# WHITBY HYDRO ELECTRIC CORPORATION

## RP-2004-0203\EB-2004-0526


## 2006 ANNUAL REPORT

## CONSERVATION AND DEMAND MANAGEMENT

## THIRD TRANCHE FUNDING

## ***INTRODUCTION***

On February 17th, 2005, Whitby Hydro Electric Corporation ("Whitby Hydro") received Board approval for its Conservation and Demand Management ("CDM") Plan. The initial plan incorporated eleven different programs totaling $1.3M, many of which were in start up mode or early stages during 2005. Lessons learned in 2005 and 2006 provided insights which helped to identify modifications which would improve existing programs and explore opportunities for shifting spending between existing and new programs.

CDM activities continued to be monitored by the CDM committee in 2006 and during the later half of the year it became apparent that shifts in funding between programs would likely exceed 20% of the OEB approved budget/plan, and that additional CDM programs would need to be offered to fully utilize funds available from the third tranche. At this time, the Conservation Officer began research into proven programs that would compliment the expected spending requirements of previously approved CDM programs. Once this analysis had been completed and reviewed by the committee, a revised CDM plan was submitted in January 2007 for OEB approval. As additional information became available regarding the Ontario Power Authority (OPA) programs that would be offered provincially in 2007, an amendment to the revised plan was also submitted for consideration in February 2007. The amendment did not change the previously submitted revised CDM budget, but did request that any programs that might overlap with OPA offered programs in 2007 be considered "flexible" to allow monies earmarked for these similar programs to be redirected to other identified CDM programs at the discretion of Whitby Hydro.

On March 22, 2007, the Board issued a decision approving Whitby Hydro's reallocation of funds which established a new OEB approved CDM budget. The Board also agreed to allow funding for the identified "flexible" programs to be reallocated subject to securing funding for similar programs through the OPA. The revised budget has been included below for reference.

***Whitby Hydro - CDM Budget Comparison***

| | Original Budget | Revised Budget | Net Change |
|---|---|---|---|
| **EXISTING PROGRAMS** | | | |
| Research | 25,000 | 23,500 | (1,500) |
| BiFuel Peak Shaving Pilot | 50,000 | 61,500 | 11,500 |
| BiFuel Peak Shaving (Town of Whitby) | 110,000 | 110,000 | 0 |
| BiFuel Incentive | 350,000 | 112,000 | (238,000) |
| Durham NP Housing Energy Efficiency | 40,000 | 120,000 | 80,000 |
| Power Medix Residential | 125,000 | 69,000 | (56,000) |
| Power Factor Correction | 125,000 | 38,000 | (87,000) |
| Sub-Metering | 250,000 | 11,000 | (239,000) |
| Education & Training (incl. CFL Bulb Promotion) | 75,000 | 220,500 | 145,500 |
| Load Balancing | 50,000 | 34,000 | (16,000) |
| Smart Meters | 100,000 | 40,000 | (60,000) |
| ***Subtotal - Existing Programs*** | 1,300,000 | 839,500 | (460,500) |
| **NEW PROGRAMS** | | | |
| CDM Plan Admin/Reporting | 0 | 25,000 | 25,000 |
| Seasonal Light Program | 0 | 28,000 | 28,000 |
| Whitby Hydro Energy Audit | 0 | 58,500 | 58,500 |
| Seniors Care Package | 0 | 58,000 | 58,000 |
| Community Events | 0 | 42,500 | 42,500 |
| Website Development | 0 | 6,000 | 6,000 |
| ***Subtotal - New Programs*** | 0 | 217,999 | 217,999 |
| **FLEXIBLE PROGRAMS*** | | | |
| RAC Drop Off & Recycling (Keep Cool) | 0 | 79,000 | 79,000 |
| Refrigerator Retirement | 0 | 163,500 | 163,500 |
| ***Subtotal – Flexible Programs*** | 0 | 242,501 | 242,501 |
| ***Total Program Costs*** | 1,300,000 | 1,300,000 | (0) |
| ***Cumulative net change amongst programs*** | | | **697,500** |
| | | | **53.7%** |

* Funding for Flexible Programs may be redirected between all of the above listed programs based on further review by Whitby Hydro. This review will include consideration of provincial CDM programs offered by the OPA.

The 2006 annual report uses the OEB approved revised budget as a reference point to program specific spending summaries. It is important to note that there were a variety of reasons why existing program budgets were adjusted downward and these shifts should not be interpreted in a negative manner. Several of these programs had longer than expected sales, marketing and implementation cycles, which created some uncertainty that the programs could be implemented within a limited timeframe (ie. by September 2007). Overall, shifts were a result of deliberate and strategic decisions by Whitby Hydro to ensure the promotion and engagement of customers in the conservation culture and to offer a wide range of initiatives to benefit a range of Whitby Hydro customers.

This annual report has been prepared using the guidelines provided by the Ontario Energy Board as a framework. The intent is to evaluate the benefits of the programs using the best information available. During 2006, Whitby Hydro continued to utilize the expertise and model developed by EnerSpectrum Group in completing Total Resource Cost (TRC) calculations. When possible, evaluations include a combination of actual and forecast information as there are currently several programs which are nearing but have not fully reached completion. Where programs have not yet begun or are still in the early start-up phase, quantifiable TRC costs and benefits may not be available or reported.

In recognition of the dynamic nature of the industry and the information learned through the evaluation of different programs, Whitby Hydro will continue to assess its Conservation and Demand Management plan and if necessary, re-allocate funds between existing programs or to new programs as we continue to learn from our experiences.

## ***EVALUATION***

Overall, the CDM spending at the end of 2006 was $752,580 (or 58% of the total CDM budget). There has been considerable time and effort invested in developing, designing, marketing, implementing and administering the programs and each program is considered to be an important part of our overall learning process. Information collected, forecasted and analyzed for each program has been summarized per the reporting requirements in Appendices A, B and C. The programs have been grouped into the following categories:

- Residential
- LDC System
- Smart Meters
- Mix of Customer Categories (program spans across several customer categories)
- Industrial/Commercial

It should be noted that each program is in various stages of completion and these groupings can distort the data when reported as aggregate figures (Appendix A). As such, the information on each individual program (as laid out in Appendix B) will provide more meaningful data.

It is important to note that there are only three programs that can be considered fully complete at the end of 2006 – the Research program, Durham Non-Profit Housing Energy Efficiency program and the Sub-Metering program. The majority of the other programs are well underway and many are close to completion. Several programs required some degree of estimating or forecasting to determine the measurements required. Once again, the evaluation is seen as a learning process to increase the understanding of possible program benefits with the understanding that they may be based on a series of forecasts and assumptions which improve as we get closer to program completion. The annual reporting exercise continues to be useful and even at early stages of a program rollout, has allowed us an opportunity to make modifications to our programs and overall plan going forward in an attempt to increase the benefits of the program from a conservation and demand management perspective.

# Appendix A - Evaluation of the CDM Plan

**Highlighted boxes are to be completed manually, white boxes are linked to Appendix C and will be brought forward automatically.**

| | [5] Cumulative Totals Life-to-date | Total for 2006 | Residential | Commercial | Institutional | Industrial | Agricultural | LDC System | [4] Smart Meters | Mix of Customer Categories | Industrial & Commercial |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Net TRC value ($):* | *346,772* | $ 60,391 | $ 47,620 | $ - | $ - | $ - | $ - | $ 266 | | $ 166,126 | $ (153,621) |
| *Benefit to cost ratio:* | *1.64* | 1.18 | 1.44 | 0.00 | 0.00 | 0.00 | 0.00 | 1.10 | | 3.41 | 0.04 |
| *Number of participants or units delivered:* | *14,032* | *13,964* | 3,689 | 0 | 0 | 0 | 0 | 1 | | 10,271 | 3 |
| *Lifecycle (kWh) Savings:* | *8,302,353* | 6,531,178 | 2,292,058 | 0 | 0 | 0 | 0 | 47,232 | | 4,053,308 | 138,580 |
| *Report Year Total kWh saved (kWh):* | *1,412,295* | 1,287,442 | 399,665 | 0 | 0 | 0 | 0 | 11,808 | | 870,197 | 5,772 |
| *Total peak demand saved (kW):* | *249* | 53 | 51 | 0 | 0 | 0 | 0 | 1 | | 0 | 1 |
| *Total kWh saved as a percentage of total kWh delivered (%):* | *0.17%* | 0.15% | 0.05% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | 0.10% | 0.00% |
| *Peak kW saved as a percentage of LDC peak kW load (%):* | | 0.03% | 0.03% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | 0.00% | 0.00% |
| [1] *Report Year Gross C&DM expenditures ($):* | *$752,580* | $ 480,198 | $ 194,233 | $ - | $ - | $ - | $ - | $ 2,552 | $ 16,867 | $ 221,579 | $ 44,967 |
| [2] *Expenditures per KWh saved ($/kWh):* | *$0.53* | $ 0.07 | $ 0.08 | $ - | $ - | $ - | $ - | $ 0.05 | | $ 0.05 | $ 0.32 |
| [3] *Expenditures per KW saved ($/kW):* | *$3,021* | $ 9,060.34 | $ 3,808.49 | $ - | $ - | $ - | $ - | $ 2,552.00 | | $ - | $ 44,967.00 |

| | |
|---|---|
| *Utility discount rate (%):* | 6.8157% |

[1] Expenditures are reported on accrual 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. Only actual expenditures for the year need to be reported.
[5] Includes total for the reporting year, plus prior year, if any (for example, 2006 CDM Annual report for third tranche will include 2005 and 2004 numbers, if any.

# Appendix C - Program and Portfolio Totals

**Report Year:** 2006

## 1. Residential Programs

List each Appendix B in the cells below; Insert additional rows as required.
Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Energy Efficiency - DNPH* | $ 100,848 | $ 89,671 | $ 11,177 | 1.12 | 231,292 | 1,237,562 | 51 | $ 120,000 |
| *Power Factor Correction - Residential* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0.00 | $ 31,690 |
| *Seniors Care Package* | $ 55,315 | $ 18,872 | $ 36,443 | 2.93 | 168,373 | 1,054,496 | 0 | $ 36,020 |
| *RAC Drop Off & Recylcing (Keep Cool* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 1,512 |
| *Refrigerator Retirement* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 3,023 |
| *Sub-Metering* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 1,988 |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| **Totals App. B - Residential** | $ 156,163 | $ 108,543 | $ 47,620 | 1.44 | 399,665 | 2,292,058 | 51 | $ 194,233 |
| *Residential Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total Residential TRC Costs** | | $ 108,543 | | | | | | |
| ****Totals TRC - Residential** | **$ 156,163** | **$ 108,543** | **$ 47,620** | **1.44** | | | | |

## 2. Commercial Programs

List each Appendix B in the cells below; Insert additional rows as required.
Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Name of Program A* | | | $ - | 0.00 | | | | |
| *Name of Program B* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program D* | | | $ - | 0.00 | | | | |
| *Name of Program E* | | | $ - | 0.00 | | | | |
| *Name of Program F* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| **Totals App. B - Commercial** | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |

| | | | | |
|---|---|---|---|---|
| *Commercial Indirect Costs not attributable to any specific program* → | | | | |
| **Total TRC Costs** | | $ - | | |
| ****Totals TRC - Commercial** | $ - | $ - | $ - | 0.00 |

## 3. Institutional Programs

List each Appendix B in the cells below; Insert additional rows as required.
Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Name of Program A* | | | $ - | 0.00 | | | | |
| *Name of Program B* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program D* | | | $ - | 0.00 | | | | |
| *Name of Program E* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| ***Totals App. B - Institutional** | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |
| *Institutional Indirect Costs not attributable to any specific program* → | | | | | | | | |
| **Total TRC Costs** | | $ - | | | | | | |
| ****Totals TRC - Institutional** | $ - | $ - | $ - | 0.00 | | | | |

## 4. Industrial Programs

List each Appendix B in the cells below; Insert additional rows as required.
Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Name of Program A* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program D* | | | $ - | 0.00 | | | | |
| *Name of Program E* | | | $ - | 0.00 | | | | |
| *Name of Program F* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Name of Program J* | | | $ - | 0.00 | | | | |
| ***Totals App. B - Industrial** | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |
| *Industrial Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total TRC Costs** | | $ - | | | | | | |
| ****Totals TRC - Industrial** | **$ -** | **$ -** | **$ -** | **0.00** | | | | |

## 5. Agricultural Programs

**List each Appendix B in the cells below; Insert additional rows as required.**
**Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.**

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Name of Program A* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program D* | | | $ - | 0.00 | | | | |
| *Name of Program E* | | | $ - | 0.00 | | | | |
| *Name of Program F* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| ***Totals App. B - Agricultural** | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |
| *Agricultural Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total TRC Costs** | | $ - | | | | | | |
| ****Totals TRC - Agricultural** | **$ -** | **$ -** | **$ -** | **0.00** | | | | |

## 6. LDC System Programs

**List each Appendix B in the cells below; Insert additional rows as required.**
**Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.**

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Load Balancing* | $ 2,818 | $ 2,552 | $ 266 | 1.10 | 11,808 | 47,232 | 1 | $ 2,552 |
| *Name of Program B* | | | $ - | 0.00 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program D* | | | $ - | 0.00 | | | | |
| *Name of Program E* | | | $ - | 0.00 | | | | |
| *Name of Program F* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| ***Totals App. B - LDC System** | $ 2,818 | $ 2,552 | $ 266 | 1.10 | 11,808 | 47,232 | 1 | $ 2,552 |
| *LDC System Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total TRC Costs** | | $ 2,552 | | | | | | |
| ****Totals TRC - LDC System** | **$ 2,818** | **$ 2,552** | **$ 266** | **1.10** | | | | |

## 7. Smart Meters Program

**Only spending information that was authorized under the 3rd tranche of MARR is required to be reported for Smart Meters.**

| | | |
|---|---|---|
| **Report Year Gross C&DM Expenditures ($)** | → | 16,867 |

## 8. Mix of Customer Categories Programs

**List each Appendix B in the cells below; Insert additional rows as required.**
**Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.**

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Research* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |
| *Education & Training* | $ 139,088 | $ 45,651 | $ 93,437 | 3.05 | 566,297 | 2,265,188 | 0 | $ 154,085 |
| *Seasonal Light Program* | $ 26,831 | $ 10,666 | $ 16,165 | 2.52 | 22,020 | 660,600 | 0 | $ 27,825 |
| *Community Events* | $ 69,233 | $ 12,709 | $ 56,524 | 5.45 | 281,880 | 1,127,520 | 0 | $ 18,394 |
| *Website Development* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ - |
| *CDM Plan Admin/Report* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 21,275 |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| ***Totals App. B - Mix of Customer Ca** | $ 235,152 | $ 69,026 | $ 166,126 | 3.41 | 870,197 | 4,053,308 | 0 | $ 221,579 |
| *Mix of Customer Categories Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total TRC Costs** | | $ 69,026 | | | | | | |
| ****Totals TRC - Mix of Customer Cate** | **$ 235,152** | **$ 69,026** | **$ 166,126** | **3.41** | | | | |

## 9. Industrial & Commercial Programs

List each Appendix B in the cells below; Insert additional rows as required.
Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| *Peak Shaving - Whitby Hydro Bifuel* | $ 5,420 | $ 10,843 | -$ 5,423 | 0.50 | 0 | 12,000 | 0 | $ 27,575 |
| *Peak Shaving - Town of Whitby Bifuel* | -$ 3,155 | $ 139,059 | -$ 142,214 | -0.02 | 0 | 40,000 | 0 | $ - |
| *Peak Shaving - Bi-fuel Incentive* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 3,570 |
| *Power Factor Correction* | $ 4,395 | $ 10,379 | -$ 5,984 | 0.42 | 5,772 | 86,580 | 1 | $ 12,459 |
| *Whitby Hydro Energy Audit* | $ - | $ - | $ - | 0.00 | 0 | 0 | 0 | $ 1,363 |
| *Name of Program C* | | | $ - | 0.00 | | | | |
| *Name of Program G* | | | $ - | 0.00 | | | | |
| *Name of Program H* | | | $ - | 0.00 | | | | |
| *Name of Program I* | | | $ - | 0.00 | | | | |
| *Name of Program J* | | | $ - | 0.00 | | | | |
| **Totals App. B - Industrial & Comme | $ 6,660 | $ 160,281 | -$ 153,621 | 0.04 | 5,772 | 138,580 | 1 | $ 44,967 |
| *Industrial & Commercial Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **Total TRC Costs** | | $ 160,281 | | | | | | |
| ****Totals TRC - Industrial & Commer** | **$ 6,660** | **$ 160,281** | **-$ 153,621** | **0.04** | | | | |

## LDC's CDM PORTFOLIO TOTALS

| | TRC Benefits (PV) | TRC Costs (PV) | $ Net TRC Benefits | Benefit/Cost Ratio | Report Year Total kWh Saved | Lifecycle (kWh) Savings | Total Peak Demand (kW) Saved | Report Year Gross C&DM Expenditures ($) |
|---|---|---|---|---|---|---|---|---|
| ***TOTALS FOR ALL APPENDIX B** | $ 400,793 | $ 340,402 | $ 60,391 | 1.18 | $ 1,287,442 | $ 6,531,178 | $ 53 | $ 480,198 |
| *Any **other** Indirect Costs not attributable to any specific program* | → | | | | | | | |
| **TOTAL ALL LDC COSTS** | | $ 340,402 | | | | | | |
| ****LDC' PORTFOLIO TRC** | $ 400,793 | $ 340,402 | $ 60,391 | 1.18 | | | | |

* The savings and spending information from this row is to be carried forward to Appendix A.
** The TRC information from this row is to be carried forward to Appendix A.

## ***PROGRAM DISCUSSIONS AND LESSONS LEARNED***

Discussions of the following individual programs are included and supplemented by an Appendix B:

- Research
- Bi-Fuel Peak Shaving – Whitby Hydro Pilot
- Bi-Fuel Peak Shaving – Town of Whitby
- Bi-Fuel Peak-Shaving – Customer Incentives
- Energy Efficiency – Durham Non-Profit Housing
- Power Factor Correction – Power Medix Residential
- Power Factor Correction
- Sub-Metering
- Education & Training
- Load Balancing
- Smart Meters
- Seasonal Light Program
- Whitby Hydro Energy Audit
- Seniors Care Package
- Community Events
- Website Development
- Room Air-Conditioner (RAC) Drop-Off & Recycling (Keep Cool)
- Refrigerator Retirement
- CDM Plan Admin & Reporting

Total Resource Cost (TRC) calculations were prepared using a model developed by EnerSpectrum Group.

## Research

| | |
|---|---|
| **2006 Program Spending:** | **$ 0** |
| **2006 Program Spending To-Date:** | **$23,536** |
| **OEB Approved Revised Budget:** | **$23,500** |
| **Program Status:** | **Completed** |

Whitby Hydro's research was completed in 2005 and no new activity occurred during 2006. The research included an Induction lighting pilot, and Emission testing for diesel and Bi-Fuel technology. The information for the research activity remains unchanged from results reported in the 2005. For additional detail, please see the 2005 report.

### Induction Lighting

During the research study, three different lighting applications were studied: parking lights, street lights, and warehouse lights. Measures and TRC reported for this program are based solely on the Induction Lighting pilot. Energy savings were found to be significant with the introduction of induction lighting however, TRC calculations are impacted by the size of the installation and the amount of retrofitting required.

### Emission Testing

In October 2004, Canadian ORTECH Environmental Inc (ORTECH) completed an emission testing program at the Whitby Hydro facility located in Whitby, Ontario. The objective of the testing program was to provide compliance quality data for an emergency power generator using two (2) different types of fuels – diesel and bi-fuel. Overall, the emission testing showed improved levels when using bi-fuel. This data was submitted to the Ministry of Energy as one of five test sites.

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** RESEARCH

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Whitby Hydro's research was completed in 2005 and no new activity occurred during 2006. The research included an Induction lighting pilot, and Emission testing for diesel and Bi-Fuel technology. The information for the research activity remains unchanged from results reported in the 2005. For additional detail, please see the 2005 report.

Induction Lighting

During the research study, three different lighting applications were studied: parking lights, street lights, and warehouse lights. Measures and TRC reported for this program are based solely on the Induction Lighting pilot. Energy savings were found to be significant with the introduction of induction lighting however, TRC calculations are impacted by the size of the installation and the amount of retrofitting required.

Emission Testing

In October 2004, Canadian ORTECH Environmental Inc (ORTECH) completed an emission testing program at the Whitby Hydro facility located in Whitby, Ontario. The objective of the testing program was to provide compliance quality data for an emergency power generator using two (2) different types of fuels – diesel and bi-fuel. Overall, the emission testing showed improved levels when using bi-fuel. This data was submitted to the Ministry of Energy as one of five test sites.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | High Pressure Sodium Lighting | High Pressure Sodium Lighting | |
| *Efficient technology:* | Induction Lighting | Induction Lighting | |
| *Number of participants or units delivered for reporting year:* | 0 | 0 | |
| *Measure life (years):* | 20 | 20 | |
| | Parking/Street Lighting | Indoor Warehouse Lighting | |
| *Number of Partipants or units delievered lfe to date* | 14 | 9 | |

B. **TRC Results*:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ - | $ 11,274.00 |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ - | $ 8,329.00 |
| *Total TRC costs:* | $ - | $ 8,329.00 |
| *Net TRC (in year CDN $):* | $ - | $ 2,945.00 |

*Benefit to Cost Ratio (TRC Benefits/TRC Costs):* 1.35

**** TRC results are for induction lighting pilot only.***

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | Cumulative Lifecycle | Cumulative Annual Savings |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | 4 |
| | *Winter* | | 4 |
| | *lifecycle* / *in year* | | |
| *Energy saved (kWh):* | | *281,860* | 14,093 |
| *Other resources saved :* | | | |
| *Natural Gas (m3):* | | | |
| *Other (specify):* | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** RESEARCH

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 8,817.00 |
| | *Incremental O&M:* | 0.00 | 14,719.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 23,536.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

TRC calculations and assumptions remain unchanged from 2005 reporting. No new activity to report.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

## Peak Shaving - Whitby Hydro Bi-fuel Pilot

| | |
|---|---|
| **2006 Program Spending:** | **$27,574** |
| **2006 Program Spending To-Date:** | **$59,950** |
| **OEB Approved Revised Budget:** | **$61,500** |
| **Program Status:** | **95% complete – awaiting improvements to switching** |

In 2006, work continued on the Bi-Fuel peak-shaving pilot program which was designed to change the transfer switch associated with the Whitby Hydro Bi-Fuel genset with a new switch which will convert the existing "open" transition transfer to "closed" transition and thereby facilitate momentary parallel operation. Remote operation capability of the modified genset was added in 2006 whereby automatic peak shaving can be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. At the present time, the control system has been developed and a new closed transition transfer switch was added during 2006 to complete the overall installation. The control switching mechanism is currently being worked on to avoid system "bumps" and ensure a seamless transfer. Once these modifications are completed, and based on a forecast of 300 hours of annual operation, and 40 kW of load, the annual savings is estimated to be 12,000 kWh.

The modification of the controls to facilitate peak shaving and remote dispatch would not have been undertaken without the support of the pilot program since significant funding was required to design and engineer a solution.

**Lessons Learned:**

By increasing the load on the generator from 40 kWe to 60 kWe, the TRC model calculates a positive NPV. This could improve TRC calculations in the future should the load requirements increase.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** BIFUEL PEAK SHAVING PILOT

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

In 2006, work continued on the Bi-Fuel peak-shaving pilot program which was designed to change the transfer switch associated with the Whitby Hydro Bi-Fuel genset with a new switch which will convert the existing "open" transition transfer to "closed" transition and thereby facilitate momentary parallel operation. Remote operation capability of the modified genset was added in 2006 whereby automatic peak shaving can be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. At the present time, the control system has been developed and a new closed transition transfer switch was added during 2006 to complete the overall installation. The control switching mechanism is currently being worked on to avoid system "bumps" and ensure a seamless transfer. Once these modifications are completed, and based on a forecast of 300 hours of annual operation, and 40 kW of load, the annual savings is estimated to be 12,000 kWh.
The modification of the controls to facilitate peak shaving and remote dispatch would not have been undertaken without the support of the pilot program since significant funding was required to design and engineer a solution.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Diesel Genset | | |
| *Efficient technology:* | Bi-Fuel Genset | | |
| *Number of participants or units delivered for reporting year:* | 1 | | |
| *Measure life (years):* | 20 | | |
| *Number of Partipants or units delievered life to date* | 1 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ 5,420.00 | $ 52,062.00 |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ 10,843.00 | $ 71,910.00 |
| *Total TRC costs:* | $ 10,843.00 | $ 71,910.00 |
| *Net TRC (in year CDN $):* | -$ 5,423.00 | -$ 19,848.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | 0.50 | 0.72 |

**** TRC results are estimated as technology is not fully operational in 2006.***

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | Summer / Winter | lifecycle | in year | Cumulative Lifecycle | Cumulative Annual Savings |
|---|---|---|---|---|---|
| *Demand savings (kW):* | | | | | |
| *Energy saved (kWh):* | | | | | |
| *Other resources saved :* | | | | | |
| *Natural Gas (m3):* | | | | | |
| *Other (specify):* | | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** BIFUEL PEAK SHAVING PILOT

**Line Loss Reduction Programs:**

*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | 120 |
| *Energy generated (kWh):* | 12,000 |
| *Peak energy generated (kWh):* | 12,000 |
| *Fuel type:* | Bi-Fuel |

Above amounts are forecasted as the technology was not fully operational in 2006.

**Other Programs (specify):**

*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 5,332.00 | 9,616.00 |
| | *Incremental O&M:* | 22,243.00 | 50,335.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 27,575.00 | 59,951.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

TRC benefits are estimates only as the technology was not fully operational during 2006. The Total Resource Cost (TRC) modeled using the EnerSpectrum spreadsheet was based on the following assumptions:

1. Summer Peaking utility and generator operating 300 hrs per year only during summer peak hours.
2. Economics forecasted over 20 years.
3. Avoided energy, generation, transmission and distribution capacity and distribution losses factored into economic model.
4. Fuel savings of $0.06/kWh using bi-fuel versus diesel for 12 hours each year to accommodate the maintenance requirements of CSA 282-00 (i.e. generators should be tested monthly for 1 hour as part of regular maintenance).
5. Operating costs of $0.10/kWh on bi-fuel and $0.16/kWh on diesel.
6. Program costs for remote dispatch controls and closed transition transfer switch included.
7. Displaced demand of 40 kWe.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Peak Shaving – Town of Whitby Bi-fuel**

| | |
|---|---|
| **2006 Program Spending:** | **$ 0** |
| **2006 Program Spending To-Date:** | **$110,149** |
| **OEB Approved Revised Budget:** | **$110,000** |
| **Program Status:** | **Complete – 2nd phase of work is underway utilizing the Bi-Fuel Incentive program** |

The use of standby gensets to relieve pressure on the existing grid is a proven efficient and cost-effective means to utilize existing resources at a fraction of the cost of wholesale expansion.

A Bi-Fuel standby diesel generator has been sited at the Town of Whitby Municipal Building to serve the dual role as a "peak shaver" for demand response and a back-up power supply for the Town of Whitby Emergency Command Centre in the event of a major emergency. At the present time, the diesel generator has been installed and it will be converted to bi-fuel operation during the second quarter of 2007 complete with remote operation capability whereby automatic peak shaving will be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. Based on 200 hours of annual operation, and 200 kW of load, the annual savings is estimated at 40,000 kWh.

The modification of the generator to facilitate peak shaving and remote dispatch would not have been undertaken without the support of the pilot program since significant funding was required to design and engineer a solution.

**Lessons Learned:**

By increasing the size of the generator and its associated load, the economics (NPV) of the TRC model for peak shaving with bi-fuel converted diesel generator becomes more positive.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** BIFUEL PEAK SHAVING - TOWN OF WHITBY

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

The use of standby gensets to relieve pressure on the existing grid is a proven efficient and cost-effective means to utilize existing resources at a fraction of the cost of wholesale expansion.

A Bi-Fuel standby diesel generator has been sited at the Town of Whitby Municipal Building to serve the dual role as a "peak shaver" for demand response and a back-up power supply for the Town of Whitby Emergency Command Centre in the event of a major emergency. At the present time, the diesel generator has been installed and it will be converted to bi-fuel operation during the second quarter of 2007 complete with remote operation capability whereby automatic peak shaving will be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. Based on 200 hours of annual operation, and 200 kW of load, the annual savings is estimated at 40,000 kWh.
The modification of the generator to facilitate peak shaving and remote dispatch would not have been undertaken without the support of the pilot program since significant funding was required to design and engineer a solution.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Diesel genset | | |
| *Efficient technology:* | Bi-Fuel genset | | |
| *Number of participants or units delivered for reporting year:* | 1 | | |
| *Measure life (years):* | 20 | | |
| *Number of Partipants or units delievered life to date* | 1 | | |

B. **TRC Results:**

| | | Reporting Year | Life-to-date TRC Results: |
|---|---|---|---|
| [1] *TRC Benefits ($):* | -$ | *3,155.00* | $ *199,890.00* |
| [2] *TRC Costs ($):* | | | |
| *Utility program cost (excluding incentives):* | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 139,059.00 | $ 159,873.00 |
| *Total TRC costs:* | $ | 139,059.00 | $ 159,873.00 |
| *Net TRC (in year CDN $):* | -$ | 142,214.00 | $ 40,017.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | -0.02 | 1.25 |

**** TRC results are estimated as technology is not fully operational in 2006.***

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

*Demand savings (kW):* *Summer*
*Winter*

| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** BIFUEL PEAK SHAVING - TOWN OF WHITBY

**Demand Response Programs:**
*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**

| | |
|---|---|
| *Amount of DG installed (kW):* | 300 |
| *Energy generated (kWh):* | 40,000 |
| *Peak energy generated (kWh):* | 40,000 |
| *Fuel type:* | Bi-Fuel |

Above amounts are forecasted as the technology was not fully operational in 2006.

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 110,149.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 110,149.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

TRC benefits are estimates only as the technology was not fully operational during 2006. The Total Resource Cost (TRC) modeled using the EnerSpectrum spreadsheet was based on the following assumptions:

1. Summer Peaking utility and generator operating 200 hours per year only during summer peak hours.
2. Economics forecasted over 20 years.
3. Avoided energy, generation, transmission and distribution capacity and distribution losses factored into economic model.
4. Operating costs of $0.10/kWh on bi-fuel and $0.16/kWh on diesel.
5. Participant costs for gas line to generator of approximately $10,000.
6. LDC OM&A costs of $1,000/yr to cover software license and communications.
7. Displaced demand of 200 kWe.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Peak Shaving – Bi-fuel Incentive**

| | |
|---|---|
| **2006 Program Spending:** | **$ 3,570** |
| **2006 Program Spending To-Date:** | **$ 3,570** |
| **OEB Approved Revised Budget:** | **$112,000** |
| **Program Status:** | **Active – 2 customers in progress** |

Existing diesel engines can be retrofitted to run on a natural gas/diesel fuel mixture (up to 80% natural gas). This not only reduces emissions, operating and fuel costs, it also allows for extended run time on stored fuel (up to five times). In addition, generators can be deployed for use beyond emergency situations to provide reliable operation for peak shaving. Whitby Hydro is offering an incentive program to modify existing standby diesel gensets to Bi-Fuel operation with a new controller and switch which will convert the existing "open" transition transfer switch to "closed" transition and thereby facilitate momentary parallel operation. Remote operation capability of the modified genset will be installed whereby automatic peak shaving will be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. The incentive will be up to $50/kW towards the purchase and installation of a Bi-Fuel system and up to $50/kW toward the conversion of the paralleling controls. We are targeting 500 kW in 2007 and based on 200 hours of annual operation, the annual savings would be 100,000 kWh. Additional savings will be reported by the Town of Whitby under the Peak Saving Pilot program.

The budget for this program has been revised and approved by the OEB. While the program has forecasted a strong TRC, delays in the pilot programs have pushed back the timelines needed to sell and complete customer conversions by September 2007. As a result, the initial budget of $350,000 has been reduced to $112,000 and excess funds have been redistributed to existing or new programs.

**Lessons Learned:**

Information learned to-date from the pilot peak-shaving program suggest expected benefits from this program. Forecasted scenarios for two participants have been run through the TRC model, producing positive results.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** BIFUEL INCENTIVE

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Existing diesel engines can be retrofitted to run on a natural gas/diesel fuel mixture (up to 80% natural gas). This not only reduces emissions, operating and fuel costs, it also allows for extended run time on stored fuel (up to five times). In addition, generators can be deployed for use beyond emergency situations to provide reliable operation for peak shaving. Whitby Hydro is offering an incentive program to modify existing standby diesel gensets to Bi-Fuel operation with a new controller and switch which will convert the existing "open" transition transfer switch to "closed" transition and thereby facilitate momentary parallel operation. Remote operation capability of the modified genset will be installed whereby automatic peak shaving will be triggered by the price differential between the HOEP price and the cost of Bi-fuel operation. The incentive will be up to $50/kW towards the purchase and installation of a Bi-Fuel system and up to $50/kW toward the conversion of the paralleling controls. We are targeting 500 kW in 2007 and based on 200 hours of annual operation, the annual savings would be 100,000 kWh. Additional savings will be reported by the Town of Whitby under the Peak Saving Pilot program.

The budget for this program has been revised and approved by the OEB.While the program has forecasted a strong TRC, delays in the pilot programs have pushed back the timelines needed to sell and complete customer conversions by September 2007. As a result, the initial budget of $350,000 has been reduced to $112,000 and excess funds have been redistributed to existing or new programs.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Diesel genset | | |
| *Efficient technology:* | Bi-Fuel genset | | |
| *Number of participants or units delivered for reporting year:* | 0 | | |
| *Measure life (years):* | 20 | | |
| *Number of Partipants or units delievered life to date* | 0 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ - | $ - |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ - | $ - |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |

*Benefit to Cost Ratio (TRC Benefits/TRC Costs):*

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

*Demand savings (kW):*
*Summer*
*Winter*

| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** BIFUEL INCENTIVE

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 3,570.00 | 3,570.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 3,570.00 | 3,570.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

No measurable benefits at this time. Note that estimated TRC calculations have been done for the 2 customers whose installation and modifications are in progress. These estimates support positive TRCs for this program.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Energy Efficiency – Durham Non-Profit Housing**

| | |
|---|---|
| **2006 Program Spending:** | **$120,000** |
| **2006 Program Spending To-Date:** | **$120,000** |
| **OEB Approved Revised Budget:** | **$120,000** |
| **Program Status:** | **Complete** |

Durham Non Profit Housing (DNPH) owns and manages over 1100 units in the Durham Region. Three of their largest high rise buildings are located within the Whitby Hydro Service area. These buildings were constructed in an era where capital costs were minimized, often at the expense of higher operating costs. DNPH has experienced higher electricity costs recently and this has placed pressure on their operating budgets as they have limited re-course to increase funding. DNPH has implemented a plan targeted at reducing energy costs by 20% by taking a comprehensive approach to energy management. One of the critical elements of this plan is to replace inefficient lighting and refrigerators. This program has provided incentives to help reduce the capital costs associated with replacing these building systems.

The program was expanded as part of the Whitby Hydro's approved revised budget and was completed during the fourth quarter of 2006. The annual energy savings are 230,000 kWh according to OEB guidelines.

**Lessons Learned:**

The replacement of lighting was found to be beneficial from a TRC perspective however, as the refrigerators were replaced (versus fully retired or removed from the system) the TRC benefits were not positive. Full removal of old underutilized refrigerators without replacement, would generate much more favorable results.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** DURHAM NON-PROFIT HOUSING - ENERGY EFFICIENCY

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Durham Non Profit Housing (DNPH) owns and manages over 1100 units in the Durham Region. Three of their largest high rise buildings are located within the Whitby Hydro Service area. These buildings were constructed in an era where capital costs were minimized, often at the expense of higher operating costs. DNPH has experienced higher electricity costs recently and this has placed pressure on their operating budgets as they have limited re-course to increase funding. DNPH has implemented a plan targeted at reducing energy costs by 20% by taking a comprehensive approach to energy management. One of the critical elements of this plan is to replace inefficient lighting and refrigerators. This program has provided incentives to help reduce the capital costs associated with replacing these building systems. The program was expanded as part of the Whitby Hydro's approved revised budget and was completed during the fourth quarter of 2006. The annual energy savings are 230,000 kWh according to OEB guidelines.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Incandescent/Fluorescent Lighting | Standard Refrigerator | |
| *Efficient technology:* | CFL Lighting | Energy Efficient Refrigerator | |
| *Number of participants or units delivered for reporting year:* | 1060 | 175 | |
| *Measure life (years):* | 5 | 19 | |
| *Number of Partipants or units delievered life to date* | 1060 | 175 | |

B. **TRC Results:**

| | | Reporting Year | | Life-to-date TRC Results: |
|---|---|---|---|---|
| [1] *TRC Benefits ($):* | $ | *100,848.00* | $ | *100,848.00* |
| [2] *TRC Costs ($):* | | | | |
| *Utility program cost (excluding incentives):* | | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 89,671.00 | $ | 89,671.00 |
| *Total TRC costs:* | $ | 89,671.00 | $ | 89,671.00 |
| *Net TRC (in year CDN $):* | $ | 11,177.00 | $ | 11,177.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 1.12 | | 1.12 |

C. **Results:** (one or more category may apply)

| | | | Cumulative Results: | |
|---|---|---|---|---|
| **Conservation Programs:** | | | | |
| *Demand savings (kW):* | *Summer* | 51 | | 51 |
| | *Winter* | 53 | | 53 |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | *1,237,562* | 231,292 | 1,237,562 | 231,292 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** DURHAM NON-PROFIT HOUSING - ENERGY EFFICIENCY

*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Incentive:* | 120,000.00 | 120,000.00 |
| | *Total:* | 120,000.00 | 120,000.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

The Total Resource Cost (TRC) modeled using the EnerSpectrum spreadsheet was based on the following assumptions:

1. Economics forecasted over 5 years for most lighting and 19 years for refrigerators.
2. Avoided energy, generation, transmission and distribution capacity and distribution losses factored into economic model.
3. Participant cost of fridge delivery and removal included in TRC analysis.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Power Factor Correction – Power Medix Residential**

| | |
|---|---|
| **2006 Program Spending:** | **$ 20,786** |
| **2006 Program Spending To-Date:** | **$ 44,105** |
| **OEB Approved Revised Budget:** | **$ 69,000** |
| **Program Status:** | **Active** |

In 2006, Whitby Hydro in partnership with High Mark Homes, began a project to provide power factor correction for a complete subdivision. The program involves the installation of Power Medix capacitors in each home within the subdivision (105 homes). Fifty of the capacitors were purchased in 2006 but are being installed in 2007. The remaining 55 capacitors will be installed throughout the year.

The program follows the 2005 pilot project under the CDM Plan in which 31 homes within Whitby Hydro's service area were fitted with the Power Medix units. The houses selected were located in a new residential neighbourhood and were consistent in size, age and type of heating. The pilot program received a $30,000 grant from the EDA Tomorrow Fund of which $20,000 was received in 2005.

For the pilot, a bench mark had to be established for the loading of each transformer. The three transformers were metered for a two month period prior to the installation of the capacitors. The information gathered included KW, KVAR, volts and amps. Once the benchmark was established, homes fed from two of the transformers were equipped with capacitors providing 3.34 KVAR into their distribution panel. Readings at the transformer continued for an additional two month period after the units were installed in the homes. In addition, two homes were equipped with metering devices that allowed the measurement of power factor.

The results of the pilot project showed that the installation of capacitors at the residential level is a viable option in freeing up capacity within the province if deployed on mass. The savings can also be achieved without having the customer drastically changing their lifestyle. Details of the analysis were provided in the 2005 Annual CDM report.

**Lessons Learned:**

Power factor correction has been a long proven way to improve efficiency in an electrical system. Because the conversion of power factor to consumption savings is more a mathematical formula, it is difficult to put a true dollar amount to the quantitative savings obtained. There are, however a number of benefits to power factor correction that cannot be easily shown in the TRC model but have been highlighted through the program discussion. Assumptions regarding line loss savings remain unchanged from 2004 but will continue to be reviewed.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** POWER MEDIX RESIDENTIAL

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

In 2006, Whitby Hydro in partnership with High Mark Homes, began a project to provide power factor correction for a complete subdivision. The program involves the installation of Power Medix capacitors in each home within the subdivision (105 homes). Fifty of the capacitors were purchased in 2006 but are being installed in 2007. The remaining 55 capacitors will be installed throughout the year.

The program follows the 2005 pilot project under the CDM Plan in which 31 homes within Whitby Hydro's were fitted with the Power Medix units. The houses selected were located in a new residential neighbourhood and were consistent in size, age and type of heating. The pilot program received a $30,000 grant from the EDA Tomorrow Fund of which $20,000 was received in 2005.

For the pilot, a bench mark had to be established for the loading of each transformer. The three transformers were metered for a two month period prior to the installation of the capacitors. The information gathered included KW, KVAR, volts and amps. Once the benchmark was established, homes fed from two of the transformers were equipped with capacitors providing 3.34 KVAR into their distribution panel. Readings at the transformer continued for an additional two month period after the units were installed in the homes. In addition, two homes were equipped with metering devices that allowed the measurement of power factor.

The results of the pilot project showed that the installation of capacitors at the residential level is a viable option in freeing up capacity within the province if deployed on mass. The savings can also be achieved without having the customer drastically changing their lifestyle. Details of the analysis were provided in the 2005 Annual CDM report.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | No Capacitors | | |
| *Efficient technology:* | Power Medix Capacitor | | |
| *Number of participants or units delivered for reporting year:* | 0 | | |
| *Measure life (years):* | 15 | | |
| *Number of Partipants or units delievered lfe to date* | 17 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ - | $ *37,621.00* |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ - | $ 42,128.00 |
| *Total TRC costs:* | $ - | $ 42,128.00 |
| *Net TRC (in year CDN $):* | $ - | -$ 4,507.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 0.89 |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| *Demand savings (kW):* | *Summer* | *Winter* | | |
|---|---|---|---|---|
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | *0* | 0 | 20,805 | 1,387 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** POWER MEDIX RESIDENTIAL

**Demand Response Programs:**

*Dispatchable load (kW):*

*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

| | | |
|---|---|---|
| *Amount of KVar installed (KVar):* | 0 | 56.78 |
| *Power factor at begining of year (%) - per home* | n/a | 87% |
| *Power factor at end of year (%) - per home* | n/a | 99% |

**Line Loss Reduction Programs:**

*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**

*Amount of DG installed (kW):*

*Energy generated (kWh):*

*Peak energy generated (kWh):*

*Fuel type:*

**Other Programs (specify):**

*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 20,903.00 |
| | *Incremental O&M:* | 31,690.00 | 52,915.00 |
| | *Incentive:* | 0.00 | 1,190.00 |
| | *Total:* | 31,690.00 | 75,008.00 |
| | | * excludes EDA Tomorrow Fund Grant | |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

TRC calculations and assumptions remain unchanged from 2005 reporting.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Power Factor Correction**

| | |
|---|---|
| **2006 Program Spending:** | **$ 12,459** |
| **2006 Program Spending To-Date:** | **$ 29,916** |
| **OEB Approved Revised Budget:** | **$ 38,000** |
| **Program Status:** | **Active – Program is being offered to industrial/commercial customers in the Whitby area.** |

Power Factor gives a reading of overall electricity use efficiency. High power factor indicates that the amount of power doing real work is operating at a high level of efficiency. Conversely, low power factor means poor electricity efficiency which is always costly. Improving power factor can reduce billed peak demand and enhance equipment reliability.

An ideal power factor is 100%. Whitby Hydro, under its CDM program offers financial incentives for industrial customers to improve their power factor to above 95%. In 2006, one facility within Whitby took advantage of the incentives and improved their power factor from 84% to 98%.

Whitby Hydro has identified all locations within Whitby where power factor is an issue and educated the customers on the benefits of good power factor. A number of these customers are assessing installation of capacitors for 2007.

There are a number of benefits to improving power factor however, it can be difficult to accurately quantify the full benefits. A couple of measurements can be used to determine savings.

System Requirements

Utilities size their distribution system based on kVA. By improving power factor, demand on the system is reduced and capacity is freed up, which means more services can be supplied by the existing infrastructure. Less loading on a system generally means less strain and less failure. It is however, difficult to quantify the savings. Also, generators are sized to meet kVa requirements not kW. Therefore, by reducing the kVa, generation requirements are also reduced.

Financially, you can also measure the reduction in power factor penalties (to the customer) to quantify the savings. In the case of the customer who installed capacitors in 2006, they reduced their yearly power factor penalties by $3,140 per year. It is reasonable to assume that the power factor penalty is based on costs associated with system requirements and maintenance when power factor is poor.

Line Loss Savings

The addition of capacitors improves voltage and reduces line losses. Assumptions for TRC calculations (2006 program participant) on line loss have been included below.

2006 Participant - Power factor improved from 84% to 98%. Estimated loss savings:
% Reduction in $I^2R$ losses = $100\text{-}100(84/98)^2 = 26.5\%$
The original facility system losses of 2% are reduced by .265 X 2 = .53%
As a result the monthly kWh billing is reduced by .53%.
Over a year kWh lost would be reduced by .0053 X 1,089,000 kWh = 5,772 kWh

**Lessons Learned:**

Power factor correction has been a long proven way to improve efficiency in an electrical system. Because the conversion of power factor to consumption savings is more mathematical formula it may not fully recognize all quantitative benefits. There are however, a number of benefits to power factor correction that cannot easily be reflected in the TRC model. The above explanation of the potential savings best relates the benefits of good power factor. Significant improvements to power factor for customers with high consumption levels yield favorable TRC calculations.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** POWER FACTOR CORRECTION

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Power Factor gives a reading of overall electricity use efficiency. High power factor indicates that the amount of power doing real work is operating at a high level of efficiency. Conversely, low power factor means poor electricity efficiency which is always costly. Improving power factor can reduce billed peak demand and enhance equipment reliability.

An ideal power factor is 100%. Whitby Hydro, under its CDM program offers financial incentives for industrial customers to improve their power factor to above 95%. In 2006, one facility within Whitby took advantage of the incentives and improved their power factor from 84% to 98%.

Whitby Hydro has identified all locations within Whitby where power factor is an issue and educated the customers on the benefits of good power factor. A number of these customers are assessing installation of capacitors for 2007.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | No Capacitors | | |
| *Efficient technology:* | Capacitors | | |
| *Number of participants or units delivered for reporting year:* | 1 | | |
| *Measure life (years):* | 15 | | |
| *Number of Partipants or units delievered life to date* | 3 | | |

B. **TRC Results:**

| | | Reporting Year | | Life-to-date TRC Results: |
|---|---|---|---|---|
| [1] *TRC Benefits ($):* | $ | *4,395.00* | $ | *175,533.00* |
| [2] *TRC Costs ($):* | | | | |
| *Utility program cost (excluding incentives):* | | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 10,379.00 | $ | 64,764.00 |
| *Total TRC costs:* | $ | 10,379.00 | $ | 64,764.00 |
| *Net TRC (in year CDN $):* | -$ | 5,984.00 | $ | 110,769.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 0.42 | | 2.71 |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| *Demand savings (kW):* | *Summer* / *Winter* lifecycle | in year | *Cumulative* Lifecycle | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh):* | *86,580* | 5,772 | 567,090 | 37,806 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

| | | |
|---|---|---|
| *Amount of KVar installed (KVar):* | 180 | 665 |
| *Customer power factor at begining of year (%):* | 84 | varies by customer |
| *Customer power factor at end of year (%):* | 98 | varies by customer |

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** POWER FACTOR CORRECTION

**Line Loss Reduction Programs:**

*Peak load savings (kW):*

*lifecycle* *in year*

*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**

*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**

*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 2,169.00 | 15,557.00 |
| | *Incentive:* | 10,290.00 | 14,360.00 |
| | *Total:* | 12,459.00 | 29,917.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

There are a number of benefits to improving power factor however, it can be difficult to accurately quantify the full benefits. A couple of measurements can be used to determine savings.

System Requirements
Utilities size their distribution system based on kVA. By improving power factor, demand on the system is reduced and capacity is freed up, which means more services can be supplied by the existing infrastructure. Less loading on a system generally means less strain and less failure. It is however, difficult to quantify the savings. Also, generators are sized to meet kVa requirements not kW. Therefore, by reducing the kVa, generation requirements are also reduced.

Financially, you can also measure the reduction in power factor penalties (to the customer) to quantify the savings. In the case of the customer who installed capacitors in 2006, they reduced their yearly power factor penalties by $3,140 per year. It is reasonable to assume that the power factor penalty is based on costs associated with system requirements and maintenance when power factor is poor.

TRC Assumptions re: Line Loss Savings
The addition of capacitors improves voltage and reduces line losses. Assumptions for TRC calculations (2006 program participant) on line loss have been included below.

2006 Participant - Power factor improved from 84% to 98%. Estimated loss savings:
% Reduction in $I^2R$ losses = $100\text{-}100(84/98)^2 = 26.5\%$
The original facility system losses of 2% are reduced by .265 X 2 = .53%
As a result the monthly kWh billing is reduced by .53%.
Over a year kWh lost would be reduced by .0053 X 1,089,000 kWh = 5,772 kWh

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

## Sub-Metering

| | |
|---|---|
| **2006 Program Spending:** | **$1,987** |
| **2006 Program Spending To-Date:** | **$11,091** |
| **OEB Approved Revised Budget:** | **$11,000** |
| **Program Status:** | **Complete – originally approved funds have been reassigned to other programs.** |

Sub-metering is a proven method of generating conservation within multi-residential complexes. On average, when tenants are required to pay for their own electricity, consumption in a building reduces by between 15% - 25%. This program offered financial incentives for multi-residential customers to install sub-meters for units within the complex. In 2005, the two buildings involved in this program had a total of twenty six individual suites sub-metered (well below 100% participation). There were no new participants during 2006.

Participation in sub-metering is a volunteer process for tenants who currently rent their units. Therefore, the number of participants of a sub-metering program must be brought on over a period of time as a result of move in and move out situations. 2005 reported TRC calculations assumed a 100% participation level and reflect estimated savings once all units are participating. Until all units of a building are on sub-metering, actual savings are not truly measurable. Several sub-metering experts in Ontario (Ozz Corp., Stratacon, Intellimeter, and Carma) have estimated that sub-metering savings are 15%-25%.

**Lessons Learned:**

The sub-metering program has not been as successful as anticipated primarily due to low uptake on the incentive program. This is partly due to the small volume of multi-residential units within Whitby. Sub-metering also appears to have a long sales cycle. Funds that were originally budgeted for the sub-metering program, have recently been redirected to other approved CDM programs in order to obtain benefits over the allowed third tranche time period.

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** SUB-METERING

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Sub-metering is a proven method of generating conservation within multi-residential complexes. On average, when tenants are required to pay for their own electricity, consumption in a building reduces by between 15% - 25%. This program offered financial incentives for multi-residential customers to install sub-meters for units within the complex. In 2005, the two buildings involved in this program had a total of twenty six individual suites sub-metered (well below 100% participation). There were no new participants during 2006.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Bulk Meter | | |
| *Efficient technology:* | Sub-Meters | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | 20 | | |
| *Number of Partipants or units delievered lfe to date* | 2 buildings/26 units | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ - | $ *18,280.00* |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ - | $ 14,896.00 |
| *Total TRC costs:* | $ - | $ 14,896.00 |
| *Net TRC (in year CDN $):* | $ - | $ 3,384.00 |

*Benefit to Cost Ratio (TRC Benefits/TRC Costs):* 1.23

**** Forecasted results assuming 100% participation rates - actual savings are not measurable at this time.***

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

*Demand savings (kW):* *Summer* / *Winter*

| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** SUB-METERING

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 1,988.00 | 8,404.00 |
| | *Incentive:* | 0.00 | 2,688.00 |
| | *Total:* | 1,988.00 | 11,092.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

Participation in sub-metering is a volunteer process for tenants who currently rent their units. Therefore, the number of participants of a sub-metering program must be brought on over a period of time as a result of move in and move out situations. 2005 reported TRC calculations assumed a 100% participation level and reflect estimated savings once all units are participating. Until all units of a building are on sub-metering, actual savings are not truly measurable. Several sub-metering experts in Ontario (Ozz Corp., Stratacon, Intellimeter, and Carma) have estimated that sub-metering savings are 15%-25%. No changes have been made to the TRC assumptions from 2005.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Education & Training**

| | |
|---|---|
| **2006 Program Spending:** | **$154,084** |
| **2006 Program Spending To-Date:** | **$203,489** |
| **OEB Approved Revised Budget:** | **$220,500** |
| **Program Status:** | **Active** |

In 2006, the education and training program focused mainly on the development of a Grade 5 curriculum based conservation education program. Generation Conservation was a co-sponsored program between Whitby Hydro, Veridian Corp., Oshawa PUC, the Durham District School Board, the Durham Catholic School Board and CGC Educational Communications. The program was designed to fit into the new Provincial Science curriculum and teaches grade five students the theory behind energy and how to conserve it. Pilot programs were launched in 2006 and full regional deployment is scheduled for the fall of 2007.

In 2006, Whitby Hydro continued to run 71 commercial ads per month on CHEX television. The commercial focuses on residential conservation tips. In 2006, Whitby Hydro also launched its "Watts to Read" program. The program, through the Whitby Public Library, allows residents to sign out a watt reader. This allows them to measure how much energy specific appliances use within a home. There are 24 readers available through the library and the program has been extremely successful.

During the summer of 2006, students were hired to assist in promoting energy efficiency and gather information related to residential home appliances and lighting. This information was used for a variety of purposes including the assessment of existing and new CDM program offerings. The students also spoke to residents and provided energy conservation tips and one free compact florescent light bulb (CFL) per household visited. These activities were offered to customers via door-to-door visits, Town Carnival and

Harbour Day events. Front office staff complemented this initiative by providing information and CFLs to customers who visited our office.

With the exception of the CFL giveaway, this program is intended to provide educational information in the area of conservation and Whitby Hydro's CDM program offerings. As such, TRC calculations only reflect the CFL component of this program.

**Lessons Learned:**

Programs initiated have been well received. TV commercials have had positive recognition throughout the Town and the library program has been very successful. The school program is now receiving provincial recognition among school boards and will likely be launched provincially by 2008. It is, however, difficult to measure the actual impact of general conservation programs.

The student program and CFL giveaway is planned to continue during the summer of 2007 based on the positive feedback received and the importance of spreading the conservation message.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** EDUCATION & TRAINING

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

In 2006, the education and training program focused mainly on the development of a Grade 5 curriculum based conservation education program. Generation Conservation was a co-sponsored program between Whitby Hydro, Veridian Corp., Oshawa PUC, the Durham District School Board, the Durham Catholic School Board and CGC Educational Communications. The program was designed to fit into the new Provincial Science curriculum and teaches grade five students the theory behind energy and how to conserve it. Pilot programs were launched in 2006 and full regional deployment is scheduled for the fall of 2007.

In 2006, Whitby Hydro continued to run 71 commercial ads per month on CHEX television. The commercial focuses on residential conservation tips. In 2006, Whitby Hydro also launched its "Watts to Read" program. The program, through the Whitby Public Library, allows residents to sign out a watt reader. This allows them to measure how much energy specific appliances use within a home. There are 24 readers available through the library and the program has been extremely successful.

During the summer of 2006, students were hired to assist in promoting energy efficiency and gather information related to residential home appliances and lighting. This information was used for a variety of purposes including the assessment of existing and new CDM program offerings. The students also spoke to residents and provided energy conservation tips and one free compact florescent light bulb (CFL) per household visited. These activities were offered to customers via door-to-door visits, Town Carnival and Harbour Day events. Front office staff complemented this initiative by providing information and CFLs to customers who visited our office.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | 60 W Incandescent | | |
| *Efficient technology:* | CFL Screw-In 13W | | |
| *Number of participants or units delivered for reporting year:* | 6027 | | |
| *Measure life (years):* | 4 | | |
| *Number of Partipants or units delievered life to date* | 6027 | | |

B. **TRC Results*:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ 139,088.00 | $ 139,088.00 |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ 45,651.00 | $ 45,651.00 |
| *Total TRC costs:* | $ 45,651.00 | $ 45,651.00 |
| *Net TRC (in year CDN $):* | $ 93,437.00 | $ 93,437.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | 3.05 | 3.05 |

**** Reflects CFL giveaway component of this program only.***

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | |
|---|---|---|---|
| *Demand savings (kW):* | *Summer* | 0 | 0 |
| | *Winter* | 122 | 122 |

| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh)*:* | *2,265,188* | 566,297 | 2,265,188 | 566,297 |

*Other resources saved :* **** Reflects CFL giveaway component of this program only.***

*Natural Gas (m3):*

*Other (specify):*

**Demand Management Programs:**

*Controlled load (kW)*

*Energy shifted On-peak to Mid-peak (kWh):*

*Energy shifted On-peak to Off-peak (kWh):*

*Energy shifted Mid-peak to Off-peak (kWh):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** EDUCATION & TRAINING

**Demand Response Programs:**
*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 921.00 | 921.00 |
| | *Incremental O&M:* | 153,164.00 | 202,568.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 154,085.00 | 203,489.00 |
| | | Reflects total costs of all education and training initiatives. | |
| *Utility indirect costs ($):* | *Incremental capital:* | | |
| | *Incremental O&M:* | | |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

This program is intended to provide general information regarding conservation and Whitby Hydro's CDM programs. As a result, no measurable quantitative results can be reported with the exception of the CFL summer giveaway. For the purpose of TRC calculations, the Enerspectrum TRC model was used which incorporated the OEB guidelines and tables regarding CFL replacement costs/savings. Note that the above TRC calculations assumed a 15W CFL as a replacement ( based on OEB tables) however this program actually used 13W CFLs which would generate even more favourable TRC and kWh savings than those reported.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

## Load Balancing

| | |
|---|---|
| **2006 Program Spending:** | **$ 2,552** |
| **2006 Program Spending To-Date:** | **$ 2,552** |
| **OEB Approved Revised Budget** | **$34,000** |
| **Program Status:** | **Active** |

Balancing has the advantage of reducing feeder losses because any phase peak reduction affects the losses for the phases as the square of the current magnitude. A feeder section with 1 ohm resistance that has Red, White and Blue phase currents of 50A/100A/150A will have 35kW in losses. When balanced at 100A/100A/100A, the loss reduces to 30kW. The same effect is even more evident in the reduction of reactive power losses because the X/R ratio of most feeder sections is greater than 1.

Balancing improves voltage on a feeder by equalizing the voltage drops in each phase along the feeder. Released feeder capacity provides more reserve loading capacity for emergency loading conditions.

During 2006 the System Operators reviewed all recorded summer peak values on the individual distribution feeders (both 4.0 and 13.8kV). Feeders that were substantially out of balance between phases were identified on system maps for routing. Switching orders were prepared to move single phase taps to predetermined alternate phases to achieve the balance. Crews were dispatched and conducted a pre-phase current reading and a post-current reading on the individual taps to determine the number of transfers required before achieving the best phase relationship load balance. Multiple phase load transfers were completed until the best possible balance was achieved on the two feeders.

**Lessons Learned:**

The initial analysis provided a good understanding of the current balancing requirements and allowed targeting of changes where the highest savings/benefits could be obtained. Coordinated planning between departments when new developments are added, will help ensure the benefits of balancing efforts are maintained.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** LOAD BALANCING

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Balancing has the advantage of reducing feeder losses because any phase peak reduction affects the losses for the phases as the square of the current magnitude. Balancing improves voltage on a feeder by equalizing the voltage drops in each phase along the feeder. Released feeder capacity provides more reserve loading capacity for emergency loading conditions.
During 2006 the System Operators reviewed all recorded summer peak values on the individual distribution feeders (both 4.0 and 13.8kV). Feeders that were substantially out of balance between phases were identified on system maps for routing. Switching orders were prepared to move single phase taps to predetermined alternate phases to achieve the balance. Crews were dispatched and conducted a pre-phase current reading and a post-current reading on the individual taps to determine the number of transfers required before achieving the best phase relationship load balance. Multiple phase load transfers were completed until the best possible balance was achieved on the two feeders.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | Feeders unbalanced | | |
| *Efficient technology:* | Feeders balanced | | |
| *Number of participants or units delivered for reporting year:* | 1 | | |
| *Measure life (years):* | 4 | | |
| *Number of Partipants or units delievered life to date* | 1 | | |

B. **TRC Results:**

| | | Reporting Year | | Life-to-date TRC Results: |
|---|---|---|---|---|
| [1] *TRC Benefits ($):* | $ | *2,818.00* | $ | *2,818.00* |
| [2] *TRC Costs ($):* | | | | |
| *Utility program cost (excluding incentives):* | | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 2,552.00 | $ | 2,552.00 |
| *Total TRC costs:* | $ | 2,552.00 | $ | 2,552.00 |
| *Net TRC (in year CDN $):* | $ | 266.00 | $ | 266.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 1.10 | | 1.10 |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | | |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** LOAD BALANCING

*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**

| | | | |
|---|---|---|---|
| *Peak load savings (kW):* | | 1 | 1 |
| | *lifecycle* | *in year* | |
| *Energy savngs (kWh):* | *47,232* | 11,808 | 11,808 |

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 2,552.00 | 2,552.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 2,552.00 | 2,552.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

The Total Resource Cost (TRC) modeled using the EnerSpectrum spreadsheet was based on the following assumptions:

1. Economics forecasted over 4 years (note benefits may last longer with increased planning and coordination when new developments are added).
2. Loss savings from 7F1 = 1,910 kWh annually and 12F1 = 9,898 kWh annually.
3. Costs included those resulting from the overall assessment. These costs can benefit future balancing activities for additional feeders.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

## Smart Meters

| | |
|---|---|
| **2006 Program Spending:** | **$ 16,866** |
| **2006 Program Spending To-Date:** | **$ 34,811** |
| **OEB Approved Revised Budget:** | **$ 40,000** |
| **Program Status:** | **Initial Pilot Completed, current focus is on information gathering.** |

An interval meter pilot was implemented in 2004 to test the ability to implement interval meters at the residential level. The pilot placed the meters at the transformer to eliminate theft of power. At the same time tests were carried out to see how the meters operated, how data would be collected and what various communication methods could be used to interrogate the meters. Standard residential meters were placed on the homes to use as a comparator to the new meters and to verify accuracy.

Given the uncertainty with regards to various aspects of the Smart Meter initiative province-wide, a decision was made to defer any significant spending for additional Pilot Programs in 2005 and 2006. Instead, focus shifted to involvement in groups investigating various technologies and monitoring the results from ongoing Pilot Projects started by other LDCs. In order to facilitate this, Whitby Hydro joined the Ontario Utilities Smart Meter (OUSM) group through Util-Assist to participate in the ongoing Technology and Implementation processes. Significant time is spent on conference calls and attending forums to better understand the products and the pros and cons of implementation of the particular systems.

**Lessons Learned:**

The initial pilot provided an opportunity to test and understand meter operation, data collection and communication methods. Whitby Hydro expects to continue its investigation of smart meter technologies and solutions with the intent of making a selection later in 2007. Information provided through OUSM and other LDCs who are targeting earlier pilots and implementations, will prove beneficial to Whitby Hydro's decisions and implementation strategies.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** SMART METERS

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

An interval meter pilot was implemented in 2004 to test the ability to implement interval meters at the residential level. The pilot placed the meters at the transformer to eliminate theft of power. At the same time tests were carried out to see how the meters operated, how data would be collected and what various communication methods could be used to interrogate the meters. Standard residential meters were placed on the homes to use as a comparator to the new meters and to verify accuracy.

Given the uncertainty with regards to various aspects of the Smart Meter initiative province-wide, a decision was made to defer any significant spending for additional Pilot Programs in 2005 and 2006. Instead, focus shifted to involvement in groups investigating various technologies and monitoring the results from ongoing Pilot Projects started by other LDCs. In order to facilitate this, Whitby Hydro joined the Ontario Utilities Smart Meter (OUSM) group through Util-Assist to participate in the ongoing Technology and Implementation processes. Significant time is spent on conference calls and attending forums to better understand the products and the pros and cons of implementation of the particular systems.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered lfe to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | | |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | | |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | |

C. **Results:** (one or more category may apply)

| | | | Cumulative Results: | |
|---|---|---|---|---|
| **Conservation Programs:** | | | | |
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |
| **Demand Management Programs:** | | | | |
| *Controlled load (kW)* | | | | |
| *Energy shifted On-peak to Mid-peak (kWh):* | | | | |
| *Energy shifted On-peak to Off-peak (kWh):* | | | | |
| *Energy shifted Mid-peak to Off-peak (kWh):* | | | | |
| **Demand Response Programs:** | | | | |
| *Dispatchable load (kW):* | | | | |
| *Peak hours dispatched in year (hours):* | | | | |

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** SMART METERS

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 1,094.00 | 13,406.00 |
| | *Incremental O&M:* | 15,773.00 | 21,406.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 16,867.00 | 34,812.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

There are no measurable results to report on the initial pilot as customer consumption will not be impacted until smart meter TOU billing occurs.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Seasonal Light Program**

| | |
|---|---|
| **2006 Program Spending:** | **$27,825** |
| **2006 Program Spending To-Date:** | **$27,825** |
| **OEB Approved Revised Budget** | **$28,000** |
| **Program Status:** | **Active – To be completed early in 2007.** |

Whitby Hydro conducted a number of programs which involved the exchange of seasonal LED lights. In each of these programs, the old incandescent lights were collected and replaced with new energy efficient lights (95% more energy efficient). The incandescent lights were recycled and disposed of in an environmentally friendly manner. Whitby Hydro completed the following 4 types of seasonal light exchanges in 2006:

- Whitby Hydro *Employee Seasonal Light Exchange*
- Whitby Hydro *Building Seasonal Light Retrofit* (indoor & outdoor)
- *Lakeridge Health Seasonal Light Exchange*
- *Town of Whitby Seasonal Lights – Tree Lighting Event*

An overwhelming 72% of Whitby Hydro employees participated in the employee seasonal light exchange. In addition, all incandescent Christmas lights used in our displays (both indoor and outdoor) were replaced with new seasonal LED lights. Whitby Hydro also supported the retrofit of the holiday light displays at the Lakeridge Health Centre where 400 strands of new SLED lights were donated to help replace the old incandescent lights used in the hospital courtyard displays. This program also supported the Christmas Tree Lighting Events which took place in our community by providing 600 strands of new SLED lights to replace the old incandescent lights which lined our streets in past years.

**Lessons Learned:**

Based on the overwhelming response to our first employee seasonal light exchange program, we found that Whitby Hydro employees were anxious to get involved and act as advocates for energy conservation. It is important to recognize the value gained by having the local utility "lead by example" and show the community how to embrace the concept of conservation. There also appears to be a strong appreciation for the retrofit of community seasonal lights from the general community, which helps to visually promote energy conservation and encourage smart energy choices.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** SEASONAL LIGHT PROGRAM

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Whitby Hydro conducted a number of programs which involved the exchange of seasonal LED lights. In each of these programs, the old incandescent lights were collected and replaced with new energy efficient lights (95% more energy efficient). The incandescent lights were recycled and disposed of in an environmentally friendly manner. Whitby Hydro completed the following 4 types of seasonal light exchanges in 2006:

- Whitby Hydro Employee Seasonal Light Exchange
- Whitby Hydro Building Seasonal Light Retrofit (indoor & outdoor)
- Lakeridge Health Seasonal Light Exchange
- Town of Whitby Seasonal Lights – Tree Lighting Event

An overwhelming 72% of Whitby Hydro employees participated in the employee seasonal light exchange. In addition, all incandescent Christmas lights used in our displays (both indoor and outdoor) were replaced with new seasonal LED lights. Whitby Hydro also supported the retrofit of the holiday light displays at the Lakeridge Health Centre where 400 strands of new SLED lights were donated to help replace the old incandescent lights used in the hospital courtyard displays. This program also supported the Christmas Tree Lighting Events which took place in our community which provide 600 strands of new SLED lights to replace the old incandescent lights which lined our streets in past years.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | 5W Christmas lights C-7 (64 lights) | Incandescent mini lights | |
| *Efficient technology:* | LED Christmas lights (indoor/outdoor) | LED Christmas lights (indoor/outdoor) | |
| *Number of participants or units delivered for reporting year:* | 1220 | 24 | |
| *Measure life (years):* | 30 | 30 | |
| *Number of Partipants or units delievered life to date* | 1220 | 24 | |

B. **TRC Results:**

| | | Reporting Year | Life-to-date TRC Results: |
|---|---|---|---|
| [1] *TRC Benefits ($):* | $ | *26,831.00* | $ *26,831.00* |
| [2] *TRC Costs ($):* | | | |
| *Utility program cost (excluding incentives):* | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 10,666.00 | $ 10,666.00 |
| *Total TRC costs:* | $ | 10,666.00 | $ 10,666.00 |
| *Net TRC (in year CDN $):* | $ | 16,165.00 | $ 16,165.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 2.52 | 2.52 |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | Cumulative Lifecycle | Cumulative Annual Savings |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | 0 | | 0 |
| | *Winter* | 10 | | 10 |
| | *lifecycle* | *in year* | | |
| *Energy saved (kWh):* | *660,600* | 22,020 | 660,600 | 22,020 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** SEASONAL LIGHT PROGRAM

*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*

*lifecycle* *in year*

*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 27,825.00 | 27,825.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 27,825.00 | 27,825.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

The Total Resource Cost (TRC) was modelled using the Enerspectrum spreadsheet and was based on the following assumptions: 1. Savings reflect OEB guidelines/tables replacing 5W C-7's. Actual exchange included 1,000 strands of C-9's and therefore actual savings would be higher than reported.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Whitby Hydro Energy Audit**

| | |
|---|---|
| **2006 Program Spending:** | **$ 1,363** |
| **2006 Program Spending To-Date:** | **$ 1,363** |
| **OEB Approved Revised Budget** | **$58,500** |
| **Program Status:** | **Active – Awaiting Audit Report** |

The Whitby Hydro Building Energy Audit involves a detailed audit of the HVAC system, lighting systems, control systems, motors, building envelope, and other mechanical and electrical systems within our building. The purpose of the audit is to help identify energy conservation and energy efficiency opportunities. This program will allow Whitby Hydro to "lead by example" and show customers how easy it is to make simple changes that help save both energy and money. The audit results are intended to be shared with other commercial customers who are interested in seeing the benefits of a detailed audit.

During 2006, Whitby Hydro began working with design engineers who spent time investigating electrical drawings, collecting data and began taking measurements. The final report along with recommendations is pending and scheduled to be completed in early Spring 2007.

**Lessons Learned:**

While the energy audit report is pending, it is important for a local utility to "lead by example" and show the community how to embrace the concept of conservation. Any sharing of insights and personal experiences with others is expected to lend credibility and assist in the promotion of various conservation efforts.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** WHITBY HYDRO ENERGY AUDIT

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

The Whitby Hydro Building Energy Audit involves a detailed audit of the HVAC system, lighting systems, control systems, motors, building envelope, and other mechanical and electrical systems within our building. The purpose of the audit is to help identify energy conservation and energy efficiency opportunities. This program will allow Whitby Hydro to "lead by example" and show customers how easy it is to make simple changes that help save both energy and money. The audit results are intended to be shared with other commercial customers who are interested in seeing the benefits of a detailed audit.

During 2006, Whitby Hydro began working with design engineers who spent time investigating electrical drawings, collecting data and began taking measurements. The final report along with recommendations was pending and scheduled to be completed in early Spring 2007.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered life to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | | |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | | |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |

*Benefit to Cost Ratio (TRC Benefits/TRC Costs):*

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | | |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** WHITBY HYDRO ENERGY AUDIT

*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 1,363.00 | 1,363.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 1,363.00 | 1,363.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

There are no reported savings in 2006. Energy savings recommendations will be reviewed in 2007.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Seniors Care Package**

| | |
|---|---|
| **2006 Program Spending:** | **$36,019** |
| **2006 Program Spending To-Date:** | **$36,019** |
| **OEB Approved Revised Budget** | **$58,000** |
| **Program Status:** | **Active – To be completed early in 2007.** |

This conservation program was specifically tailored to meet the special needs of the senior citizens within our community. This program was delivered directly to the customer's doorstep which was important since the program took place during the winter months when seniors have difficulty arranging transportation. The program involved a compact florescent light (CFL) giveaway and a Seasonal LED exchange component where the customer was encouraged to exchange 2 strands of their old incandescent seasonal lights for 2 new strands of energy efficient SLED's. The customers who chose to participate were also given a 4-pack of CFL bulbs and a brochure outlining "Energy Conservation Tips" for their home.

Whitby Hydro promoted this program through the Whitby Seniors Community Centre, the Royal Canadian Legion, local community events (Brooklin Christmas Craft Show), the local Whitby Mall and by going door-to-door in some cases. Posters, sign-up sheets and staff representatives helped to gather participant signatures at the locations and events listed above. The Seniors Care Packages were then delivered directly to the participating customers by Whitby Hydro staff, who went out of their way to assist seniors by installing CFL's in hard to reach places and helped them "dig out" their old incandescent Christmas lights for the exchange. Well over 2,000 strands of old incandescent Christmas lights were collected and over 800 strands of new SLED's and over 1,600 CFLs were delivered as part of this program in 2006.

**Lessons Learned:**

Marketing to seniors is a very sensitive issue as seniors can be an easy target for the unethical marketing behaviours of others. In this case, the local utility branding and employee identification were important, as staff provided information to put their minds at ease regarding the program objective. It was found that seniors may have difficulty redeeming EKC coupons and taking advantage of conservation events during the winter months and for this reason, Whitby Hydro decided to bring the program to their doorstep and make it convenient for them to participate (this was key to success). Seniors for the most part were anxious to participate in conservation initiatives (based on fixed income) and are very appreciative and grateful for the assistance from their local utility. Many seniors were extremely generous and donated more lights than requested and in many cases, they simply handed us ALL their old lights for recycling because of the convenience of having the local utility pick up the lights at their homes.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** SENIORS CARE PACKAGE

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

This conservation program was specifically tailored to meet the special needs of the senior citizens within our community. This program was delivered directly to the customer's doorstep which was important since the program took place during the winter months when seniors have difficulty arranging transportation. The program involved a compact florescent light (CFL) giveaway and a Seasonal LED exchange component where the customer senior was encouraged to exchange 2 strands of their old incandescent seasonal lights for 2 new strands of energy efficient SLED's. The customers who chose to participate were also given a 4-pack of CFL bulbs and a brochure outlining "Energy Conservation Tips" for their home.

Whitby Hydro promoted this program through the Whitby Seniors Community Centre, the Royal Canadian Legion, local community events (Brooklin Christmas Craft Show), the local Whitby Mall and by going door-to-door in some cases. Posters, sign-up sheets and staff representatives helped to gather participant signatures at the locations and events listed above. The Seniors Care Packages were then delivered directly to the participating customers by Whitby Hydro staff, who went out of their way to assist seniors by installing CFL's in hard to reach places and helped them "dig out" their old incandescent Christmas lights for the exchange. Well over 2,000 strands of old incandescent Christmas lights were collected and over 800 strands of new SLED's and over 1,600 CFLs were delivered as part of this program in 2006.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | 5W Christmas lights C-7 (64 lights) | 60W incandescents | |
| *Efficient technology:* | LED Christmas lights (indoor/outdoor) | CFL Screw In 15W | |
| *Number of participants or units delivered for reporting year:* | 818 | 1636 | |
| *Measure life (years):* | 30 | 4 | |
| *Number of Partipants or units delievered life to date* | 818 | 1636 | |

B. **TRC Results:**

| | | Reporting Year | | Life-to-date TRC Results: |
|---|---|---|---|---|
| [1] *TRC Benefits ($):* | $ | *55,315.00* | $ | *55,315.00* |
| [2] *TRC Costs ($):* | | | | |
| *Utility program cost (excluding incentives):* | | | | |
| *Incremental Measure Costs (Equipment Costs)* | $ | 18,872.00 | $ | 18,872.00 |
| *Total TRC costs:* | $ | 18,872.00 | $ | 18,872.00 |
| *Net TRC (in year CDN $):* | $ | 36,443.00 | $ | 36,443.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | 2.93 | | 2.93 |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | | |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | 0 | | 0 |
| | *Winter* | 39 | | 39 |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | *1,054,496* | 168,373 | 1,054,496 | 168,373 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** SENIORS CARE PACKAGE

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 36,020.00 | 36,020.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 36,020.00 | 36,020.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

The Total Resource Cost (TRC) was modelled using the Enerspectrum spreadsheet and was based on the following assumptions:
1. Savings reflect OEB guidelines/tables using 15 W CFL's. Actual exchange was for 13 W CFLs, and therefore actual savings would be higher than reported. 2. Most seniors returned multiple strands of old Christmas lighting in return for 1 strand of new LED Christmas lighting. As a result it is likely that a higher level of savings will be realized compared to the TRC results reported as a 1:1 ratio was assumed.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Community Events**

| | |
|---|---|
| **2006 Program Spending:** | **$18,393** |
| **2006 Program Spending To-Date:** | **$18,393** |
| **OEB Approved Revised Budget** | **$42,500** |
| **Program Status:** | **Active – Ongoing** |

Whitby Hydro attended a variety of community planned events in 2006 in an effort to promote a culture of conservation. It was important for Whitby Hydro to be visible in the community and take the opportunity to educate consumers on energy efficiency measures and conservation tips. Whitby Hydro distributed compact fluorescent light (CFL) bulbs and brochures offering energy savings tips for consumers. In the future, the community events will offer an opportunity to promote the provincial conservation programs and any other Whitby Hydro Conservation Programs which may be underway. A program specifically tailored for low income families was also included in our list of events.

Whitby Hydro implemented a schedule of planned community events in Nov 2006 – Dec 2006 and subsequently participated in the following:

- World Planning Day Event (Al Gore – An Inconvenient Truth)
- Christmas Craft Show – Brooklin
- Whitby Santa Claus Parade

Whitby Hydro distributed 2,200 CFLs to Whitby residents at community events and provided 800 CFLs (2 per family) in the Christmas Food Hampers distributed by the Whitby Salvation Army Food Bank.

**Lessons Learned:**

It is important for the local utility to be involved in promoting the culture of conservation. Marketing of the conservation message must be "layered" and the message must be repeated and reinforced through a variety of events and programs. It is important to include low income families in the community when promoting conservation to ensure they are able to participate and benefit from the savings.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** COMMUNITY EVENTS

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

Whitby Hydro attended a variety of community planned events in 2006 in an effort to promote a culture of conservation. It was important for Whitby Hydro to be visible in the community and take the opportunity to educate consumers on energy efficiency measures and conservation tips. Whitby Hydro distributed compact fluorescent light (CFL) bulbs and brochures offering energy saving tips for consumers. In the future, the community events will offer an opportunity to promote the provincial conservation programs and any other Whitby Hydro Conservation Programs which may be underway. A program specifically tailored for low income families was also included in our list of community events.

Whitby Hydro implemented a schedule of planned community events in Nov 2006 – and subsequently participated in the following:
- World Planning Day Event (Al Gore – An Inconvenient Truth)
- Christmas Craft Show – Brooklin
- Whitby Santa Claus Parade

Whitby Hydro distributed 2,200 CFLs to Whitby residents at community events and provided CFLs (2 per family) in the Christmas Food Hampers distributed by the Whitby Salvation Army Food Bank. Whitby Hydro also donated 800 CFLs bulbs to the Salvation Army Food Bank for distribution in our community.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | 60 W Incandescent | | |
| *Efficient technology:* | CFL Screw-In 13W | | |
| *Number of participants or units delivered for reporting year:* | 3000 | | |
| *Measure life (years):* | 4 | | |
| *Number of Partipants or units delievered life to date* | 3000 | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ 69,233.00 | $ 69,233.00 |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ 12,709.00 | $ 12,709.00 |
| *Total TRC costs:* | $ 12,709.00 | $ 12,709.00 |
| *Net TRC (in year CDN $):* | $ 56,524.00 | $ 56,524.00 |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | 5.45 | 5.45 |

C. **Results:** (one or more category may apply)

| | | | Cumulative Results: | |
|---|---|---|---|---|
| **Conservation Programs:** | | | | |
| *Demand savings (kW):* | *Summer* | 0 | | 0 |
| | *Winter* | 61 | | 61 |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | *1,127,520* | 281,880 | 1,127,520 | 281,880 |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** COMMUNITY EVENTS

**Demand Response Programs:**
*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**
*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 18,394.00 | 18,394.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 18,394.00 | 18,394.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

The Total Resource Cost (TRC) was modelled using the Enerspectrum spreadsheet and was based on the following assumptions:
1. Savings reflect OEB guidelines/tables using 15 W CFL's. Actual exchange was for 13 W CFLs, and therefore actual savings would be higher than reported.

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**RAC Drop Off & Recycling (Keep Cool)**

| | |
|---|---|
| **2006 Program Spending:** | **$ 1,512** |
| **2006 Program Spending To-Date:** | **$ 1,512** |
| **OEB Approved Budget** | **$79,000** |
| **Program Status:** | **On Hold – Currently exploring OPA funded programs.** |

This conservation program is targeted to Residential customers. Whitby residents would be encouraged to retire their old inefficient room air-conditioners (RAC) by dropping off their old units at a local Home Depot store and in exchange, receiving a $25 gift card from Home Depot. The customer would also receive a short lesson on ways to keep cool in the summer, such as using ceiling fans, purchasing Energy Star qualified RAC's, etc. The air conditioning units collected by Home Depot would be sent to a local recycler where they would be fully decommissioned in accordance with Environment Canada regulations. The program was modeled after the Keep Cool program which has run for the past two years in the Toronto area and proven to be very successful.

This program was not included in our original CDM plan, yet it was identified as a best practice during 2006, and subsequently included in the submission of our Revised CDM Plan. Planning activities for this program took place in late 2006 however the program was put on hold pending OEB approvals and announcements from the OPA regarding provincial programs.

**Lessons Learned:**

The analysis and planning of the proposed program will provide benefits as we review the OPA programs scheduled to be offered provincially in 2007.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** RAC DROP OFF AND RECYCLING (KEEP COOL)

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

This conservation program is targeted to Residential customers. Whitby residents would be encouraged to retire their old inefficient room air-conditioners (RAC) by dropping off their old units at a local Home Depot store and in exchange, receiving a $25 gift card from Home Depot. The customer would also receive a short lesson on ways to keep cool in the summer, such as using ceiling fans, purchasing Energy Star qualified RAC's, etc. The air conditioning units collected by Home Depot would be sent to a local recycler where they would be fully decommissioned in accordance with Environment Canada regulations. The program was modeled after the Keep Cool program which has run for the past two years in the Toronto area and proven to be very successful.

This program was not included in our original CDM plan, yet it was identified as a best practice during 2006, and subsequently included in the submission of our Revised CDM Plan. Planning activities for this program took place in late 2006 however the program was put on hold pending OEB approvals and announcements from the OPA regarding provincial programs.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered life to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | | |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | | |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | | |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

| | |
|---|---|
| *Controlled load (kW)* | |
| *Energy shifted On-peak to Mid-peak (kWh):* | |
| *Energy shifted On-peak to Off-peak (kWh):* | |
| *Energy shifted Mid-peak to Off-peak (kWh):* | |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | |
| *Peak hours dispatched in year (hours):* | |

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** RAC DROP OFF AND RECYCLING (KEEP COOL)

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**

*Peak load savings (kW):*

*lifecycle* *in year*

*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**

*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**

*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 1,512.00 | 1,512.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 1,512.00 | 1,512.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Refrigerator Retirement**

| | |
|---|---|
| **2006 Program Spending:** | **$ 3,024** |
| **2006 Program Spending To-Date:** | **$ 3,024** |
| **OEB Approved Revised Budget** | **$163,500** |
| **Program Status:** | **On Hold – Currently exploring OPA funded programs.** |

This conservation program was targeted to Residential customers and would offer a $30 rebate (in the form of a coupon booklet), encouraging customers to retire their old inefficient, secondary refrigerators. The program was designed to offer the incentive along with free at home pick up and disposal of the old refrigerators. The disposal would include a full decommissioning of the equipment in an environmentally friendly manner.

This program was not included in our original CDM plan, yet it was identified as a best practice during 2006, and subsequently included in the submission of our Revised CDM Plan. Planning activities for this program took place in late 2006 however the program was put on hold pending OEB approvals and announcements from the OPA regarding provincial programs.

**Lessons Learned:**

The analysis and planning of the proposed program will provide benefits as we review the OPA programs scheduled to be offered provincially in 2007.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** REFRIGERATOR RETIREMENT

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

This conservation program was targeted to Residential customers and would offer a $30 rebate (in the form of a coupon booklet), encouraging customers to retire their old inefficient, secondary refrigerators. The program was designed to offer the incentive along with free at home pick up and disposal of the old refrigerators. The disposal would include a full decommissioning of the equipment in an environmentally friendly manner.

This program was not included in our original CDM plan, yet it was identified as a best practice during 2006, and subsequently included in the submission of our Revised CDM Plan. Planning activities for this program took place in late 2006 however the program was put on hold pending OEB approvals and announcements from the OPA regarding provincial programs.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered lfe to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | | |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | | |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | |

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

| | | | Cumulative Lifecycle | Cumulative Annual Savings |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | | |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*

*Distribution system power factor at begining of year (%):*
*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*

| | *lifecycle* | *in year* |
|---|---|---|
| *Energy savngs (kWh):* | | |

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 3,023.00 | 3,023.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 3,023.00 | 3,023.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**Website Development**

| | |
|---|---|
| **2006 Program Spending:** | **$ 0** |
| **2006 Program Spending To-Date:** | **$ 0** |
| **OEB Approved Revised Budget** | **$6,000** |
| **Program Status:** | **Planning Stage** |

The Whitby Hydro website www.whitbyhydro.on.ca will be updated with a new "Energy Conservation" section. The website will be kept up to date with Energy Conservation Tips that help educate customers on ways to save. It will also list the Conservation initiatives which are underway and offer program details including step by step instructions on how customers can participate in the conservation programs. There will also be links to summary sheets for conservation programs (both local programs & provincial programs) as well as links to other relevant conservation websites. Efforts for this program are expected to get underway early in 2007.

**Lessons Learned:**

Not Applicable.

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** WEBSITE DEVELOPMENT

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

The Whitby Hydro website www.whitbyhydro.on.ca will be updated with a new "Energy Conservation" section. The website will be kept up to date with Energy Conservation Tips that help educate customers on ways to save. It will also list the Conservation initiatives which are underway and offer program details including step by step instructions on how customers can participate in the conservation programs. There will also be links to summary sheets for conservation programs (both local programs & provincial programs) as well as links to other relevant conservation websites. Efforts for this program are expected to get underway early in 2007.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered life to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | | |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | | |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |
| *Benefit to Cost Ratio (TRC Benefits/TRC Costs):* | | |

C. **Results:** (one or more category may apply)

**Conservation Programs:**

| | | | Cumulative Lifecycle | Cumulative Annual Savings |
|---|---|---|---|---|
| *Demand savings (kW):* | *Summer* | | | |
| | *Winter* | | | |
| | *lifecycle* | *in year* | | |
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

| | |
|---|---|
| *Controlled load (kW)* | |
| *Energy shifted On-peak to Mid-peak (kWh):* | |
| *Energy shifted On-peak to Off-peak (kWh):* | |
| *Energy shifted Mid-peak to Off-peak (kWh):* | |

**Demand Response Programs:**

| | |
|---|---|
| *Dispatchable load (kW):* | |
| *Peak hours dispatched in year (hours):* | |

**Power Factor Correction Programs:**

| | |
|---|---|
| *Amount of KVar installed (KVar):* | |
| *Distribution system power factor at begining of year (%):* | |
| *Distribution system power factor at end of year (%):* | |

**Line Loss Reduction Programs:**

*Peak load savings (kW):*

*lifecycle* *in year*

*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**

*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**

*Metric (specify):*

D. **Actual Program Costs:**

| | | Reporting Year | Cumlative Life to Date |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

E. **Assumptions & Comments:**

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

**CDM Plan Admin & Reporting**

| | |
|---|---|
| **2006 Program Spending:** | **$ 21,275** |
| **2006 Program Spending To-Date:** | **$ 21,275** |
| **OEB Approved Revised Budget** | **$ 25,000** |
| **Program Status:** | **Ongoing** |

2006 spending relates to costs associated with the administration and reporting requirements associated with the third tranche CDM initiatives. These costs are general in nature and cannot be assigned to individual programs as they were incurred to support the entire CDM initiative. Spending in 2006 included acquiring a model from EnerSpectrum to assist in performing TRC calculations as well group training sessions that were provided to all staff responsible for implementing and managing programs. In addition, costs include time and effort associated with additional resources required to review and analyze potential new programs during the later half of the year.

# Appendix B - Discussion of the Program

## (complete this Appendix for each program)

A. **Name of the Program:** CDM PLAN ADMIN & REPORTING

**Description of the program (including intent, design, delivery, partnerships and evaluation):**

2006 spending relates to costs associated with the administration and reporting requirements associated with the third tranche CDM initiatives. These costs are general in nature and cannot be assigned to individual programs as they were incurred to support the entire CDM initiative. Spending in 2006 included acquiring a model from EnerSpectrum to assist in performing TRC calculations as well group training sessions that were provided to all staff responsible for implementing and managing programs. In addition, costs include time and effort associated with additional resources required to review and analyze potential new programs during the later half of the year.

**Measure(s):**

| | Measure 1 | Measure 2 (if applicable) | Measure 3 (if applicable) |
|---|---|---|---|
| *Base case technology:* | | | |
| *Efficient technology:* | | | |
| *Number of participants or units delivered for reporting year:* | | | |
| *Measure life (years):* | | | |
| *Number of Partipants or units delievered life to date* | | | |

B. **TRC Results:**

| | Reporting Year | Life-to-date TRC Results: |
|---|---|---|
| [1] *TRC Benefits ($):* | $ - | $ - |
| [2] *TRC Costs ($):* | | |
| *Utility program cost (excluding incentives):* | | |
| *Incremental Measure Costs (Equipment Costs)* | $ - | $ - |
| *Total TRC costs:* | $ - | $ - |
| *Net TRC (in year CDN $):* | $ - | $ - |

*Benefit to Cost Ratio (TRC Benefits/TRC Costs):*

C. **Results:** (one or more category may apply)

**Cumulative Results:**

**Conservation Programs:**

*Demand savings (kW):* *Summer* / *Winter*

| | *lifecycle* | *in year* | *Cumulative Lifecycle* | Cumulative Annual Savings |
|---|---|---|---|---|
| *Energy saved (kWh):* | | | | |
| *Other resources saved :* | | | | |
| *Natural Gas (m3):* | | | | |
| *Other (specify):* | | | | |

**Demand Management Programs:**

*Controlled load (kW)*
*Energy shifted On-peak to Mid-peak (kWh):*
*Energy shifted On-peak to Off-peak (kWh):*
*Energy shifted Mid-peak to Off-peak (kWh):*

**Demand Response Programs:**

*Dispatchable load (kW):*
*Peak hours dispatched in year (hours):*

**Power Factor Correction Programs:**

*Amount of KVar installed (KVar):*
*Distribution system power factor at begining of year (%):*

# Appendix B - Discussion of the Program

(complete this Appendix for each program)

A. **Name of the Program:** CDM PLAN ADMIN & REPORTING

*Distribution system power factor at end of year (%):*

**Line Loss Reduction Programs:**
*Peak load savings (kW):*
*lifecycle* *in year*
*Energy savngs (kWh):*

**Distributed Generation and Load Displacement Programs:**
*Amount of DG installed (kW):*
*Energy generated (kWh):*
*Peak energy generated (kWh):*
*Fuel type:*

**Other Programs (specify):**
*Metric (specify):*

| D. **Actual Program Costs:** | | **Reporting Year** | **Cumlative Life to Date** |
|---|---|---|---|
| *Utility direct costs ($):* | *Incremental capital:* | 2,726.00 | 2,726.00 |
| | *Incremental O&M:* | 18,549.00 | 18,549.00 |
| | *Incentive:* | 0.00 | 0.00 |
| | *Total:* | 21,275.00 | 21,275.00 |
| *Utility indirect costs ($):* | *Incremental capital:* | 0.00 | 0.00 |
| | *Incremental O&M:* | 0.00 | 0.00 |
| | *Total:* | 0.00 | 0.00 |

**E. Assumptions & Comments:**

[1] Benefits should be estimated if costs have been incurred and the technology has been deployed. Benefits reflect the present value of the measure for the number of units deployed in the year, i.e. the number of units times the net present value per unit b

[2] For technologies which have not been deployed but for which the LDC has incurred costs, report only the TRC costs on a present value basis. Incentives (e.g. rebates) from the LDC to a customer are not a component of the TRC costs. However, payments made

## ***CONCLUSION***

The Conservation and Demand Management programs have progressed and several programs are complete or close to completion at the end of 2006. In addition to the original programs included in Whitby Hydro's CDM plan, several new programs have been added to complement our offering so that the benefits can be seen across a range of customers.

This report demonstrates that the CDM programs selected by Whitby Hydro have proven to be beneficial both from a net TRC, and a kWh and demand savings perspective. 2007 will continue to see an increase in CDM activity and it is anticipated that spending of the approved $1.3M will occur by September 2007. In addition to the wrap-up of the third tranche spending, Whitby Hydro will play a role in the recently announced OPA provincial programs during the upcoming year. It will be important to coordinate efforts between these complementary initiatives and programs.

Our development and implementation of programs to-date continue to give us the knowledge and experience to promote and deliver solid programs within our service area. The lessons learned so far have allowed us to effectively modify existing programs and shift spending amongst programs going forward, to ensure that strong CDM initiatives are delivered. We continue to emphasize the importance of increasing information sharing amongst LDC's through various forums, and reports which will serve to benefit the overall CDM initiative.