



# CHEC-RP-2004-0203/EB-2004-0502

# **Conservation and Demand Annual Report**

### **1.0 Introduction:**

This report summarizes the activity and successes of the Cornerstone Hydro Electric Concepts (CHEC) Group with respect to conservation and demand management undertaken in 2005. Included in this document are the sixteen (16) individual reports from the CHEC members that discuss their specific program activities and the associated insights of the members.

Consistent with CHEC members' cooperative effort to seek approval of their CDM plans as a combined group, the Annual Report reflects their commitment to work together to provide cost effective programs and to share and learn from each other's experience. Although this report is submitted as one document it is clear from the individual reports that each utility brings its own perspective and goals to the CDM activities.

Within the 16 utilities there have been a total of ninety-two (92) initiatives. These initiatives represent projects specific to individual utilities and others that are similar or a cooperative effort between utilities (Conservation Website, EnergyShop.com). Some utilities have focused on promoting and providing energy efficient technology to their customers with the associated kWh savings, while others have been more focused on laying the foundation for future programs. To achieve the "conservation culture", the overriding goal in Ontario, both types play an important role.

CHEC with its dynamic relationship, positions members well to learn from and leverage the experience of others. The combined report as well as meeting the regulatory requirement, provides a comprehensive summary to CHEC members. This report will help to provide additional insights, as utility staff plan and implement the 2006 and 2007 programs.

The experiences gained in 2005 will be invaluable for the continued development of CDM and the ability to move forward programs that save energy and develop the conservation culture. The experiences gained over 2005 add to the collective knowledge of the industry and sets the stage for on-going improvement in the development, delivery, monitoring and reporting of CDM initiatives.

#### 2.0 CHEC Members:

The 2005 Annual Report on Conservation and Demand Management Activities of the following utilities are included in this report:

Centre Wellington Hydro Ltd.	Collus Power Corp
Grand Valley Energy Inc.	Innisfil Hydro
Lakefront Utilities Inc.	Lakeland Power Distribution
Midland Power Utility Corp.	Orangeville Hydro Ltd
Orillia Power Distribution Corp.	Parry Sound Power
Rideau St. Lawrence	Wasaga Distribution Inc.
Wellington North Power Inc.	West Coast Huron Energy Inc.
Westario Power	Woodstock Hydro Services

#### **3.0 Evaluation of the CDM Plan:**

**Total Portfolio:** The 16 CHEC members collectively ran a total of 92 programs. These programs fell within three categories:

- Savings: Delivery of energy saving products or processes: coupons, rebates, free products, etc.
- Education: Providing general energy management information through such activities as: website development, workshops, brochures, etc,
- Foundation: Preparatory work for future programs that include: program research and development, energy audits, system studies, demonstration projects, partnerships, etc.

The program results represent a total energy savings of 29,760,749 kWh at a combined "Utility Cost" of \$908,387 or approximately 3c/kWh. This low cost of energy saved was achieved while providing both education and foundation building programs in addition to the specific initiatives aimed at savings kWh. To put the energy savings in perspective the 29.7 Million kWh represent the annual energy required by 2,400 homes (at 1000 kWh/month).

Figure 1 and Figure 2 illustrates the breakdown of the programs into the three types. From the figure it can be seen that cost and activity generally correlate. Programs aimed at immediate kWh savings represent 36% of the cost while they represent 27% of the programs delivered during the year. Education and Foundation programs, that are expected to return improved kWh savings in the future, represent 64% of the cost and 73% of the activity. From the spending and activity level in the different categories it can be seen that 2005 while providing energy savings has focused on preparing for year two and three of CDM delivery.







**Savings Programs:** The programs aimed at immediate results focused on energy savings rather than peak demand. The average cost of energy saved through the "Energy Savings" programs was 1.1c/kWh.

The use of product incentives and give-a-ways contributed significantly to achieving immediate energy savings. Programs such as the "Lighten Your Electricity Bill" and local product incentives such as CFL distribution programs resulted in energy savings throughout the membership. The wide scale programs provided an economy of scale while the local programs built on relationships and resources within the community. The product focused programs represented a utility cost of \$163,400 and a lifetime energy savings of 15,692,800 kWh or 1.1c/kWh.

Four system optimization projects (out of a total of twelve) involved field changes completed in 2005 that captured energy savings. The four field projects represent a utility cost of \$163,300 and a lifetime energy savings of 12,793,000 kWh or 1.3c/kWh (note: one program pending review to confirm savings).

**Education Programs:** These programs while not generating any immediate savings represent the future of CDM within the Province. Incentive programs while providing immediate savings cannot on their own change behaviour within the customer group. Programs aimed at increasing the customer's knowledge of energy use is required if long term savings are desired. As the saying goes – If you give a person a CFL you provide energy savings for 4 years. If you provide a person with the knowledge to save energy you provide energy savings for a lifetime. This is the role of the education programs.

Twenty percent of the total utility cost was spent on providing education to the customers. The activities within this classification vary from providing brochures to detailed customer workshops. Although the results of these programs are not immediate it is believed that they will impact positively on customer participation in future programs and prepare customers to make informed decisions with regards to energy use.

CHEC is in the process of developing a website focused on energy conservation. The website in addition to providing energy management knowledge to the customers will also allow the effective exchange of CDM information between CHEC members. The website funding includes dollars to allow the CHEC membership to engage external resources to assist in developing the site and also assist members with CDM issues of common interest.

It is interesting to note in the "Education" section the experience of one CHEC member (Orillia) with success from an industrial workshop. As a direct result of a "Dollar to Sense" workshop changes were made in an industrial setting that resulted in quantifiable savings. These results were captured because the customer communicated the action and potential energy savings to the utility. The savings of 255,000 kWh annually, clearly illustrates the role "education" can play in obtaining significant energy savings.

**Foundation Program:** These programs are those initiatives aimed at developing programs that will provide savings in the future. Thirty nine percent of the programs (44% of utility cost) focused on research and development of programs that will be delivered in year two and three of the CDM Plan. At the end of the reporting period however the programs have not been rolled out or have not generated any savings to date. For the purpose of reporting, projected savings have generally not been utilized.

Foundation Programs include initiatives such as: system optimization studies, smart meter preparation, customer audits, demonstration projects and relationship building, to name a few. Unlike education, where the activity is geared to the customer, these programs are aimed at ensuring the appropriate information and processes for the CDM activity of future years. Approaching the end of the first quarter of 2006 it is apparent that there are a number of programs that are moving forward as a direct result of the foundation work completed in 2005 (e.g. Woodstock finance plan, Orangeville Reduce the Juice)

**Net TRC Results:** The net TRC result of the combined CHEC CDM activity for 2005 is \$499,756. Although a large number, it is difficult to determine if this represents good success of the overall portfolio. While net TRC measures the dollar benefits of avoided electrical energy cost it does not measure the education and development work that is associated with an on-going CDM program.

Reviewing the individual reports of the CHEC members indicates that ten of the members had positive Net TRCs while six had negative Net TRCs. In isolation one may conclude that anything but a positive TRC is undesirable. However it is proposed that the TRC for the first year of a multi-year program does not reflect the overall value of the effort undertaken and that the overall activity of the utility should be taken into account.

As noted above there has been a significant amount of education and foundation work undertaken by CHEC members. The individual reports indicate a mix of approaches with some focusing on preparatory work, others on immediate deliverables and others on a mix of programs. Depending on the success of programs aimed at delivering immediate savings and the cost of education and foundation programs the Net TRC will vary. **Through the sharing of program information and outcomes CHEC members will be able to learn from each others' experiences to continue to deliver effective CDM programs in the future.** 

# 4.0 Discussion of Programs:

The individual program discussions from each utility should be examined. These discussions provide the individual utility perspective on the programs as offered in their service territory. The complete Annual CDM Report for each utility is included in the appendices. One copy of the SeeLine Total Resource Cost Test Assessment of the '2005 Lighten Your Electricity Bill' Program is also included in the appendices as a sample of the program evaluation process for the coupon program as reported in CHEC members' reports.

### 5.0 Lessons Learned:

Each utility report included in the attached appendices includes lessons learned from the 2005 CDM experience for each utility. Although a flavour of the "lessons learned" is summarized in this section the reader is encouraged to review the individual reports for additional insights.

**Application of TRC:** This report represents the first large scale application of TRC for the evaluation of CD&M programs in Ontario. The TRC model, while forming a base, is seen to encourage "quick return" programs and does not provide any measure of foundation or education programs that are so critical to developing a "conservation culture". It is believed that for future year evaluation of CDM activities the TRC tool needs to be expanded to take into account education and foundation type programs.

Familiarity has been gained with the TRC tool over the past reporting year. The OEB's initiative to provide a set of assumptions assisted with the evaluation of programs and reporting. The need to continue to refine and add to the list of assumptions for cost effective evaluation is evident. The evaluation process for programs also fails to capture additional activities of customers that are driven through exposure to programs where consumers are not directly taking advantage of a particular coupon or rebate.

Experience gained in reporting the activities of 2005 also indicates the need to ensure that measures of programs are understood at the program design stage. For education programs, in addition to some modification of the TRC model to better recognize the benefits of these programs, mechanisms for obtaining feedback from customers is required. These mechanisms however must be cost effective.

**Funding:** There remains significant third tranche dollars for the continued delivery of CDM programs in 2006 and potentially 2007. However, if CDM is to continue members will be required to submit applications for additional CDM expenditures. A simplified approval process is required to allow utilities to obtain appropriate CDM funding without being encumbered with a full rate hearing on these items. In addition, as noted above, the TRC tool requires modification to provide value to education and foundation programs. A continued lack of recognition of the value of these types of programs will focus utilities on programs that deliver immediate positive TRC result, a condition that will not foster a "conservation culture".

**Partnerships and Sharing:** CHEC by its' very existence is about partnerships and sharing. CHEC members are working together to move forward CDM in their service territories. In addition CHEC members have been active participants in local and provincial wide initiatives to build relationships and take advantage of scale. It is believed through these types of endeavours, the "best bang for the buck" can be achieved for the customer.

Province wide initiatives are generally supported by CHEC members as a good way to enter into partnerships with the OPA, manufacturers, contractors, and retail outlets in order to deliver cost effective programming. Within these programs the ability to provide local support and branding is important to allow the existing positive relationship that the local utility enjoys with its customers to be leveraged.

**Foundation Year:** Many of the CHEC members note in their report the "foundation building" nature of 2005. The ability of the industry to come up to speed is noted as well as the development of programs and guidelines associated with CDM. All CDM participants have been learning over 2005.

Much of the work completed in 2005 sets the stage for the next two years. With a mix of delivered savings, education and investigation of programs CHEC and the industry have prepared for continued CDM over the next two years and beyond.

**Customer Readiness:** The success of the residential programs offered to customers indicates the readiness of customers to take action to control their energy use and costs. Obtaining resources for utilities to design and deliver commercial and industrial programs requires further attention. The energy savings within these sectors can be extensive, however the lead time for design, delivery and customer implementation is much longer. Members recognize that much of the issue with this sector is the limited resources (time and money) the customers have to put on energy management. Successfully meeting the needs of this sector will require further effort and sharing of projects that have proved successful.

**Utility Resources:** To-date utilities have not generally increased internal resources to address the CDM portfolio. Utilities have worked the additional CDM demands into existing work loads by placing other issues at a lower priority. Continuation of this arrangement is not sustainable over the long term. Recognition of the impact that continued CDM programming has on resources is required in both the funding and reporting requirements. As noted above under "Funding" a simplified method for accessing CDM funding is required to ensure the appropriate resources are put in place to support the appropriate level of CDM activity.

### 6.0 Conclusion:

The first year of CDM has been a learning or foundation year. The CHEC members look back on their projects to date and recognize there has been significant learning. As the individual reports indicate there continues to be a commitment to CDM with utilities looking to capture future benefits from the work done in 2005.

CHEC members have delivered energy savings while increasing the collective knowledge of the CDM industry. CHEC members have demonstrated a willingness to be fully engaged in the process. Through the continued sharing of information and programs between members and other organizations, CHEC will continue to play an important role in the design, delivery and reporting of CDM for the benefit of their customers.

### 7.0 Appendices:

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	Individual Utility CDM 2005 Annual Report RP-2004-0203/EB-2004-0502		
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Appendix 18	SeeLine TRC Assessment for		
	2005 Lighten Your Electricity Bill	page	294

# **Appendix A - Evaluation of the CDM Plan**

	Total	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System		
Net TRC value (\$):	\$499,756								
Benefit to cost ratio:	1.582								
Number of participants or units delivered:	115,815.00		Summary	Summary of CHEC Appendices A					
Total KWh to be saved over the lifecycle of the plan (kWh):	29,760,746.70		Detailed A's follow for all CHEC Utilities						
Total in year kWh saved (kWh):	3,048,702.30		Utilities ar	Utilities arranged alphabetically					
Total peak demand saved (kW):	329.19								
Total kWh saved as a percentage of total kWh delivered (%):									
Peak kW saved as a percentage of LDC peak kW load (%):									
Gross in year C&DM expenditures (\$):	\$908,385.27								
Expenditures per KWh saved (\$/kWh)*:	\$0.0305								
Expenditures per KW saved (\$/kW)**:	\$2,759.4849								



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Wednesday, March 15, 2006

Mr. John Zych Ontario Energy Board PO Box 2319 2300 Yonge Street, 26<sup>th</sup> Floor Toronto, Ontario M4P 1E4 Telephone (416) 481-1967

# Re: Board File No.: RP-2004-0203\ED 2002-0518 – Conservation and Demand Management Report

In November of 2004, COLLUS Power Corp, along with other LDC members of the Cornerstone Hydro Electric Concepts Association Inc. (CHEC) filed an application for a Final Order pre-approving its individual Conservation and Demand Management (CDM) Plan. The Board granted final plan approval on February 8, 2005. COLLUS is pleased to provide this summary of CDM activities and observations for the period covering 2004/2005.

COLLUS Power Corp. has been an active supporter of Conservation and Demand Side Management for many years, and we are pleased to report that our customers are well on the way of adopting the "Culture of Conservation". Since the early 90's, we were actively involved in the delivery of conservation initiatives to our customers. These initiatives included, Energy Efficiency Seminars, Home Energy Audits, education on Energy Efficiency and Electrical Safety in schools, and general support to the local vendors of energy efficiency products and services. Many of these activities were carried out jointly with other organizations such as the "Green Communities Initiative" which promoted the conservation message for electricity, gas and water. Through our efforts and our partnerships with the Green Communities Initiative, the Environment Network, and our activities in the Local Integrated Resource Plan (LIRP), we have been laying the foundation within our community for establishing the vision of a province that embraces conservation as part of its culture.

Throughout the mid 90's until Market Opening in May, 2002 our customers were well educated on the benefits of load shifting and demand response through our "Hot Water Dollars" program. A central control system was installed to manage the diversity of Electric Water Heaters, and at one point we had almost 80% of the electric water heater load connected to our program. This will become an effective tool for our customers as we move forward implementing the "Smart Meter Initiative". Many customers will be looking for ways to take advantage of the Time-of-Use rates. The Demand Response tools we have in place will allow us to once again offer the control they need, and provide the platform to build on the educational component which will be critical to a successful implementation of Smart Metering.

2005 was a year for re-building our alliances and for renewing customer focus on Conservation. Education itself will not bring reportable results in the form of Kwh's, but our goal is to work with our local customers so that they will eagerly participate in Province wide initiatives and local programs tailored to our customers needs.

A key deliverable planned for 2006 is to provide some Solar Energy PV and Water Heating display units in the communities we serve. These display units will help consumers understand the essential components involved in installing their own "distributed generators" and will be a good educational tool for anyone wishing to take advantage of the "Net Metering" option designed by the ministry.

LDC's across the Province have joined together in unprecedented numbers to gain economics of scale and share our diverse expertise in the area of Conservation. There is no other group of companies that have collectively achieved more in promoting Conservation over the past year than the LDC's. As the delivery agents of the Conservation message, we look forward to the establishment of funding models that will allow LDC's to continue to deliver on the Conservation goals set out by the Government. Annual filings tied with rate applications may serve well from a regulatory perspective, but lack the timeliness of responding to our ever changing environment. Our industry needs to develop methods by which conservation opportunities can receive funding in a timely manner as they arise thereby providing a better chance for sustainable activities. We should also strive to recognize that internal resources of LDC's that are being utilized for Conservation carry value, and should be funded accordingly.

We look forward to a brighter future for the Province and remain dedicated to working with the Province, the OPA, the OEB, the LDC's, and private companies in the pursuit of sustainable Conservation initiatives that help support our customers.

Should you or your staff have any questions related to our comments, please contact Darius Vaiciunas from our office and he would be pleased to clarify any concerns.

Darius Vaiciunas, Load Management & Regulatory Coordinator (705) 445-1800 ext 2227 <u>dvaiciunas@collus.com</u>

Respectfully submitted, COLLUS Power Corp.

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# Appendix A - Evaluation of the CDM Plan

	Total	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	Web Page	Demand Response	Education & Promotion	Smart Metering
Net TRC value (\$):	-\$19,871	\$41,912	\$27,131		-\$2,220		-\$54,576	-\$9,226	-\$9,238	-\$12,019	-\$1,636
Benefit to cost ratio:	0.8	\$5.87	\$9.58		N/A		N/A	N/A	N/A	N/A	N/A
Number of participants or units delivered:	1,910	1,204	706		N/A		N/A	N/A	N/A	N/A	N/A
Total KWh to be saved over the lifecycle of the plan (kWh):	1,890,463.68	1,085,237.20	805,226.48		N/A		N/A	N/A	N/A	N/A	N/A
Total in year kWh saved (kWh):	158,967.42	118,706.10	40,261.32		N/A		N/A	N/A	N/A	N/A	N/A
Total peak demand saved (kW):	31.67	27.08	4.59		N/A		N/A	N/A	N/A	N/A	N/A
Total kWh saved as a percentage of total kWh delivered (%):	0.042%	0.032%	0.011%		N/A		N/A	N/A	N/A	N/A	N/A
Peak kW saved as a percentage of LDC peak kW load (%):	0.052%	0.044%	0.008%		N/A		N/A	N/A	N/A	N/A	N/A
Gross in year C&DM expenditures (\$):	\$124,542	\$6,230	\$29,398		\$2,220		\$54,576	\$9,226	\$9,238	\$12,019	\$1,636
Expenditures per KWh saved (\$/kWh)*:	\$0.0659	\$0.0057	\$0.0365		N/A		N/A	N/A	N/A	N/A	N/A
Expenditures per KW saved (\$/kW)**:	\$3,932.5017	\$230.0591	\$6,401.7115		N/A		N/A	N/A	N/A	N/A	N/A

Utility discount rate (%):

e (%): 8.56%

\*Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate energy savings. \*\*Expenditures include all utility program costs (direct and indirect) for all programs which primarily generate capacity savings. Annual Energy 375,021,935 Peak Demand 61,058

# (complete this section for each program)

#### Name of the Program: Α.

"Lighten Your Electricity Bill" (Residential)

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

COLLUS Power participated with 31 other LDC's in a coupon campaign with Canadian Tire. Energyshop.com was engaged to design, deliver and track the program. Customers were provided with a bill insert containing energy-savings coupons. Customers had until December 31, 2005 to redeem their point of purchase coupons at any local Canadian Tire outlet. Canadian Tire sent the coupon to a redemption house, who then sorted by utility and product. This program helped increase public awareness of energy conservation and demand management, as well as contribute to the overall development of an energy conservation culture in Ontario. The program results showed a significant increase in total sales of the targetted products accross the province.

	Measure(s):						
		Measure 1	Measu	re 2 (if applicable)	Measure 3 (if applicable)		
	Base case technology:	See Attached report from Seeline	e Group for	additional details.			
	Efficient technology:						
	Number of participants or units deliv	ered:					
	Measure life (years):						
В.	TRC Results:						
	TRC Benefits (\$):		\$	50,513.00			
	TRC Costs (\$):						
	L	<i>Jtility program cost (less incentives):</i>	\$	2,730.00			
		Participant cost:	\$	5,871.00			
		Total TRC costs:	\$	8,601.00			
	Net TRC (in year CDN \$):		\$	41,912.00			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):	\$	5.87			
C.	Results: (one or more category may	/ арріу)					
	Conservation Programs:						
	Demand savings (kW):	Summer	6.26				
		Winter	27.08				
		lifecycle		in year			
	Energy saved (kWh):	1,085,237.20		118,706.10			
	Other resources saved :						
	Natural Gas (m3):						
	Other (specify):						
	Domand Management Brograms						
	Controlled load (kW)						
	Energy shifted On-peak to Mid-peak	· (kM/b)·					
	Energy shifted On-peak to Off-peak						
	Energy shifted Mid-peak to Off-peak	(k(h))					
	Energy shinted Mid-peak to On-peak						
	Demand Response Programs:	Demand Response Programs:					
	Dispatchable load (kW):						
	Peak hours dispatched in year (hour						
	Power Factor Correction Program	<u>s:</u>					
	Amount of KVar installed (KVar):						
	Distribution system power factor at b	begining of year (%):					
	Distribution system power factor at e	end of year (%):					

	Peak load savings (kW):		
	Energy savngs (kWh):	lifecycle	in year
	Distributed Generation and Load	Displacement Programs:	
	Amount of DG installed (kW): Energy generated (kWh):		
	Energy generated (kWh):		
	Peak energy generated (kWh):		
	Fuel type:		
	Other Programs (specify):		
	Metric (specify):		
	Metric (Specify).		
D.	Program Costs*:		
	Utility direct costs (\$):	Incremental capital:	
		Incremental O&M:	\$ 2,730.00
		Incentive:	\$ 3,500.00
		Total:	\$ 6,230.00
	Utility indirect costs (\$):	Incremental capital:	
		Incremental O&M:	
		Total:	
	Participant costs (\$):	Incremental equipment:	
		Incremental O&M:	\$5,871.00
		Total:	\$5,871.00

#### E. Comments:

The success of the program was directly related to the cooperative efforts of the 32 participating LDC's, Canadian Tire, EnergyShop.com, and the SeeLine Group. Many of our customers had thrown away their original coupons and contacted us asking for a replacement after hearing the advertisements on the radio, along with seeing additional information when visiting the Canadian Tire store. The lesson learned here, is for us to ensure we prepare additional advertising well in advance of running such a program to ensure customers are looking for their coupons when they open their monthly invoices.

After talking to other LDC's that had even higher results, we found that the primary reason for that was tied to incremental activities promoting the program. Therefore, we anticipate providing additional local resources to bolster the success of the next province wide collaborative program.

# (complete this section for each program)

#### A. Name of the Program:

Decorative Lighting Efficiency (Commercial)

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

We worked with our three municipalities to exchange some seasonal and year-round incandescent lighting to LED lighting. The program provided the municipalities with a 2 for 1 exchange, allowing them to increase their lighting at the same time as reducing consumption. Some of the lights are seasonal while others are deployed year-round decorating the main streets to entice tourism. We worked with various retail outlets to purchase the required lights. A local Merchant sold some of the lights to us at a reduced (volume) price with hopes that customers seeing their product on the street would then seek them out. The majority of the lights were purchased from a wholesaler as we wanted commercial grade lighting that would stand up to extended (non-seasonal) use.

	Measure(s):					
		Measure 1	Measure 2 (if app	olicable)	Measure 3 (if applicable	e)
	Base case technology:	Incandescent Decorative Lights	7 watt Seasonal Ligh	ts	5 Watt Street Decorations	
	Efficient technology:	LED Decorative Lights	LED Wave Technolo	qv	LED Replacement	
	Number of participants or units delive	485 Strings of LED Lights	67 Strings of Lights		154 Strings of Lights	
	Measure life (years):	20		20		20
В.	TRC Results:					
	TRC Benefits (\$):		\$	30,294.35		
	TRC Costs (\$):					
	U	tility program cost (less incentives):	\$	3,162.90		
		Participant cost:	\$	-		
		Total TRC costs:	\$	3.162.90		
	Net TRC (in year CDN \$):		\$	27,131.45		
			<b>^</b>	0.50		
	Benefit to Cost Ratio (TRC Benefits/	IRC Costs):	\$	9.58		
C.	Results: (one or more category may	apply)				
	Conservation Programs:					
	Demand savings (kW):	Summer				
		Winter	4.59			
		lifecycle	in year			
	Energy saved (kWh):	805,226.48		40,261.32		
	Other resources saved :					
	Natural Gas (m3):					
	Other (specify):					
	Demand Management Programs:					
	Controlled load (kW)					
	Energy shifted On-neak to Mid-neak	$(k \Lambda/h)$ :				
	Energy shifted On peak to Off peak					
	Energy shifted Mid peak to Off peak	KVVII). ///////////////////////////////////				
	Energy shined Mid-peak to On-peak	(KVVII):				
	Demand Response Programs:					
	Dispatchable load (kW):					
	Peak hours dispatched in year (hour	s <i>):</i>				
	Power Foster Correction Dramon					
	Amount of Kilor installed (Kilor)	<u>5.</u>				
	Amount of Kvar Installed (Kvar):	opining of yoor (0/)				
	Distribution system power factor at b	egining of year (%):				
	Distribution system power factor at e	nd of year (%):				

	Peak load savings (kW):				
		lifecycle	i	n year	
	Energy savngs (kWh):				
	Distributed Generation and Load I				
	Amount of DG installed (kW):				
	Energy generated (kWh):				
	Peak energy generated (kWh):				
	Fuel type:				
	Other Programs (specify):				
	Metric (specify):				
	Wethe (Speeny).				
D.	Program Costs*:				
	Utility direct costs (\$):	Incremental capital:			
		Incremental O&M:	\$	29,397.95	
		Incentive:			
		Total:	\$	29,397.95	
	Utility indirect costs (\$):	Incremental capital:			
		Incremental O&M:			
		Total:			
	Participant costs (\$):	Incremental equipment:			
		Incremental O&M:			
		Total:			
		i otai.			

#### E. Comments:

The LED Light exchange program offered the Municipalities a free exchange on a 2 for 1 basis (2 LED strings of lights for 1 incandescent string). The program had multiple goals. 1. Reduce energy consumption of the decorative lighting. 2. Assist the Municipalities in setting the example for the rest of the public. 3. Provide a wide distribution of LED lights giving the public a realistic demonstration of the effects and beauty of the lights, and 4. Provide the message that conservation does not mean doing without. The 2 for 1 option allowed the Municipalities to put up twice as many lights as in previous years, while reducing their energy use by significant amounts. We were surprised at how difficult it was to gain buy-in from those responsible for the lighting. Even though most of the LED lights were high end commercial grade products (and therefore more expensive technologies), there was a lot of trepidation over the colour rendition of the LED technologies. We anticipate this objection will pass over time as people as the lights become something they are used to seeing 365 days of the year.

### (complete this section for each program)

#### A. Name of the Program:

Power Factor Audit & Support (Industrial)

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

This program was put in place to assist our Industrial Customers with their overall energy portfolio, targetting Energy, Demand, Power Factor, and general conservation activities as related to electricity, water, and gas. To date, we have hosted a general breakfast meeting with the IESO and arranged for two different Auditors (both enrolled with NRCAN) to work with our two largest industries. The industrial processes are lengthy, so there have been no reportable results available as of the end of 2005. Preliminary expectations are very positive and we expect significant results in 2006.

	Measure(s):	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
	Base case technology:			
	Efficient technology:	arod:		
	Measure life (years):	ereu.		
B				
υ.	TRC Benefits (\$):		-\$ 2,219,95	
	TRC Costs (\$):		-,	
	U	tility program cost (less incentives):		
		Participant cost:		
		Total TRC costs:		
	Net TRC (in year CDN \$):			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
		Winter		
		lifecycle	in year	
	Energy saved (kWh):			
	Other resources saved :			
	Natural Gas (m3):			
	Ourer (specify).			
	Controlled load (kW)			
	Energy shifted On-peak to Mid-peak	(kWh) <sup>.</sup>		
	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	5):		
	Power Factor Correction Programs	<u>s:</u>		
	Amount of KVar installed (KVar):			
	Distribution system power factor at b	egining of year (%):		
	Distribution system power factor at e			

Peak load	d savings (kW):			
	· · · · · · · · · · · · · · · · · · ·	lifecycle		in year
Energy sa	avngs (kWh):			
Distribut	ed Generation and Load	d Displacement Programs:		
Amount c	of DG installed (kW):			
Energy ge	enerated (kWh):			
Peak ene	ergy generated (kWh):			
Fuel type	: :			
Other Pro	ograms (specify):			
Metric (sp	pecify):			
D Brogrom	Conto*:			
D. <u>Flogram</u>	$\frac{\text{COSIS}}{\text{COSIS}}$	Incremental canital:		
Ounty une	$\varphi$	Incremental O&M	\$	2 219 95
		Incentive:	Ψ	2,210.00
		Total:	\$	2.219.95
				,
Utility ind	irect costs (\$):	Incremental capital:		
		Incremental O&M:		
		Total:		
Participar	nt costs (\$):	Incremental equipment:		
		Incremental O&M:		
		Total:		

#### E. Comments:

COLLUS Power has been working with our customers for many years helping them with their Power Factor and overall electricity use. As such, most of the "low hanging fruit" was picked a long time ago, generally leaving only high cost projects with long paybacks. Our focus now will be on working with our customers to make conservation part of their daily production planning process. This concept has been adopted by one of our key industries, and the preliminary results seem very promising. Prior to Market Opening, all of our Industrial Customers with loads over 100 KW were equipped with Interval meters. Most of the industries access the data from their meters on a regular basis through a WEB based product provided by Utilismart. As part of the installation, staff from COLUS Power would spend from 6 to 8 hours with the customers demonstrating how to use the WEB information. The staff interraction with the customer was not limited to electrical staff but involved their finance, production, upper management, and maintenance staff to ensure a well rounded understanding of their energy use.

### (complete this section for each program)

A. Name of the Program:

Conservation Web Site (All Classes)

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

This particular program will provide the members of the CHEC group and their customers a common conservation WEB Page. The investment in this program will provide our collective customers with a one-stop location where they can find information and links to a wide variety of conservation initiatives, programs, and technologies. The program costs also cover the hiring an individual to help with developing and updating the web page and providing overall conservation activity support as we work through the steep learning curve of building and delivering conservation programs to our customers.

	Measure(s):			
		Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
	Base case technology:			
	Efficient technology:			
	Number of participants or units delive	ered:		
	Measure life (years):			
B				
υ.	TRC Benefits (\$):		_¢ 0.225.08	
	TPC Costs $(\psi)$ :		-φ 9,220.90	
	ΤΚΟ ΟΟSIS (φ).	tility program cost (less incentives):		
	0	Darticipant cost		
	Not TPC (in year CDN \$);	Total TRC costs:		
	Net TRC (III year CDN \$).			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
	<b>U</b> ( <b>1</b>	Winter		
		lifecvcle	in vear	
	Energy saved (kWh)		,	
	Other resources saved :			
	Natural Gas (m3):			
	Other (epocify):			
	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			
	Demand Response Programs:			
	Dispatchable load (kW):			
	Peak hours dispatched in year (hours	s):		
	Power Factor Correction Programs	s:		
	Amount of KVar installed (KVar)			
	Distribution system nower factor at h	egining of year (%):		
	Distribution system power factor at p	nd of year $(\%)$ :		
	Distribution system power lactor at e			

	Peak load savings (kW):				
	Energy savnas (kM/h):	litecycle	İ	n year	
<u> </u>	Distributed Generation and Load	Displacement Programs:			
	Energy generated (kWh).				
	Peak energy generated (kWh):				
	Fuel type:				
	Other Programs (specify):				
2	Metric (specify):				
D. <u>I</u>	Program Costs*:				
	Utility direct costs (\$):	Incremental capital:	•		
		Incremental O&M:	\$	9,225.98	
		Incentive:	¢	0.005.00	
		i otal:	Φ	9,225.98	
	Utility indirect costs (\$):	Incremental capital:			
		Incremental O&M:			
		Total:			
	Participant costs (\$):	Incremental equipment:			
		Incremental O&M:			
		Total:			

#### E. Comments:

The Web Page is still in development. The greatest benefit from this expenditure is the overall coordination of CDM activities for the collective 16 LDC's in the CHEC group. The individual hired to perform these duties has provided a common voice as a primary contact between the CHEC group and the various agencies such as the Ministry, the OPA, OEB, and the massive numbers of consultants and entities soliciting our members to purchase their services. The concept of a central contact for the CHEC group has allowed our members to continue with the rigorous requirements of their normal activities while at the same time provide our customers with some quality deliverables on the road to building a Conservation Culture in the Province.

### (complete this section for each program)

A. Name of the Program:

System Optimization (LDC System)

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

System Optimization is a program involving an in-depth modelling of the loads across the distribution system, in an attempt to discover imbalances and methods by which overall electricity losses can be reduced. Each Fuse, Wire, Transformer, and Distribution Substation has resistive loads that consume electricity in proportion to the loads passed through them. In 2005, we began phase one of the System Optimization process. Phase one involved the hiring of an experienced consultant to do field inspections and computer modelling of the system. Phase two will begin in 2006 and will involve incorporating the findings of the study where overall costs are justifiable.

	Measure(s):	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
	Base case technology:			
	Efficient technology:			
	Number of participants or units delive	ered:		
	Measure life (years):			
В.	TRC Results:			
	TRC Benefits (\$):		-\$ 54,575.60	
	TRC Costs (\$):			
	U	tility program cost (less incentives):		
		Participant cost:		
	Not TPC (in your CDN ());	Total TRC costs:		
	Net TRC (In year CDN \$):			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
		Winter		
		lifecycle	in year	
	Energy saved (kWh):			
	Other resources saved :			
	Natural Gas (m3):			
	Other (specify):			
	Demand Management Programs:			
	Controlled load (kW)			
	Energy shifted On-peak to Mid-peak	( <i>kWh</i> ):		
	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 (hour	s):		
	Power Factor Correction Programs	<u>s:</u>		
	Amount of KVar installed (KVar):			
	Distribution system power factor at b	egining of year (%):		
	Distribution system power factor at e	nd of year (%):		

	Peak load savings (kW):			
		lifecycle	in year	
	Energy savngs (kWh):			
	Distributed Generation and Load E Amount of DG installed (kW): Energy generated (kWh): Peak energy generated (kWh): Fuel type:	Displacement Programs:		
	Other Programs (specify): Metric (specify):			
D.	Program Costs*:			
	Utility direct costs (\$):	Incremental capital:		
		Incremental O&M:	\$ 54,575.60	
		Incentive:		
		Total:	\$ 54,575.60	
	Litility indirect costs (\$):	Incremental capital:		
	O(m) =	Incremental O8 M		
		Total:		
	Participant costs (\$):	Incremental equipment:		
		Incremental O&M:		
		Total:		

#### E. Comments:

The study has identified small opportunities for system enhancements. A total of less than one tenth of one percent potential demand and energy reduction. Although the identified potential is small, the study provides positive reinforcement for the ongoing efforts that COLLUS Power has invested in maintaining a reliable and well managed system. Each of the recommendations from the study will be reviewed carefully to ensure that there is a true cost benefit to the customers and that the activities will provide sustainable benefits in light of changing load patterns and growth in the system.

# (complete this section for each program)

#### A. Name of the Program:

Investigate / Implement Demand Response Programs

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

COLLUS Power began deploying a VHF Water Heater Load Control System starting in 1995 as part of an overall Conservation program targeted to provide capacity relief on the Transmission System feeding the area. The results were so impressive that we expanded the system to provide control services for four other LDC's. Deregulation and the associated rate mechanisms changed the landscape significantly, requiring the system to be shut down in May 2002. In total, the system had the installed ability to control over 5 Mw of load across the four LDC's. COLLUS has upgraded some Software and Central Control technology to ensure the system will be available for load shedding in concert with the intorduction of Smart Metering and TOU rates.

	Measure(s):	••		
		Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
	Base case technology:			
	Number of participants or units delive	ered:		
	Measure life (years):			
В.	TRC Results:			
	TRC Benefits (\$):		-\$ 9,237.74	
	TRC Costs (\$):		·	
	U	Itility program cost (less incentives):		
		Participant cost:		
	. <u></u>	Total TRC costs:		
	Net TRC (in year CDN \$):			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
		Winter		
		lifecycle	in year	
	Energy saved (kWh):			
	Other resources saved :			
	Natural Gas (m3):			
	Other (specify):			
	Demand Management Programs:			
	Controlled load (KW)	(1.1.4/b).		
	Energy shifted On-peak to Off peak	(KVVII). (kM/b):		
	Energy shifted Mid-peak to Off-peak	(KVVII). (KN/h):		
	Energy shinted who pour to on pour	(		
	Demand Response Programs:			
	Peak hours dispatched in year (hour	e).		
		<i>oj.</i>		
	Power Factor Correction Programs	<u>s:</u>		
	Amount of KVar installed (KVar):			
	Distribution system power factor at b	egining of year (%):		
	Distribution system power factor at e	nu ol year (%):		

	Peak load savings (kW):			
		lifecycle	in yea	r
	Energy savngs (kWh):			
	Distributed Generation and Load I	Displacement Programs:		
	Amount of DG installed (kW):	<u></u>		
	Energy generated (kWh):			
	Peak energy generated (kWh):			
	Fuel type:			
	Other Programs (specify):			
	Metric (specify):			
D.	Program Costs*:			
	Utility direct costs (\$):	Incremental capital:		
		Incremental O&M:	\$	9,237.74
		Incentive:		
		Total:	\$	9,237.74
	Utility indirect costs (\$):	Incremental capital:		
		Incremental O&M:		
		Total:		
	Participant costs (\$):	Incremental equipment:		
		Incremental O&M:		
		Total:		

#### E. Comments:

COLLUS staff have worked with a number of LDC's in 2005 investigating opportunities to re-start our control systems in a sustainable fashion. Synchronized load control tests by six different LDC's revealed minor issues with some of the systems that had been sitting idle for a few years. A positive result from these tests was the ability to identify the faulty components, and for staff to re-familiarize themselves with their operation. We are confident our Demand Response system is ready to respond if required for a Capacity, Transmission, or Distribution emergency while we await the implementation of Time of Use rates for our customers. At the present time, it appears that our best course of action is to re-activate our systems in sync with the installation of the Smart Meters, as our studies have shown the direct customer savings would likely off-set the anticipated incremental customer charge for smart metering. At the same time, the Load Control System will become a great tool in helping customer accept and understand the new metering tecnology.

### (complete this section for each program)

A. Name of the Program:

Education & Promotion

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

COLLUS Power is committed to helping build a Culture of Conservation. It is our true belief that to build the culture, we need to show consistency in message, and lay a strong foundation upon which we can build sustainable customer activity. As part of our customer awareness campaign, we have worked with our local Radio and Television stations to both develop and deliver the conservation message. Due to our direct ties to the Municipalities we service, and our long standing commitment to our communities, both the Radio and Television stations provided us with attractive pricing for our "Public Service Messages". This reinforces the fact that LDC's have a great opportunity to continue working locally and bring value to building a Conservation Culture.

	Measure(s):			
	Paga agan tanhadagur	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
	Efficient technology:			
	Number of participants or units delive	ered:		
	Measure life (years):			
В.	TRC Results:			
	TRC Benefits (\$):		-\$ 12,018.75	
	TRC Costs (\$):			
	L	Itility program cost (less incentives):		
		Participant cost:		
		Total TRC costs:		
	Net TRC (in year CDN \$):			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
		Winter		
		lifecycle	in year	
	Energy saved (kWh):			
	Other resources saved :			
	Natural Gas (m3):			
	Other (specify):			
	Demand Management Programs:			
	Controlled load (kW)			
	Energy shifted On-peak to Mid-peak	( <i>kWh</i> ):		
	Energy shifted On-peak to Off-peak	(KWh):		
	Energy shifted Mid-peak to Uff-peak	(KWh):		
	<b>Demand Response Programs:</b>			
	Dispatchable load (kW):			
	Peak hours dispatched in year (hour	s):		
	Power Factor Correction Program	<u>s:</u>		
	Amount of KVar installed (KVar):			
	Distribution system power factor at b	egining of year (%):		
	Distribution system power factor at e	end of year (%):		

	Peak load savings (kW):		
		lifecycle	in year
	Energy savngs (kWh):		
	Distributed Generation and Load I	Displacement Programs:	
	Amount of DG installed (kW):	- · • • • • • • • • • • • • • • • • • •	
	Energy generated (kWh):		
	Peak energy generated (kWh):		
	Fuel type:		
	Other Programs (specify):		
	Metric (specify):		
D.	Program Costs*:		
	Utility direct costs (\$):	Incremental capital:	
		Incremental O&M:	\$ 12,018.75
		Incentive:	
		Total:	\$ 12,018.75
	Utility indirect costs (\$):	Incremental capital:	
		Incremental O&M:	
		Total:	
		h	
	Participant costs (\$):	incremental equipment:	
		Incremental O&M:	
		l otal:	

#### E. Comments:

The ads we ran were consistent with the information currently available to customers on our Utility WEB site. We ran multiple ads both on Radio and on the Television. In running our campaign, we purposely chose two different approaches for the different mediums. On the Radio - whe chose to provide short 30 second commercial ads that offered simple energy conservation tips. We prepared 10 different spots to run at different times of the year. Each season, the related spots would be heard up to 8 times per day, and as a bonus the Radio station is providing us with an opportunity to come in and do a special interview that we can tailor to enhance the support of more specific conservation initiatives. The Television ads also run 4 times per day, 5 days a week, and their prime objective is to remind people that we should all care about conservation. Similar to the Radio Station, we have been provided with opportunities to come in and participate in a local community program to discuss conservation initiatives, and plan on utilizing these spots to enhance more specific conservation initiatives such as Province wide initiatives sponsored by the OPA.

### (complete this section for each program)

A. Name of the Program:

Smart Metering Initiative

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

COLLUS Power is an active participant in the Ontario Utilities Smart Metering Work Group (OUSM). The prime goal of the group is to coordinate and document detailed reviews of Smart Meter Pilot Projects, and provide guidance to the Minister on key technical issues surrounding the implementation of Smart Metering. The group consists of of Utilities, Meter Manufacturers, Software Vendors, and Retailers. By working together, we have been able to limit the number of pilot projects and at the same time delve deeply into all aspects of evaluation. The results of our analysis have been made available to the Ministry of Energy Staff, as well as all the members. Our CDM spending on this project is limited to our membership fees.

	Measure(s):	Management		Massure O (Garageratic)
	Rasa casa tachnologur	Measure 1	Measure 2 (if applicable)	Measure 3 (If applicable)
	Efficient technology:			
	Number of participants or units delive	ered:		
	Measure life (years):			
В.	TRC Results:			
	TRC Benefits (\$):		-\$ 1,636.36	
	TRC Costs (\$):			
	U	Itility program cost (less incentives):		
		Participant cost:		
		Total TRC costs:		
	Net TRC (In year CDN \$):			
	Benefit to Cost Ratio (TRC Benefits/	TRC Costs):		
C.	Results: (one or more category may	apply)		
	Conservation Programs:			
	Demand savings (kW):	Summer		
		Winter		
		lifecycle	in year	
	Energy saved (kWh):			
	Other resources saved :			
	Natural Gas (m3):			
	Other (specify):			
	Demand Management Programs:			
	Controlled load (kW)			
	Energy shifted On-peak to Mid-peak	(KVVN): (INV(b):		
	Energy shifted Mid poak to Off poak	(KVVII): /k/W/b):		
		(KWII).		
	Demand Response Programs:			
	Dispatchable load (kW):			
	Peak nours dispatched in year (hour	s):		
	Power Factor Correction Programs	<u>s:</u>		
	Amount of KVar installed (KVar):			
	Distribution system power factor at b	egining of year (%):		
	Distribution system power factor at e	nd of year (%):		

	Peak load savings (kW):		·	
	Enerav savnas (kWh):	lifecycle	in year	
	Distributed Generation and Load   Amount of DG installed (kW):   Energy generated (kWh):   Peak energy generated (kWh):   Fuel type:   Other Programs (specify):   Metric (specify):	Displacement Programs:		
D.	Program Costs*: Utility direct costs (\$):	Incremental capital: Incremental O&M: Incentive: Total:	\$ 1,636.3 \$ 1,636.3	6
	Utility indirect costs (\$):	Incremental capital: Incremental O&M: Total:		
	Participant costs (\$):	Incremental equipment: Incremental O&M: Total:		

#### E. Comments:

COLUS Power plans to continue working with the OUSM work group in an effort to ensure that as Smart Meter Deployment ramps up across the Province, the LDC's will be able to continue seamlessly provide settlement services for our customers. Another critical factor will be the ability to maintain operational settlements with the IESO, the Retailers, the Generators, and the OPA. By working together with the OUSM group, we bring many industry experts to the table, and increase our chances of a successful rollout of Smart Meters accross the Province which will undoubtedly become the cornerstone of many CDM projects in years to come.