

**2006 ANNUAL REPORT, CDM THIRD TRAUNCHE FUNDING,  
BARRIE HYDRO DISTRIBUTION INC.**

**INTRODUCTION**

Barrie Hydro Distribution Inc. (BHDI) (ED-2002-0534) is pleased to submit this second annual CDM report. BHDI's CDM programs and spending in 2006 all relate to the "third tranche" programs, which were approved by the OEB in February of 2005. The budgeted dollars represented in these programs totals \$1,907,855. BHDI's approved CDM Plan encompassed 10 separate programs, they are:

1. Building – Control of Lighting & Equipment, Lighting Retrofit, & Building Sealing
2. Building – Peak Shaving/Demand Response Generator Pilot
3. Building – Solar Hot Water Tank Demonstration Project
4. Distribution – System Optimization
5. Business – Power Factor Penalty Awareness
6. Municipal – LED Traffic Lights Pilot
7. Municipal Non- Profit Housing – Electrical Conservation Pilot
8. Residential/Small Business – Electrical Appliance Rebate Pilot
9. Consumer Education & Training
10. Conservation & Demand Management Research

BHDI's CDM plan focused on three areas; our customers, our municipal partners, and our plant.

This annual report will concentrate on those programs worked on with spending in 2006 as well as life to date program spending. The programs fall into two areas, those started and completed, which are:

1. Building – Peak Shaving/Demand Response Generator Pilot
2. Residential/Small Business – Electrical Appliance Rebate Pilot
3. Consumer Education & Training
4. Business – Power Factor Penalty Awareness

The programs that fall into the second area; started and still in progress are:

1. Building – Control of Lighting & Equipment, Lighting Retrofit, & Building Sealing
2. Distribution – System Optimization
3. Municipal – LED Traffic Lights Pilot
4. Municipal Non- Profit Housing – Electrical Conservation Pilot
5. Conservation & Demand Management Research

The remaining program, Building – Solar Hot Water Tank Demonstration Project, is to be started in 2007, and thus is not detailed in this report.

The total amount of actual spending in 2006 was \$824,123. Please note that this amount is \$29,177 higher than that filed in our 4<sup>th</sup> quarter CDM report. This was due to a late year-end invoice for CDM activities. The spending in 2006 brings the total life to date spending to \$1,425,657

## **LESSONS LEARNED**

We have learnt many lessons from the implementation of CDM projects. One of these continues to be that residential customers appear to have the quickest uptake for participation in these conservation programs. This is reflected in the delivery breakdown of our programs in that the majority of programs for residential customers have been completed. We have observed though that in 2006 business customers were more aware of conservation programs and have become increasingly active in this area.

A recap of our programs follows;

Residential/Small Business – Electrical Appliance Rebate Pilot program. This program enabled residential and small general service customers that purchased Energy Star qualified appliances to receive an 8% rebate on the cost of those appliances to a maximum of \$200 per account from BHDI. This program was initiated in April 2005 and closed in November 2005 as all funds allocated to this program were expended. Participation by residential customers exceeded all expectations, and customers are already inquiring whether this program will be introduced again in the future. This program would definitely be considered a success and if additional funds become available should be continued. If this program were to be continued, one possible refinement would be to target appliances with high TRC values. Final costs of \$668 were realized in 2006

Business – Power Factor Penalty Awareness program – This program was completed in 2006. The program involved an education session for some of our larger customers with poor power factors. This education included understanding power factors and what can be done to improve power factors. These sessions were well attended but we found any follow up and bill tracking difficult, as in regards to determine if these customers' power factors improved. In early 2006 the final stage of this program was completed which encompassed training for BHDI staff. This training was to enable staff to provide ongoing support to customers concerning power factor inquiries.

Distribution – System Optimization program – This program is mainly concentrating on voltage conversions to minimize line losses. Some sections of the total program have been converted and we would expect to see reductions in our actual losses in future years. One lesson learned on this program is that different conversion projects can provide very different results from a TRC conservation aspect. Any evaluation of future conservation programs involving conversion projects should examine this aspect. The program was substantially completed in 2006 with final completion slated for early 2007.

Building – Peak Shaving/Demand Response Generator Pilot program – This program was completed in late 2005. The intent of this program was to provide load displacement of approximately 281 kW during critical peak times identified by the IESO. Due to the mild winter and summer of 2006 there has not been occasion on which we have run the generator during critical peak demand times. BHDI's service area is a summer peaking area; therefore we will continue to monitor the IESO for critical peak times where this generation can help to alleviate those critical periods.

Consumer Education & Training program – The program has encompassed advertising concerning BHDI's CDM plan, and support of programs encouraging conservation and challenging customers to conserve (Mayor's Megawatt Challenge). As well we participated with our local food bank in the distribution of compact fluorescent light bulbs to those individuals using the food bank over the Christmas season. It was thought that this program would reach customers who might not be contacted through other means. From these aspects we would term it a success. Again if additional funds become available this program should be continued. A key factor to gaining participation in conservation measures is to keep awareness of consumers high, this program has accomplished that.

Municipal Non-Profit Housing – Electrical Conservation Pilot – This program is currently a program still in progress. The focus of this program is to review low-income housing units for potential conservation measures. In 2005 an energy audit was completed identifying areas where energy conservation can be realized in the buildings. The first project undertaken and completed from this audit was the retrofitting of light fixtures to energy efficient fixtures. In 2006 an appliance retirement program was implemented. The guidelines of the project were the replacement of refrigerators and dishwashers with new energy efficient Energy Star qualified appliances. This program funded 75% of the costs of purchase, installation and environmentally friendly disposal of the old appliances. In the TRC calculations the OEB approved reduction of 74 kwh per

year for refrigerators was used. Barrie Hydro would note that these refrigerators were all in the 10 to 15 year old range, so that actual kwh savings were more in the range of 760kwh (from TRC sheet Avg existing stock 1200kwh – Energy Star 440kwh = 760kwh). In 2007 working with the Non Profit Housing Corporation we hope to continue this appliance program to encompass additional units at the Non Profit Housing Corporation.

**Building – Control of Lighting & Equipment, Lighting Retrofit, & Building Sealing program** - This focused on BHDI's administration & operations building at 55 Patterson Road in Barrie. This building was built in the late 1980's and while some energy efficient methods were designed in the building, new & improved conservation methods and equipment now are available. In 2005 two projects were initiated, automated controls of building lighting and HVAC fans; and resealing (caulking) of the building exterior. In 2006 the project undertaken was a change out of T12 to T8 lighting fixtures. This program is substantially complete. We note that the projects within this program realized a significant TRC value.

**Municipal – LED Traffic Lights Pilot** – This program was partnered with the City of Barrie to replace any current technology Traffic Lights with energy efficient LED Traffic Lights. BHDI had budgeted as part of its third tranche CDM Plan to fund \$350,000 towards this project. In late 2006 a portion of the material was purchased by the City of Barrie in the amount of \$172,676, which BHDI funded. The installations of the new LED signals will be completed in March of 2007. There will be 124 traffic signals converted to LED's with a total monthly savings in kwh of 89,652 kwh. For kw demand savings we equated the TRC sheet example of 3 W LED Exit sign at a summer peak demand savings of .026 kw to the number of LED lights in a traffic signal. We estimate the kw peak demand savings to be 122.326 kw in total. As per the Appendix B instructions we have entered only the TRC costs in the amount of \$153,333. We estimate that when completed this program will have a Benefit to cost Ratio of 6.36, a significant ratio.

**Conservation & Demand Management Research** – The premise of this program is to encourage new technology, new types of conservation awareness programs, and any other new innovative programs that BHDI may develop or that may come to our attention. In 2006 BHDI helped to sponsor a conservation workshop for businesses in conjunction with the Ministry of Small Business & Entrepreneurship. As well CFL light bulbs were distributed at different events. In 2007 some of the programs anticipated are partnerships with local School Boards for innovative curriculum programs and participation in a cold water clothes washing program. We will continue to seek out innovative programs which further the conservation initiative.

## **CONCLUSION**

BHDI feels that year two of our CDM program continued to build on the successes realized in year 1 of the program. Spending of approximately \$825,000 in year two and

life to date spending of \$1,425,000 represents approximately 75% of our total CDM Plan amount. Through our programs we have raised customer awareness, strengthened the efficiency of our plant, provided emergency load displacement, and educated customers on conservation measures they can affect. Year two (2006) of our program saw significant accomplishments with the Non – Profit Housing appliance replacement program, the start of the LED Traffic signal replacement program, and a continued focus on our System Optimization Program. These programs and those to be implemented in 2007 including the Solar Hot Water Tank demonstration project continue to give us a better understanding of what programs work and the best vehicles by which to deliver them. From the knowledge gained from this initial CDM Plan we feel that we are in a stronger position to deliver and implement potential conservation programs and initiatives in the future.