



**2008 Annual Report, CDM Third Tranche Funding, Guelph
Hydro Electric Systems Inc.**

RP-2004-0203\EB-2005-0203

March 31, 2009

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1. Introduction

On September 28, 2007, Guelph Hydro Electric Systems Inc. (GHESI) requested an extension to their Conservation and Demand Management (CDM) program in order to allow for several projects that faced delays to be completed. The Ontario Energy Board (OEB) subsequently approved this extension. This report is the 2008 CDM report that addresses the extended initiatives.

1.1. 2008 Objectives

The ultimate goal of GHESI's Conservation and Demand Management Plan is to create a "conservation culture" through sustained behavioural change in all of its customers.

This goal is aligned with its vision,

"Delivering sustainability through innovative energy solutions and the most energy efficient customers",

And also the vision of GHESI's parent company, Guelph Hydro Inc.,

"Powering community well-being and environmental stewardship with energy and information solutions".

GHESI's CDM objective was to provide an array of CDM programs over a broad cross-section of its customer base to continue to learn about the relative strengths and weaknesses of various approaches to stimulate a conservation culture locally. The CDM funded initiatives in 2008 were extensions to programs initiated prior to 2008 under Third Tranche funding.

1.2. Measurement

GHESI used the measurements provided by the Ontario Energy Board (OEB) in the TRC Guidelines for previous years' results and from the Ontario Power Authority's (OPA's) most recent Measures and Assumptions Lists as directed by the OEB for 2008 results unless otherwise noted in Section 3, Discussions of Programs.

1.3. Discount Rate

The Net Present Value (NPV) discount rate used in the TRC analysis is 7.28%, which is equal to 50% of the rate of return on deemed equity and 50% of the debt rate.



2. Evaluation of the CDM Plan

GHESI's CDM Plan was evaluated by completing a TRC analysis for each initiative and the initiative results were then reported in the required Appendices as attached.

2.1. 2008 TRC Results at the Portfolio Level

For 2008, the TRC analysis at the Portfolio level is shown in Appendix A. This analysis covered all the CDM initiatives that were implemented in 2008.

The benefit to cost ratio for the 2008 CDM portfolio is 1.20 and the Net TRC Benefit is \$465,912. The 2008 CDM expenditures are shown in Appendix A and equal \$122,300. The total electricity saved over the life cycle of the 2008 initiatives is 88,458,930 kilowatt-hours and total kW reductions for 2008 initiatives is 515 kW.

Program Analysis

The Residential programs had an overall TRC Benefit to Cost ratio of 3.75 with a cost to GHESI of $-\$0.001$ per kWh saved; the Commercial programs had an overall TRC Benefit to Cost ratio of 1.07; and the Institutional programs had an overall TRC Benefit to Cost ratio of 1.15 with a cost to GHESI of $\$0.012$ per kWh saved. Portfolio administration costs account for the difference between these program results and the overall results.

3. Discussion of Programs

3.1. Residential Programs

3.1.1. Education and Promotion

An overview of GHESI's Education and Promotion initiative for 2008 is provided below along with a description of the actions taken, the CDM Budget expenditures and TRC results.

3.1.1.1. Earth Day

Overview

GHESI partnered with Local Adult Rehabilitative Centre (ARC) Industries, a program of the Community Living Guelph Wellington, to build the Earth Day Kits that were sold by schools, libraries and at GHESI's office. ARC Industries provides employment training and support to approximately one hundred and twenty five people who have an intellectual disability. The aim of the programs offered at ARC Industries is to encourage each participant to strive to attain their best possible level of employment, be it in the community or in the workshop. ARC Industries has a very supportive work environment where participants are encouraged to develop a sense of achievement, self-assurance and self-reliance.

Description of Actions Taken

As previously reported, there were a total of 40,000 CFL bulbs purchased to fabricate 10,000 Earth Day Kits. Each kit includes 4 CFLs, a water flow measuring bag, toilet testing dye tabs, and a booklet with tips on saving energy in the home. The kits were provided to schools and the libraries to sell as a fundraiser. Each kit costs \$20 and was sold for \$10. For each kit sold, the schools kept \$2 of the sale price for their fundraising efforts. The kits were also available for purchase at GHESI's offices. In the case of the GHESI and the libraries, they donated their \$2 per kit to charity. GHESI's charitable contributions were directed to "Adopt-A-Family" and the Guelph United Way. During 2007, 2,500 kits were sold and the remaining kits were placed in inventory to be sold during 2008.

In 2008 an additional 2,000 Earth Day kits were sold leaving 5,500 kits in inventory for use as CDM promotional items. This initiative will be discussed further under Section 4.1, Lessons Learned.



TRC Results

The net TRC was \$212,194 and the Benefit to Cost ratio was 8.37. The TRC includes the 2,000 kits sold during 2008. In addition, the life-to-date program costs of \$125,165.99 include revenues received from kit sales during 2008.

3.1.2. Smart Wash

Overview

Ghesi partnered with the City of Guelph in a pilot program to offer customers \$100 rebates on high efficiency front-load washing machines after customers provided proof of purchase and proof of proper disposal of their old washing machine. The initial plan was to offer 300 rebates on a first come first served basis. However, the first set of rebates was distributed so quickly that an additional 200 rebates were offered under an extension to the pilot program. The Smart Wash brochure and the rebate claim form have been included as Appendix E.

Description of Actions Taken

Ghesi contributed \$20 of the \$100 rebate offered to those who purchased a new high efficiency front-load washing machine and properly disposed of their old washing machine. A total of 500 rebates were distributed during 2008.

TRC Results

The net TRC is \$97,550 with a Benefit to Cost ratio of 2.16.

3.2. Commercial Programs

3.2.1. City Water Treatment

Overview

The City of Guelph was offered a \$100,000 incentive towards the upgrade of a co-generation facility at the City's Waste Water Treatment facility. In 2007, a \$50,000 partial payment of the incentive was awarded to the City, commensurate with the project milestones reached in 2007. An additional \$50,000 payment was made upon completion of the project in 2008. The media advisory as well as a photo of the formal cheque presentation ceremony has been attached as Appendix F.



Description of Actions Taken

The second and final incentive payment of \$50,000 represents the second half of the total incentive promised to the City of Guelph for the co-generation upgrade at the water treatment facility.

TRC Results

The TRC has been provided in Appendix G. The 500 kW co-generation upgrade project was completed in 2008. The TRC was completed including construction upgrade costs of \$900,000, engineering costs of \$250,000, annual heat recovered of 12,060 MMBtu, a 20-year equipment life, and an inflation rate of 2%. The net TRC is \$152,771 and the Benefit to Cost ratio is 1.07.

3.3. Institutional Programs

3.3.1. School Board Load Control

Overview

GHESI provided an incentive to the Upper Grand District School Board (UGDSB) towards the installation of building automation systems at two schools in 2008. These systems allow both schools to be monitored and the heating and cooling controlled from the UGDSB head offices. The automation provides a level of control that decreases heating and cooling costs since spaces can be managed individually and the remote nature of the controls reduces on-site visits by UGDSB operations and maintenance staff, thereby reducing operations costs for the school board. The media release on these initiatives as well as photos of the cheque presentation ceremony and the building automation system controls at Rickson Ridge Public School have been included as Appendix H.

Description of Actions Taken

The Upper Grand District School Board completed the installation of the building automation systems at two schools. The installations included a wide range of technologies including sensors, automatic controls and an intelligent monitoring system constantly checking the temperature of the school. These systems will reduce maintenance costs by cutting down the number of visits that board facilities staff will need to make to the school during the year, as the two schools will be monitored remotely from the UGDSB offices, where settings can be monitored and adjusted over the internet. . Without the incentives from GHESI, the school board would not have



installed this state of the art equipment due to the costs exceeding their available budget amount. GHESI provided an incentive of \$60,515 to the school board for these projects.

TRC Results

The TRC has been provided in Appendix I. Using a free rider assumption of 30%, gas savings of 15% and electricity savings of 20%, the net TRC is \$17,055 with a Benefit to Cost ratio of 1.15.

4. Lessons Learned

As previously reported, when dealing with agencies, school boards and municipalities, GHESI is not in control of the implementation timelines or project assessment and approval processes. GHESI encountered delays as noted in our request for extension to the third tranche CDM program that was subsequently approved by the OEB.

4.1. Residential Programs

Given the need to continue increasing awareness and participation in energy saving technology and behaviour, Education and Promotion programs were necessary component of the CDM budget.

The purely educational initiatives continued to reach a large number of customers in a cost effective manner. Based on the objective of having a sustainable conservation culture in the Guelph Community, the interest demonstrated and the cost effective expenses incurred, GHESI found the purely educational programs to its customers successful.

However, certain initiatives, such as the Earth Day Kits, will not be continued by GHESI. The Earth Day Kits provided many benefits to the community as discussed in section 3.1.1.1, but the fundraising aspect did not meet the objectives set out for the initiative.

4.2. Commercial Programs

As previously reported, there are significant time requirements to develop commercial programs and commercial customers are not often able to make a commitment on GHESI's timelines. This has been a significant hurdle in getting commercial projects implemented. However, there are many opportunities for energy efficiency improvements in the Commercial sector and the time is often warranted on these initiatives.

4.3. Institutional Programs

Through our work with the various school boards and the University of Guelph, we have discovered that there is significant potential for energy efficiency improvements to be made. We have also found that these institutions often rely on incentives to make some of these upgrades happen. The projects at the schools boards were only possible with these Third Tranche incentives. In discussions with these institutions, we also note that in some cases the incentive levels considered by the institutions were still not sufficient to encourage the projects to proceed, and future program design may need to address this issue.



5. Conclusion

5.1. GHESI Budget and Costs

In addition to the positive results from the Portfolio TRC analysis and the energy and peak reductions achieved, GHESI was within 3.7% of their budget tolerances during 2008 as can be seen in the following tables. The actual 2008 expenditures for the 2008 initiatives are shown in Table 1 on the following page. The expenditures to date for all programs have been provided in Table 2 that follows Table 1.

Table 1: 2008 Active CDM Programs

	Program Name	Budget GHESI Capital	Budget GHESI Operating	Budget Total	2008 GHESI Capital Expenditure	GHESI Operating Expenditure	2008 GHESI Total Expenditure
1	Education & Promotion	\$0	\$170,000	\$170,000	\$0	\$10,140	\$10,140
2	Low Income	\$0	\$25,000	\$25,000	\$0	\$0	\$0
3	City Leadership - LED Lighting	\$0	\$43,655	\$43,655	\$0	\$0	\$0
4	Metering Pilot	\$50,000	\$25,000	\$75,000	\$0	\$0	\$0
5	Tech. & Research	\$40,000	\$4,403	\$44,403	\$0	\$0	\$0
6	Air Conditioning	\$0	\$7,446	\$7,446			
7	Distributed Energy	\$230,596	\$1,958	\$232,554	\$0	\$0	\$0
8	City Leadership - Building Retrofit	\$0	\$115	\$115	\$0	\$0	\$0
9	Load Control	\$0	\$509	\$509	\$0	\$0	\$0
10	City Leadership - Water Treatment	\$0	\$100,000	\$100,000	\$0	\$50,000	\$50,000
11	System Optimization	\$90,000	\$18,000	\$108,000	\$0	\$0	\$0
12	Power Factor Correction	\$0	\$0	\$0	\$0	\$0	\$0
13	University of Guelph	\$0	\$20,625	\$20,625	\$0	\$0	\$0
14	Builder Partnership	\$0	\$1,500	\$1,500	\$0	\$0	\$0
15	City Leadership - Community Energy Plan	\$0	\$25,000	\$25,000	\$0	\$0	\$0
16	Residential REEP	\$0	\$4,000	\$4,000	\$0	\$0	\$0
17	Earth Day Environmental Action	\$0	\$75,000	\$75,000	\$0	(\$12,013)	(\$12,013)
18	Load Control - School Board	\$0	\$125,300	\$125,300	\$0	\$60,515	\$60,515
19	GEL Energy Benchmarking	\$0	\$25,000	\$25,000	\$0	\$0	\$0
19	Portfolio Administration **	\$0	\$108,402	\$108,402	\$0	\$13,658	\$13,658
	Total	\$410,596	\$780,913	\$1,191,509	\$0	\$122,300	\$122,300

** During 2005, these costs were reported across all programs. Starting in 2006 and continuing in 2007 the portfolio administration costs are reported separately.

Table 2: Comparison of CDM Budget and Life-to-Date Expenditures

	Program Name	Budget GHESI Capital	Budget GHESI Operating	Budget Total	Life-to-Date GHESI Capital Expenditure	Life-to-Date GHESI Operating	Life-to-Date GHESI Total Expenditure
1	Education & Promotion	\$0	\$170,000	\$170,000	\$0	\$158,257	\$158,257
2	Low Income	\$0	\$25,000	\$25,000	\$0	\$25,822	\$25,822
3	City Leadership - LED Lighting	\$0	\$43,655	\$43,655	\$0	\$41,655	\$41,655
4	Metering Pilot	\$50,000	\$25,000	\$75,000	\$54,902	\$21,940	\$76,842
5	Tech. & Research	\$40,000	\$4,403	\$44,403	\$40,000	\$6,040	\$46,040
6	Air Conditioning	\$0	\$7,446	\$7,446	\$0	\$7,446	\$7,446
7	Distributed Energy	\$230,596	\$1,958	\$232,554	\$230,596	\$458	\$231,054
8	City Leadership - Building Retrofit	\$0	\$115	\$115	\$0	\$115	\$115
9	Load Control	\$0	\$509	\$509	\$0	\$510	\$510
10	City Leadership - Water Treatment System	\$0	\$100,000	\$100,000	\$0	\$100,000	\$100,000
11	Optimization	\$90,000	\$18,000	\$108,000	\$105,790	\$0	\$105,790
12	Power Factor Correction	\$0	\$0	\$0	\$0	\$0	\$0
13	University of Guelph	\$0	\$20,625	\$20,625	\$0	\$17,059	\$17,059
14	Builder Partnership	\$0	\$1,500	\$1,500	\$0	\$1,500	\$1,500
15	City Leadership - Community Energy Plan	\$0	\$25,000	\$25,000	\$0	\$25,000	\$25,000
16	Residential REEP	\$0	\$4,000	\$4,000	\$0	\$0	\$0
17	Earth Day Environmental Action	\$0	\$75,000	\$75,000	\$0	\$125,166	\$125,166
18	Load Control - School Board	\$0	\$125,300	\$125,300	\$0	\$119,665	\$119,665
19	GEL Energy Benchmarking	\$0	\$25,000	\$25,000	\$0	\$25,000	\$25,000
19	Portfolio Administration **	\$0	\$108,402	\$108,402	\$0	\$128,864	\$128,864
	Total	\$410,596	\$780,913	\$1,191,509	\$431,288	\$804,497	\$1,235,789



6. Discussion on Remaining Third Tranche CDM Budget

GHESI has no Third Tranche CDM funds remaining. Due to lower than planned sales of Earth Day Kits, GHESI exceeded the budget amount by 3.7%. The kits will be used as CDM promotional items in future, however the revenues that were expected to offset some of the expenditures did not materialize.

7. Appendices

7.1. Appendix A: 2008 GHESI – Evaluation of the CDM Plan

	Total for 2008	Residential	⁵ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters
<i>Net TRC value (\$):</i>	\$ 465,912	\$ 309,744	\$ -	\$ 152,771	\$ 17,055	\$ -	\$ -	\$ -	
<i>Benefit to cost ratio:</i>	1.20	3.75	N/A	1.07	1.15	0.00	0.00	0.00	
<i>Number of participants or units delivered:</i>	8,503	8,500		1	2				
<i>Lifecycle (kWh) Savings:</i>	88,458,930	3,037,860		80,400,000	5,021,070	0	0	0	
<i>Report Year Total kWh saved (kWh):</i>	4,848,177	326,070		4,020,000	502,107	0	0	0	
<i>Total peak demand saved (kW):</i>	515	15		500	0	0	0	0	
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	
¹ <i>Report Year Gross C&DM expenditures (\$):</i>	\$ 122,300	-\$ 1,873	\$ -	\$ 50,000	\$ 60,515	\$ -	\$ -	\$ -	\$ -
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$0.001	-\$0.001	\$	\$0.001	\$0.012	\$0.000	\$0.000	\$0.000	
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 237.34	-\$ 122.42	\$	\$ 100.00	\$ -	\$ -	\$ -	\$ -	
<i>Utility discount rate (%):</i>									7.28

7.2. Appendix B: GHESI 2008 Discussion of the Programs

7.2.1. Residential Programs

7.2.1.1. Education and Promotion Programs

7.2.1.1.1. Earth Day

Appendix B - GHESI 2008 Discussion of the Program

RES Education - Earth Day

A. **Name of the Program:** RESIDENTIAL - Education - Earth Day

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

GHESI partnered with Local Adult Rehabilitative Centre (ARC) Industries, a program of the Community Living Guelph Wellington, to build the Earth Day Kits that were sold by schools, libraries and at GHESI's office. There were a total of 40,000 CFL bulbs purchased to fabricate 10,000 Earth Day Kits. Each kit includes 4 CFLs, a water flow measuring bag, toilet testing dye tabs, and a booklet with tips on saving energy in the home. The kits were provided to schools and the libraries to sell as a fundraiser. Each kit cost \$20 and was sold for \$10. For each kit sold, the schools kept \$2 of the sale price for their fundraising efforts. The kits were also available for purchase at GHESI's offices. In the case of the GHESI and the libraries, they donated their \$2 per kit to charity. GHESI's charitable contributions were directed to "Adopt-A-Family" and the Guelph United Way. During 2008, 2,000 kits were sold and the remainder will be distributed

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	Incandescent light		
Efficient technology:	13W CFL		
Number of participants or units delivered for reporting year:	8,000		
Measure life (years):	8		
Number of Participants or units delivered life to date	18,000		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 240,994.34	\$ 414,351.86
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	\$ 17,979.02
Incremental Measure Costs (Equipment Costs)	\$ 28,800.00	\$ 105,300.00
Total TRC costs:	\$ 28,800.00	\$ 123,279.02
Net TRC (in year CDN \$):	\$ 212,194.34	\$ 291,072.84
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 8.37	\$ 3.36

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

Conservation Programs:

Demand savings (kW):	Summer	Winter
	7.2	7.2

Energy saved (kWh):	lifecycle	in year	Cumulative Lifecycle	Cumulative Annual Savings
	2,036,160	254,520	5,126,400	1,027,080

Other resources saved :

Natural Gas (m3):		
Other (specify):		

Demand Management Programs:

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

Demand Response Programs:

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

Appendix B: Earth Day (page 2)

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):		
Energy savings (kWh):	lifecycle	in year

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):		
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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	-\$ 12,013.03	\$ 125,165.99
	Incentive:	\$ -	\$ -
	Total:	-\$ 12,013.03	\$ 125,165.99
Utility indirect costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ -	\$ -
	Total:	\$ -	\$ -

E. Assumptions & Comments:

7.2.1.2. Smart Wash

Appendix B - GHESI 2008 Discussion of the Program

RES Smart Wash

A. **Name of the Program:** RESIDENTIAL - Smart Wash

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

GHESI partnered with the City of Guelph in a pilot program to offer customers \$100 rebates on high efficiency front-load washing machines after customers provided proof of purchase and proof of proper disposal of their old washing machine. The initial plan was to offer 300 rebates on a first come first served basis. However, the first set of rebates was distributed so quickly that an additional 200 rebates were offered under an extension to the pilot program. GHESI contributed \$20 of the \$100 rebate offered to those who purchased a new high efficiency front-load washing machine and properly disposed of their old washing machine. A total of 500 rebates were distributed during 2008.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>	Top load Washer		
<i>Efficient technology:</i>	High Efficiency Front Load Washer		
<i>Number of participants or units delivered for reporting year:</i>	500		
<i>Measure life (years):</i>	14		
<i>Number of Participants or units delivered life to date</i>	500		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 181,443.00	\$ 181,443.00
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ 140.00	\$ 140.00
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ 83,753.00	\$ 83,753.00
<i>Total TRC costs:</i>	\$ 83,893.00	\$ 83,893.00
Net TRC (in year CDN \$):	\$ 97,550.00	\$ 97,550.00
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>	\$ 2.16	\$ 2.16

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

Cumulative Results:

Conservation Programs:

<i>Demand savings (kW):</i>	<i>Summer</i>		<i>Winter</i>	
		8.1		8.1
	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	1,001,700	71,550	1,001,700	71,550
<i>Other resources saved:</i>				
<i>Natural Gas (m3):</i>				
<i>Other (specify):</i>	Water: 11,886,300 litres per year			

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>		

Appendix B: Smart Wash (page 2)

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):		
lifecycle	in year	
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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D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ 140.00	\$ 140.00
	Incentive:	\$ 10,000.00	\$ 10,000.00
	Total:	\$ 10,140.00	\$ 10,140.00
Utility indirect costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ -	\$ -
	Total:	\$ -	\$ -

E. Assumptions & Comments:

7.2.2. Commercial Programs

7.2.2.1. City Water Treatment

Appendix B - GHESI 2008 Discussion of the Program

COMMERCIAL - City Water Treatment Facility

A. **Name of the Program:** COMMERCIAL - City Water Treatment Facility

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

REPLACEMENT TO 2007 TRC: The City of Guelph was offered a \$100,000 incentive towards the upgrade of a co-generation facility at the City's Waste Water Treatment facility. In 2007, a \$50,000 partial payment of the incentive was awarded to the City, commensurate with the project milestones reached in 2007. An additional \$50,000 was provided in 2008 upon completion of the project. This TRC replaces the one completed during 2007 since it includes actual costs.

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:	1		
Measure life (years):	20		
Number of Participants or units delivered life to date	1		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 2,276,828.00	\$ 2,276,828.00
² TRC Costs (\$):		
Utility program cost (excluding incentives):	\$ -	\$ -
Incremental Measure Costs (Equipment Costs)	\$ 2,124,057.00	\$ 2,124,057.00
Total TRC costs:	\$ 2,124,057.00	\$ 2,124,057.00
Net TRC (in year CDN \$):	\$ 152,771.00	\$ 152,771.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	\$ 1.07	\$ 1.07

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

Conservation Programs:

	Summer		Cumulative Lifecycle	Cumulative Annual Savings
	lifecycle	in year		
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):		

Appendix B: City Water Treatment (page 2)

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):		
lifecycle	in year	
Energy savings (kWh):		

Distributed Generation and Load Displacement Programs:

Amount of DG installed (kW):	500	500
Energy generated (kWh):	4020000	80400000
Peak energy generated (kWh):		
Fuel type:	Process methane	

Other Programs (specify):

Metric (specify):		
-------------------	--	--

D. Actual Program Costs:		Reporting Year	Cumulative Life to Date
Utility direct costs (\$):	<i>Incremental capital:</i>	\$ -	\$ -
	<i>Incremental O&M:</i>	\$ 50,000.00	\$ 100,000.00
	<i>Incentive:</i>	\$ -	\$ -
	<i>Total:</i>	\$ 50,000.00	\$ 100,000.00
Utility indirect costs (\$):	<i>Incremental capital:</i>	\$ -	\$ -
	<i>Incremental O&M:</i>	\$ -	\$ -
	<i>Total:</i>	\$ -	\$ -

E. Assumptions & Comments:

7.2.3. Institutional Programs

7.2.3.1. School Board Load Control

Appendix B - GHESI 2008 Discussion of the Program

INSTITUTIONAL - School Board Load Control

A. **Name of the Program:** INSTITUTIONAL - School Board Load Control

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

GHESI provided an incentive to the Upper Grand District School Board toward the installation of 2 Building Automation Systems (BAS) in 2008. The Upper Grand District School Board completed the installation of the building automation systems at two schools. The installations included a wide range of technologies including sensors, automatic controls and an intelligent monitoring system constantly checking the temperature of the school. These systems will reduce maintenance costs by cutting down the number of visits that board facilities staff will need to make to the school during the year, as the two schools will be monitored remotely from the UGDSB offices, where settings can be monitored and adjusted over the internet. Without the incentives from GHESI, the school board would not have installed this state of the art equipment due to the costs exceeding their available budget amount. GHESI provided an incentive of \$60,515 to the school board for these projects.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
<i>Base case technology:</i>			
<i>Efficient technology:</i>	Building Automation Systems		
<i>Number of participants or units delivered for reporting year:</i>	2		
<i>Measure life (years):</i>	10		
<i>Number of Participants or units delivered life to date</i>	2		

B. TRC Results:	Reporting Year	Life-to-date TRC Results:
¹ TRC Benefits (\$):	\$ 129,936.85	\$ 463,404.19
² TRC Costs (\$):		
<i>Utility program cost (excluding incentives):</i>	\$ -	\$ -
<i>Incremental Measure Costs (Equipment Costs)</i>	\$ 112,882.18	\$ 221,017.46
<i>Total TRC costs:</i>	\$ 112,882.18	\$ 221,017.46
<i>Net TRC (in year CDN \$):</i>	\$ 17,054.67	\$ 242,386.73
<i>Benefit to Cost Ratio (TRC Benefits/TRC Costs):</i>	\$ 1.15	\$ 2.10

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

Conservation Programs:

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

	<i>lifecycle</i>	<i>in year</i>	<i>Cumulative Lifecycle</i>	<i>Cumulative Annual Savings</i>
<i>Energy saved (kWh):</i>	5,021,070	502,107	10,042,140	1,004,214
<i>Other resources saved:</i>				
<i>Natural Gas (m3):</i>	311,720	31,172	311,720	31,172
<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>	



Appendix B: School Board Load Control (page 2)

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):		
lifecycle	in year	
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):		
-------------------	--	--

D. <u>Actual Program Costs:</u>		<u>Reporting Year</u>	<u>Cumulative Life to Date</u>
Utility direct costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ 60,515.00	\$ 119,665.00
	Incentive:	\$ -	\$ -
	Total:	\$ 60,515.00	\$ 119,665.00
Utility indirect costs (\$):	Incremental capital:	\$ -	\$ -
	Incremental O&M:	\$ -	\$ -
	Total:	\$ -	\$ -

E. Assumptions & Comments:



7.3. Appendix C: GHESI Program and Portfolio Totals

Appendix C - GHESI 2008 Program and Portfolio Totals

Report Year:

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 (\$)
EARTH DAY	\$ 240,994	\$ 28,800	\$ 212,194	8.37	254,520	2,036,160	7	-\$ 12,013
SMART WASH	\$ 181,443	\$ 83,893	\$ 97,550	2.16	71,550	1,001,700	8	\$ 10,140
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Residential	\$ 422,437	\$ 112,693	\$ 309,744	3.75	326,070	3,037,860	15	-\$ 1,873
Residential Indirect Costs not attributable to any specific program								
Total Residential TRC Costs		\$ 112,693						
**Totals TRC - Residential	\$ 422,437	\$ 112,693	\$ 309,744	3.75				



Appendix C: GHESI Program and Portfolio Totals

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 (\$)
CITY WATER TREATMENT	\$ 2,276,828	\$ 2,124,057	\$ 152,771	1.07	4,020,000	80,400,000	500	\$ 50,000
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Commercial	\$ 2,276,828	\$ 2,124,057	\$ 152,771	1.07	4,020,000	80,400,000	500	\$ 50,000
Commercial Indirect Costs not attributable to any specific program								
Total TRC Costs		\$ 2,124,057						
**Totals TRC - Commercial	\$ 2,276,828	\$ 2,124,057	\$ 152,771	1.07				



Appendix C: GHESI Program and Portfolio Totals

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 (\$)
SCHOOL BOARD LOAD CONTROL	\$ 129,937	\$ 112,882	\$ 17,055	1.15	502,107	5,021,070	0	\$ 60,515
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program J			\$ -	0.00				
*Totals App. B - Institutional	\$ 129,937	\$ 112,882	\$ 17,055	1.15	502,107	5,021,070	0	\$ 60,515
Institutional Indirect Costs not attributable to any specific program	→							
Total TRC Costs		\$ 112,882						
**Totals TRC - Institutional	\$ 129,937	\$ 112,882	\$ 17,055	1.15				



Appendix C: GHESI Program and Portfolio Totals

4. Industrial Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

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



Appendix C: GHESI Program and Portfolio Totals

5. Agricultural Programs

List each Appendix B in the cells below; Insert additional rows as required.

Note: To ensure the integrity of the formulas, please insert the additional rows in the middle of the list below.

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



Appendix C: GHESI Program and Portfolio Totals

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 (\$)
Name of Program A			\$ -	0.00				
Name of Program B			\$ -	0.00				
Name of Program C			\$ -	0.00				
Name of Program D			\$ -	0.00				
Name of Program E			\$ -	0.00				
Name of Program F			\$ -	0.00				
Name of Program G			\$ -	0.00				
Name of Program H			\$ -	0.00				
Name of Program I			\$ -	0.00				
Name of Program C			\$ -	0.00				
*Totals App. B - LDC System	\$ -	\$ -	\$ -	0.00	0	0	0	\$ -
LDC System Indirect Costs not attributable to any specific program								
Total TRC Costs		\$ -						
**Totals TRC - LDC System	\$ -	\$ -	\$ -	0.00				

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 (\$) →



Appendix C: GHESI Program and Portfolio Totals

LDC's CDM PORTFOLIO TOTALS

	TRC Benefits (PV)	TRC Costs (PV)	\$ Net TRC Benefits	Benefit/Cost Ratio	Report Year Total kWh Saved	Lifecycle (kWh) Savings	Total Peak Demand (kW) Saved	Report Year Gross C&DM Expenditures (\$)
*TOTALS FOR ALL APPENDIX B	\$ 2,829,202	\$ 2,349,632	\$ 479,570	1.20	\$ 4,848,177	\$ 88,458,930	\$ 515	\$ 122,300
<i>Any other Indirect Costs not attributable to any specific program</i>	→	\$ 13,658						
TOTAL ALL LDC COSTS		\$ 2,363,290						
**LDC* PORTFOLIO TRC	\$ 2,829,202	\$ 2,363,290	\$ 465,912	1.20				

* 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.

7.4. Appendix D: GHESI Total Life Evaluation of the CDM Plan (page 1 of 2)

	⁵ Cumulative Totals Life-to-date	Residential	⁶ Low Income	Commercial	Institutional	Industrial	Agricultural	LDC System	⁴ Smart Meters
<i>Net TRC value (\$):</i>	\$ 2,682,407	\$ 736,382	\$ 17,831	\$ 1,260,830	\$ 388,360	\$ -	\$ -	\$ 104,415	\$ -
<i>Benefit to cost ratio:</i>	1.55	2.69	1.15	1.36	2.40	0.00	0.00	2.33	0.00
<i>Number of participants or units delivered:</i>	55,160	48,827	5,826	192	4	0	0	1	213
<i>Lifecycle (kWh) Savings:</i>	148,003,166	23,556,125	2,421,214	91,401,967	15,330,687	0	0	8,560,000	213
<i>Total kWh saved (kWh):</i>	11,328,554	3,764,976	0	4,570,098	1,891,971	0	0	428,000	213
<i>Total peak demand saved (kW):</i>	1,740.3	103.7	0.6	1,098.0	185.0	0.0	0.0	63.0	213.0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.71%	0.24%	0.00%	0.29%	0.12%	0.00%	0.00%	0.03%	0.00%
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.64%	0.04%	0.00%	0.40%	0.07%	0.00%	0.00%	0.02%	0.08%
¹ <i>Gross C&DM expenditures (\$):</i>	\$ 1,235,789	\$ 340,872	\$ 25,822	\$ 379,219	\$ 136,724	\$ -	\$ -	\$ 105,790	\$ 76,842
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.01	\$ 0.01	\$ 0.01	\$ 0.00	\$ 0.01	\$ -	\$ -	\$ 0.01	\$ 360.76
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 0.00	\$ 0.00	\$ -	\$ 0.00	\$ 0.00	\$ -	\$ -	\$ 0.00	\$ 1.69
<i>Utility discount rate (%):</i>	7.985								

Appendix D: GHESI Total Life Evaluation of the CDM Plan (page 2 of 2)

	LED Traffic Lights	Program Costs
<i>Net TRC value (\$):</i>	\$ 174,589	\$ -
<i>Benefit to cost ratio:</i>	1.35	0.00
<i>Number of participants or units delivered:</i>	97	0
<i>Lifecycle (kWh) Savings:</i>	6,732,960	0
<i>Total kWh saved (kWh):</i>	673,296	0
<i>Total peak demand saved (kW):</i>	77.0	0.0
<i>Total kWh saved as a percentage of total kWh delivered (%):</i>	0.04%	0.00%
<i>Peak kW saved as a percentage of LDC peak kW load (%):</i>	0.03%	0.00%
¹ <i>Gross C&DM expenditures (\$):</i>	\$ 41,655	\$ 128,864
² <i>Expenditures per kWh saved (\$/kWh):</i>	\$ 0.01	\$ -
³ <i>Expenditures per kW saved (\$/kW):</i>	\$ 0.00	\$ -



7.5. Appendix E: Smart Wash Brochure and Rebate Form

(Please see the following pages.)



To qualify for a rebate

- Buy and install a new HE front-loading, ENERGY STAR rated washing machine to replace your older top-loading model
- Complete the rebate application form included in this brochure
- Provide a copy of the dated sales receipt as a proof of purchase (receipt must be dated January 1, 2008 or later to be eligible for the rebate)
- Provide proof of disposal (receipt, invoice) for your old washing machine
- Send application form and receipts to:

Smart Wash PILOT REBATE PROGRAM

City Hall
59 Carden Street
Guelph, ON
N1H 3A1

- Be available for an inspection
- Enjoy your water and energy savings! Once your application has been approved the rebate amount will be credited to your hydro bill within six to eight weeks.

For more information about



Visit: guelph.ca/smartwash

Call: 519-822-1260 ext. 2633

E-mail: smartwash@guelph.ca



Wash clean, wash green with the
Smart Wash Front-Loading
Washing Machine

PILOT REBATE PROGRAM



Save water and reduce energy use
with a high-efficiency (HE),
front-loading washing machine

Purchase and install a new front-loading ENERGY STAR®
rated washing machine in 2008 and receive a
\$100 rebate from the City of Guelph and Guelph Hydro.
Rebate amount will be credited to your hydro bill.

Save even more with the Provincial
Retail Sales Tax exemption on
ENERGY STAR appliances

When you purchase an ENERGY STAR rated front-loading
washing machine you will also qualify for a point-of-sale
Retail Sales Tax exemption (RST) from the Government
of Ontario. The RST exemption for ENERGY STAR
qualified washing machines is available until July 20,
2008. For more information call the Ministry of Energy
Information Centre at 1-888-668-4636.

Visit guelph.ca/smartwash for a list of ENERGY STAR
rated front-loading washing machine models.

Please note: There are 300 rebates available for
the pilot program. Rebates will be issued on a
first come, first serve basis. Rebates are only
available to Guelph residents that are connected
to the municipal water system.

A front-loading, ENERGY STAR washing machine

- Uses 35 to 50% less water*
- Uses up to 50% less energy*
- Removes more water from your clothes during the spin cycle, reducing your drying time
- Is gentler on clothes
- Uses less detergent
- Has a larger load capacity

Tips for using your new washing machine most effectively

- Use the right detergent. HE front-loading washing machines require a special HE detergent that creates fewer suds. Excess suds can overflow and damage front-loading washing machines. Refer to the user manual for more information.
- Wash full loads whenever possible. If a partial load is necessary, be sure to adjust the water-level control.
- Pre-treat stains to avoid rewashing
- Use the shortest wash cycle for lightly soiled loads
- Check your washing machine hoses regularly for cracks that could result in leaks
- Wash your clothes in cold or warm water. Between 85-90% of the energy used by washing machines is for heating the water. You can save energy and money by lowering the water temperature.*

Washing machine disposal

To complete the efficiency cycle, old washing machines must be disposed of properly. You can drop off your old washing machine at the Waste Resource Innovation Centre Public Drop-off or have it picked up through the Bulky Item Collection Program. Please retain receipt from Public Drop-off or Bulky Item Collection. If you dispose of your washing machine in another manner, proof of disposal is required to qualify for the rebate.

Public Drop-off

The Public Drop-off is located at the Waste Resource Innovation Centre, 110 Dunlop Drive. A drop-off disposal fee of \$12 applies for washing machines.

Hours of operation

Monday to Friday: 7 a.m. – 6 p.m.
Saturday: 8:30 a.m. – 3:45 p.m.
Closed Sundays and holidays

Bulky Item Collection

The City offers a user-pay, curbside collection service for large items such as household appliances. A bulky item ticket must be purchased in advance from the City Clerk's Office (City Hall, 59 Carden Street), Operations (45 Municipal Street) or the Waste Resource Innovation Centre (110 Dunlop Drive). Once you have your ticket, call 519-767-0598 to arrange for pick-up. For safety reasons, please remove the lid from your old washing machine before placing it at the curb.

For more information about Public Drop-off or Bulky Item Collection visit guelph.ca/wetdry or call 519-767-0598.



Rebate application

Customer Information (Please print clearly)

First name: _____

Last name: _____

Address: _____

Phone (home): _____

Phone (work): _____

Washer manufacturer: _____

Washer model number: _____

Purchase date: _____

Hydro account #: _____

Purchase location: _____

In consideration of receiving a rebate in this Smart Wash Pilot Rebate Program, I release the Corporation of the City of Guelph, and its agents, officials and employees ("the City") as well as Guelph Hydro Electric Systems Inc. and its agents, directors and employees ("Guelph Hydro") from all claims and actions, however caused, arising from my participation in this Program. I acknowledge that the City and Guelph Hydro are not responsible for the selection, operation or installation of any washing machine replacement under this Program. I agree to allow the City and Guelph Hydro access to utility billing account information for the sole purpose of monitoring water and energy consumption. The City reserves the right to alter or cancel this Program at any time.

I have read, understand and agree to the terms and conditions of the Smart Wash Front-Loading Washing Machine Rebate Program

Signature _____ Date _____

Detach this application form and mail it, along with a copy of your sales receipt and record of disposal for your old washing machine to:

Smart Wash Pilot Rebate Program
City Hall, 59 Carden Street, Guelph ON N1H 3A1

PLEASE CUT ALONG DOTTED LINE



* Compared to traditional top-loading models (Natural Resources Canada)

* Source: Ontario Ministry of Energy



Front-Loading Washing Machine Pilot Rebate Program

Guelph residents who replace conventional, top-loading washing machines with a new ENERGY STAR® rated, front-loading model in 2008, will be eligible for a **\$100 rebate** from the City of Guelph and Guelph Hydro Electric Systems Inc.

Please note: There are 300 rebates available for the pilot program. Rebates will be issued on a first come, first serve basis. Rebates are only available to Guelph residents that are connected to the municipal water system.

Customer Information (Please print clearly)

First name: _____ Last name: _____

Address: _____

Phone (home): _____ Phone (work): _____

Washing machine manufacturer: _____

Washing machine model: _____

Purchase date: _____ Purchase location: _____

Hydro account #: _____

In consideration of receiving a rebate in this Smart Wash Pilot Rebate Program, I release the Corporation of the City of Guelph, and its agents, officials and employees ("the City") as well as Guelph Hydro Electric Systems Inc. and its agents, directors and employees ("Guelph Hydro") from all claims and actions, however caused, arising from my participation in this Program. I acknowledge that the City and Guelph Hydro are not responsible for the selection, operation or installation of any washing machine replacement under this Program. I agree to allow the City and Guelph Hydro access to utility billing account information for the sole purpose of monitoring water and energy consumption. The City reserves the right to alter or cancel this Program at any time.

I have read, understand and agree to the terms and conditions of the Smart Wash Front-Loading Washing Machine Rebate Program

Signature

Date

Complete this application form and mail it, along with a copy of your sales receipt and record of disposal for your old washing machine to:

Smart Wash Pilot Rebate Program
City Hall, 59 Carden Street, Guelph ON N1H 3A1

For more information

Call: 519-822-1260 ext. 2633

E-mail: smartwash@guelph.ca

Visit: guelph.ca/smartwash





7.6. Appendix F: City Water Treatment Media Advisory

(Please see the following page.)

ATTENTION **News Editors, Photo Editors**

Guelph Hydro invests \$100,000 towards locally produced power at the City's wastewater treatment plant

GUELPH, ON, November 28, 2008 – Art Stokman, President of Guelph Hydro Electric Systems Inc. will present the City of Guelph with a cheque for \$100,000 on Tuesday afternoon.

The funding is in support of the recently completed upgrades to the cogeneration facility at the Wastewater Treatment Plant (WWTP). Guelph Hydro's contribution was funded by the Ontario Energy Board's energy conservation initiative.

The cogeneration facility consists of two cogeneration engines and generators that use the methane gas collected as part of the wastewater treatment process to produce electricity to power the WWTP. Upgrades to the cogeneration facility will supply the WWTP with one third of the power it requires to operate.

WHAT Tour of the Wastewater Treatment Plant's cogeneration facility
Cheque presentation by Guelph Hydro

Note: If you plan to participate in the tour, please wear appropriate safety footwear. All other personal protective equipment will be provided.

WHO Mayor Karen Farbridge
Art Stokman

Subject matter experts:
Cameron Walsh, Manager, Wastewater Services
Kiran Suresh, Project Manager, Wastewater Services

WHERE Wastewater Treatment Plant
530 Wellington St, Guelph

WHEN Tuesday, December 2
2 p.m.

- 30 -

FOR MORE INFORMATION

Kiran Suresh
Project Manager
Wastewater Services
Environmental Services
T 519-822-1260 x 2960
E kiran.suresh@guelph.ca

Matt Weninger
Director of Metering and Communications
Guelph Hydro Electric Systems Inc.
T 519-837-4720
E mweninger@guelphhydro.com





7.7. Appendix G: City Water Treatment TRC

Interest Rate	7.28%										
Peak Reduction kW	500	1	2	3	4	5	6	7	8	9	10
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital Construction Upgrade	900,000.00										
Engineering cost	250,000.00										
Media Replacement		\$2,911	\$2,969	\$3,029	\$3,089	\$3,151	\$3,214	\$3,278	\$3,344	\$3,411	\$3,479
Electricity		\$9,671	\$9,961	\$10,260	\$10,568	\$10,885	\$11,211	\$11,548	\$11,894	\$12,251	\$12,618
Annual Cogen O&M		\$80,400	\$82,008	\$83,648	\$85,321	\$87,028	\$88,768	\$90,543	\$92,354	\$94,201	\$96,085
TOTAL ANNUAL COST	\$1,150,000	\$93,000	\$94,900	\$96,900	\$99,000	\$101,100	\$103,200	\$105,400	\$107,600	\$109,900	\$112,200
Annual Inflation Rate	2%										
General	3%										
Electricity	20										
Period	years										
Total	1,150,000	92,982	94,938	96,937	98,978	101,063	103,193	105,369	107,592	109,863	112,183
Avoided Generation Capacity cost \$/kW/year	-	145	147	149	150	152	154	156	158	160	162
Avoided Generation Capacity cost for 500kW	-	72,421	73,348	74,277	75,206	76,135	77,125	78,116	79,109	80,103	81,164
Estimated Savings in Heat Recovered		120,600	123,012	125,472	127,982	130,541	133,152	135,815	138,531	141,302	144,128
Total Savings		193,021	196,360	199,749	203,188	206,677	210,277	213,932	217,641	221,405	225,292
Capital Construction Upgrade		11	12	13	14	15	16	17	18	19	20
Engineering cost		2,018	2,019	2,020	2,021	2,022	2,023	2,024	2,025	2,026	2,027
Media Replacement		3,548	3,619	3,692	3,766	3,841	3,918	3,996	4,076	4,158	4,241
Electricity		12,997	13,387	13,789	14,202	14,628	15,067	15,519	15,985	16,464	16,958
Annual Cogen O&M		98,007	99,967	101,967	104,006	106,086	108,208	110,372	112,579	114,831	117,128
TOTAL ANNUAL COST		114,600	117,000	119,400	122,000	124,600	127,200	129,900	132,600	135,500	138,300
Annual Inflation Rate	2%										
General	3%										
Electricity	20										
Period	years										
Total		114,553	116,974	119,447	121,974	124,555	127,193	129,887	132,640	135,453	138,327
Avoided Generation Capacity cost \$/kW/year		164	167	169	171	173	175	178	180	182	185
Avoided Generation Capacity cost for 500kW		82,219	83,288	84,371	85,468	86,579	87,704	88,844	89,999	91,169	92,355
Estimated Savings in Heat Recovered		147,011	149,951	152,950	156,009	159,129	162,312	165,558	168,869	172,246	175,691
Total Savings		229,230	233,239	237,321	241,477	245,708	250,016	254,402	258,868	263,416	268,046

	TRC 0 % free riders		
	Cost	Benefit	B/C ratio
NPV 10 years	\$1,725,291	\$1,433,161	0.83
NPV 15 years	\$1,949,134	\$1,910,450	0.98
NPV 20 year	\$2,124,057	\$2,276,828	1.07

Estimated Electricity Production	
Average Energy Production	500 kW
Annual electricity production	4,020,000 kWh

Estimated Heat Recovery Factor	3000	btu/kWh
Estimated Annual Heat Recovered	12060	MMBTU
Estimated Annual Saving in Heat Recovered	\$ 120,600	
Estimated Cost of Gas in 2008	10	\$/MMBTU



7.8. Appendix H: School Board Load Control Photos and Media Release

(Please see the following pages for photos of the Building Automation System at Rickson Ridge Public School and the Cheque Presentation Ceremony as well as the media release.)

Building Automation System at Rickson Ridge Public School



Cheque Presentation Ceremony





Guelph Hydro Powers Our Community By Supporting New Automation Systems in Two Local Schools

November 10, 2008 - Guelph Hydro Electric Systems Inc. (Guelph Hydro) will present the Upper Grand District School Board (UGDSB) tomorrow with a \$60,515 cheque to support the installation of a building automation system at Ken Danby and Rickson Ridge Public Schools.

"This is a great example of partnership benefiting our community," commented Guelph Hydro president Art Stokman. "These new systems will save the board thousands in annual operating costs and help Guelph Hydro manage peak loads during high demand periods."

The funds from Guelph Hydro will be put toward the two projects which were a combined investment of \$173,000 for the UGDSB. The Building Automation Systems (BAS) will control the heating and cooling systems and will greatly increase the efficiency of both systems. The two schools will be monitored remotely from the UGDSB offices and can be adjusted over the internet. The installation included a wide range of technologies including sensors, automatic controls and an intelligent monitoring system constantly checking the temperature of the school. These systems will reduce maintenance costs by cutting down the number of visits that board facilities staff will need to make to the school during the year.

"We greatly appreciate the support of Guelph Hydro on this project," commented Bob Borden, UGDSB Board Chair. "This installation will benefit the students and staff of both schools, while helping UGDSB lower our overall operating costs."

A formal cheque presentation will take place on Tuesday November 11 at 3:45 pm at Ken Danby PS (525 Grange Road). Media are invited to the school to watch the cheque presentation and see a demonstration of the new automation system. Guests are asked to report to the office.

For more information

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UGDSB Maggie McFadzen, Communications Officer
519.822.4420 x725 maggie.mcfadzen@ugdsb.on.ca

Guelph Hydro Electric Systems Inc
519.822.3017 www.guelphhydro.com
395 Southgate Drive, Guelph, ON, N1G 4Y1

7.9. Appendix I: School Board Load Control TRC

GHESI - 2008 School Board Load Control - Upper Grand District School Board Load Control Installations

Interest Rate		7.28%					
Annual kWh Savings		148,112					
		2007	2008	2009	2010	2011	2012
Equipment Costs			173,000	-	-	-	-
Total Equipment Costs		-	173,000	-	-	-	-
Electricity Saving			12,365	12,613	12,865	13,122	13,385
Natural Gas Saving (assume 100% of electricity saving)			\$12,365	\$12,613	\$12,865	\$13,122	\$13,385
Total Benefit		-	24,731	25,225	25,730	26,244	26,769
			2013	2014	2015	2016	2017
Equipment Costs			-	-	-	-	-
Total Equipment Costs			-	-	-	-	-
Electricity Saving			13,652	13,925	14,204	14,488	14,778
Natural Gas Saving (assume 100% of electricity saving)			13,652	13,925	14,204	14,488	14,778
Total Benefit			27,304	27,851	28,408	28,976	29,555

Free Ridership Rate	0.30		
	Cost (30% FR)	Benefit (30% FR)	B/C ratio
NPV 10 years (assume gas saving = 100% Electricity savings)	112,882.18	129,936.85	1.15