indirect spending (e.g. value of time of LDC staff involved in CDM activities), and benefit-cost analyses based on a methodology called the Total Resource Cost (TRC) test. The TRC test considers benefits and costs from the perspective of society over the life of the measures adopted by the program. To assist LDCs in preparing these estimates, the OEB published a TRC Guide that includes typical costs, savings and lifetimes for numerous common conservation technologies, and a description of how to undertake the TRC test. Because the TRC test is from a societal perspective, the TRC test includes costs incurred by program participants, e.g. for equipment they purchase using financial incentives offered by the LDC.

LDCs were required to file their second annual reports – for the calendar year 2006 – at the end of March 2007, and this document reviews and summarizes the results reported in these annual reports.

2 Methodology

The analysis is based on the plans filed by LDCs with the OEB and published on the OEB website on 20 April 2007. The OEB approved 85 CDM plans and 67 annual reports were submitted. Due to consolidation in the distribution industry, these reports address 72 of the 85 plans. Annual reports of 13 LDCs are not yet available, but these represent a small part (4%) of the approved spending.

Quantitative summaries are based on the data presented in the annual reports (specifically forms in appendices A, B, and C of these reports) . The appendices contain forms provided by the OEB for reporting results. In reviewing the values reported on these forms, numerous differences in interpretation were noted, and numerous values are missing altogether, or are reported on some sections of the form, but not on others. Examples of misinterpretations or differences of interpretation and missing fields include (these are examples, and did not occur in every program):

- Annual results reported, but the life-to-date results were not
- Program expenditures were reported, but TRC costs were not reported
- All program costs were not included (e.g. OPA costs for Every Kilowatt Costs were not included, or indirect costs were not included)
- Free-rider adjustments appear to have been made inconsistently. For example some LDCs appear to have adjusted for a free-rider rate of 10% on internal distribution system improvement programs (where one would expect the free-rider rate to be either zero or 100%)
- Energy savings were reported, but the impact on demand was not estimated
- Equipment costs incurred by program participants were not reported
- Some utilities reported “in-year” or “annual” savings as first year savings, others adjusted for the installation time (e.g. by assuming only half of the first-year savings accrue in the calendar year)
- One LDC understood “in-year” savings to mean the year until which the savings would accrue, rather than the number of kilowatt-hours saved in 2006.

Twenty-eight specific checks were applied to the data to test for internal consistency. These checks included:

Test description	Tests	Instances	Comment
Benefits or costs (annual or life-to-date) reported as less than zero	4	31	Although reported as less than zero in Appendix B forms, these were sometimes carried over to summary forms correctly.
TRC costs incurred by the utility are greater than direct and indirect costs reported	1	82	Normally one would expect TRC costs to be equal to or less than utility direct and indirect costs. (Less than where there is a free rider adjustment). This might be higher if the LDC used this field to include costs of 3rd parties, such as a federal government partner.
Direct or indirect utility costs are reported, but no TRC costs are shown	1	109	Many utilities did not show costs as TRC costs where the program was primarily an education, research or administrative program.
Incentive payments were higher than equipment costs (annual or life-to-date)	2	149	If incentives are greater than the equipment cost, this might suggest that equipment costs are unreported or underreported.
The ratio of annual to life-cycle savings implies a lifetime of greater than 25 years	1	40	Few programs would have a lifetime greater than 25 years, though these were reported for seasonal LED light programs and some distribution system programs (e.g. 30 years). Also, if the LDC only included part of the first-year savings (e.g. because the installation occurred late in the year), then it may suggest an overly high lifetime.
Annual data are less than life-to-date, cumulative or life-cycle data	15	370	In only rare circumstances would one expect life-to-date or cumulative savings (or expenditures) to be less than annual savings (or expenditures)
Demand (summer or winter, annual or life-to-date) is less than the energy savings, averaged over the year	4	946	Usually one would expect at least one of the summer or winter demand savings to be greater than the energy savings averaged over the year. Most of the instances are no demand estimate reported (e.g. 167 of the 282 LTD summer demand savings)
Totals	28	1727	

In many cases, it was possible to copy values from one field to a corresponding field (e.g. in the absence of other information, utility expenditures are assumed to be a better estimate of TRC costs than is zero), or cumulative results were assumed to be at least as great as the

annual results. Where the changes were more subtle (e.g. adjustments for free riders), it would be necessary to consult with the utility to determine exactly what was done, and why and this was beyond the scope of this analysis, except where these differences would clearly be very significant.

In addition to the checks described above, programs were also categorized into broad program types (e.g. education, financial incentive), based on the descriptions provided by the LDCs. LDCs were also geographically coded based on the head-office location, and using Statistics Canada's Census Divisions and Economic Regions¹.

¹ Because of the broad geographic area it services, Hydro One Networks was treated separately, and was not assigned to a specific census division or economic region.

3 Data quality

Data quality is a serious concern, particularly in light of the missing data, differences of interpretation of the meaning of certain fields, and the application of somewhat different methodologies.

The most reliable data are likely to be the direct expenditures by the LDCs, and the estimated life-cycle and cumulative energy savings. Consequently, levelized costs per kilowatt-hour are indicative of the LDC's cost of delivering conservation savings (though not of societal costs and benefits).

Demand savings estimates are probably good for programs where the program is a load shifting, demand response or generation program, but the demand estimates for conservation programs should be viewed cautiously. Of course, different programs have different expected lifetimes, so all megawatts are not the same: some demand reductions will last only for the year the program was offered, other demand numbers are associated with new distributed generation with a relatively long life.

In general, the TRC calculations are problematic, in aggregate, due to data limitations and differences in methodology and assumptions.²

Although most missing data likely would increase the costs reported, there are numerous examples where missing data would increase savings or decrease costs, including, for example: unreported demand savings from conservation programs, and unreported gas savings from programmable thermostat installation programs.

² For example, the TRC test does not capture numerous benefits, including the value of the shift to a Conservation Culture, benefits of improved service levels of new equipment, or environmental externalities such as reductions in emissions from avoided generation.

4 Findings

4.1 Results by focus of program

The Ontario Energy Board asked LDCs to report programs by type, and their forms made provisions for the following types of programs:

- Conservation
- Demand management
- Demand response
- Power factor correction
- Line loss reduction
- Distributed generation and load displacement
- Other

For some programs, LDCs needed to exercise judgement as to which was most appropriate, or used fields from other program types to report on particular programs. For example, programs to use stand-by generators during peak times might be classified as either demand response or distributed generation. Line loss reduction programs result in energy savings comparable to those from conservation programs.

To simplify reporting, results are presented by four program types:

- Energy focused – primarily conservation
- Demand focused – demand management, demand response, and distributed generation and load displacement
- LDC focused – power factor corrections (recognizing that these may be based on actions at customer sites), and line loss reduction
- Other – including program administration, research, and smart meters.

As indicated in Table 1, most of the spending (35.0 million dollars) was on the energy focused programs, with demand focused ones coming in

Table 1 – Results by program type

	CLD	HONI	Medium distributors	Small distributors	Total
Energy focused					
Net TRC Value (\$)	\$89,924,901	\$41,914,275	\$8,265,454	\$10,482,423	\$150,587,052
Benefit to Costs Ratio	3.67	5.10	1.53	2.54	3.27
Lifetime kWh savings	1,817,661,893	548,173,375	407,206,147	446,863,962	3,219,905,377
Annual kWh savings	288,552,844	90,342,212	72,895,480	46,681,140	498,471,676
Summer peak demand savings (kW)	71,294	7,779	3,847	4,284	87,204
Winter peak demand savings (kW)	9,678	30,532	6,946	7,804	54,960
Gross in-year CDM expenditures	\$18,520,241	\$5,278,368	\$6,814,710	\$4,418,837	\$35,032,155
Levelized cost per kWh saved	\$0.010	\$0.010	\$0.017	\$0.010	\$0.011
Cost per kW saved	\$260	\$679	\$1,771	\$1,031	\$402
Demand focused					
Net TRC Value (\$)	\$41,304,324	\$2,010,931	-\$287,267	\$3,000,879	\$46,028,867
Benefit to Costs Ratio	3.70	3.61	0.08	1.72	3.24
Lifetime kWh savings	74,867,798	8,780,648	30,816	3,152,227	86,831,489
Annual kWh savings	3,756,003	806,435	537,856	449,540	5,549,834
Summer peak demand savings (kW)	34,154	2,169	895	12,027	49,245
Winter peak demand savings (kW)	0	287	0	8,076	8,363
Gross in-year CDM expenditures	\$14,462,510	\$2,483,820	\$174,968	\$4,199,408	\$21,320,706
Levelized cost per kWh saved	\$0.193	\$0.283	\$5.678	\$1.332	\$0.246
Cost per kW saved	\$423	\$1,145	\$195	\$349	\$433
Distribution system focused					
Net TRC Value (\$)	-\$755,644	-\$7,281,000	\$1,351,846	\$1,217,763	-\$5,467,034
Benefit to Costs Ratio	0.66	0.00	1.49	1.44	0.64
Lifetime kWh savings	28,167,142	0	82,974,367	119,140,808	230,282,317
Annual kWh savings	10,172,377	0	2,443,229	4,590,726	17,206,332
Summer peak demand savings (kW)	3,575	0	357	819	4,751
Winter peak demand savings (kW)	91	0	0	93	184
Gross in-year CDM expenditures	\$1,727,505	\$7,281,000	\$2,493,018	\$2,317,306	\$13,818,829
Levelized cost per kWh saved	\$0.061		\$0.030	\$0.019	\$0.060
Cost per kW saved	\$483		\$6,982	\$2,829	\$2,908
Other					
Net TRC Value (\$)	-\$643,458	-\$697,350	-\$103,668	-\$383,823	-\$1,828,299
Benefit to Costs Ratio	0.00	0.00	0.00	0.00	0.00
Lifetime kWh savings	0	0	0	0	0
Annual kWh savings	0	0	0	0	0
Summer peak demand savings (kW)	0	0	0	0	0
Winter peak demand savings (kW)	0	0	0	0	0
Gross in-year CDM expenditures	\$643,458	\$697,350	\$120,623	\$369,191	\$1,830,623
Levelized cost per kWh saved					
Cost per kW saved					
Total					
Net TRC Value (\$)	\$129,830,123	\$35,946,856	\$9,226,365	\$14,317,243	\$189,320,585
Benefit to Costs Ratio	3.50	2.90	1.49	2.01	2.82
Lifetime kWh savings	1,920,696,833	556,954,023	490,211,330	569,156,996	3,537,019,182
Annual kWh savings	302,481,224	91,148,647	75,876,565	51,721,406	521,227,842
Summer peak demand savings (kW)	109,023	9,948	5,099	17,130	141,200
Winter peak demand savings (kW)	9,769	30,819	6,946	15,973	63,507
Gross in-year CDM expenditures	\$35,353,714	\$15,740,538	\$9,603,319	\$11,304,741	\$72,002,312
Levelized cost per kWh saved	\$0.018	\$0.028	\$0.020	\$0.020	\$0.020
Cost per kW saved	\$324	\$1,582	\$1,883	\$660	\$510

Notes:

Gross in-year expenditures include indirect cost (where provided)

Small distributors are those with approved CDM plans of less than 1 million dollars

at 21.3 million dollars, and LDC focused at 13.8 million dollars).³ Energy focused programs reported estimated lifetime energy savings of just over 3.2 billion kilowatt-hours, and summer peak demand savings of 87 MW. It is likely that demand savings were higher than this amount because LDCs did not always account for demand reductions associated with programs focused on saving energy.⁴

Overall, reported levelized energy costs for the energy focused savings programs averaged out to 0.011 \$/kWh.⁵

The program with the single largest reported savings is a Toronto Hydro deep lake cooling program that is expected to save more than 560 million kWh over its lifetime, and the program with the largest annual savings is the Summer Challenge program, which is also Toronto Hydro's, with reported savings of more than 70 million kWh.

4.2 Results by sectoral focus of program

Estimating spending and savings by sector is complicated by programs being targeted at multiple sectors. To generalize somewhat, it appears that of the 3.5 billion kWh lifetime savings, about 2.2 billion kWh are expected to be saved in the residential and small commercial sectors, about 1.0 billion kWh in the commercial, industrial and institutional sectors, and about 0.3 billion kWh in the distribution systems of LDCs.

Spending follows a similar pattern with about two-thirds of the spending in the residential and small commercial sectors, about one-quarter of the spending in the commercial, industrial and institutional sectors, and the balance, less than 10 percent, in the distribution sector.

Detailed results are shown on Table 2.

³ These gross expenditure numbers include direct and indirect costs where reported. Actual investment is likely higher, since few LDCs reported indirect costs.

⁴ For the most part, these are the values reported by LDCs. In the case of Toronto Hydro's Summer Challenge program, demand reductions were conservatively estimated at 47 MW by assuming the energy savings were evenly distributed over the 63 days of the program. This quantity is included in the 87 MW total cited.

⁵ Actual costs are probably somewhat higher, since it appears that some LDCs did not fully report all costs, including, in particular, indirect costs, and customer equipment cost. Based on the types of programs offered, and the value of these costs where they were included, the levelized cost per kilowatt-hour is still likely well under 0.05 \$/kWh.

Table 2 – Results by sector

	CLD	HONI	Medium distributors	Small distributors	Total		CLD	HONI	Medium distributors	Small distributors	Total
Residential						Multiple General Service					
Net TRC Value (\$)	\$87,028,049	\$36,311,613	\$4,819,838	\$6,340,789	\$134,500,289	Net TRC Value (\$)	\$39,568,278	\$14,315	-\$231,547	\$3,734,595	\$43,085,641
Benefit to Costs Ratio	4.05	3.01	1.46	2.51	3.19	Benefit to Costs Ratio	2.95	1.21	0.05	2.17	2.81
Lifetime kWh savings	1,060,638,870	553,339,389	278,844,623	302,905,180	2,195,728,062	Lifetime kWh savings	738,205,283	1,336,522	86,580	16,141,368	755,769,753
Annual kWh savings	247,122,815	90,745,020	51,902,575	39,550,353	429,320,763	Annual kWh savings	41,032,529	154,231	57,772	1,758,812	43,003,344
Summer peak demand savings (kW)	82,957	9,910	1,916	5,155	99,938	Summer peak demand savings (kW)	22,231	8	420	7,494	30,153
Winter peak demand savings (kW)	8,418	30,759	4,309	6,266	49,752	Winter peak demand savings (kW)	1,260	30	0	8,156	9,446
Gross in-year CDM expenditures	\$25,920,305	\$14,503,252	\$4,619,830	\$3,483,903	\$48,527,290	Gross in-year CDM expenditures	\$6,976,104	\$60,427	\$94,526	\$3,031,719	\$10,162,776
Levelized cost per kWh saved	\$0.024	\$0.026	\$0.017	\$0.012	\$0.022	Levelized cost per kWh saved	\$0.009	\$0.045	\$1.092	\$0.188	\$0.013
Cost per kW saved	\$312	\$1,463	\$2,411	\$676	\$486	Cost per kW saved	\$314	\$7,553	\$225	\$405	\$337
			Medium distributors	Small distributors	Total	LDC system	CLD	HONI	Medium distributors	Small distributors	Total
Commercial	CLD	HONI				Net TRC Value (\$)	\$1,347,978	\$0	\$1,474,140	\$1,875,598	\$4,697,716
Net TRC Value (\$)	\$0	\$0	\$1,664,899	\$442,644	\$2,107,543	Benefit to Costs Ratio	1.68	1.57	1.53	1.58	
Benefit to Costs Ratio			1.66	1.34	1.55	Lifetime kWh savings	65,167,142	0	84,383,411	149,062,219	298,612,772
Lifetime kWh savings	0	0	44,483,705	30,999,955	75,483,660	Annual kWh savings	12,022,377	0	2,502,792	5,234,552	19,759,721
Annual kWh savings	0	0	3,721,985	2,105,800	5,827,785	Summer peak demand savings (kW)	3,575	0	366	2,274	6,215
Summer peak demand savings (kW)	0	0	1,028	1,025	2,053	Winter peak demand savings (kW)	91	0	10	372	473
Winter peak demand savings (kW)	0	0	1,018	694	1,711	Gross in-year CDM expenditures	\$1,501,059	\$0	\$2,185,438	\$2,779,896	\$6,466,393
Gross in-year CDM expenditures	\$0	\$0	\$695,581	\$667,259	\$1,362,839	Levelized cost per kWh saved	\$0.023	\$0.026	\$0.019	\$0.019	\$0.022
Levelized cost per kWh saved	\$0.014	\$0.016	\$0.012	\$0.022	\$0.018	Cost per kW saved	\$420	\$5,970	\$1,222	\$1,040	
Cost per kW saved			\$677	\$651	\$664				Medium distributors	Small distributors	Total
	CLD	HONI				Other	CLD	HONI			
Industrial						Net TRC Value (\$)	-\$809,252	-\$697,350	\$1,382,920	-\$427,260	-\$550,942
Net TRC Value (\$)	\$0	\$0	-\$197,857	\$139,356	-\$58,501	Benefit to Costs Ratio	0.01	0.00	2.24	0.44	0.84
Benefit to Costs Ratio			0.71	1.89	0.93	Lifetime kWh savings	70,246	0	52,936,852	640,055	53,647,153
Lifetime kWh savings	0	0	5,181,416	12,513,481	17,694,897	Annual kWh savings	26,085	0	10,404,787	68,011	10,498,883
Annual kWh savings	0	0	328,658	499,545	828,203	Summer peak demand savings (kW)	0	0	949	519	1,469
Summer peak demand savings (kW)	0	0	52	169	221	Winter peak demand savings (kW)	0	0	1,293	12	1,305
Winter peak demand savings (kW)	0	0	55	188	243	Gross in-year CDM expenditures	\$813,794	\$697,350	\$712,808	\$780,663	\$3,004,615
Gross in-year CDM expenditures	\$0	\$0	\$694,552	\$103,706	\$798,258	Levelized cost per kWh saved	\$11.585	\$0.013	\$0.120	\$1.220	\$0.056
Levelized cost per kWh saved			\$0.134	\$0.008	\$0.045	Cost per kW saved			\$751	\$1,503	\$2,046
Cost per kW saved			\$13,270	\$614	\$3,606				Medium distributors	Small distributors	Total
	CLD	HONI				Total	CLD	HONI			
Institutional						Net TRC Value (\$)	\$129,830,123	\$35,946,856	\$9,226,365	\$14,317,243	\$189,320,585
Net TRC Value (\$)	\$2,695,069	\$27,316	\$313,972	\$2,211,520	\$5,247,877	Benefit to Costs Ratio	3.50	2.90	1.49	2.01	2.82
Benefit to Costs Ratio	13.27	1.30	1.25	3.24	3.05	Lifetime kWh savings	1,920,696,833	556,954,023	490,211,330	569,156,996	3,537,019,182
Lifetime kWh savings	56,615,292	1,870,103	24,294,743	56,894,739	139,674,877	Annual kWh savings	302,481,224	91,148,647	75,876,565	51,721,406	521,227,842
Annual kWh savings	2,277,418	185,396	6,957,996	2,504,334	11,925,143	Summer peak demand savings (kW)	109,023	9,948	5,099	17,130	141,200
Summer peak demand savings (kW)	260	21	368	493	1,142	Winter peak demand savings (kW)	9,769	30,819	6,946	15,973	63,507
Winter peak demand savings (kW)	0	21	261	285	567	Gross in-year CDM expenditures	\$35,353,714	\$15,740,538	\$9,603,319	\$11,304,741	\$72,002,312
Gross in-year CDM expenditures	\$142,453	\$475,336	\$600,584	\$457,595	\$1,675,968	Levelized cost per kWh saved	\$0.018	\$0.028	\$0.020	\$0.020	\$0.020
Levelized cost per kWh saved	\$0.003	\$0.254	\$0.025	\$0.008	\$0.012	Cost per kW saved	\$324	\$1,582	\$1,883	\$660	\$510
Cost per kW saved	\$548	\$22,635	\$1,631	\$928	\$1,467						
	CLD	HONI				Notes:					
Agricultural						Residential includes programs targeted at residential as well as at residential & small commercial					
Net TRC Value (\$)	\$0	\$290,962	\$0	\$0	\$290,962	Gross in-year expenditures include indirect cost (where provided)					
Benefit to Costs Ratio		18.92			18.92	Small distributors are those with approved CDM plans of less than 1 million dollars					
Lifetime kWh savings	0	408,009	0	0	408,009						
Annual kWh savings	0	64,000	0	0	64,000						
Summer peak demand savings (kW)	0	9	0	0	9						
Winter peak demand savings (kW)	0	9	0	0	9						
Gross in-year CDM expenditures	\$0	\$4,173	\$0	\$0	\$4,173						
Levelized cost per kWh saved		\$0.010			\$0.010						
Cost per kW saved		\$464			\$464						

4.3 Results by region

Projected life-time savings and expenditures by region are largely what one would expect based on the population distribution in Ontario:

Region	Lifetime energy savings (% of provincial total)	Gross expenditures (% of provincial total)
Golden Horseshoe	57%	55%
Eastern & Central Ontario	15%	8%
Southwestern Ontario	11%	13%
Northern Ontario	1%	2%
Hydro One	16%	22%
Total	100%	100%

Details are presented on Table 3.

4.4 Program types

Ontario LDCs reported results on more than 580 programs for 2006. Further, some of these programs consisted of multiple initiatives, and could easily have been characterized as multiple programs under an umbrella name.

The most common programs were coupon and other financial incentive programs, and information and outreach programs. More than 100 programs were coupon and financial incentive programs, including the Every Kilowatt Counts program, which was offered by many utilities in both the spring and the fall of 2006. Another 60 programs that were not primarily coupon or financial incentive programs had a component of this type.

Information dissemination, including booklets, websites and public outreach were the focus of about 75 programs, and were a secondary focus of about 115 other programs.

Table 3 – Results by region

			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Golden Horseshoe					
Net TRC Value (\$)	\$112,732,303	\$0	\$10,134,626	\$3,276,874	\$126,143,802
Benefit to Costs Ratio	3.42		2.30	1.94	3.18
Lifetime kWh savings	1,596,607,440	0	286,718,868	158,973,129	2,042,299,437
Annual kWh savings	246,704,418	0	33,847,441	14,258,953	294,810,812
Summer peak demand savings (k)	104,208	0	2,939	3,573	110,721
Winter peak demand savings (k)	9,769	0	4,794	1,865	16,428
Gross in-year CDM expenditure	\$31,694,891	\$0	\$5,398,089	\$2,421,422	\$39,514,402
Levelized cost per kWh saved	\$0.020		\$0.019	\$0.015	\$0.019
Cost per kW saved	\$304		\$1,837	\$678	\$357
			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Eastern & Central Ontario					
Net TRC Value (\$)	\$17,097,820	\$0	-\$597,675	\$5,194,468	\$21,694,613
Benefit to Costs Ratio	4.18		0.07	3.00	3.52
Lifetime kWh savings	324,089,393	0	9,297,090	186,806,033	520,192,516
Annual kWh savings	55,776,806	0	734,060	9,314,758	65,825,625
Summer peak demand savings (k)	4,815	0	96	1,594	6,506
Winter peak demand savings (k)	0	0	0	1,798	1,798
Gross in-year CDM expenditure	\$3,658,823	\$0	\$722,867	\$1,094,968	\$5,476,658
Levelized cost per kWh saved	\$0.011		\$0.078	\$0.006	\$0.011
Cost per kW saved	\$760		\$7,503	\$687	\$842
			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Southwestern Ontario					
Net TRC Value (\$)	\$0	\$0	-\$573,273	\$4,729,586	\$4,156,313
Benefit to Costs Ratio			0.94	1.68	1.25
Lifetime kWh savings	0	0	181,476,676	194,153,423	375,630,099
Annual kWh savings	0	0	39,998,267	25,289,469	65,287,736
Summer peak demand savings (k)	0	0	1,869	11,711	13,580
Winter peak demand savings (k)	0	0	1,851	11,904	13,755
Gross in-year CDM expenditure	\$0	\$0	\$3,110,021	\$6,533,780	\$9,643,801
Levelized cost per kWh saved			\$0.017	\$0.034	\$0.026
Cost per kW saved			\$1,664	\$558	\$710
			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Northern Ontario					
Net TRC Value (\$)	\$0	\$0	\$262,686	\$1,116,316	\$1,379,002
Benefit to Costs Ratio			1.50	2.06	1.87
Lifetime kWh savings	0	0	12,718,696	29,224,411	41,943,107
Annual kWh savings	0	0	1,296,797	2,858,226	4,155,023
Summer peak demand savings (k)	0	0	195	251	446
Winter peak demand savings (k)	0	0	301	406	706
Gross in-year CDM expenditure	\$0	\$0	\$372,341	\$1,254,571	\$1,626,913
Levelized cost per kWh saved			\$0.029	\$0.043	\$0.039
Cost per kW saved			\$1,913	\$4,991	\$3,647
			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Hydro One					
Net TRC Value (\$)	\$0	\$35,946,856	\$0	\$0	\$35,946,856
Benefit to Costs Ratio		2.90			2.90
Lifetime kWh savings	0	556,954,023	0	0	556,954,023
Annual kWh savings	0	91,148,647	0	0	91,148,647
Summer peak demand savings (k)	0	9,948	0	0	9,948
Winter peak demand savings (k)	0	30,819	0	0	30,819
Gross in-year CDM expenditure	\$0	\$15,740,538	\$0	\$0	\$15,740,538
Levelized cost per kWh saved		\$0.028			\$0.028
Cost per kW saved		\$1,582			\$1,582
			Medium	Small	
	CLD	HONI	distributors	distributors	Total
Total					
Net TRC Value (\$)	\$129,830,123	\$35,946,856	\$9,226,365	\$14,317,243	\$189,320,585
Benefit to Costs Ratio	3.50	2.90	1.49	2.01	2.82
Lifetime kWh savings	1,920,696,833	556,954,023	490,211,330	569,156,996	3,537,019,182
Annual kWh savings	302,481,224	91,148,647	75,876,565	51,721,406	521,227,842
Summer peak demand savings (k)	109,023	9,948	5,099	17,130	141,200
Winter peak demand savings (k)	9,769	30,819	6,946	15,973	63,507
Gross in-year CDM expenditure	\$35,353,714	\$15,740,538	\$9,603,319	\$11,304,741	\$72,002,312
Levelized cost per kWh saved	\$0.018	\$0.028	\$0.020	\$0.020	\$0.020
Cost per kW saved	\$324	\$1,582	\$1,883	\$660	\$510

Other commonly reported programs included: workshops and seminars (23 primary/11 secondary), giveaway or exchange programs (40 primary/63 secondary), LDC distribution system improvements (49) and smart metering pilots or research (42). There were 37 programs with a primary focus on audits, and an additional 29 programs that had an audit component. Twenty programs were primarily appliance replacement programs, and another 18 had appliance replacement as a part of the program. LDCs offered 30 programs with a load control component, with programs for both residential and commercial and industrial customers.

Twenty-one programs were focused on social housing, and 17 on low-income customers. Six programs tried to improve electricity efficiency in new construction and there were 18 in-house programs to improve LDC-owned facilities. 22 programs focused on educating students about electricity conservation.

5 Conclusion

Ontario's local electricity distribution companies reported progress on a large number of diverse and innovative programs to help their customers and themselves to reduce their electricity use and demand. Substantial savings of electricity were reported: 3.5 billion kilowatt-hours over the lifetime of the measures implemented, and 520 million kilowatt-hours in the first year. In addition, summer demand reductions of 141 MW were estimated for 2006.

Programs covered all sectors – residential, commercial, industrial and institutional – as well as important sub-sectors, including low-income customers and social housing buildings. In addition, the LDCs implemented programs to improve their own electricity efficiency, both in the distribution system, and in their office and other operations.

Programs addressed both energy reductions and demand reductions, and realized these savings through a mix of information programs, financial incentives, and direct installations. The LDCs were also involved in supporting OPA's Every Kilowatt Counts programs, and some of their programs, including Toronto Hydro's Summer Challenge program, and load reduction programs by a number of the LDCs served as models for OPA programs to be delivered by LDCs beginning this summer.

The LDCs were able to realize these savings at a very low reported cost per kilowatt-hour: about 0.02 \$/kWh (over the lifecycle of the measures implemented), and in the process of doing so they reported that they improved relationships with their customers.

It is clear from the results achieved that LDCs can play an important role in helping Ontario to meet its objectives for energy conservation.



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