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.**

Figure 1

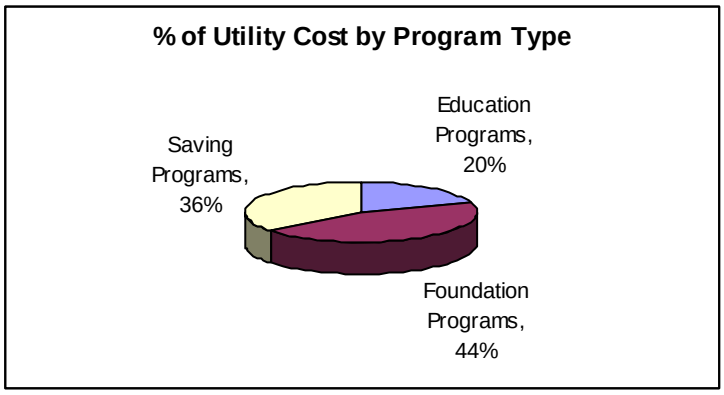
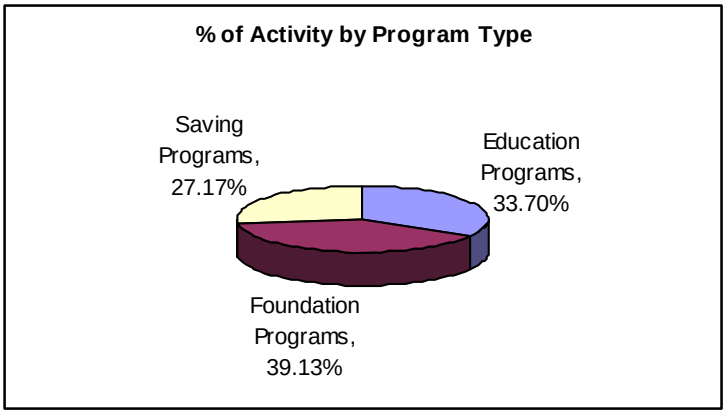


Figure 2



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:

Appendix A - Evaluation of the CDM Plan

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

Woodstock Hydro Services Inc.
16 Graham Street
Box 245 Stn Main
Woodstock, ON N4S 7X4
Telephone: (519) 537-3488
Fax: (519) 537-5081

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Woodstock Hydro Services Inc.

RP-2004-0203\(ED-2003-0011)

Conservation and Demand Annual Report

Content:

1. Introduction:

The City of Woodstock and surrounding is experiencing unprecedented business development and growth. In addition to Toyota Motor Company establishing a large manufacturing facility within our Municipality, many additional supply businesses will soon arrive. Effective Conservation and Demand Management of electricity supply in our area is more important today than ever.

In addition to Provincial generation and supply concerns, Woodstock is now facing the challenge of ensuring adequate transmission and transformation facilities are available and online by 2008.

Do we plan to expand transmission and transformation facilities to meet this exponential demand, based on the present consumption and conservation culture? Should we simply plan to build infrastructure expecting supply will materialize as we require it?

The Provincial Government is working hard to create the groundwork for a change in culture – to move away from the present mentality of boundless consumption and to create a culture where conservation of limited resources, specifically electricity, take shape in our minds, homes and

businesses as a priority. To instill this change of thinking – to create and nurture a culture of conservation, will require patience, foresight and tenacity.

It is misleading to believe 160 million dollars can simply 'buy' this change.

Our approach in Woodstock includes the participation, education and commitment of the public, shareholder and business stakeholders, and this will take time and effort.

2. Evaluation of our CDM Plan

The past year has been invested in the development of programs in response to customer demand. We have a close and effective relationship with our industrial customer group and have listened to their needs. The Energy Savings Finance Program and Energy Audit programs are the direct result of several months of pulling private and public sector groups together.

Several plants in Woodstock are presently responding to these programs, or have already begun the process of reducing demand and consumption. Results at this point are verbal from plant managers, however Interval metering is either in place, or being installed for the purpose of better benchmarking and results tracking for 2006 year end reporting and TRC calculations.

3. Discussion of our Programs

Customer Survey:

Working with the CHEC group, plans are underway to incorporate a customer survey to include appliance survey (as it relates to the Cost Allocation Study) and CD&M questions. We expect this will be completed by the end of May.

In addition to this survey, we intend to survey business and commercial customers through our involvement with the local Chamber of Commerce.

We hope to conduct similar surveys again in 2007 to determine impacts and changes year over year during the course of program implementation.

Budget: **$1000.00**
2005 Activity: **$0**

Conservation Website:

The conservation website budget is a two-fold investment. Working with the CHEC group, we have retained a consultant (Mr. Gord Eamer, P.Eng), to work with us through the development of program and customer interaction. Aggregating our funds, all members of CHEC believe we can leverage funds to provide an Internet Conservation venue, while engaging Government and stakeholders during the learning process of program development.

Limited funding has also been used to enhance the Conservation section of the Woodstock Hydro Services Inc. Internet presence.

Budget: **$14000.00**
2005 Activity: **$12193.33**

Education & Promotion:

Throughout the fall of 2005, we hosted or conducted four energy conservation workshops. These include three NRCan 'Spot the Savings' workshops and one Energy Seminar co-hosted by the local Chamber of Commerce and the Ministry's Economic Development committee.

In terms of funding, the majority of our costs included internal staff hours (not reported within the CD&M expense). Although subsidized, participants did make partial payment toward the event.

Additional activity includes local Business Improvement and Chamber agency information and the Fall Coupon Program, conducted by EnergyShop, along with 31 other LDC participants.

Voluntary Blackout Day:

The Woodstock Environmental committee and Woodstock Hydro hosted a fun energy awareness day on August 13 2005. The intent was to remind people of the eastern seaboard blackout of August 13 2003 and to recognize just how important electricity is in our lives.

Advertising and promotion provided by Woodstock Hydro suggested people should make a conscious effort to reduce electricity use by turning off the air conditioner, enjoy a picnic with friends and take part in any activity that doesn't require electricity use.

The results verified by our staff, and supported by the Independent Electricity System Operator suggest peak demand for the day was reduced by 2000 KW and 45,000 kwh of energy consumption were reduced. This was accomplished with no financial incentive, but with light-hearted public appeal.

Plans are underway to expand this event into a fun, multi-municipal challenge. Which Municipality can reduce consumption by the most? We believe this type of interactive approach will provide the continual reminder and awareness people require to slowly make changes necessary to effect lasting change.

Of these programs, the Fall Coupon program is the only one suitable for assessment under the TRC model. Please see attachments for more detail regarding the results of Coupon Program.

Budget: **$30,000.00**
2005 Activity: **$11,659.42**

Partnerships/Sponsorships: * Key to creating a Conservation Culture *

Although little CD&M spending in terms of incremental costs have been invested in this program to date, we expect this to be the cornerstone for the success of our other programs. As such, we are investing a great deal of internal staff time toward the development and building of relationships with key stakeholder groups.

These groups include our shareholder (the City of Woodstock), the local Chamber of Commerce, the local BIA (downtown Business Improvement Association), local school boards and private sector investment and energy solution vendors.

The following is a listing of the relationships and initiatives we have been planning throughout 2005:

<u>The local Chamber of Commerce:</u>

Diverse in nature, the Woodstock and District Chamber of Commerce consists of 315 companies with some 6500 employees, providing the Chamber with a broad and varied base of community support. Eighty percent of businesses represented are small, with 50 or less employees.

These 315 businesses and 6500 employees provide a fantastic leveraging opportunity. It is important to note these businesses represent many of the well respected and influential of the Woodstock business community. We see our relationship and mentoring capacity with this organization to be limitless.

Energy Conservation & Innovation Award:

The annual Business Awards of Excellence promotes entrepreneurial and creative thinking, while providing recognition for local business owners. This award is being sponsored by Woodstock Hydro Services Inc. and will showcase energy saving and retrofit programs that provide demonstrated results. Five businesses in Woodstock have now been nominated and three of these have been announced as finalists. Each finalist will have a short video created, providing the nominee an opportunity to present their energy (and dollar) saving results.

This program is a clear example of a labour and time intensive program that will allow innovative businesses to showcase their success to other businesses – and in the process, contribute to the fundamental 'conservation culture' we are working to achieve.

Business & Industry Working Group, Chamber of Commerce:

This working group is established as a Chamber sub-committee for the purpose of identifying challenges and opportunities for local business. Categories include education & training, health care, taxation transportation and infrastructure, borders and trade development and most recently, energy.

The last category of energy is considered by this working group to be of paramount importance. These industry leaders are educated, aggressive and successful. They also have a great deal of influence with other businesses and by extension, commercial and residential sectors.

We believe our involvement with this group will result in lasting and effective policy and educational change. This group is also aware of the need for sustainable and renewable energy generation and technology developments, and has the resources and influence to affect change.

Renewable Energy Committee, Chamber of Commerce:

During a recent meeting with the Business & Industry working group, Woodstock Hydro proposed the development of a sub-committee with the sole purpose of developing renewable energy programs and awareness.

A core 'brain-trust' of interested members (including the public not necessarily members of the Chamber) is now being formed. This group will research and promote the use of renewable energy technologies in Woodstock and surrounding area, with the purpose of elevating the profile of renewable technologies, while promoting installations that are presently in place or being planned.

We believe this will be a very dynamic and effective group, with a theme that is showing great potential toward our goal of conservation. Keep in mind, those utilizing renewable energy technologies are inherently the worlds greatest conservationists, with the highest level of respect for 'what it takes' to generate a watt of electricity.

Association of Municipalities of Ontario (AMO):

Woodstock is recognized by other communities as an innovator and one willing to take chances on new ideas. The successful implementation of prepayment metering is an example of this reputation.

During a meeting with the Minister of Energy last April, Nancy Plumridge (AMO and LAS) unveiled a pilot program that would include 6 of Ontario's 444 Municipalities.

Woodstock Hydro worked to successfully champion the City of Woodstock as one of the six members. We believe this type of initiative will place the local Municipality at the forefront of new ideas, while raising the bar for the City internally. The concept of creating an 'Energy Team' within industry is just as relevant within Municipalities. One could argue even more important following the announcement of the Bill 21 and the *Energy Conservation and Leadership Act.*

Once again, we believe this 'team-building' approach to CD&M is imperative to the ultimate success of a lasting and continually improving conservation culture in both our City and Province.

Budget: **$25,000.00**
2005 Activity: **$728.74**

System Optimization:

Throughout 2005 we have been updating and improving our mapping systems. This will allow us to export accurate data to engineering software designed to identify distribution system improvements. Initial engineering reviews were completed in 2005 with more detailed analysis to be completed in April.

A small amount of voltage conversion activity will also take place, however we do not believe this type of investment is the intention of Conservation and Demand management plans. Although effective in terms of line loss reduction, these programs do not promote conservation among electricity consumers.

The majority of this activity will be used to identify priority rebuild and upgrade requirements of our distribution system in coming years.

Budget: **$30,000.00**
2005 Activity: **$1,142.72**

Power Factor Audits/Projects:

Energy Savings Finance Program:

If we have learned anything in our years of working directly with the end consumer (be they large industrial or other), it is the fact that we must listen to their needs and try to provide the means necessary for them to effect change.

Much of 2005 was invested in the creation of our *Energy Savings Finance Program.* Experience tells us that customers often identify energy savings on their own, but seldom implement the recommendations provided to them. Development of new business is the priority for precious capital dollars, with cost reduction taking a distant second place. We and many Energy Service companies have been frustrated by this fact – the finance program is a solution that has evolved from this reality.

In this program, we have partnered with the worlds largest financing company, CIT Finance. Specific details of the program can be found at www.woodstockhydro.com/energysavings . In addition to this partnership, customers are encouraged to join NRCan's Energy Innovator intiative programs, potentially providing them additional energy audit and implementation dollars.

For our part, Woodstock Hydro will reduce the cost of interest by as much as 4%, while providing a means for business to secure capitol funding outside of their annual budgeting process. In most cases during the modeling of this program, found savings following implementation more than cover the costs of financing for a 3 or 4 year lease arrangement.

Several LDC and Service company representatives have inquired about this program, recognizing that this provides yet another means for the customer to move the audit results 'from the table, to the plant'.

Three of our larger industries within Woodstock have committed to this program and are presently in the process of completing their own audits and assessments.

Power Factor Correction Activity:

During 2005, we completed an assessment of power factor levels throughout the business community. We found that out of 175 Greater than 50 KW customers, 55 customers regularly see power factor levels drop below 90%.

From these customers, we expect a reduction of 2000 kva can be found should our customers correct. This is proving to be yet another tough sell, however we hope the finance program will encourage investment. If not, we will review our approach toward incentives.

The most important aspect of this process is the fact we have an opportunity to present the customer with immediate savings, with an additional ability to encourage them to entertain a full energy audit of their plant.

Based on our activity with larger industrial customers throughout 2005, we are in the process of rolling out an Energy Audit incentive program that will compliment the finance program.

Engaging and convincing customers to implement these programs takes a great deal of time and effort, however accessing CD&M funding will not be seen until they do.

This sector can make an immediate, large impact on peak demand and consumption levels within our City – we believe that although not many incremental dollars have been invested, we are on the right track, investing non-incremental dollars in the right programs to effect change going forward.

Budget: **$90,000.00**
2005 Activity: **$3,708.63**

Smart/Interval/PAYG Meters:

This category originally reflected the majority of our CC&M investment – this is not likely to be the case going forward. We will be submitting a request to re-allocate funding to other areas shortly. This change is primarily due to changes within the Smart metering requirements and the fact we cannot expand programs not already in place. In addition, development of the PAYG (pay-as-you-go) meters in Woodstock to incorporate remote access reading is not moving as quickly as expected. Testing will take place in the summer months, however this has led to the slowing of any further development or expansion of these meters.

As part of the Power Factor/audit program, Woodstock is committing to the installation and monitoring of Interval meters at customer sites. We expect this program will ramp up over the course of 2006 to include more customer Interval meters, with enhanced cost estimating and energy assessment tools being made available as a result.

We intent to increase the number of General Service Interval metering installations this year in conjunction with our Energy Finance and Audit programs. We believe these meters are critical to the success of customer load recognition and subsequent change.

Once again, apparent spending in no way reflects the amount of time being invested by Woodstock Hydro staff toward the development and implementation of these programs.

Budget: **$200,000.00**
2005 Activity: **$1,672.40**

Signal/Streetlight Efficiency:

During a 2005 study of traffic light intersections within the City of Woodstock, we estimated a reduction of close to 30,000 kwh annually could be found by converting to LED technology.

To accommodate budgeting requirements at the Municipal level (both City and County) implementation was delayed until 2006. The first of several conversions are now underway – we expect to spend our full budget on conversion activity this year and in the process, save the municipality close to $30,000.00.

A study of streetlighting technology may also be completed, however first review suggests the technology available is still under development.

Budget: **$30,000.00**
2005 Activity: **$142.80**

New Programs and re-allocation of funds:

We are learning as we go throughout this process. Original budgets and programs change; new ideas replace old and new opportunities present themselves as we move forward.

It is important we keep in mind that the original programs really served as more of a beginning point – one that could be expected to change as our understanding of programs and need matures.

One new program we intend to implement includes the installation of a renewable energy demonstration site. We have received approval by the City of Woodstock for the installation of a photovoltaic installation at Woodstock's Southwood Community Complex. This facility enjoys the highest walk-in traffic of any City facility, from both in and outside of the community.

This site will provide visual access to the panel, with a kiosk learning center located just inside of the foyer. Internet access will provide the ability for public and educational facilities to access the site and learn about renewable energy.

To better engage the public, we are planning a charitable fundraising campaign that will see a local Woodstock homeowner become the eventual owner of the system. We are working with a local media group to publicize and engage the public in this learning process. The idea of providing a chance of ownership is expected to increase the level of interest and individual 'buy-in' to the program over the next year.

Woodstock Hydro now has one customer with a 3.6 KW photovoltaic installation, grid inter-tied and supplying watts back to our system. Based on public interest and downward pressure on initial costs, we believe this type of distributed generation is turning the corner – Woodstock Hydro will contribute to the success of this process over the next several years.

4. LESSONS LEARNED

Metrics and Initiatives:

A key component to any new or enhanced program should include an effective and productive means of measurement. Many of the metrics used for the TRC calculation are limited to technology applications and gross assumption. In the absence of Interval metering data, assumptions are necessary and can arguably be applied to assess reasonable results.

During the course of 2005, much of our effort was focused on industrial and commercial customer groups. There are huge opportunities to identify and reduce peak demand and consumption within this sector, however they also pose the greatest challenge. Business owners are busy taking care of business and energy conservation is not high on their priority list (although this is changing). Interval metering, energy workshops and relationship building all take time, but are necessary to establish the groundwork for increased conservation activity and customer buy-in to proposed programs and incentives.

It is critical throughout this period and going forward, that we establish a means of continually communicating with these customers. Many do respond to calls, workshops and so forth, and many do implement energy saving techniques. The challenge is having each customer report back to the LDC, each initiative and result as they implement. This serves to provide a measurable update of response to the LDC for report purposes, while providing the customer with input for further improvement by the LDC.

It takes time:

This CD&M process is somewhat frustrated through ineffective measurement techniques. We seem to spend countless hours fretting over TRC results that are largely based on technology and assumptions. These are all short term measures, based not upon the results of a change in culture and by extension, lifestyle and habit, but rather quick return on investment through technology application.

The Ministry appears to be distracted by the number of dollars spent when they should be concentrating on programs and lasting initiatives being created. The paradigm lies in the fact that quick technology applications provide immediate results, but provide zero change in culture – alternatively, a large investment in non-incremental resources by an LDC invested in effective program creation and implementation may demonstrate small initial dollar investment, but leverage huge gains through an inherent and lasting change in customer consumption kwowledge and practice going forward.

The Ministry should make a concerted effort to assess LDC programs by their ability to educate and change customer practice and less time focusing on initial 'out of the gate' spending as a metric of program success.

Programs must include people, not serve them:

The most effective programs are those that provide the tools and time needed to allow customer buy-in at their own pace and for their own reasons. Once again, this is a process, not an event. Time and patience mixed with a level of financial incentive or consequence will allow people to being making change – but the process must engage them.

OPA must identify best programs – and promote them:

LDC's are taking two different approaches: some choose to spend entire budgets on voltage conversion or technology give-aways; other choose to invest their time and budgets on programs that require customer engagement and attention.

It is critical that the OPA identify the best and most effective of these programs for the purpose of allowing LDC's to adopt them for their respective customers. Collectively, we have invested a great deal of time creating and rolling out programs. We should now identify the best practices and move quickly to promote them to other jurisdications – and leave the less effective programs behind.

Woodstock Hydro Services Inc.
16 Graham Street
Box 245 Stn Main
Woodstock, ON N4S 7X4
Telephone: (519) 537-3488
Fax: (519) 537-5081

6. CONCLUSIONS:

Woodstock has a reputation for creative and innovative programs – programs that require customer participation. Although 2005 has not been a year of intensive spending and we do not have programs that are truly measurable through the TRC process at this point, we have invested a great deal of time and effort in the formulation and roll-out of ideas and programs that will provide meaning and continual improvement.

Our Energy Savings Finance Program received Province wide media coverage, with numerous calls from private sector finance and energy service companies. These service groups commended our 'out of the box thinking', and lamented the fact that so many programs simply 'throw money' at the consumption problem, as opposed to providing an engaging means of identifying and implementing change.

A renewable energy demonstration program we are presently rolling out will provide evidence of renewable energy applications, real-life examples and most importantly, the opportunity of ownership.

These are ideas that challenge consumers to think about their consumption habits; to recognize the real cost of generating a kilowatt; to identify with the consequences of their actions and begin mapping out their own change in consumption habits, for their own reasons.

Sincerely,

Jay Heaman
Woodstock Hydro Services Inc.

Appendix A - Evaluation of the CDM Plan

	Total	Residential	Commercial	Institutional	Industrial	Agricultural	LDC System	Interval Metering	PF Audits	Education	Partners
Net TRC value ($):	*$11,022*	$29,975		-$143			-$1,143	-$1,672	-$3,709	-$11,557	-$729
Benefit to cost ratio:	*1.293*	2.472									
Number of participants or units delivered:	*1146*	$1,146									
Total KWh to be saved over the lifecycle of the plan (kWh):	*1063059*	$1,063,059									
Total in year kWh saved (kWh):	*122200*	$122,200									
Total peak demand saved (kW):	*7.81*	$8									
Total kWh saved as a percentage of total kWh delivered (%):	*0.028022235*	0.11									
Peak kW saved as a percentage of LDC peak kW load (%):											
Gross in year C&DM expenditures ($):	*$37,375*	$18,423		$142			$1,143	$1,672	$3,709	$11,557	$729
Expenditures per KWh saved ($/kWh):*	*0.0352*	0.0173									
*Expenditures per KW saved ($/kW)**:*											

Utility discount rate (%):	8.57

*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.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** 2005 Lighten Your Electricity Bill Program

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

Woodstock Hydro participated with 31 other LDC's in a fall 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 to help them save on their electricity bill. Customers had until December 31, 2005 to redeem their point of purchase coupons at any local Canadian Tire outlet. Upon redemption, Canadian Tire sent the coupon to a redemption house, who then sorted by utility and product. This program was designed to both 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 was a great success in that the results showed a significant

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:	See Attached report from Seeline Group for additional details.		
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	*$*	*51,405.00*
TRC Costs ($):		
Utility program cost (less incentives):	$	2,798.00
Participant cost:	$	6,439.00
Total TRC costs:	$	9,237.00
Net TRC (in year CDN $):	$	42,168.00
Benefit to Cost Ratio (TRC Benefits/TRC Costs):	$	5.56

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

Conservation Programs:

Demand savings (kW):	*Summer*	7.81	
	Winter		
	lifecycle	*in year*	
Energy saved (kWh):	*1,063,059.00*	122,200.00	
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **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. More attention to local media coverage and promotion during the next coupon campaign will likely result in higher yields.

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Customer Survey

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

Customer survey activity is planned with an expected completion date of May 31 2006. There was no activity in 2005.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		$ -
TRC Costs ($):		
	Utility 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):		*0*	0
Other resources saved :			
	Natural Gas (m3):		
	Other (specify):		

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		0
	lifecycle	*in year*
Energy savngs (kWh):		0

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. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Incentive:	
	Total:	$ -
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	0

E. Comments:

See Section 3 of report 'Discussion of Programs'

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Conservation Website

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

The CHEC group of LDC's partnered to retain a CD&M Coordinator for the purpose of evaluating common and effective programs. In addition, an Internet site is in the design stages for the purpose of hosting a common conservation resource for all participants. The greatest benefit of these investment dollars is the coordination and facilitation of OPA, Ministry and LDC initiatives.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):	$	-
TRC Costs ($):		
Utility program cost (less incentives):	$	12,193.33
Participant cost:	$	-
Total TRC costs:	$	12,193.33
Net TRC (in year CDN $):	-$	12,193.33
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 12,193.33
	Incentive:	
	Total:	$ 12,193.33
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Education & Promotion

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

Several energy conservation workshops were conducted, brochures mailed out and newspaper advertisements completed. The workshops were of real benefit in terms of identifying the first group of business customers to target for energy audit and retrofit activity planned for 2006.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	11,557.42
Participant cost:	$	-
Total TRC costs:	$	11,557.42
Net TRC (in year CDN $):	-$	11,557.42
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 11,557.42
	Incentive:	
	Total:	$ 11,557.42
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Partnerships & Sponsorships

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

Relationship building with key stakeholder groups in Woodstock required a great deal of non-incremental investment. Please see Section 3 of the CD&M report for activity.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	728.74
Participant cost:	$	-
Total TRC costs:	$	728.74
Net TRC (in year CDN $):	-$	728.74
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 728.74
	Incentive:	
	Total:	$ 728.74
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** System Optimization

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

Engineering studies were started in the fall of 2005, however costs have not been applied to the program by the end of 2005. System improvements will be complete in 2006.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	1,142.72
Participant cost:	$	-
Total TRC costs:		
Net TRC (in year CDN $):	-$	1,142.72
Benefit to Cost Ratio (TRC Benefits/TRC Costs):		

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

Conservation Programs:

		lifecycle	in year
Demand savings (kW):	*Summer*		
	Winter		
Energy saved (kWh):			
Other resources saved :			
Natural Gas (m3):			
Other (specify):			

Demand Management Programs:

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

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

	lifecycle	in year
Peak load savings (kW):		
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 1,142.72
	Incentive:	
	Total:	$ 1,142.72
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Power Factor Audits, Projects

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

Once again, a great deal of non-incremental time was invested completing power factor studies, meeting with customers and more importantly, planning and creating the Energy Savings Finance Program. The bulk of our budget dollars will hopefully be invested in 2006 as we ramp up customer audits and sign customers onto the Finance Program. Please see Section 3 of the CE&M report for more detail.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	3,708.63
Participant cost:	$	-
Total TRC costs:	$	3,708.63
Net TRC (in year CDN $):	-$	3,708.63
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 3,708.63
	Incentive:	
	Total:	$ 3,708.63
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Interval/pay as you go Metering

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

Our intention to expand the Pay-as-you-go metering program did not move ahead as expected. Planning for Industrial/Commercial Interval metering and enhanced load monitoring capabilities is planned for 2006, with implementation in summer 2006. Based on the smart metering limitations of new pilot programs, we will be filing a request to the OEB to re-allocate CD&M funding from this category a renewable energy demonstration and the energy audit program.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	1,672.40
Participant cost:	$	-
Total TRC costs:	$	1,672.40
Net TRC (in year CDN $):	-$	1,672.40
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 1,672.42
	Incentive:	
	Total:	$ 1,672.42
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. **Comments:**

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

Appendix B - Discussion of the Program

(complete this section for each program)

A. **Name of the Program:** Traffic/Streetlight Efficiency

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

The bulk of our investment here has been non-incremental. We have completed studies of expected savings for traffic light conversions for both the County of Oxford and the City of Woodstock. A large part of this time has been invested selling the merit of conversion and convincing the respective parties to budget in 2006 to implement the change. Both Municipalities now have approval to move forward with conversion. All of our budgeted dollars will be invested to assist with these conversions over the course of 2006.

Measure(s):

	Measure 1	Measure 2 (if applicable)	Measure 3 (if applicable)
Base case technology:			
Efficient technology:			
Number of participants or units delivered:			
Measure life (years):			

B. **TRC Results:**

TRC Benefits ($):		
TRC Costs ($):		
Utility program cost (less incentives):	$	142.80
Participant cost:	$	-
Total TRC costs:	$	142.80
Net TRC (in year CDN $):	-$	142.80
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 (kWh):	
Energy shifted On-peak to Off-peak (kWh):	
Energy shifted Mid-peak to Off-peak (kWh):	

Demand Response Programs:

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

Power Factor Correction Programs:

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

Line Loss Reduction Programs:

Peak load savings (kW):		
	lifecycle	*in year*
Energy savngs (kWh):		

Distributed Generation and Load Displacement Programs:

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

Other Programs (specify):

Metric (specify):	

D. **Program Costs*:**

Utility direct costs ($):	*Incremental capital:*	
	Incremental O&M:	$ 142.80
	Incentive:	
	Total:	$ 142.80
Utility indirect costs ($):	*Incremental capital:*	
	Incremental O&M:	
	Total:	
Participant costs ($):	*Incremental equipment:*	
	Incremental O&M:	
	Total:	

E. Comments:

See Section 3 of CD&M report

*Please refer to the TRC Guide for the treatment of equipment cost in the TRC Test.

TOTAL RESOURCE COST TEST ASSESSMENT OF THE '2005 LIGHTEN YOUR ELECTRICITY BILL' PROGRAM

For
Woodstock Hydro

By
SeeLine Group Inc.
416-703-8695

February 2006

1.0 Introduction

Energyshop.com was engaged by 32 Local Distribution Companies (LDCs), across the province of Ontario, to design, deliver and track a fall coupon campaign with retailer Canadian Tire. Throughout the late summer and early fall billing periods, participating utilities provided their customers with a bill insert containing valuable energy-savings coupons to help them save on their electricity bill.

Customers from each of the 32 LDCs, had until December 31, 2005 to redeem their point of purchase coupons at any local Canadian Tire outlet. Upon redemption, Canadian Tire sent the coupon to a redemption house, who then sorted by utility and product.

As part of this effort, SeeLine Group Inc. (SLG) was asked to undertake a Total Resource Costs (TRC) test assessment of the 2005 Lighten Your Electricity Bill Program as delivered by Energyshop.com. Using many of the technology cost and savings estimates outlined in the Ontario Energy Board's TRC Guide, program results were screened using SLG's SeeTool™ TRC Calculator. The number of participant and program cost data provided by Energyshop.com.

This report includes a summary of assumptions and results from the TRC screening. Appendix A and B provides the detailed information on program assumptions.

2.0 Program Objectives

As outlined by Energyshop.com, this program was designed to achieve the following objectives:

- To help participating utilities achieve energy conservation and demand management results for their 2005 program year.
- Increase public awareness of energy conservation and demand management in the province of Ontario.
- Contribute to the overall development of an energy conservation culture in Ontario.

3.0 Program Results

3.1 Technology Savings Assumptions

SLG used many of the technology savings identified by the OEB in its Total Resource Guide.[1] For those technologies without defined savings, every effort was made to develop reasonable assumptions, defensible under the OEB guidelines. The following provides a brief outline of the savings assumptions used for this assessment.

[1] http://www.oeb.gov.on.ca/documents/cases/RP-2004-0203/cdm_assumptionsmeasureslist_141005.xls

Compact Fluorescent Bulbs

The 2005 program provided customers with a $3 coupon on any pack of compact fluorescent bulbs. Using store data provided by Energyshop.com, the number of bulbs sold by wattage was used to develop the average wattage of bulb sold. Based on this information, it was assumed that the average wattage sold during this program was 15 watts. Additional detail can be found in Appendix A.

LED Seasonal Lights

Like the CFLs, customers were provided with a $5 coupon for the purchase of any package of LED seasonal lights. Using store data provided by Energyshop.com, average size of LED light string sold during the campaign was determined. Based on this information, it was assumed that the average string sold had 59 bulbs.

Using the information in the OEB's TRC Guide, LED savings assumptions were adjusted to reflect a string with 59 bulbs as opposed to the 25 bulbs per string. Additional detail can be found in Appendix A.

With guidance from Energyshop.com, it was also assumed that 50% of the LED lights sold were those replacing a 5 watt Christmas string and the remaining 50% were used to replace mini lights which yields a slightly lower savings.

Ceiling Fans

At the time of this analysis, SLG felt there was not enough significant evidence to support a savings estimate for ceiling fans.

Programmable Thermostats

SLG used the savings estimate outlined in the OEB's TRC Guide. Participant rates were adjusted to account for market share. Using data provided by Energyshop.com and other studies, the following province wide fuel share assumptions were used:

Electrical Space Heating	17.3%
Electrical Space Cooling (central air)	45.0%

Indoor Timers

In the absence of OEB savings estimates for indoor timers, SLG developed savings estimates for timers used on indoor lighting and air conditioners. Detailed information can be found in Appendix B.

The savings estimate for timers for indoor lighting is considered to be small. It assumes that the timer is used on a 60 W bulb and provides savings during the winter peak, winter mid peak and summer peak periods. In total, the timer is expected to provide approximately 98 kWh savings.

The savings estimate developed for timers used on unit air conditioners is based on the owner setting the timer to bring the air conditioner on a few hours before he or she

arrives home. Based on this assumption, a timer used for a unit air conditioner would provide approximately 108 kWh in annual savings.

Based on discussions with EnergyShop.com it was assumed that 50% of the timers would be used for lighting and the remaining 50% would be used for air conditioners. SLG made an additional assumption and assumed that it was unlikely that all of the timers would be used appropriately; participation rates were reduced by 30%.

Outdoor Timers

The savings estimate for the outdoor timer is based on information from the OEB's TRC Guide.

EnerGuide for Homes

Based on information provided by Energyshop.com the potential savings for space heating load is estimated to be 250 kWh. Using the participant data provided by EnergyShop.com, SLG made adjustments to account for uptake on the audit recommendations and fuel market share. No additional fuel savings were considered for this analysis.

3.2 Summary of Program Participation

Technology	Number of Participants	Free Ridership
Compact Fluorescent Bulbs	906	10.0%
LED Christmas Lights (indoor or outdoor) Replacing 5w Christmas Lights C-7 (25 Lights)	65	10.0%
LED Christmas Lights (indoor or outdoor) Replacing Incandescent Mini Lights	65	10.0%
Programmable Thermostat - Space Heating, Existing Single Family Detached	16	10.0%
Programmable Thermostat - Space Cooling, Existing Single Family Detached	42	10.0%
Timer - Outdoor Light	18	10.0%
Timer - Indoor - Light	8	10.0%
Timer - Indoor - Air Conditioners	8	10.0%
Ceiling Fan	27	10.0%
EnerGuide for Existing Homes - Space Heating	-	10.0%

* Adjusted for fuel share and usage uptake

3.3 Summary of Net Program Savings

Technology	Summer Peak kW Savings	Annual kWh Savings in Year	Measure Life	Lifecycle kWh Savings
Compact Fluorescent Bulbs	0	85,156	4	340,623.79
LED Christmas Lights (indoor or outdoor) Replacing 5w Christmas Lights C-7 (25 Lights)	0.00	2603.37	30.00	78,101.09
LED Christmas Lights (indoor or outdoor) Replacing Incandescent Mini Lights	0.00	996.35	30.00	29,890.54
Programmable Thermostat - Space Heating, Existing Single Family Detached	0.00	21232.79	18.00	382,190.28
Programmable Thermostat - Space Cooling, Existing Single Family Detached	6.14	5991.90	18.00	107,854.18
Timer - Outdoor Light	0.00	4730.40	20.00	94,608.00
Timer - Indoor - Light	0.42	706.18	20.00	14,123.52
Timer - Indoor - Air Conditioners	1.25	783.36	20.00	15,667.20
Ceiling Fan	0.00	0.00	20.00	0.00
EnerGuide for Existing Homes - Space Heating	0.00	0.00	25.00	0.00
Total		**122,200**		**1,063,059**

3.4 Summary of Total Resource Cost Test Results

Technology	TRC Benefits	Incremental Equipment Costs	Utility Program Costs	TRC Net Benefits	TRC B/C Ratio
Compact Fluorescent Bulbs	$20,759	$1,631	$ -	**$19,128**	**12.73**
LED Christmas Lights (indoor or outdoor) Replacing 5w Christmas Lights C-7 (25 Lights)	$2,423	$117	$-	**$2,306**	**20.71**
LED Christmas Lights (indoor or outdoor) Replacing Incandescent Mini Lights	$927	$117	$-	**$810**	**7.93**
Programmable Thermostat - Space Heating, Existing Single Family Detached	$14,554	$869	$-	**$13,685**	**16.75**
Programmable Thermostat - Space Cooling, Existing Single Family Detached	$7,256	$2,260	$-	**$4,996**	**3.21**
Timer - Outdoor Light	$3,516	$324	$-	**$3,192**	**10.85**
Timer - Indoor - Light	$747	$50	$-	**$697**	**14.83**
Timer - Indoor - Air Conditioners	$1,229	$50	$-	**$1,178**	**24.38**
Ceiling Fan	$-	$1,021	$-	**($1,021)**	**0.00**
EnerGuide for Existing Homes - Space Heating	$-	$-	$-	**$-**	**n/a**
Program Costs	$-	$-	$2,798	**($2,798)**	**0.00**
Total	**$51,405**	**$6,439**	**$2,798**	**$42,168**	**5.56**

Appendix A

Compact Fluorescent Bulb and LED Light Details

Data provided by Energyshop.com

CFL Sales - Ontario

Product Number	Description	Watts	Pack Size	Units Sold	Bulbs Sold	Ave # of bulbs	Average Wattage
052-5109-0	COMPFL-REPL.13W 2700	13	1	3,510	3,510		45630
052-5119-6	COMPFL-REPL.9W 4100	9	1	794	794		7144.2
052-5120-0	CFL 13W SPIRL 3PK	13	3	79,920	239,760		3116880
052-5121-8	CFL 26W SPIRL 3PK	26	3	60,480	181,440		4717440
052-5124-2	13W MINI 6PK NOMA	13	6	41,310	247,860		3222180
052-5125-0	26W MINI NOMA	26	1	4,644	4,644		120744
052-5126-8	10W MINI 2PK GE	10	2	10,800	21,600		216000
052-5127-6	26W MINI 2PK GE	26	2	15,390	30,780		800280
052-5128-4	CFL 10W SPIRL 3PK	10	3	32,940	98,820		988200
052-5135-6	32W MINI GE	32	1	1,620	1,620		51840
052-5137-2	45W MINI GE	45	1	3,024	3,024		136080
052-5140-2	TRI 15/26/40 NOMA	40	1	1,890	1,890		75600
052-5141-0	TRI 12/23/32 MINI GE	32	1	1,620	1,620		51840
052-5144-4	DIMMABLE 29W BIAX GE	29	1	216	216		6264
052-5146-0	13W MINI BLACK NOMA	13	1	2,754	2,754		35802
052-5153-2	13W MINI RED NOMA	13	1	3,240	3,240		42120
052-5157-4	13W MINI GREEN NOMA	13	1	3,348	3,348		43524
052-5159-0	13W MINI BLUE NOMA	13	1	3,456	3,456		44928
052-5167-0	TUBE-CIRCLNE12"32WKB	32	1	540	540		17280
052-5168-8	TUBE-CIRCLNE8"22WK&B	22	1	918	918		20196
052-5176-8	13W MINI 2PK GE	13	2	32,454	64,908		843804
052-5182-2	CFL 12/20/26W TRILIT	26	1	3,780	3,780		98280
052-5183-0	COMPFL 26W SW DIMMBL	26	1	1,620	1,620		42120
052-5189-8	11W MINI BUG LGHT GE	11	1	540	540		5940
052-5190-2	CFL BUG LIGHT 13W	13	1	2,052	2,052		26676
052-5191-0	CFL BUG LIGHT 23W	23	1	864	864		19872
052-5192-8	9W NAT/COOL 2PK NOMA	9	2	13,554	27,108		243972
052-5193-6	13W NAT/COOL 2PKNOMA	13	2	25,380	50,760		659880
052-5194-4	23W NAT/COOL 2PKNOMA	23	2	19,440	38,880		894240
052-5195-2	10W MINI NOMA	10	1	2,160	2,160		21600
052-5196-0	13W MINI NOMA	13	1	4,320	4,320		56160
052-5331-8	COMPFL 9WG25 3PK	9	3	1,458	4,374		39366
052-5332-6	COMPFL 7W A-LINE	7	1	3,186	3,186		22302
052-5333-4	COMPFL 15W R30	15	1	2,268	2,268		34020
052-5334-2	COMPFL 23W PAR38	23	1	1,890	1,890		43470
052-5335-0	COMPFL 15WR30 2PK	15	2	2,484	4,968		74520
052-5352-8	R20 11W FLD NOMA	11	1	1,890	1,890		20790
052-5353-6	R20 11W FLD GE	11	1	1,080	1,080		11880
052-5355-2	R30 15W FLD GE	15	1	1,998	1,998		29970
052-5356-0	R30 15W FLD DIM GE	15	1	540	540		8100
052-5357-8	PAR38 26W FLD 2PK NO	26	2	2,160	4,320		112320
052-5358-6	PAR38 26W FLD GE	26	1	2,592	2,592		67392
052-5360-8	PAR38 23W FLD RED NO	23	1	1,998	1,998		45954
052-5361-6	PAR38 23W FLD GRN NO	23	1	1,620	1,620		37260
052-5362-4	PAR38 23W FLD BLU NO	23	1	1,242	1,242		28566
052-5363-2	PAR38 23W FLD YLW NO	23	1	594	594		13662
052-5364-0	R40 26W FLD NOMA	26	1	918	918		23868
052-5365-8	R40 26W FLD GE	26	1	540	540		14040
052-5366-6	R40 26W FLD DIM GE	26	1	270	270		7020
052-5367-4	A-LINE 11W GE	11	1	1,026	1,026		11286
052-5368-2	A-LINE 15W NOMA	15	1	1,620	1,620		24300
052-5369-0	A-LINE 15W GE	15	1	2,700	2,700		40500
052-5370-4	G25 9W NOMA	9	1	1,188	1,188		10692
052-5371-2	G25 9W GE	9	1	972	972		8748
052-5372-0	G30 15W GE	15	1	378	378		5670
052-5373-8	CHANDLR 5W MED GE	5	1	540	540		2700
052-5374-6	CHANDLR 7W MED NOMA	7	1	756	756		5292
052-5375-4	CHANDLR 7W MED GE	7	1	540	540		3780
052-5376-2	CHANDLR 9W MED GE	9	1	756	756		6804
052-5377-0	CHANDLR 5W CAN GE	5	1	540	540		2700
052-5378-8	CHANDLR 7W CAN NOMA	7	1	756	756		5292
052-5379-6	CHANDLR 7W CAN GE	7	1	648	648		4536
052-5382-6	CHANDLR 9W CAN GE	9	1	1,350	1,350		12150
052-5390-6	9W ULTRAMINI 3PK NOM	3	3	7,668	23,004		69012
052-5391-4	13W ULTRAMINI 3PK NO	13	3	12,042	36,126		469638
052-5392-2	13W ULTRAMINI 6PK NO	13	6	2,754	16,524		214812
				443,540	**1,174,538**	2.65	18,204,928
							15.499653 average watts

Data provided by Energyshop.com

SLEDs		**Total Units Sold**		
		50524		
Lights / string	%age	Program sales	Whole number	Average Bulb per String
25	15%	7384.266944	7384	3.653841216
35	22%	11311.7249	11314	7.836085259
70	52%	26025.92566	26026	36.05840386
100	11%	5802.082488	5802	11.4838146
				59.03214493

Appendix B

Technology Savings Data

TOTAL RESOURCE COST TEST																				
Program	Participant/Technology Information								Unit Energy Savings											
									Electricity Savings											
									Winter			Summer			Shoulder					
	Measure Life	Distribution Line Losses	Unit Incremental Costs	Program Delivery Costs	Unit Water Savings m3 (000's litres)	Unit Propane Savings m3 (000's litres)	Unit Oil Savings litres	Unit Diesel Savings m3	On Peak	Mid Peak	Off Peak	On Peak	Mid Peak	Off Peak	Mid Peak	Off Peak	Demand Type (C, DR)	Peak Demand Savings (Summer)	Comments
CFL Screw-In 15W	4	0.00%	$2.00	$ -	0.00	0.00	0.00	0.00	15.5	7.7	20.3	0.0	11.7	14.0	17.5	17.7	C	0.000	Average wattage of bulb sold during campaign (see Appendix A)
LED Christmas Lights (indoor or outdoor) Replacing 5w Ch	30	0.00%	$2.00	$ -	0.00	0.00	0.00	0.00	13.4	8.9	22.3	0.0	0.0	0.0	0.0	0.0	C	0.000	Savings based on 59 bulbs per string. Refer to Appendix A
LED Christmas Lights (indoor or outdoor) Replacing Incanc	30	0.00%	$2.00	$ -	0.00	0.00	0.00	0.00	5.1	3.4	8.5	0.0	0.0	0.0	0.0	0.0	C	0.000	Savings based on 59 bulbs per string. Refer to Appendix A
Programmable Thermostat - Space Heating, Existing Singl	18	0.00%	$60.00	$ -	0.00	0.00	0.00	0.00	202.1	231.0	541.8	0.0	0.0	0.0	219.0	272.4	C	0.000	
Programmable Thermostat - Space Cooling, Existing Singl	18	0.00%	$60.00	$ -	0.00	0.00	0.00	0.00	0.0	0.0	0.0	28.4	42.5	88.2	0.0	0.0	C	0.163	
Timer - Outdoor Light	20	0.00%	$20.00	$ -	0.00	0.00	0.00	0.00	43.3	21.6	56.9	0.0	32.9	39.0	48.8	49.5	C	0.000	
Timer - Indoor - Light	20	0.00%	$7.00	$ -	0.00	0.00	0.00	0.00	14.5	7.3	19.1	0.0	11.0	13.1	16.4	16.6	C	0.059	
Timer - Indoor - Air Conditioners	20	0.00%	$7.00	$ -	0.00	0.00	0.00	0.00	0.0	0.0	0.0	19.4	29.1	60.3	0.0	0.0	C	0.174	
Ceiling Fan	20	0.00%	$42.00	$ -	0.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	C	0.000	
EnerGuide for Existing Homes - Space Heating	25	0.00%	$150.00	$ -	0.00	0.00	0.00	0.00	34.5	39.4	92.4	0.0	0.0	0.0	37.3	46.4	C	0.000	
				$ -															