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March 28, 2008

**BY COURIER**

Ms. Kirsten Walli, Board Secretary  
Ontario Energy Board  
2300 Yonge Street, 26<sup>th</sup> Floor, P.O. Box 2319  
TORONTO, ON M4P 1E4

**Re: Kitchener-Wilmot Hydro Inc.  
RP-2004-0203/EB-2005-0193  
Conservation and Demand Management Annual Report**

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Dear Ms. Walli:

Enclosed please find three (3) hard copies of Kitchener-Wilmot Hydro Inc.'s 2007 Conservation and Demand Management Annual Report. As well, two (2) electronic copies (on CD) are also enclosed; one electronic copy is in PDF format which consists of the entire report, and the second electronic copy is in Excel format which consists of only Appendixes A, B and C.

Should you require any further information or clarification, kindly contact either myself at (519) 745-4771, ext. 280, or our Vice-President Finance and C.F.O. at ext. 217.

Respectfully submitted,

*Original Signed by*

J. Van Ooteghem, P.Eng.  
mn

President & CEO

Attachments



**2007  
Conservation  
and  
Demand Management  
Annual Report**



**March 28, 2008**



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## 1. Introduction

Kitchener-Wilmot Hydro Inc. (KWHI) is a local distribution company that is responsible for distributing electricity to more than 81,020 homes and businesses within the City of Kitchener and the Township of Wilmot.

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

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

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

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

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

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

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

## 2. Evaluation of the CDM Plan

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

- Net TRC value: \$7.4 million
- Annual energy savings: 16,521,354 kWh and 2,879 kW, which accounts for:
  - 0.85% of the total kWh delivered and,
  - 0.90% of KWHI's peak demand in 2007
- Gross CDM expenditures: \$2.34 million
- Expenditure per kWh saved: \$0.14
- Expenditure per kW saved: \$812.99

### 3. Discussion of Programs

The CDM programs that comprised KWHI third tranche CDM expenditures include the following programs (discussed in detail below):

#### A) CAPITAL PROGRAMS – UTILITY-SIDE INVESTMENTS

##### *i. Capacitor Bank Program*

As discussed in its 2005 and 2006 Annual CDM reports, a load flow analysis was performed on KWHI's 13.8 kV distribution system (Phase I of the project) in 2005. In 2007, a load flow analysis on the 27.6 kV distribution system (Phase II of the project) was completed. A model was developed using software called Distribution Engineering Software Solution (DESS) to investigate the opportunities for system optimization and improved phase balancing. DESS helped the KWHI identify the optimum location to install capacitor banks to extract these savings.

Capacitor banks are attached to the utility pole to improve the voltage power factor and reduce distribution system losses.

##### *Phase I - City of Kitchener*

As reported in its 2006 annual CDM report, 65 capacitor banks were installed in the City of Kitchener during 2006. Distribution system losses are expected to be reduced by approximately \$100,000 (1,715,400 kWh) per annum due to the installation of the capacitor banks.

##### *Phase II – Township of Wilmot*

A model of the 27.6 kV distribution system in the Township of Wilmot was developed using DESS to identify the best locations to install the capacitor banks in the Township rural areas for reduced distribution system losses. The installation of the capacitor banks for this phase of the project began in the spring of 2007 and was completed in the fall. Twelve (12) capacitor banks were installed in the Township of Wilmot at a cost of \$138,054.

### Phase I Specifics

Specifics of Phase I of the program are as follows:

- Phase I equipment cost is \$243,525 and direct program costs are \$265,923 for a total Phase I program cost of \$509,448
- The estimated annual energy savings are:
  - ✓ 1,715,400 kWh and,
  - ✓ 425 kW per year
- The net TRC value is approximately \$1.2 million
- The benefit to cost ratio is 3.38

### Phase II Specifics

Specifics of Phase II of the program are as follows:

- Phase II equipment cost is \$145,185 and direct program costs are \$143,459 for a total Phase II program cost of \$288,644.
- The estimated annual energy savings are:
  - ✓ 426,000 kWh and,
  - ✓ 140 kW per year
- The net TRC value is approximately \$159,208
- The benefit to cost ratio is 1.55

KWHI's overall third tranche investment in its capacitor bank program (Phases I and II) is as follows:

2005 -	\$185,429
2006 -	\$324,018
2007 -	<u>\$138,055</u>
Total	\$647,502

*ii. In-house Retrofit Program*

KWHI wants to ensure that its own facilities use energy efficiently, and serve as a model for what it hopes its customers will emulate. To this end, the following were included in its CDM activities:

a. LED Sign

As part of the program in 2005 and to enhance customer education on energy conservation, an outdoor LED sign was installed above the main entrance to our office building in May of 2005. The sign flashes helpful energy saving tips and important electricity safety messages to customers. It is estimated that approximately 38,000 customers passed through the front door to pay bills and another 7,000 new customers signed for new services in 2007. In addition, the sign is visible to the street, allowing drive-by traffic an opportunity to read the messages. Overall exposure of these energy conservation messages is therefore quite high.

The LED sign continues to be part of KWHI's CDM activities. The numerous messages flashed to customers in 2007 are attached as Attachment A. To see a list of the messages flashed to customers in 2005 and 2006, see KWHI's prior year annual CDM reports.

A TRC analysis for this project has not been calculated as the sign is for educational purposes only. Costs to install in 2005 were \$18,443.

b. Replacement of Energy Inefficient Windows on Office Building

KWHI replaced all of its energy inefficient windows (135) with more cost effective energy saving windows during the year 2006.

Office Building Windows Replacement Specifics

Specifics of the window program are as follows:

- Equipment cost was \$41,725
- The estimated annual energy savings are:
  - ✓ 175,000 kWh per year
- The net TRC value is approximately \$107,097
- The benefit to cost ratio is 3.57

KWHI invested \$115,216 in this activity in 2006.

c. Replacement of the office building lighting system

In 2007, KWHI replaced the energy inefficient lighting within its main office building. All existing fluorescent lighting fixtures, which utilized T8 technology, were re-lamped with more cost effective T8 25-watt lamps.

Lighting System Replacement Specifics

Specifics of the replacement of the lighting system are as follows:

- Equipment cost is \$59,720
- The estimated annual energy savings are:
  - ✓ 157,351 kWh per year
  - ✓ 33 kW
- The net TRC value is approximately \$1,944
- The benefit to cost ratio is 1.04

d. Installation of gas-fired heaters in the garage area

As part of its 2007 energy efficiency efforts, KWHI replaced the energy inefficient in-floor electric heating system in the garage area with gas-fired heaters (20).

Specifics of the installation of gas-fired heaters in the garage area are as follows:

- Equipment cost is \$130,867
- The estimated annual energy savings are:
  - ✓ 880,000 kWh per year
  - ✓ 439 kW
- The net TRC value is approximately \$887,486
- The benefit to cost ratio is 7.78

e.

Fuel Switching – Electricity to Gas

In 2006, KWHI participated in a fuel switching program by changing the electric boiler system at its main office at 301 Victoria Street South in Kitchener to gas heated boilers.

Fuel Switching – Electricity to Gas Program Specifics

Specifics of the program are as follows:

- Equipment cost was \$137,640
- The estimated annual energy savings are:
  - ✓ 500,000 kWh per year
  - ✓ 300 kW per year
- The net TRC value is approximately \$438,116
- The benefit to cost ratio is 4.18

The total dollar amount spent on this activity was \$137,640.

KWHI's overall third-tranche investment in its in-house energy efficiency program is as follows:

2005 - \$	18,443
2006 - \$	252,856
2007 - \$	<u>190,587</u>
Total	\$461,886

## B) OPERATING AND MAINTENANCE PROGRAMS

### *i. LED Traffic Lights*

KWHI agreed to assist the Regional Municipality of Waterloo in converting 170 intersections from incandescent to LED technology beginning in 2006 and completed in 2007. To see a listing of the conversions completed in 2007, see Attachment B.

#### LED Traffic Light Program Specifics

Specifics of the program are as follows:

- Equipment cost is \$561,600
- The estimated annual energy savings are:
  - ✓ 1,587,209 kWh per year
- The net TRC value is approximately \$782,446
- The benefit to cost ratio is 2.39

KWHI's overall third-tranche investment in the conversion to LED traffic lights is as follows:

2006 - \$	14,000
2007 -	<u>\$156,000</u>
Total	\$170,000

### *ii. Municipal Building Lighting Program*

As discussed in the 2005 annual CDM report, the City of Kitchener has been actively improving the energy efficiency of municipal buildings over the last twenty years and the City allocates a budget each year for improvements. In keeping with this objective, in 2005, KWHI provided funding to the City of Kitchener to upgrade the lighting systems at Kitchener Memorial Auditorium, City Hall and the City Hall parking garage. The following activities were performed:

#### *Kitchener Memorial Auditorium*

- o Total funding \$21,100
- o Estimated annual energy savings are:
  - ✓ 87,079 kWh per year
  - ✓ 16.1 kW

- o All fixtures identified as inefficient T12 fluorescent lights were retrofitted to newer, high efficient T8 technology.
- o All existing incandescent fixtures were retrofitted to high efficiency compact fluorescent lighting.
- o Retrofit “exit” signs to LED technology.
- o All fixtures were cleaned for improved aesthetics and light output.

*City Hall*

- o Total funding \$10,664
- o Estimated annual energy savings are:
  - ✓ 118,152 kWh per year
  - ✓ 14.1 kW
- o All existing fixtures were upgraded to 150W high efficiency quartz lighting.

*City Hall Parking Garage*

- o Total funding \$21,084
- o Estimated annual energy savings are:
  - ✓ 78,971 kWh per year
  - ✓ 9.02 kW
- o All 150 watt quartz fixtures were replaced with 15 watt compact long-life fluorescent fixtures (a 90% reduction of total energy used). All fixtures were cleaned for improved aesthetics and light output.

Specifics of the total Municipal Building program are as follows:

- The total cost is \$52,848
- The estimated annual energy saving is:
  - ✓ 284,202 kWh and,
  - ✓ 39.14 kW
- The net TRC value is \$34,336
- The benefit to cost ratio is 2.30

KWHI’s overall third-tranche investment in the municipal buildings program is as follows:

2005 -	<u>\$ 52,848</u>
Total	\$ 52,848

### *iii. School Energy Conservation Kits*

KWHI recognizes that electricity conservation begins at home and that it is important to reach school-aged children in order to instill the important attitudes and knowledge that are needed to create real change. It was with this in mind that KWHI purchased 37 conservation kits. These conservation kits were distributed to the Waterloo Region School Board in 2007 and are used by teachers as a teaching aid.

#### Hydro Kit Inclusions:

- 3 Dynamo flashlights (incandescent)
- 3 Dynamo flashlights (LED)
- Power bar
- 3 power monitors
- 2 desk lamps
- Incandescent bulbs
- Compact fluorescent bulbs
- Extension cord
- Holiday lights (LED)
- Holiday lights (incandescent)
- “Climate System” poster
- “Climate Change” video
- Books: A Bright Idea  
The World As A Village Light  
Be Safe!
- Consumables (sticky notes, etc.)

A TRC analysis for the school conservation kits has not been calculated as the kits are for educational purposes only. Each of the 37 kits cost \$475.00 for a total cost of \$17,575.

KWHI’s overall third-tranche investment in the school energy conservation kits program is as follows:

2007 - \$ 17,575  
Total \$ 17,575

#### *iv. Fuel Switching – Electricity to Gas*

In 2006 and 2007, KWHI and the local gas company, Kitchener Utilities, partnered to promote energy conservation by offering financial assistance to eligible residential customers in a fuel switching program. The fuel switching program encouraged consumers to convert from electricity to gas and consisted of the following two conversion programs:

- ✓ Conversion from existing electric water heaters to natural gas water heaters
- ✓ Conversion of existing electric furnaces to natural gas furnaces.

The rebate offered the following for water heaters and furnaces installed to December 31, 2007:

- ✓ \$200 for switching to a natural gas water heater.
- ✓ \$500 for switching to a natural gas furnace.

The program was well received and the results for the year 2007 are as follows:

- ✓ 231 residential customers have taken advantage of the water heater rebate totalling \$46,200 with an annual energy saving of about \$30 per customer.
- ✓ 32 eligible customers have taken advantage of the furnace rebate totalling \$16,000 in rebates.

Final results for the two years 2006 and 2007 show that 414 customers received the \$200 water heater rebate and 48 customers received the \$500 furnace rebate.

#### *2007 Fuel Switching – Electricity to Gas Program (Residential) Specifics*

Specifics of the program are as follows:

- Equipment cost is \$392,400
- The estimated annual energy savings are:
  - ✓ 1,212,920 kWh per year
  - ✓ 82.47 kW per year.
- The net TRC value is approximately \$1,410,415

- The benefit to cost ratio is 4.59

KWHI's overall third-tranche investment in the fuel switching program is as follows:

2006 -	\$ 44,600
2007 -	<u>\$ 45,600</u>
Total	\$ 90,200

**v. *Fall Discount Coupon Program***

In 2005, KWHI Inc., in partnership with Energy Shop Inc., issued 71,500 coupons to encourage customers to purchase energy saving products at Canadian Tire Stores. The program "2005 Lighten Your Electricity Bill" gave customers the following discounts which were funded by KWHI:

1. Programmable thermostat (\$15)
2. Outdoor light timer (\$5)
3. Indoor light timer (\$1)
4. Compact fluorescent light (\$3)
5. LED Christmas lights, string of 25 (\$5)
6. Ceiling fan (\$5)
7. EnerGuide for Houses (free with home evaluation)

Specific TRC results of the program show the following:

- The equipment cost is \$26,639 and direct program cost is \$15,316
- The estimated annual energy saving is:
  - ✓ 115.57 kW (winter peak)
  - ✓ 30.7 kW (summer peak) and,
  - ✓ 488,797 kWh per year
- The net TRC value is \$191,459
- The benefit to cost ratio is 5.56

KWHI's overall third-tranche investment in the fall coupon program is as follows:

2005 -	\$ 15,285
2006 -	<u>\$ 19,827</u>
Total	\$ 35,111

*vi. Residential Consumers Education*

KWHI was involved in numerous activities to encourage consumers to conserve energy, as well as to educate them.

- a. KWHI entered into a sponsorship agreement with the Kitchener Rangers Hockey Club and Rogers Television for energy conservation advertising spots for two hockey seasons. Per the agreement, an average of three advertising spots per game will be played on the video score clock in the centre of the arena and replayed on 6 new concourse plasma monitors. The time of each promotion will be 20 seconds long and each spot has both an audio and video component.

The promotion included:

- ✓ An “attention grabbing” introduction showing KWHI’s logo.
- ✓ A fan participation component that leads to interaction with fans.

As part of the package, the conservation messages were also played on Rogers Cable television on Kitchener’s local channel 20, increasing public exposure to anyone watching the games from their living room.

The total program cost for this activity is \$72,224.

- b. For “Blackout Day”, the City of Kitchener ran advertisements challenging customers to reduce electricity consumption by 4%.

KWHI’s share of the advertising was \$1,290.

- c. Miscellaneous energy conservation advertising included:

- ✓ Greater Kitchener Waterloo Chamber of Commerce Directory
- ✓ Costs incurred due to KWHI’s participation in the OPA Fall coupon program.

KWHI Inc. incurred \$1,053 in miscellaneous energy conservation advertising in 2006 & 2007.

KWHI's overall third-tranche investment Residential Consumer Education project is as follows:

2006 -	\$ 64,363
2007 -	<u>\$ 10,206</u>
Total	\$ 74,569

***vii. Energy Conservation Kits***

The Minister identified low income consumers as a key target for CDM programs. KWHI's energy conservation kit program was designed specifically to reach low income consumers.

In 2005, KWHI supplied 70 energy conservation kits to the Fall Energy Forum, held at the Kitchener's Farmer's Market and hosted by John Milloy M.P.P. In addition, 649 of these kits were supplied to the Region of Waterloo, which distributed the kits to eligible consumers in the City of Kitchener and the Township of Wilmot. Eligible consumers include low income consumers who reside in subsidized housing. The remaining kits were distributed at other local community energy and conservation functions. Each kit included the following:

- ✓ Compact fluorescent light
- ✓ Fridge thermostat
- ✓ Shower coach
- ✓ Hot water gauge
- ✓ Insulation for light switch covers
- ✓ Three (3) feet of adhesive weather strip

Specific TRC results of the program show the following:

- The equipment cost is \$15,397.
- The estimated annual energy saving is:
  - ✓ 1,328,800 kWh per year
  - ✓ 71.5 kW per year
- The net TRC value is \$731,170
- The benefit to cost ratio is 53.77

KWHI's total third-tranche investment in energy conservation kits is as follows:

2005 -	<u>\$ 15,397</u>
Total	\$ 15,397

**viii. Low Income Program with the Region – Social Housing**

KWHI's CDM plan included funding for residential low income programs. In 2006, KWHI approved 100% funding for a lighting upgrade at one of the Region of Waterloo's social housing buildings located at 518 Greenfield Avenue in Kitchener.

Specific TRC results of the program show the following:

- The equipment cost is \$10,260
- The estimated annual energy saving is:
  - ✓ 24.72 kW and,
  - ✓ 92,439 kWh per year
- The net TRC value is \$12,950
- The benefit to cost ratio is 2.26

KWHI's total third-tranche investment in the energy conservation kits is as follows:

2006 -	<u>\$ 9,750</u>
Total	\$ 9,750

**ix. Social Housing - Refrigerator Replacement**

In 2007, KWHI approved funding in the amount of \$165,000 for the replacement of 300 energy inefficient refrigerators with energy efficient "Energy Star" refrigerators in low income housing units within the City of Kitchener. All 300 of the refrigerators replaced were 10 to 15 years old. According to the Energuide Appliance Directory, the old refrigerators consume approximately 1,044 kWh's per year while the Energy Star fridges consume only 376 kWh's per year. Replacement of these units resulted in approximately 64% savings for the refrigerator load.

Specifics of the TRC test are presented below:

- Equipment cost is \$172,710 (including KWHI funding of \$165,000)
- The estimated annual energy savings are:
  - ✓ 22,200 kWh and,
  - ✓ 5.1 kW per year

- The net TRC value is approximately \$282
- The benefit to cost ratio is 1.01

KWHI's total third-tranche investment in the refrigerator replacement program is as follows:

2007 - \$165,000  
Total \$165,000

***x. Low-Income Residential Education Program***

As discussed in KWHI's 2005 annual CDM report, World-Wide Opportunities for Women (WWOW) is a non-profit organization that has been active in Waterloo Region since 1994. WWOW is a member of the Green Communities Association, which has developed the Home Energy Saver Program and offers support, training and advice to the community.

The program focuses on energy efficiency, water efficiency, and alternative household cleaning items, reducing household waste and life-style improvement. Through the program, WWOW staff, trained in home energy assessment audits, visit a household and complete a four-hour assessment. During their visit, they provide education, small retrofits and assessment recommendation to the household. If necessary, they will also assist the household in advocating to their landlord energy efficiency repairs, improvements and upgrades. WWOW will follow up 45 days after the assessment to see how the household is progressing.

To date, WWOW has completed 2,500 home assessments across the Region. Assessments were previously available to anyone in the community with a request for a \$10 donation. 75% of the assessments conducted were for people in a low-income bracket and unable to make a donation. The actual cost of the assessment is \$380.

The focal point of WWOW energy audits is to develop the Home Energy Saver program and to empower low-income and ethnic groups to take action and make measurable changes with their home environment. The program is targeted at families and individuals who typically would not be able to take advantage of developing a greater awareness of energy management.

In support of WWOW's objectives, KWHI made a donation to the organization in the amount of \$3,000 to help WWOW continue to make the Home Energy Saver Program more accessible to residents in the City of Kitchener and the Township of Wilmot.

KWHI's total third-tranche investment in support of WWOW is as follows:

2005 -	\$ 3,000
Total	\$ 3,000

***xi. Pilot Program Funding for Social Housing Services Corporation (SHSC)***

The SHSC operated an "Energy Management Program" whereby they conducted energy audits in over 5,000 social housing units in the Province of Ontario. Using key partnerships within the public and private sectors, including the Ministry of Energy, SHSC's program served as a central resource for energy management in the social housing sector including its over 1,500 members that comprise 250,000.

In late March and early April 2005, energy consultants visited the pilot buildings to identify energy conservation measures and entered their findings into an Energy Management System. This on-line system will prioritize the various measures, recommend funding sources, assist housing providers in planning retrofits, and then monitor and report energy savings.

In support of SHSC's program, KWHI provided funding to SHSC for 91 unit townhouses within the LDC's service area. The total sponsorship cost was \$4,450.

Specifics of the TRC test are presented below:

- The total cost is \$120,470 (including KWHI funding of \$4,450)
- The estimated annual energy savings is:
  - ✓ 343,161 kWh and,
  - ✓ 18.2 kW per year
- The net TRC value is \$14,643
- The benefit to cost ratio is 1.13

KWHI's total third-tranche investment in support of SHSC's Energy Management Program is as follows:

2005 - \$ 4,450  
Total \$ 4,450

*xii. Residential – Electrically Heated Homes*

Starting in May 2006, KWHI sponsored Residential Energy Efficiency Project (REEP). REEP is a project of Waterloo Region Green Solutions that delivers the EnerGuide for Houses program under an agreement with Green Communities Canada.

Through the EnerGuide program, REEP conducts in-home evaluations for eligible residential customers. Through the course of the evaluations, each customer receives free CFL's.

During 2007, REEP's activities included the following:

- ✓ 152 initial and follow-up evaluations in the City of Kitchener and the Township of Wilmot.
- ✓ 304 free CFL's were given out.
- ✓ The estimated energy savings is 20,368 kWh per year generated by the installation of the free CFL's.

KWHI's total third-tranche investment for this project is as follows:

2006 - \$ 21,733  
2007 - \$ 10,739  
Total \$ 32,472

*xiii. Key Account Seminars and Information*

KWHI has been involved in numerous programs to educate its general service customers.

- a. In April 2005, the Independent Electricity System Operator (IESO) produced a brochure called "The Bottom Line on Energy Management. Making Ontario's electricity market work for your business". This educational booklet was designed for larger customers and explained:
  - ✓ How the electricity pricing system works in the Province of Ontario.

- ✓ Interval meters and how they record electricity consumption.
- ✓ Energy conservation.
- ✓ Retail contracts.
- ✓ Load shifting.

KWHI mailed out these CDM information booklets to general service customers incurring postage cost of \$359.

- b. In January 2006, IESO energy savings calendars were sent out to KWHI's large service customers (> 200kW). The calendar provides the customer with information on how they can better manage electricity use and help control costs. It contains information about the factors that influence the price of electricity, conservation tips and details about incentive programs available to businesses. Also, the calendar includes helpful monthly information such as:

- ✓ Average temperature
- ✓ Average weighted cost
- ✓ Average weighted daytime price (8 am-8 pm, M-F)
- ✓ Average weighted nighttime/weekend price
- ✓ Average time price peaked.

230 energy savings calendars were sent out at a postage cost of \$952.

- c. In November 2006, an IESO information book, "Managing Your Electricity Costs", was sent out to KWHI's non-regulated price plan customers (commercial & general service customers < 50 kW). The IESO book is aimed to help business recognize that reducing electricity costs will increase profitability. It details five keys to managing electricity costs.

- ✓ Understand how you're billed.
- ✓ Know where you stand today.
- ✓ Control your electricity use.
- ✓ Invest in an energy management plan.
- ✓ Cash in on incentives.

683 of these helpful books were sent out at a postage cost of \$683.

- d. In January 2007, KWHI held an Energy Efficiency seminar, "Lighting Strategies & Power Factor Correction Savings" at the Holiday Inn Kitchener Conference Centre. In 2006, invitations

were sent out to potential attendees. Promotional items, such as ballpoint pens with the KWHI logo and “Write Conservation Into Your Life” written on them were also purchased to be given out at the seminar. The seminar:

- ✓ Examined the latest in energy efficient lighting products and retrofit strategies.
- ✓ Explored how to roll out utility incentive programs for maximum CDM success.
- ✓ Allowed customers to see and review the latest technologies in energy efficient lighting such as T8, T5 and pin-based compact fluorescent, metal halide and LED systems.
- ✓ Hosted a number of Canada’s leading lighting experts (speakers) who provided valuable information on how to maximize the energy efficiency of the lighting in commercial, industrial and institutional facilities.

The total cost incurred to the end of December 2007 for this seminar was \$4,667.

KWHI’s total third-tranche investment in key account seminars is as follows:

2005 - \$	359
2006 - \$	2,307
2007 - \$	<u>3,995</u>
Total	\$ 6,661

*xiv. Energy Management Workshops*

KWHI recognizes that education is the key to successful energy conservation and promoted events that were focused on energy efficiency, demand response and/or demand management.

- a. During the year 2005, KWHI conducted two local “Dollars to \$ense” Workshops in partnership with Natural Resources Canada on June 23, 2005 and November 8, 2005 (for detail see Appendix F). Over the past six years, more than 6,500 Canadians have found ways to save energy in their companies and organizations by attending these workshops. In addition to learning from highly trained instructors, workshop participants received instructional materials, which they took back to their workplace to share with colleagues.

*“Spot the Energy Savings Opportunities”* was held on June 23, 2005. The workshop highlighted learning through hands-on demonstrations how to identify opportunities in your electrical and thermal processes, from point of purchase to end-use including:

- ✓ Reviewing energy basics
- ✓ Analyzing the incremental cost of energy, and identifying up-front opportunities.
- ✓ Discovering how to minimize energy lost through distribution and conversion.
- ✓ Picking up tips on operating and maintaining boilers, compressors, motors, pumps, fans and more.

The *“Spot the Energy Savings Opportunities”* workshop was by attended by 19 of KWHI’s large industrial customers (>200 kW).

The second workshop entitled *“Learn to Monitor and Track Energy Costs”* was held on November 8, 2005. This workshop targeted new energy savings opportunities such as:

- ✓ Pinpointing energy waste.
- ✓ Forecasting savings and chart gains.
- ✓ Integrating energy management into every aspect of an organization.
- ✓ Discovering low-cost opportunities for saving money and options for financing retrofits and upgrades.
- ✓ Instilling an energy-efficient culture – taking energy management from the boardroom to the shop floor.

The *“Learn to Monitor and Track Energy Costs”* workshop was attended by 26 of our large industrial customers (>200 kW), including 3 of our large use customers (>5,000 kW).

Both workshops were very well received. Participants showed a keen interest in all topics and their feedback was very encouraging and positive.

The total cost of the two workshops was \$7,643.

- b. For the years 2006 and 2007, KWHI became a sponsor for the Greater Kitchener Waterloo Chamber of Commerce’s Energy and Environment Forum. This interactive half day event brought participants face-to-face with local experts who shared practical information on clean energy and energy conservation. The themes for each year were:

- ✓ 2006 - New Habits / Good Habits: Your Triple Bottom Line”.
- ✓ 2007 - “What YOU Can Do To Make A Difference”.

KWHI paid \$1,500 to be a gold sponsor for each of these events.

KWHI’s total third-tranche investment in energy management workshops is as follows:

2005 - \$	7,643
2006 - \$	1,500
2007 - \$	<u>1,500</u>
Total	\$10,643

#### *xv. Cool Shops*

KWHI and the Clean Air Foundation (CAF) partnered to deliver the Cool Shops program in the City of Kitchener during the summer of 2006.

The Clean Air Foundation is a not-for-profit organization dedicated to developing, implementing and managing public programs and other strategic approaches that lead to measurable reductions to improve air quality and protect the climate. Cool Shops is the only energy efficiency program of its kind in Canada which specifically engages the small commercial sector.

Through its program, a Cool Shops representative would visit small street-facing retail businesses in Kitchener. During each visit, the small business owner would receive:

- ✓ An energy audit
- ✓ Installation of two free CFLs and one free LED exit bulb retrofit kit
- ✓ Education in energy efficiency
- ✓ Money-saving discounts for CFLs, PAR fluorescent light bulbs and T8 lighting retrofits

Specifics of the TRC test are presented below:

- The total cost is \$120,286
- The estimated annual energy savings is:
  - ✓ 811,013 kWh and,
  - ✓ 219.08 kW per year
- The net TRC value is \$224,330

- The benefit to cost ratio is 2.86

KWHI's total third-tranche investment in Cool Shops program is as follows:

2006 -	<u>\$79,860</u>
Total	\$79,860

*xvi. Lighting Retrofit Program*

Beginning in the spring of 2006, KWHI Inc. began offering a lighting retrofit program targeted to industrial, commercial and institutional end-users with facility peak loads of greater than 50 kW. The objective of this program was to leverage energy conservation and load management opportunities within these sectors.

The lighting retrofit program enabled our customers to improve the quality of their lighting, lower maintenance costs, increase equipment life and save energy dollars. Further, maintaining a reliable supply of energy is a high priority to KWHI and reducing peak demand will contribute to a greater security of supply.

Through this program, KWHI agreed to sponsor up to a maximum of \$20,000 towards a lighting retrofit program that successfully passes the TRC test.

This program was highly successful with 32 businesses taking advantage of the program to the end of September 2007 with a total cost of \$401,963.

Specifics of the lighting retrofit program are presented below:

- The equipment cost is \$1,284,683 (including KWHI funding of \$401,963.04)
- The estimated annual energy savings is:
  - ✓ 3,877,147 kWh and,
  - ✓ 727.86 kW per year
- The net TRC value is \$1,095,759
- The benefit to cost ratio is 1.85

KWHI's total third-tranche investment in the lighting retrofit program is as follows:

2006 -	\$119,055
2007 -	<u>\$282,908</u>
Total	\$401,963

*xvii. Power Factor Correction Program*

Beginning in the spring of 2006, KWHI Inc. began offering a power factor correction program targeted to industrial, commercial and institutional end-users with facility peak loads of greater than 50 kW. This program has been successful and total KVar installed is 1,068.

Specifics of the power factor correction program are presented below:

- The total cost is \$80,156 (including KWHI funding of \$35,334).
- The estimated annual energy savings is:
  - ✓ 322.34 kW per year.
- The net TRC value is \$141,539.
- The benefit to cost ratio is 2.77.

KWHI's total third-tranche investment in the power factor correction program is as follows:

2006 -	\$ 4,456
2007 -	<u>\$ 30,878</u>
Total	\$ 35,334

#### 4. Lessons Learned

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

## 5. Conclusion

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

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

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

## Appendix 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.

	<sup>5</sup> Cumulative Totals Life-to-date	Total for 2007	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	<sup>4</sup> Smart Meters	Other #1	Other #2
Net TRC value (\$):	\$ 7,403,006	\$ 2,667,010	\$ 776,212	\$ 928,733	\$ (86,574)	\$ -	\$ -	\$ 1,048,638		\$ -	\$ -
Benefit to cost ratio:	68.24	2.61	4.06	1.94	2.50	0.00	0.00	3.22		0.00	0.00
Number of participants or units delivered:	47,766	3,361	2,815	28	506	0	0	12		0	0
Lifecycle (kWh) Savings:	186,640,185	44,505,794	5,263,080	15,434,424	-3,255,814	0	0	27,064,104		0	0
Report Year Total kWh saved (kWh):	16,521,354	11,539,979	3,375,183	3,806,193	1,236,528	0	0	3,122,075		0	0
Total peak demand saved (kW):	2,879	1,361	22	726	0	0	0	612		0	0
Total kWh saved as a percentage of total kWh delivered (%):	0.86%	0.60%	0.18%	0.20%	0.06%	0.00%	0.00%	0.16%		0.00%	0.00%
Peak kW saved as a percentage of LDC peak kW load (%):		0.36%	0.01%	0.19%	0.00%	0.00%	0.00%	0.16%		0.00%	0.00%
<sup>1</sup> Report Year Gross C&DM expenditures (\$):	\$ 2,340,264	\$ 1,053,043	\$ 231,545	\$ 319,281	\$ 173,575	\$ -	\$ -	\$ 328,641	\$ -	\$ -	\$ -
<sup>2</sup> Expenditures per kWh saved (\$/kWh):	0.14	\$ 0.02	\$ 0.04	\$ 0.02	-\$ 0.05	\$ -	\$ -	\$ 0.01		\$ -	\$ -
<sup>3</sup> Expenditures per KW saved (\$/kW):	812.99	\$ 773.96	\$ 10,411.21	\$ 439.57	\$ -	\$ -	\$ -	\$ 537.00		\$ -	\$ -
Utility discount rate (%):	7.61										

<sup>1</sup> Expenditures are reported on accrual basis.

<sup>2</sup> Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings

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

<sup>4</sup> 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.

<sup>5</sup> 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).

# Phase I - Capacitor Bank Program

A. **Name of the Program:** Capacitor Banks Phase 1 - City of Kitchener

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

In order to improve the overall efficiency of its distribution system, KWHI installed 65 capacitor banks (Phase One) in the City of Kitchener based on a detailed analysis of its system. The equipment cost is \$243,525 and direct program cost is \$265,923. The estimated energy saving is 1,715 MWh and 425 kW per year. The net TRC value is about \$1.2 million. The benefit to cost ratio is 3.38.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Install capacitor banks		
<i>Number of participants or units delivered for reporting year:</i>	65		
<i>Measure life (years):</i>	20		
<i>Number of Participants or units delivered life to date</i>	65		

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ 1,724,274.95
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$ 265,923.00
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ -	\$ 243,525.00
<b>Total TRC costs:</b>	<b>\$ -</b>	<b>\$ 509,448.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 1,214,826.95</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>0.00</b>	<b>3.38</b>

<b>C. Results: (one or more category may apply)</b>	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
<i>Demand savings (kW):</i>	<i>Summer</i>			
	<i>Winter</i>			
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>				
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				
<b>Demand Management Programs:</b>				
<i>Controlled load (kW)</i>				
<i>Energy shifted On-peak to Mid-peak (kWh):</i>				
<i>Energy shifted On-peak to Off-peak (kWh):</i>				
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>				
<b>Demand Response Programs:</b>				
<i>Dispatchable load (kW):</i>				
<i>Peak hours dispatched in year (hours):</i>				
<b>Power Factor Correction Programs:</b>				
<i>Amount of KVar installed (KVar):</i>	-		38,122	
<i>Distribution system power factor at beginning of year (%):</i>	90.60%		90.60%	
<i>Distribution system power factor at end of year (%):</i>	94.40%		94.40%	

**Line Loss Reduction Programs:**

Peak load savings (kW):		425	425
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (kWh):	34,308,001	1,715,400	34,308,001 2,573,100

**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):	
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<b>D. Actual Program Costs:</b>		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ 509,447.84
	Incremental O&M:	\$ -	\$ -
	Incentive:		
	Total:	\$ -	\$ 509,447.84
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

Total direct program cost is \$509,448.
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<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Phase II - Capacitor Bank Program

A. **Name of the Program:** Capacitor Banks Phase II - Township of Wilmot

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

KWHI installed 12 capacitor banks (Phase Two) in the Township of Wilmot as a continuance of its existing capacitor bank program. The equipment cost is \$145,185 and direct program cost is \$143,459. The estimated energy saving is 426 MWh and 140 kW per year. The net TRC value is about \$159,208. The benefit to cost ratio is 1.55.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Install capacitor banks		
<i>Number of participants or units delivered for reporting year:</i>	12		
<i>Measure life (years):</i>	20		
<i>Number of Participants or units delivered life to date</i>	12		

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	\$ 447,852.00	\$ 447,852.00
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ 143,459.00	\$ 143,459.00
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ 145,185.00	\$ 145,185.00
<b>Total TRC costs:</b>	<b>\$ 288,644.00</b>	<b>\$ 288,644.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ 159,208.00</b>	<b>\$ 159,208.00</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>1.55</b>	<b>1.55</b>

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

**Conservation Programs:**

	Summer		Cumulative Lifecycle	Cumulative Annual Savings
	lifecycle	in year		
<i>Demand savings (kW):</i>				
<i>Energy saved (kWh):</i>				
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

**Demand Management Programs:**

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

**Demand Response Programs:**

<i>Dispatchable load (kW):</i>		
<i>Peak hours dispatched in year (hours):</i>		

**Power Factor Correction Programs:**

<i>Amount of KVar installed (KVar):</i>	3,260	3,260
<i>Distribution system power factor at beginning of year (%):</i>	84.90%	84.90%
<i>Distribution system power factor at end of year (%):</i>	94.10%	94.10%

**Line Loss Reduction Programs:**

Peak load savings (kW):		140	140
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (kWh):	8,520,000	213,000	8,520,000 213,000

**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):	
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<b><u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:	\$ 138,054.43	\$ 138,054.43
	Incremental O&M:	\$ -	\$ -
	Incentive:		
	Total:	\$ 138,054.43	\$ 138,054.43
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

The equipment cost up to Sept 30, 2007 is \$138,054.43 and total equipment cost is \$145,185.

<sup>1</sup> 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 benefit specified in the TRC Guide.  
<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Main Entrance LED Sign

A. **Name of the Program:** LED Sign

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

As part of Kitchener-Wilmot Hydro's CDM program in 2005, an LED sign was installed above the main entrance to the LDC. The sign flashes helpful energy saving tips to customers. Overall exposure to the sign is quite high as it is visible to all customers coming through the front door as well as to drive-by traffic.

**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 Participants or units delivered life to date			

<b>B. TRC Results:</b>		Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		\$ -	
<sup>2</sup> TRC Costs (\$):			
	Utility program cost (excluding incentives):		
	Incremental Measure Costs (Equipment Costs)	\$ -	
	<b>Total TRC costs:</b>	<b>\$ -</b>	
<b>Net TRC (in year CDN \$):</b>		<b>\$ -</b>	<b>\$ -</b>
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
	Summer	Winter		
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 beginning of year (%):		
Distribution system power factor at end of year (%):		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. Actual Program Costs:</b>		<b>Reporting Year</b>	<b>Cumulative Life to Date</b>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ 18,442.97
	Incremental O&M:		
	Incentive:		
	Total:	\$ -	\$ 18,442.97
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Main Office Windows Replacement

A. **Name of the Program:** Replacement of Windows- In-House Retrofit Program

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

KWHI made numerous changes to its facilities so that it can stand as a model for energy conservation. In 2006, following an energy audit and associated engineering costs, all energy inefficient windows were replaced with more cost effective energy saving windows. The equipment cost was \$41,725. The estimated energy saving is 175,000 kWh per year. The net TRC value is about \$107,097. The benefit to cost ratio is 3.57.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Install energy efficient windows		
<i>Number of participants or units delivered for reporting year:</i>	1		
<i>Measure life (years):</i>	20		
<i>Number of Participants or units delivered life to date</i>	1		

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ 148,821.96
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>		
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ -	\$ 41,725.00
<b>Total TRC costs:</b>	<b>\$ -</b>	<b>\$ 41,725.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 107,096.96</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>0.00</b>	<b>3.57</b>

<b>C. Results: (one or more category may apply)</b>	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
<i>Demand savings (kW):</i>		<i>Summer</i>		
		<i>Winter</i>		
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	3,500,000	175,000	3,500,000	204,167
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				
<b>Demand Management Programs:</b>				
<i>Controlled load (kW)</i>				
<i>Energy shifted On-peak to Mid-peak (kWh):</i>				
<i>Energy shifted On-peak to Off-peak (kWh):</i>				
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>				
<b>Demand Response Programs:</b>				
<i>Dispatchable load (kW):</i>				
<i>Peak hours dispatched in year (hours):</i>				
<b>Power Factor Correction Programs:</b>				
<i>Amount of KVar installed (KVar):</i>				
<i>Distribution system power factor at beginning of year (%):</i>				
<i>Distribution system power factor at end of year (%):</i>				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ 41,725.00
	Incremental O&M:		
	Incentive:		
	Total:	\$ -	\$ 41,725.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Main Office Lighting Replacement

A. **Name of the Program:** Replacement of Main Office Lighting

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

In 2007, all existing fluorescent lighting fixtures in the main office at KWHI, which utilized T8 technology, were relamped with more cost effective T8 25-watt lamps. The equipment cost was \$59,720. The estimated energy saving is 157,351 kWh per year and 33 kW. The net TRC value is about \$1,944. The benefit to cost ratio is 1.04.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	T8 Technology		
Efficient technology:	T8 25-Watt Lamps		
Number of participants or units delivered for reporting year:	1833		
Measure life (years):	6		
Number of Participants or units delivered life to date	1		

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 55,691.94	\$ 55,691.94
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ 53,748.00	\$ 53,748.00
Incremental Measure Costs (Equipment Costs)	\$ -	\$ -
Total TRC costs:	\$ 53,748.00	\$ 53,748.00
<b>Net TRC (in year CDN \$):</b>	<b>\$ 1,943.94</b>	<b>\$ 1,943.94</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>1.04</b>	<b>1.04</b>

C. <b>Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer	33	33	33
	Winter	33	33	33
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	944,104	78,675	944,104	78,675
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b>Reporting Year</b>	<b>Cumulative Life to Date</b>
Utility direct costs (\$):	<i>Incremental capital:</i>	\$ 59,720.22	\$ 59,720.22
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>		
	<i>Total:</i>	\$ 59,720.22	\$ 59,720.22
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

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<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Service Centre Garage Heating

A. **Name of the Program:** In-House Retrofit (Garage Heating)

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

In 2007, Kitchener-Wilmot Hydro installed gas-fired heaters in the garage area . The equipment cost is \$130,867. The estimated energy savings is 880,000 kWh per year and 439 kW. The net TRC value is \$887,486. The benefit to cost ratio is 7.78.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:	Install gas-fired heaters		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	20		
Number of Participants or units delivered life to date	1		

	Reporting Year	Life-to-date TRC Results:
<b>B. <u>TRC Results:</u></b>		
<sup>1</sup> TRC Benefits (\$):	\$ 1,018,352.84	\$ 1,018,352.84
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		\$ -
Incremental Measure Costs (Equipment Costs)	\$ 130,866.79	\$ 130,866.79
Total TRC costs:	\$ 130,866.79	\$ 130,866.79
<b>Net TRC (in year CDN \$):</b>	<b>\$ 887,486.05</b>	<b>\$ 887,486.05</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>7.78</b>	<b>7.78</b>

	<b><u>Cumulative Results:</u></b>			
<b>C. <u>Results:</u> (one or more category may apply)</b>				
<b><u>Conservation Programs:</u></b>				
Demand savings (kW):	Summer			
	Winter	439		439
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	17,600,000	440,000	17,600,000	440,000
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b><u>Demand Management Programs:</u></b>				
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):				
<b><u>Demand Response Programs:</u></b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b><u>Power Factor Correction Programs:</u></b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b><u>D. Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:	\$ 130,866.79	\$ 130,866.79
	Incremental O&M:		\$ -
	Incentive:		
	Total:	\$ 130,866.79	\$ 130,866.79
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# LDC Fuel Switching

A. **Name of the Program:** Fuel Switching - Electricity to Gas

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

In 2006, Kitchener-Wilmot Hydro replaced the existing 210 kW electric boilers, which heated the office space, with natural gas boilers. The equipment cost was \$137,640. The estimated energy saving is 500,000 kWh and 300 kW per year. The net TRC value is \$438,116.10 and the benefit to cost ratio is 4.18.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:	Natural gas boiler		
Number of participants or units delivered for reporting year:	1		
Measure life (years):	18		
Number of Participants or units delivered life to date	1		

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ 575,756.00
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)	\$ -	137,640
Total TRC costs:	\$ -	137,640
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 438,116.00</b>
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	0.00	4.18

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

**Conservation Programs:**

Demand savings (kW):	Summer	0	300
	Winter	0	300

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	9,000,000	500,000	9,000,000	500,000

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

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b><u>D. Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ -	\$ 137,640.00
	Incentive:		
	Total:	\$ -	\$ 137,640.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# LED Traffic Lights

A. **Name of the Program:** LED Traffic Lights

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

Kitchener-Wilmot Hydro assisted the Regional Municipality of Waterloo in converting 156 intersections from incandescent traffic lights to LED technology in 2006 and 2007. The equipment cost was \$561,600. The estimated energy saving is 1.59 MWh per year. The net TRC value is about \$782,446. The benefit to cost ratio is 2.39.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Incandescent		
Efficient technology:	LED		
Number of participants or units delivered for reporting year:		-16	
Measure life (years):		20	
Number of Participants or units delivered life to date		170	

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	-\$ 144,173.95	\$ 1,344,045.63
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)	-\$ 57,600.00	\$ 561,600.00
<b>Total TRC costs:</b>	<b>-\$ 57,600.00</b>	<b>\$ 561,600.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>-\$ 86,573.95</b>	<b>\$ 782,445.63</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>0.00</b>	<b>2.39</b>

C. <b>Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer			
	Winter			
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	31,744,186	952,326	31,744,186	1,023,547
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ 156,000.00	\$ 170,000.00
	<i>Total:</i>	\$ 156,000.00	\$ 170,000.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

The TRC analysis for 2007 shows a negative number as Kitchener-Wilmot Hydro initially projected the conversion of 172 traffic lights (as reported in its 2006 CDM annual report. When the project was finished, only 170 conversions were completed.

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Municipal Building Lighting Program

A. **Name of the Program:** Municipal Building Lighting Program

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

The City of Kitchener has been actively improving the energy efficiency of municipal buildings over the last twenty years and the City allocates a budget each year for improvements. In keeping with this objective, Kitchener-Wilmot Hydro provided funding to the City of Kitchener to upgrade the lighting systems at Kitchener Memorial Auditorium, City Hall and the City Hall parking garage.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Ceiling mounted - quartz		
Efficient technology:	Compact fluorescent fixture		
Number of participants or units delivered for reporting year:	859		
Measure life (years):	7		
Number of Participants or units delivered life to date			

	Reporting Year	Life-to-date TRC Results:
<b>B. <u>TRC Results:</u></b>		
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ 121,519.05
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	\$ 52,848.00
Incremental Measure Costs (Equipment Costs)		
<b>Total TRC costs:</b>	<b>\$ -</b>	<b>\$ 52,848.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 34,335.52</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>-</b>	<b>2.30</b>

	<b><u>Cumulative Results:</u></b>			
<b>C. <u>Results:</u> (one or more category may apply)</b>				
<b><u>Conservation Programs:</u></b>				
Demand savings (kW):	Summer			39.14
	Winter			39.14
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	1,989,414	284,202	1,989,414	663,138
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b><u>Demand Management Programs:</u></b>				
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):				
<b><u>Demand Response Programs:</u></b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b><u>Power Factor Correction Programs:</u></b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:		\$ 52,848.00
	Incentive:		
	Total:		\$ 52,848.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

Total direct cost to date is \$52,848.	
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<sup>1</sup> 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

<sup>2</sup> 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

# Educational School Conservation Kits

A. **Name of the Program:** School Energy Conservation Kits Program

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

Kitchener-Wilmot Hydro distributed 37 energy conservation kits to the Waterloo Region School Board in 2007. These kits contain energy meters so students can see the usage of various appliances in real time and books linking their experiences to real world. Each kit costs \$475 and total cost is \$17,575.

**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:	37		37
Measure life (years):			
Number of Participants or units delivered life to date	37		

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
<b>Net TRC (in year CDN \$):</b>	\$ -	
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	\$ -	

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

**Conservation Programs:**

	Summer	Winter	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 beginning of year (%):		
Distribution system power factor at end of year (%):		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 17,575.00	\$ 17,575.00
	Incentive:		
	Total:	\$ 17,575.00	\$ 17,575.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

## Fuel Switching - Electricity to Gas (Residential)

A. **Name of the Program:** Fuel Switching - Electricity to Gas

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

In 2006 and 2007, Kitchener-Wilmot Hydro and the local gas company, Kitchener Utilities, partnered to offer financial assistance to eligible residential customers in a fuel switching program. In 2007, 231 water heaters and 32 furnaces switched from electricity to gas. The equipment cost is \$234,600. The estimated energy saving is 1,213 MWh and 82.47 kW per year. The net TRC value is \$775,931. The benefit to cost ratio is 4.31.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Switch to gas water heater	Switch to gas furnace	
<i>Number of participants or units delivered for reporting year:</i>	231	32	
<i>Measure life (years):</i>	18	18	
<i>Number of Participants or units delivered life to date</i>	231	32	

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 1,010,530.51	\$ 1,802,814.53
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ 234,600.00	392,400.00
<b>Total TRC costs:</b>	<b>\$ 234,600.00</b>	<b>392,400.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ 775,930.51</b>	<b>\$ 1,410,414.53</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>4.31</b>	<b>4.59</b>

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

**Cumulative Results:**

**Conservation Programs:**

<i>Demand savings (kW):</i>	<i>Summer</i>	82.47	82.47
	<i>Winter</i>	82.47	82.47
<i>Energy saved (kWh):</i>	<i>lifecycle</i>	21,832,560	38,823,840
	<i>in year</i>	1,105,336	1,577,316
<i>Other resources saved :</i>			
<i>Natural Gas (m3):</i>			
<i>Other (specify):</i>			

**Demand Management Programs:**

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

**Demand Response Programs:**

<i>Dispatchable load (kW):</i>		
<i>Peak hours dispatched in year (hours):</i>		

**Power Factor Correction Programs:**

<i>Amount of KVar installed (KVar):</i>		
<i>Distribution system power factor at beginning of year (%):</i>		
<i>Distribution system power factor at end of year (%):</i>		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ 45,600.00	\$ 90,200.00
	<i>Total:</i>	\$ 45,600.00	\$ 90,200.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

Note: This sheet includes all costs and all energy savings from this program. The incentive up to Sept 30, 2007 is \$90,200 and total incentive is \$100,100. 48 additional water heaters and 14 additional furnaces were switched after Sept 30, 2007. The energy savings associated with the extra water heater and furnace conversions ( 265,340 in year kWh saving, 4,776,120 lifecycle kWh saving and 17.136 KW saving) have been removed from Appendix A and C in order to match Board approved expenditures.

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Fall Coupon Program

A. **Name of the Program:** Fall Coupon Program

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

Kitchener-Wilmot Hydro, in partnership with Enerconnect / Energy Shop, issued 71,500 coupons to encourage customers to purchase energy saving products at Canadian Tires Stores. The equipment cost is \$134,935 and direct program cost is \$3,116. The estimated energy saving is 115.57 kW (winter peak), 30.7 kW (summer peak) and 488,797 kWh per year. The net TRC value is \$191,459. The benefit to cost ratio is 5.56.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Programmable Thermostat	Compact Fluorescent Light	LED Christmas Lights
<i>Number of participants or units delivered for reporting year:</i>	244	3114	1300
<i>Measure life (years):</i>	18	4	30
<i>Number of Participants or units delivered life to date</i>	244	3114	1300

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		\$ 233,414.00
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>		\$ 15,316.00
<i>Incremental Measure Costs (Equipment Costs)</i>		\$ 26,639.00
<b>Total TRC costs:</b>		<b>\$ 41,955.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 191,459</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>0.00</b>	<b>5.56</b>

C. <b>Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
<i>Demand savings (kW):</i>				
<i>Summer</i>		30.7	30.7	
<i>Winter</i>		115.57	115.57	
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	5,245,513	488,797	5,245,513	1,099,793
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				
<b>Demand Management Programs:</b>				
<i>Controlled load (kW)</i>				
<i>Energy shifted On-peak to Mid-peak (kWh):</i>				
<i>Energy shifted On-peak to Off-peak (kWh):</i>				
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>				
<b>Demand Response Programs:</b>				
<i>Dispatchable load (kW):</i>				
<i>Peak hours dispatched in year (hours):</i>				
<b>Power Factor Correction Programs:</b>				
<i>Amount of KVar installed (KVar):</i>				
<i>Distribution system power factor at beginning of year (%):</i>				
<i>Distribution system power factor at end of year (%):</i>				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>	\$ -	\$ 35,110.52
	<i>Incentive:</i>		
	<i>Total:</i>	\$ -	\$ 35,110.52
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Residential Education (General)

A. **Name of the Program:** Residential Education (General)

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

Kitchener-Wilmot Hydro is involved in numerous activities to encourage consumers to conserve energy.

**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 Participants or units delivered life to date			

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
<b>Net TRC (in year CDN \$):</b>		
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>		

C. <b>Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer			
	Winter			
	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

<i>Peak load savings (kW):</i>			
	<i>lifecycle</i>	<i>in year</i>	
<i>Energy savings (kWh):</i>			

**Distributed Generation and Load Displacement Programs:**

<i>Amount of DG installed (kW):</i>		
<i>Energy generated (kWh):</i>		
<i>Peak energy generated (kWh):</i>		
<i>Fuel type:</i>		

**Other Programs (specify):**

<i>Metric (specify):</i>		
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**D. Actual Program Costs:**

		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>	\$ 10,206.00	\$ 74,569.00
	<i>Incentive:</i>		
	<i>Total:</i>	\$ 10,206.00	\$ 74,569.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

Total cost includes: energy conservation advertising spots for two hockey seasons with the Kitchener Rangers Hockey Club, "Blackout Day" advertising, and other miscellaneous advertising.

<sup>1</sup> 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

<sup>2</sup> 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 Conservation Kits Program

A. **Name of the Program:** Energy Conservation Kits Program

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

Kitchener-Wilmot Hydro supplied 70 energy conservation kits to the 2005 Fall Energy Forum, held at Kitchener's Farmers Market and hosted by John Milloy M.P.P. In addition, 649 of these kits were supplied to the Region of Waterloo, which distributed the kits to eligible consumers in the City of Kitchener and the Township of Wilmot. Eligible consumers include low income consumers who reside in subsidized housing. The remaining kits were distributed at other local community energy and conservation functions.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Compact Fluorescent Light	Shower Coach	Adhesive Weather Strips
<i>Number of participants or units delivered for reporting year:</i>	1100	1100	1100
<i>Measure life (years):</i>	3	12	25
<i>Number of Participants or units delivered life to date</i>			

B. **TRC Results:**

	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ -	\$ 827,827.67
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$ 15,396.99
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ -	\$ -
<i>Total TRC costs:</i>	\$ -	\$ 15,396.99
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 812,430.68</b>
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>	0.00	53.77

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

**Cumulative Results:**

**Conservation Programs:**

<i>Demand savings (kW):</i>	Summer	71.5
	Winter	71.5

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
<i>Energy saved (kWh):</i>	15,945,600	1,328,800	15,945,600	2,676,056
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

**Demand Management Programs:**

<i>Controlled load (kW)</i>	
<i>Energy shifted On-peak to Mid-peak (kWh):</i>	
<i>Energy shifted On-peak to Off-peak (kWh):</i>	
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>	

**Demand Response Programs:**

<i>Dispatchable load (kW):</i>	
<i>Peak hours dispatched in year (hours):</i>	

**Power Factor Correction Programs:**

<i>Amount of KVar installed (KVar):</i>	
<i>Distribution system power factor at beginning of year (%):</i>	
<i>Distribution system power factor at end of year (%):</i>	

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>	\$ -	\$ 15,396.99
	<i>Incentive:</i>		
	<i>Total:</i>	\$ -	\$ 15,396.99
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Low Income Program -Social Housing

A. **Name of the Program:** Low Income Program - Social Housing

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

Kitchener-Wilmot Hydro provided funding for a lighting upgrade at one of the Region of Waterloo's social housing buildings located at 518 Greenfield Avenue in Kitchener. The equipment cost was \$11,400. The estimated energy saving is 24.72 kW and 92,439 kWh per year. The net TRC value is \$12,950 and the benefit to cost ratio is 2.26.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Upgrade lighting system		
<i>Number of participants or units delivered for reporting year:</i>	1		
<i>Measure life (years):</i>	4		
<i>Number of Participants or units delivered life to date</i>	1		

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	\$ -	23,209.99
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ -	\$ 10,260.00
<b>Total TRC costs:</b>	<b>\$ -</b>	<b>\$ 10,260.00</b>
<b>Net TRC (in year CDN \$):</b>	<b>\$ -</b>	<b>\$ 12,949.99</b>
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>		2.26

<b>C. Results: (one or more category may apply)</b>	<b>Cumulative Results:</b>	
<b>Conservation Programs:</b>		
<i>Demand savings (kW):</i>	<i>Summer</i>	24.72
	<i>Winter</i>	24.72
	<i>lifecycle</i>	
<i>Energy saved (kWh):</i>	369,756	92,439
<i>Other resources saved :</i>		
<i>Natural Gas (m3):</i>		
<i>Other (specify):</i>		
<b>Demand Management Programs:</b>		
<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		
<b>Demand Response Programs:</b>		
<i>Dispatchable load (kW):</i>		
<i>Peak hours dispatched in year (hours):</i>		
<b>Power Factor Correction Programs:</b>		
<i>Amount of KVar installed (KVar):</i>		
<i>Distribution system power factor at beginning of year (%):</i>		
<i>Distribution system power factor at end of year (%):</i>		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ -	\$ 9,750.00
	<i>Total:</i>	\$ -	\$ 9,750.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Social Housing Fridge Replacement

A. **Name of the Program:** Social Housing Refrigerator Replacement

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

Kitchener-Wilmot Hydro approved funding in the amount of \$165,000 to replace 300 energy inefficient refrigerators in low income housing units within the City of Kitchener. The equipment cost was \$172,710 (including Kitchener-Wilmot Hydro Inc. funding of \$165,000). The estimated energy saving is 5.1 kW and 22,200 kWh per year. The net TRC value is \$282 and the benefit to cost ratio is 1.01.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:	Replace fridges		
Number of participants or units delivered for reporting year:	300		
Measure life (years):	19		
Number of Participants or units delivered life to date	300		

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 19,181.93	19,181.93
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	-
Incremental Measure Costs (Equipment Costs)	\$ 18,900.00	18,900.00
Total TRC costs:	\$ 18,900.00	18,900.00
<b>Net TRC (in year CDN \$):</b>	<b>\$ 281.93</b>	<b>\$ 281.93</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>1.01</b>	<b>1.01</b>

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

**Conservation Programs:**

Demand savings (kW):	Summer	5.1	5.1
	Winter	5.1	5.1

	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
Energy saved (kWh):	421,800	16,650	421,800	16,650

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

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b><u>D. Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ 165,000.00	\$ 165,000.00
	<i>Total:</i>	\$ 165,000.00	\$ 165,000.00
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Low Income Residential Education

A. **Name of the Program:** Low Income Program - Residential Education

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

Kitchener-Wilmot Hydro donated \$3,000 to World-Wide Opportunities for Women (WWOW) to support its Home Energy Saver program. WWOW is a non-profit organization, which is a member of the Green Communities Association. The program targets low-income and immigrant residents in the Region of Waterloo to encourage them to improve the health of their household as well as their community. Through the program, two people from WWOW trained in home energy assessment audits, visit a household and complete a four-hour assessment. During the visit, WWOW provides education, small retrofits and assessment recommendations to the household. So far, WWOW has successfully conducted 4,800 green home visits in the Region of Waterloo.

**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 Participants or units delivered life to date			

	Reporting Year	Life-to-date TRC Results:
<b>B. <u>TRC Results:</u></b>		
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
<u>Net TRC (in year CDN \$):</u>	\$ -	\$ -
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

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

**Conservation Programs:**

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

**Demand Management Programs:**

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

**Demand Response Programs:**

<i>Dispatchable load (kW):</i>		
<i>Peak hours dispatched in year (hours):</i>		

**Power Factor Correction Programs:**

<i>Amount of KVar installed (KVar):</i>		
<i>Distribution system power factor at beginning of year (%):</i>		
<i>Distribution system power factor at end of year (%):</i>		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>	\$ -	\$ 3,000.00
	<i>Incentive:</i>		
	<i>Total:</i>	\$ -	\$ 3,000.00
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Pilot Program Funding with SHSC

A. **Name of the Program:** Energy Pilot Funding for Social Housing Services Corporation (SHSC)

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

The SHSC operated an "Energy Management Program" whereby they conducted energy audits in over 5,000 social housing units in the Province of Ontario. Using key partnerships within the public and private sectors, including the Ministry of Energy, SHSC's program served as a central resource for energy management in the social housing sector. In the spring of 2005, energy consultants visited the pilot buildings to identify energy conservation measures and entered their findings into an Energy Management System. This on-line system will prioritize the various measures, recommend funding sources, assist housing providers in planning retrofits, and then monitor and report energy savings. Kitchener-Wilmot Hydro provided funding to SHSC for 91 unit townhouses within the Utility's service area.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	T12 lamps		
Efficient technology:	T8 lamps	motion sensor	smart thermostat
Number of participants or units delivered for reporting year:	91	91	91
Measure life (years):	3	10	18
Number of Participants or units delivered life to date			

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):		\$ 136,840.00
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		\$ 4,450.00
Incremental Measure Costs (Equipment Costs)		\$ 116,020.00
Total TRC costs:		\$ 120,470.00
<b>Net TRC (in year CDN \$):</b>	\$ -	\$ 14,643.00
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>		1.13

<b>C. Results: (one or more category may apply)</b>	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer			18.2
	Winter			18.2
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
Energy saved (kWh):	2,402,127	343,161	2,402,127	743,516
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):				
Distribution system power factor at beginning of year (%):				
Distribution system power factor at end of year (%):				

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ -	\$ 4,450.00
	Incentive:		
	Total:	\$ -	\$ 4,450.00
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# EnerGuide for Houses (REEP)

A. **Name of the Program:** EnerGuide for Houses (REEP)

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

Through the EnerGuide program, REEP conducted in-home evaluations for eligible residential customers. Through the course of the evaluations, each customer received free CFL's.

**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 Participants or units delivered life to date			

<b>B. TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
<b>Net TRC (in year CDN \$):</b>	\$ -	\$ -
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>		

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

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 10,739.26	\$ 32,472.15
	Incentive:		
	Total:	\$ 10,739.26	\$ 32,472.15
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Key Account Seminars and Education

A. **Name of the Program:** Key Account Seminars and Education

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

Kitchener-Wilmot Hydro was involved in numerous activities to educate its key account customers on energy conservation. Activities included brochures, calendars, informational booklets and seminars

**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 Participants or units delivered life to date			

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
Total TRC costs:		
<b>Net TRC (in year CDN \$):</b>	\$ -	\$ -
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

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

**Conservation Programs:**

	Summer		Cumulative Lifecycle	Cumulative Annual Savings
	Winter			
Demand savings (kW):				
	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 beginning of year (%):		
Distribution system power factor at end of year (%):		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>	\$ 3,995.00	\$ 6,661.00
	<i>Incentive:</i>		
	<i>Total:</i>	\$ 3,995.00	\$ 6,661.00
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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 Management Workshops

A. **Name of the Program:** Energy Management Workshops

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

Kitchener-Wilmot Hydro held or sponsored energy management workshops to educate its commercial customers.

**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 Participants or units delivered life to date			

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):		
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)		
<b>Total TRC costs:</b>		
<b>Net TRC (in year CDN \$):</b>	\$ -	\$ -
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>		

<b>C. Results: (one or more category may apply)</b>	<b>Cumulative Results:</b>	
<b><u>Conservation Programs:</u></b>		
Demand savings (kW):	Summer	
	Winter	
	lifecycle	
	in year	
Energy saved (kWh):		Cumulative Lifecycle
Other resources saved :		Cumulative Annual Savings
Natural Gas (m3):		
Other (specify):		
<b><u>Demand Management Programs:</u></b>		
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):		
<b><u>Demand Response Programs:</u></b>		
Dispatchable load (kW):		
Peak hours dispatched in year (hours):		
<b><u>Power Factor Correction Programs:</u></b>		
Amount of KVar installed (KVar):		
Distribution system power factor at beginning of year (%):		
Distribution system power factor at end of year (%):		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:	\$ 1,500.00	\$ 10,643.35
	Incentive:		
	Total:	\$ 1,500.00	\$ 10,643.35
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Cool Shops Program

A. **Name of the Program:** Cool Shops Program (Clean Air Foundation)

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

Through its program, a Cool Shops representative visited small street-facing retail businesses in Kitchener. During each visit, the small business owner received an energy audit, installation of two free CFLs and one free LED exit bulb retrofit kit, education in energy efficiency and money-saving discounts for CFLs, PAR fluorescent light bulbs and T8 lighting retrofits.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	15W CFL	LED Exit	11W CFL
<i>Number of participants or units delivered for reporting year:</i>	2977	1268	114
<i>Measure life (years):</i>	7	20	7
<i>Number of Participants or units delivered life to date</i>	2977	1268	114

<b>B. TRC Results:</b>	<b>Reporting Year</b>	<b>Life-to-date TRC Results:</b>
<sup>1</sup> TRC Benefits (\$):	\$ -	344,616.46
<sup>2</sup> TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	79,859.65
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ -	40,426.34
<i>Total TRC costs:</i>	\$ -	120,285.99
<i>Net TRC (in year CDN \$):</i>	\$ -	224,330.47
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>	0.00	2.86

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

**Conservation Programs:**

<i>Demand savings (kW):</i>	<i>Summer</i>	0	219.08
	<i>Winter</i>	0	219.08

	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	5,677,094	811,013	5,677,094	1,216,520
<i>Other resources saved :</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>				

**Demand Management Programs:**

<i>Controlled load (kW)</i>		
<i>Energy shifted On-peak to Mid-peak (kWh):</i>		
<i>Energy shifted On-peak to Off-peak (kWh):</i>		
<i>Energy shifted Mid-peak to Off-peak (kWh):</i>		

**Demand Response Programs:**

<i>Dispatchable load (kW):</i>		
<i>Peak hours dispatched in year (hours):</i>		

**Power Factor Correction Programs:**

<i>Amount of KVar installed (KVar):</i>		
<i>Distribution system power factor at beginning of year (%):</i>		
<i>Distribution system power factor at end of year (%):</i>		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
<i>Utility direct costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ -	\$ 79,859.65
	<i>Total:</i>	\$ -	\$ 79,859.65
<i>Utility indirect costs (\$):</i>	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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

<sup>2</sup> 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

# Lighting Retrofit Program

A. **Name of the Program:** Lighting Retrofit Program

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

KWH offered a lighting retrofit program targeted to industrial, commercial and institutional end-users with facility peak loads of greater than 50 kW. The program enable customers to improve the quality of their lighting, lower maintenance costs, and increase equipment life. The equipment cost is \$922,152 (including Kitchener-Wilmot Hydro funding of \$282,909). The estimated energy savings is 3,877,147 kWh and 727.86 kW per year. The net TRC value is \$797,171 and the benefit to cost ratio is 1.86.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:	Upgrade lighting system		
Number of participants or units delivered for reporting year:	22		
Measure life (years):	7		
Number of Participants or units delivered life to date	22		

	Reporting Year	Life-to-date TRC Results:
<b>B. TRC Results:</b>		
<sup>1</sup> TRC Benefits (\$):	\$ 1,719,323.17	2,380,441.27
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)	\$ 922,151.96	1,284,682.66
Total TRC costs:	\$ 922,151.96	1,284,682.66
<b>Net TRC (in year CDN \$):</b>	<b>\$ 797,171.21</b>	<b>1,095,758.61</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>1.86</b>	<b>1.85</b>

	<b>Cumulative Results:</b>	
<b>C. Results:</b> (one or more category may apply)		
<b>Conservation Programs:</b>		
Demand savings (kW):	Summer	727.86
	Winter	727.86
	lifecycle	27,140,030
Energy saved (kWh):	in year	2,995,180
Other resources saved :	Cumulative Lifecycle	38,845,636
Natural Gas (m3):	Cumulative Annual Savings	3,273,885
Other (specify):		
<b>Demand Management Programs:</b>		
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):		
<b>Demand Response Programs:</b>		
Dispatchable load (kW):		
Peak hours dispatched in year (hours):		
<b>Power Factor Correction Programs:</b>		
Amount of KVar installed (KVar):		
Distribution system power factor at beginning of year (%):		
Distribution system power factor at end of year (%):		

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b>D. <u>Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	Incremental capital:		
	Incremental O&M:		
	Incentive:	\$ 282,908.52	\$ 401,963.04
	Total:	\$ 282,908.52	\$ 401,963.04
Utility indirect costs (\$):	Incremental capital:		
	Incremental O&M:		
	Total:		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Power Factor Correction

A. **Name of the Program:** Power Factor Correction

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

KWH offered a power factor correction program targeted to industrial, commercial and institutional end-users with facility peak loads of greater than 50 kW. The total cost is \$69,016 (including Kitchener-Wilmot Hydro funding of \$30,877.97). The estimated energy savings is: 322.34 kW. The net TRC value is \$131,562 and the benefit to cost ratio is 2.91.

**Measure(s):**

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:	Power Factor Correction		
Number of participants or units delivered for reporting year:	6		
Measure life (years):	20		
Number of Participants or units delivered life to date	6		

B. <b>TRC Results:</b>	Reporting Year	Life-to-date TRC Results:
<sup>1</sup> TRC Benefits (\$):	\$ 200,578.17	\$ 221,695.31
<sup>2</sup> TRC Costs (\$):		
Utility program cost (excluding incentives):		
Incremental Measure Costs (Equipment Costs)	\$ 69,016.16	\$ 80,156.16
Total TRC costs:	\$ 69,016.16	\$ 80,156.16
<b>Net TRC (in year CDN \$):</b>	<b>\$ 131,562.01</b>	<b>\$ 141,539.15</b>
<b>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</b>	<b>2.91</b>	<b>2.77</b>

C. <b>Results:</b> (one or more category may apply)	<b>Cumulative Results:</b>			
<b>Conservation Programs:</b>				
Demand savings (kW):	Summer	322.34	322.34	
	Winter	322.34	322.34	
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
Energy saved (kWh):				
Other resources saved :				
Natural Gas (m3):				
Other (specify):				
<b>Demand Management Programs:</b>				
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):				
<b>Demand Response Programs:</b>				
Dispatchable load (kW):				
Peak hours dispatched in year (hours):				
<b>Power Factor Correction Programs:</b>				
Amount of KVar installed (KVar):		1068	1268	
Distribution system power factor at beginning of year (%):		85%	85%	
Distribution system power factor at end of year (%):		93%	93%	

**Line Loss Reduction Programs:**

Peak load savings (kW):			
	<i>lifecycle</i>	<i>in year</i>	
Energy savings (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):		
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<b><u>D. Actual Program Costs:</u></b>		<b><u>Reporting Year</u></b>	<b><u>Cumulative Life to Date</u></b>
Utility direct costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Incentive:</i>	\$ 30,877.97	\$ 35,334.00
	<i>Total:</i>	\$ 30,877.97	\$ 35,334.00
Utility indirect costs (\$):	<i>Incremental capital:</i>		
	<i>Incremental O&amp;M:</i>		
	<i>Total:</i>		

**E. Assumptions & Comments:**

<sup>1</sup> 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 benefit specified in the TRC Guide.

<sup>2</sup> 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 to a third party service provider to run an incentives program are program costs, and are to be included as TRC costs under the "Utility Program Costs" line.

# Appendix C - Program and Portfolio Totals

Report Year: **2007**

## 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 (\$)
Fuel Switching - Electricity to Gas	\$ 1,010,531	\$ 234,600	\$ -	\$ 775,931	4.31	1,105,336	4,841,280	17	\$ 45,600
Fall Coupon	\$ -	\$ -	\$ -	\$ -	0.00	488,797	0	0	\$ -
Residential Education (General)	\$ -	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 10,206
Energy Conservation Kits	\$ -	\$ -	\$ -	\$ -	0.00	1,328,800	0	0	\$ -
Social Housing Lighting Upgrade	\$ -	\$ -	\$ -	\$ -	0.00	92,439	0	0	\$ -
Refrigerator Replacement	\$ 19,182	\$ 18,900	\$ -	\$ 282	1.01	16,650	421,800	5	\$ 165,000
WWOW	\$ -	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
SHSC Energy Management	\$ -	\$ -	\$ -	\$ -	0.00	343,161	0	0	\$ -
EnerGuide for Houses (REEP)	\$ -	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 10,739
	\$ -	\$ -	\$ -	\$ -	0.00				\$ -
<b>*Totals App. B - Residential</b>	<b>\$ 1,029,712</b>	<b>\$ 253,500</b>	<b>\$ -</b>	<b>\$ 776,212</b>	<b>4.06</b>	<b>3,375,183</b>	<b>5,263,080</b>	<b>22</b>	<b>\$ 231,545</b>
Residential Indirect Costs not attributable to any specific program	→								
<b>Total Residential TRC Costs</b>		<b>\$ 253,500</b>							
<b>**Totals TRC - Residential</b>	<b>\$ 1,029,712</b>	<b>\$ 253,500</b>	<b>\$ -</b>	<b>\$ 776,212</b>	<b>4.06</b>				

## 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 (\$)
Key Account Seminars & Education	\$ -	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 3,995
Energy Management Workshops	\$ -	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 1,500
Cool Shops	\$ -	\$ -	\$ -	\$ -	0.00	811,013	0	0	\$ -
Lighting Retrofit	\$ 1,719,323	\$ 922,152	\$ -	\$ 797,171	1.86	2,995,180	15,434,424	438	\$ 282,909
Power Factor Correction	\$ 200,578	\$ 69,016	\$ -	\$ 131,562	2.91	0	0	289	\$ 30,878
Name of Program G			\$ -	\$ -	0.00				
Name of Program H			\$ -	\$ -	0.00				
Name of Program I			\$ -	\$ -	0.00				
Name of Program J			\$ -	\$ -	0.00				
<b>*Totals App. B - Commercial</b>	<b>\$ 1,919,901</b>	<b>\$ 991,168</b>	<b>\$ -</b>	<b>\$ 928,733</b>	<b>1.94</b>	<b>3,806,193</b>	<b>15,434,424</b>	<b>726</b>	<b>\$ 319,281</b>
Commercial Indirect Costs not attributable to any specific program	→								
<b>Total TRC Costs</b>		<b>\$ 991,168</b>							

<b>**Totals TRC - Commercial</b>	<b>\$ 1,919,901</b>	<b>\$ 991,168</b>	<b>\$ 928,733</b>	<b>1.94</b>
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### 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 (\$)
LED Traffic Lights	-\$ 144,174	-\$ 57,600	-\$ 86,574	2.50	952,326	-3,255,814	0	\$ 156,000
Municipal Building Lighting	\$ -	\$ -	\$ -	0.00	284,202	0	0	\$ -
School Energy Conservation Kits	\$ -	\$ -	\$ -	0.00	0	0	0	\$ 17,575
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				
<b>*Totals App. B - Institutional</b>	<b>-\$ 144,174</b>	<b>-\$ 57,600</b>	<b>-\$ 86,574</b>	<b>2.50</b>	<b>1,236,528</b>	<b>-3,255,814</b>	<b>0</b>	<b>\$ 173,575</b>
Institutional Indirect Costs not attributable to any specific program								
<b>Total TRC Costs</b>		<b>-\$ 57,600</b>						
<b>**Totals TRC - Institutional</b>	<b>-\$ 144,174</b>	<b>-\$ 57,600</b>	<b>-\$ 86,574</b>	<b>2.50</b>				

### 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				
<b>*Totals App. B - Industrial</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ -</b>
Industrial Indirect Costs not attributable to any specific program								
<b>Total TRC Costs</b>		<b>\$ -</b>						
<b>**Totals TRC - Industrial</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0.00</b>				

## 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				
<b>*Totals App. B - Agricultural</b>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
Agricultural Indirect Costs not attributable to any specific program	→							
<b>Total TRC Costs</b>		\$ -						
<b>**Totals TRC - Agricultural</b>	\$ -	\$ -	\$ -	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 (\$)
Capacitor Banks Phase I	\$ -	\$ -	\$ -	0.00	1,715,400	0	0	\$ -
Capacitor Banks Phase II	\$ 447,852	\$ 288,644	\$ -	1.55	213,000	8,520,000	140	\$ 138,054
Main Entrance LED Sign	\$ -	\$ -	\$ 1,944	0.00	0	0	0	\$ -
Windows Replacement	\$ -	\$ -	\$ -	0.00	175,000	0	0	\$ -
Main Office Lighting	\$ 55,692	\$ 53,748	\$ 1,944	1.04	78,675	944,104	33	\$ 59,720
Garage Heating	\$ 1,018,353	\$ 130,867	\$ 887,486	7.78	440,000	17,600,000	439	\$ 130,867
Fuel Switching - Electric to Gas	\$ -	\$ -	\$ -	0.00	500,000	0	0	\$ -
Name of Program C			\$ -	0.00				
<b>*Totals App. B - LDC System</b>	1,521,897	473,259	\$ 1,048,638	3.22	3,122,075	27,064,104	612	328,641
LDC System Indirect Costs not attributable to any specific program	→							
<b>Total TRC Costs</b>		\$ 473,259						
<b>**Totals TRC - LDC System</b>	\$ 1,521,897	\$ 473,259	\$ 1,048,638	3.22				

## 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 (\$) 

## 8. Other #1 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 (\$)
Administration	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
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				
<b>*Totals App. B - Other #1</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0.00</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>\$ -</b>
Other #1 Indirect Costs not attributable to any specific program 								
<b>Total TRC Costs</b>		\$ -						
<b>**Totals TRC - Other #1</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>0.00</b>				

## 9. Other #2 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				
<b>*Totals App. B - Other #2</b>	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
<i>Other #2 Indirect Costs not attributable to any specific program</i>								
<b>Total TRC Costs</b>		\$ -						
<b>**Totals TRC - Other #2</b>	\$ -	\$ -	\$ -	<b>0.00</b>				

## 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 (\$)
<b>*TOTALS FOR ALL APPENDIX B</b>	\$ 4,327,337	\$ 1,660,327	\$ 2,667,010	2.61	\$ 11,539,979	\$ 44,505,794	\$ 1,361	\$ 1,053,043
<i>Any other Indirect Costs not attributable to any specific program</i>								
<b>TOTAL ALL LDC COSTS</b>		\$ 1,660,327						
<b>**LDC' PORTFOLIO TRC</b>	\$ 4,327,337	\$ 1,660,327	\$ 2,667,010	2.61				

\* 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.

## Attachment A – 2007 LED Sign Messages

The messages displayed are changed on a monthly basis. The sign displays the following example messages which have been displayed depending on the season:

- “Make a New Year’s resolution to join the Energy Challenge and reduce your energy consumption by 10%”
- “January is usually the darkest and coldest month of the year ... Energy usage is higher in the morning and evening ... Shift to Off-Peak Times”
- “Don’t forget to clean or replace furnace filters each month during the high heating season”
- “Put on a sweater and set your thermostat to the lowest comfortable setting ... Save Energy \$\$\$!”
- “Reversible ceiling fans push down hot air in the winter”
- “New electronics over the holiday season??? Don’t forget to use the ‘sleep mode’ and cut energy in half”
- “Always use caution when dealing with electricity ... Make the right connection!”
- “Replace your old refrigerator with a new energy efficient model and reduce energy use by up to 40%”
- “Keep your garage door closed during the winter ... It’s a great place for hot air to escape!”
- “Heading south for a holiday? Give your appliances a rest ... Turn off and unplug everything you can”
- “You’ve got the Power to conserve!”
- “Allow hot foods to cool before putting in the refrigerator”
- “Cold weather and shorter days keeps energy demand high ... Switch non-essential chores to off-peak times”
- “Avoid getting the shock of your life ... Treat electricity with the respect it deserves!”
- “Add area rugs to hardwood or tile floors ... Keep your feet warm during cold winter days”
- “Your lights may be brighter than you need! Try using a lower wattage bulb”
- “Clean the dryer’s lint filter after each use ... Air will circulate efficiently and dry your clothes quicker!”
- “Conserving energy begins at home ... Learn new ways to reduce kilowatt-hours!”
- “Don’t overload your circuits ... the results are electrifying”
- “Chest freezers are 10-25% more energy efficient than upright models!”
- “Check outdoor fixtures for winter damage ... Clean the covers and use compact fluorescent bulbs”
- “Spring is here ... Walk around the house to look for any winter damage to window caulking and sealing”
- “Always use cold water for the rinse cycle ... Warm or hot water won’t get your clothes any cleaner”

- “Air-dry your dishes and save 10% of the cost of running your dishwasher!”
- “Installing low flow aerators on faucets can save water and energy”
- “Look in the mail for your booklet of energy saving tips and \$\$ saving coupons towards the end of April!”
- “Conservation isn’t about doing without ... It’s about knowing how to use electricity more efficiently!”
- “Repairs and electricity are a bad mix ... Disconnect if you’ve got something to fix!”
- “Look for your energy saving coupons in the mail and at participating retailers!”
- “Summer is coming! Turn off your oven and enjoy cooking on your barbeque”
- “Install outdoor motion sensors ... They provide home security while using less electricity”
- “Don’t forget to change your furnace filters monthly ... A clean filter will save you energy and \$\$\$’s”
- “Using dimmer switches reduce the amount of electricity you use”
- “Check older dimmer switches ... If they’re warm to the touch, replace them with new efficient ones”
- “Know Watts Safe! Use electricity wisely and safely”
- “Draw the curtains on heat ... To keep your home cooler during hot summer days!”
- “Let fans move the air ... They don’t use much electricity and reduce the need for A/C”
- “Humid homes feel hotter ... Use exhaust fans to expel humid air directly outside”
- “Save on your electricity bill by unplugging your old refrigerator!”
- “Don’t open the refrigerator door more than necessary ... cold air escapes quickly!”
- “Don’t forget to redeem your energy saving coupons by June 17<sup>th</sup>!!!”
- “Proper attic insulation and ventilation help keep your home cool on hot summer days”
- “Use low-voltage or solar lighting for walkways, patios and decks!”
- “Avoid shocking experiences ... Replace damaged electrical cords!”
- “Draw the curtains on heat ... You’ll be able to keep the house cooler during the hot summer days”
- “Reduce energy in the kitchen ... Make full use of microwave ovens in the hot weather”
- “Going on summer holiday??? Don’t forget to shut your air conditioning off and unplug unnecessary equipment”
- “Come to our barbeque on July 10<sup>th</sup> at 11:30 ... Learn new ways to save energy and maybe you’ll win an energy star refrigerator!!!”
- “Put your swimming pool pump on a timer and run it during off-peak times”
- “Hot July days keep Ontario demand high throughout the day ... Shift or reduce your usage to early morning or evening”

- “Better to be safe at first, than out at home! Safety is a gift for your whole family”
- “Save \$\$\$ on A/C costs ... Set your thermostat to 24C – 26C instead of the low 20’s”
- “August is hot and humid ... Help Ontario reduce demand by reducing your electricity use”
- “Give household work a midday rest ... Schedule appliance use to off-peak late day times!”
- “Don’t forget the outdoor clothes line ... It’s the most energy efficient dryer of all!”
- “Longer days mean shorter nights ... Don’t forget to adjust your outdoor lighting timer!”
- “Safety needs no vacation. Take it with you!”
- “Switch to lower wattage bulbs ... Your lights may be brighter than you need”
- “Install a programmable thermostat ... and reduce your annual heating & cooling bills by up to 15%!!!”
- “Fall is coming! Consider a maintenance check on your furnace to ensure peak efficiency”
- “A microwave oven uses up to 50% less energy than a conventional stove”
- “Keep light fixtures and bulbs clean!”
- “Dirt can absorb up to 50% of the light!”
- “Planning to buy a new appliance? ... Look for the Energy Star symbol and save energy \$\$\$’s”
- “School days are back ... When driving, Please take care and beware!”
- “Switch to Cold ... Save energy and \$\$\$ by washing your clothes in cold water”
- “Fall is here! ... Keep the cold air out by checking for drafts around doors and windows”
- “Check your attic insulation ... Upgrading from 8 cm to 30 cm can cut heating costs by 20%”
- “A faulty refrigerator seal can consume hundreds of kilowatt-hours a year!”
- “Don’t forget to change your furnace filter regularly to improve energy efficiency”
- “Keep window curtains open during the day to allow free solar energy into your home!”
- “Treat electricity with respect ... or you may get more than you expect!”
- “Don’t forget to use your Every Kilowatt Counts energy saving coupons ... available in our office or at major retailers”
- “Switch nonessential chores to off peak times ... With shorter days and less daylight, demand is returning to late afternoon”
- “Winter is coming! ... Keep the cold air out ... Close blinds and curtains at night”
- “Wrap your hot water tank with an insulating blanket ... To reduce standby heat loss and save energy \$\$\$s”

- “Move furniture away from forced air registers to maximize heating efficiency”
- “Installing a programmable thermostat can reduce your heating and cooling bills ... By up to 15%”
- “Keep stove top burner reflectors clean ... They will reflect the heat more efficiently”
- “Know Watts Safe? Use electricity wisely and safely!”
- “Shop for the Star!”
- “Energy Star products do the same job but use less energy”
- “Replacing your furnace filter? ... Upgrade to a high efficiency model that traps dust ... not air!”
- “Celebrate with seasonal LED lights! ... They use 95% less electricity than traditional holiday lights”
- “Unplug infrequently used TV’s ... Many continue to use energy even when turned off”
- “LED seasonal lights produce very little heat and reduce the risk of fire”
- “Always unplug Christmas tree lights before leaving the house or going to sleep!”
- “Be conscience of your energy usage!”
- “December is usually the 2<sup>nd</sup> highest month of overall energy usage”
- “It takes 140 LED lights to use the same amount of energy as one 7-watt incandescent bulb”
- “Safety is a gift for the whole Family!”

**2006 Traffic Lights Replaced**

Dominion & Park  
Duke & Victoria  
King & Ontario  
Forwell & Victoria  
Homer Watson & Ottawa  
Courtland & Hwy 7/8 Westbound Ramp  
Fischer Hallman & Greenbrook / Hwy 7/8

Joseph & Water  
Victoria & Weber  
Natchez & Victoria  
Fischer Hallman & New Dundee  
Homer Watson & Stirling  
Bruce & Victoria  
Edna & Victoria

**2007 Traffic Lights Replaced**

Belmont & Victoria  
Highland & Highland Crescent  
Highland & Lawrence  
Fischer Hallman & Greenbrook  
Erb & Notre Dame  
East & Krug  
Krug & River  
Duke & Water  
Duke & Queen  
Duke & Frederick  
Charles & Queen  
Charles & Gaukel  
Highland & Stirling  
Edna & Hwy 7/8 Westbound Ramp  
Frederick & Ottawa  
Benton & Charles  
Howland & Ottawa  
Borden & King  
King & Ottawa  
Fairway & River  
Kinzie & River  
Homer Watson & Hwy 7/8  
Driftwood & Westheights  
Ottawa & Hwy 7/8 Westbound Ramp  
Cedar & Charles  
Belmont & Queen  
Belmont & Gage  
Eastforest & Highland  
Charles & Ottawa  
Courtland & Ottawa  
Lancaster & Wellington  
Margaret & Wellington  
Moore & Wellington  
Courtland & Madison

Belmont & Union  
Lawrence & Victoria  
Courtland & Overland / Hwy 7/8  
Notre Dame & Snyders  
Lorraine & River  
Cameron & East  
Duke & Young  
Duke & Scott  
Duke & Ontario  
Charles & Water  
Charles & Ontario  
Bleams & Manitou  
Bruce & Hwy 86 North Ramp  
Cameron & Charles  
Charles & Francis  
Westmount & Forest Hill Public School  
Borden & Charles  
Charles & Stirling  
King & Rockway Seniors Centre  
Old Chicopee & River  
Guelph & Lancaster  
Fischer Hallman & McGarry  
Elmridge (Firehall) & Queen  
Mill & Stirling  
Hanson & Homer Watson  
Belmont & Highland  
Ottawa & Hwy 7/8 Eastbound Ramp  
Laurentian & Westmount  
Highland & Patricia  
Highland & Westforest Trail  
Belmont & Glasgow  
Fischer Hallman & Highland  
Courtland & Queen  
Courtland & Stirling

Attachment B – Traffic Light Replacements

Guelph & Margaret  
Kingsway & Wilson  
Park & Union  
Frederick & River  
Cameron & Weber  
Weber & 8 Ramp / Old King  
Fairway & Hwy 8 Eastbound Ramp  
Highland & Spadina  
Fischer Hallman & Victoria  
Edna & Frederick  
Lancaster & Victoria  
Cedar & Weber  
Gaukel & King  
Joseph & Queen  
Benton & Courtland  
Lackner & Ottawa  
Cedar & King  
Frederick & Weber  
Breithaupt & King  
Kinzie & Weber  
Traynor & Wilson  
Gateway & Sportsworld  
Mill & Ottawa  
Fischer Hallman & Queen  
River & Victoria  
Homer Watson & Pioneer  
Blockline & Strasburg  
Beasley & Homer Watson  
Bleams & Strasburg  
Fairway & Morgan  
Ottawa & Strasburg  
Holborn & River  
King & Pioneer Tower / Sportsworld  
Bleams & Fischer Hallman / Westmount  
Hoffman & Homer Watson  
Fairway & King  
Highland & Westmount  
King & River  
Blockline & Homer Watson  
Homer Watson & Manitou  
Ottawa & Weber  
Fairway & Fairview Plaza / KW Record  
Franklin & Weber  
Ottawa & River

Guelph & Weber  
Frederick & Lancaster  
Glasgow & Park  
Scott & Weber  
Borden & Weber  
Fischer Hallman & Glasgow  
Hazelglen & Victoria  
Frederick & Victoria  
Budd Gate & Homer Watson  
Ottawa & Westmount  
Glasgow & Westmount  
Greenbrook & Westmount  
Bruce & Frederick  
Frederick / Benton & King  
Brybeck / Chopin & Westmount  
Huron & Trillium  
Agnes & King  
Lancaster & Union  
King & Wellington  
Fergus & Weber  
Battler & Huron  
King & Montgomery  
Margaret & Victoria  
Deer Ridge & King  
King & Pine  
Homer Watson & Doon South  
Courtland & Shelley  
Carwood & Courtland  
Montgomery & Weber  
Alpine & Ottawa  
Blockline & Westmount  
Courtland / Fairway & Manitou  
Fairway & Best Plaza  
Queen & Westmount  
Bridge & Lancaster  
Fairway & Wilson  
King & Queen  
Bleams & Homer Watson  
Highland & Queen  
Manitou & Wabanaki  
Queen & Weber  
King & Linwood / KCI  
Francis & King  
Sportsworld & Hwy 8 Northbound Ramp

**Kitchener-Wilmot Hydro Inc.  
CDM Plan Expenditures**

General Program Category	Expenditures to September 2007	Budget	Variances
		Original	
<b>Capital Expenditures</b>			
<b>A. Utility Side Investments</b>	<b>1,109,388</b>	<b>1,300,000</b>	<b>190,612</b>
A.1. Capacitor banks, line loss / load balancing optimization *	647,502		
A.2. KW Hydro in-house retrofit program	324,246		
A.3. Fuel Switching	137,640		
<b>Operation and Maintenance Cost</b>			
<b>B. Shareholder / Community</b>	<b>240,423</b>	<b>250,000</b>	<b>9,577</b>
B.1. LED traffic lights	170,000		
B.2. Municipal buildings program	52,848		
B.3. School Energy Conservation Kits	17,575		
<b>C. Residential - General</b>	<b>202,416</b>	<b>230,000</b>	<b>27,584</b>
C.1. Fuel switching - electricity to gas	90,200		
C.2. Fall coupon program	35,111		
C.3. Residential Consumers Education **	74,569		
<b>D. Residential - Low Income</b>	<b>197,597</b>	<b>200,000</b>	<b>2,403</b>
D.1. Low income program with Region	190,147		
D.2. Audit / educate / retrofit pilot	3,000		
D.3. Audit / educate / roll out	4,450		
<b>E. Residential - Electrically Heated Homes</b>	<b>32,472</b>	<b>100,000</b>	<b>67,528</b>
E.1. EGH (EnerGuide for houses) increased incentive	32,472		
<b>F. General Service (ICI) Programs</b>	<b>531,925</b>	<b>200,000</b>	<b>(331,925)</b>
F.1. Key account seminars / info	6,661		
F.2. Energy management workshops	10,643		
F.3. Cool shops	79,860		
F.4. Lighting retrofit program	401,963		
F.5. Power factor correction program	35,334		
<b>G. Administration and Planning</b>	<b>26,043</b>	<b>70,000</b>	<b>43,957</b>
G.1. Planning, reporting, hearings, monitoring and evaluation	26,043		
<b>SUMMARY OF CDM EXPENDITURES **</b>			
Capital	1,109,388	1,300,000	190,612
Non Capital	1,230,875	1,050,000	(180,875)
	<b>2,340,264</b>	<b>2,350,000</b>	<b>9,736</b>

\*\* Note original budget was \$9,736 greater than the third-tranche dollars of \$2.34M. In actuality, KWHL spent over \$2.5M.