



Oshawa PUC Networks Inc.

ED-2002-0560

CDM Third Tranche Funding

2006 Annual Report

March 31 2007

1. INTRODUCTION	3
2. EVALUATION OF OVERALL PLAN	4
3. DISCUSSION OF THE PROGRAMS	5
3.1 Residential Customers	5
Establishing Baselines and Measuring Impacts	5
Customer Awareness and Education.....	6
Residential Non-Profit Housing Lighting Retrofit	9
Co-Branding	10
Smart Meter Residential.....	11
Harris CDM Customer Module.....	11
3.2 Commercial and Industrial Customers.....	12
Independent Electricity System Operator Demand Response Pilot Project (TDRP).....	12
LED Street Light Initiative	13
Multi Unit Residential Bulk Meter Conversion.....	13
Commercial “LED Seasonal Lighting Retrofit”	14
“The Power Corner” Articles	14
3.3 System Optimization.....	15
4. LESSONS LEARNED.....	16
Working Together.....	16
Market Conditions.....	16
Regulatory and Policy Environment	17
6. CONCLUSION.....	18
 APPENDIX A	
 APPENDIX B	
 APPENDIX C	

1. Introduction

On December 10, 2004 Oshawa PUC Networks Inc. (OPUCN) was granted final approval for its Conservation and Demand Management (CDM) Plan as filed with the Ontario Energy Board (the "Board"). The Board's decision stated that annual reporting "should be done on a calendar year and should be filed with the Board no later than March 31st of the following year". On March 1, 2007 the Board issued an updated guideline on CDM reporting, this report has been prepared in accordance with those guidelines.

OPUCN serves more than 46,089 residential, 4,277, commercial and 537 industrial customers within its 149 square kilometers service area. Oshawa has traditionally been a winter peaking Utility with a large distribution of electric heating within its customer base. New construction along with continued growth in residential central air conditioning in part created a summer peak for Oshawa in 2006.

OPUCN's Conservation and Demand Management plan was designed to identify, alter, and measure reductions in consumption and demand for all customer classifications. Our second year of work includes the continuation of 2005 programs and the addition of some new for 2006. This report details our progress to the end of 2006 and provides some insight into programs in 2007.

2. Evaluation of Overall Plan

Please refer to Appendix "C" for an evaluation of OPUCN's Conservation and Demand Initiatives for the year ending December 31, 2006.

In reviewing the information provided in both Appendixes A, B, and C it should be noted that some of the work undertaken by OPUCN during 2006 was related to the continuance of programs from 2005. One such program is the UOIT residential electrical usage baseline study that will conclude in 2008. This will help us design 'best fit' CDM programs for our residential customers.

We have made solid strides in the area of customer education with our radio awareness program and our 36 minutes of "Watt Wise" energy tips on Roger's Television. For the first time since the early 90's we reached out to the young minds of grade five students with the "Generation Conservation" Education Pilot a program to teach students about energy and the value of conserving it. This project was funded in partnership with Whitby Hydro and Veridian Connections.

We produced measurable energy reductions through the promotion of Compact Fluorescent Bulbs, LED Christmas Lighting, and non-profit housing energy retrofits. Our progress to date has generated 1.3 million dollars in TRC, savings of 2.9 million kWh annually and a demand reduction of 1.028 mega watts.

We look forward to continued improvements in all areas for 2007 along with new focuses on commercial load management, education, and the proposed Ontario Power Authority programs.

3. Discussion of the Programs

3.1 Residential Customers

Establishing Baselines and Measuring Impacts

Program Description

In order to provide greater return on our CDM investment, we continue our quest to create targeted programs by studying energy usage patterns over a wide variety of residential customers. Partnering with the University of Ontario Institute of Technology (UOIT) this baseline study will examine, analyze, and conclude valuable information about energy consumption habits based on several criteria that can benefit CDM not only for today, but for years to come.

Discussion of 2006 Activities

Actions

- Another 300 potential smart meter locations were selected based on criteria such as income level, type of heating, age, and size of houses in 20 different categories.
- In depth surveys were compiled for each residence participating in the study. These surveys contained valuable questions on energy habits, types of appliances used, and views and beliefs on energy conservation.
- “Smart” meter technology was installed on participating residences to capture energy usage on an hourly basis in order to fully comprehend consumer usage patterns. This data will be collected and analyzed for a two-year period.
- Two compact fluorescent light bulbs (CFLs) will be given to each household as an incentive for their participation in the study. Once provided this will facilitate savings of almost 249,600 kWh.
- 87 Energuide energy audits were scheduled on participating households. The energy audits will establish a baseline and augment information we have on the homes today.

Target Group

- Residential customers

Benefits

- Allows the utility to establish a baseline that reflects Oshawa’s customers’ consumption patterns and work towards a custom fit solution for the energy efficiency programs we wish to provide.

Results to Date

- A preliminary study on the first 50 households is now complete.
- An Interim Report analyzing the data has been finalized.
- Certain trends have been recognized from the preliminary study. The ongoing data will confirm these trends.
- To date 190 (of 300) have agreed to the study.

- 40 of 87 home energy audits are complete.
- Smart meters have been installed.

Next Steps

- Continue our progress and achieve another 110 accepted residences for the study.
- Sustain our partnership with the University of Ontario Institute of Technology and the Ontario Centre of Excellence for continued results.

Customer Awareness and Education

Program Description

- OPUCN continues to use several forms of media to promote more efficient use of electricity within and beyond its own service area. In 2006 we have seen major advances in this category including the success of the Every Kilowatt Counts Campaign, the launch of the educational pilot “Generation Conservation”, the creation and airing of energy conservation tips on Rogers Television, our continued efforts with flyers and inserts, and the media exposure we have achieved on these projects.

Target

- All residential and business customers in the City of Oshawa

Benefits

- Raises awareness and perpetuates the need to reduce electricity consumption through wise use and more efficient technologies and to reduce demand during peak periods. Part of the program was also used to dispel misconceptions about electrical usage.

Discussion of 2006 Activities

Actions

- Participated in the Every Kilowatt Counts campaign and provided direct mailing addresses for coupon booklets to 50,000 customers.
- Took a lead role in the development and delivery of “Generation Conservation” an energy education pilot program. This was done in a partnership with Whitby Hydro and Veridian Connections. The pilot delivered science, math and reading exercises all geared at conservation of electricity to over 400 students in 16 schools from both the public and separate Boards of Education. The program was a curriculum based pilot giving our youth education, knowledge, and tools, to become Generation C – a generation of dedicated energy conservers.
- Designed and delivered a Watt Reader lending program jointly with the Oshawa Public Libraries that allows customers to borrow Watt Readers – free of charge. Watt Readers empower the customer with real time knowledge and the ability to target electricity costs within the home and adjust their consumption accordingly.
- Wrote, produced, and aired 12 energy saving video tips on Rogers Television. These are two minute segments each targeting specific areas of residential dwellings to educate customers in several areas of energy conservation.
- Distributed in our bills a “Winter Lights” promotional flyer. This pamphlet promoted energy conservation and the benefits of Seasonal LED lights. Several energy saving tips were

included. A cost effective collaboration with the City of Oshawa that included information on their Winter Lights Celebrations.

- Published a customer newsletter that was delivered twice last year with a focus on saving energy.
- Promoted OPUC Website specifically in the energy conservation category.

Results to Date

- With the Every Kilowatt Counts campaign, OPUCN was the leader in coupon redemption when compared to shouldering utilities.

Total number of redeemed coupons (including the Spring and Fall Campaign):

Ajax	10,055
Oshawa	18,711
Whitby	13,927
Courtice	14
Pickering	6,361

- The launch of Generation Conservation was a huge success. Peter Love, Chief Conservation Officer from the Conservation Bureau spoke passionately about his belief in this program and its impact for the future. All local media were present. Generation Conservation will deploy to the grade five students in Durham Region this fall but we hope the model will be adopted province-wide. OPUCN's was proud to bring our neighbouring Utilities together and develop this program.
- There have been 133 watt readers borrowed from Oshawa libraries since the launch of the program in November 2006. Local media were present to witness the launch and Oshawa's Mayor John Gray signed out the first Watt Reader. Program interest continues strong.
- Upon the watt readers return library patrons receive a free CFL. We had provided 133 complimentary CFLs to the end of 2006.
- Rogers Television was so pleased with the quality of our 12 Energy Saving Tips that they generously aired the tips several times more than originally agreed. A few of the energy savings tips can be viewed on our website at <http://www.opuc.on.ca/conservation/conservation-commercials/>.
- Received an award of recognition for our assistance in the Winter Lights program for promoting LED Christmas lights and general winter energy savings tips.

Next Steps

- The momentum of Generation Conservation continues to grow strong and receive additional support. It is slated for full deployment into all grade five classes in the Region of Durham public and separate schools in the fall of 2007.
- A pilot program called "Conservation Through Education" will be launched on earth day in five Oshawa schools. This pilot is designed to replace chocolate bars with CFLs in their fundraisers and to promote energy awareness. Local principals have showed great enthusiasm and want this to be an ongoing fundraiser. Zapper, our mascot will introduce the program to young students.
- The library watt reader program will continue with the addition of energy seminars.

- We look forward to continuing to leverage our relationship with the local media. They have been most supportive over the past year.
- We will continue to investigate the merits of being aligned with the “POWERWISE” branding that Ontario Government recently adopted.

Residential Non-Profit Housing Lighting Retrofit

Program Description

- Our goal is to identify areas where retrofit funding will generate the greatest energy savings for the Non-Profit housing sector. The plan helps offset the capital costs associated with lighting, cooling and other energy retrofits. Submitted proposals are accepted and a Total Resource Cost analysis is completed to ensure the viability of the project. If the proposal provides a positive TRC the money is allocated until the program is completed. Verification of the retrofit must be presented and then Utilities portion of the funding is advanced.

Target

- All “Not for Profit” housing in the City of Oshawa

Benefit

- Assist in the cost of energy retrofits providing funding for organizations that wouldn't normally be able to pay for the entire capital retrofit program.

Discussion of 2006 Activities

Action

- Two applications for funding were received on four locations in Oshawa. Both were accepted with approximately \$6,000 allocated to the first request and \$40,000 to the second.
- The first retro fit involved lighting only and has been verified and the funds advanced. The second involved the upgrading lighting and the replacement of refrigerators. Verification of the work is now complete and the funding was advanced in early March of 2007.

Results to Date

- For these two locations alone, the annual energy savings total 230,400 kWh with a demand reduction of 106 kW.

Next Steps

- Identify further opportunities to assist energy reduction.
- Leverage the OPA's Business Incentive Program in the upcoming year that will allow us to continue energy conservation for additional non-profit housing projects.
- Watch to see if the OPA Conservation fund makes additional money available for this sector.

Co-Branding

Program Description

- The powerWISE™ co-branding program was originally designed to become the ‘top of mind’ brand for energy efficient products and programs in Ontario. Although an agreement was reached with the former owner of the brand and the Ontario Power Authority to licence its right of use there has no further information regarding its use.

Target

- All consumers in the Oshawa area.

Benefit

- A Single recognizable branding for Ontarians.

Discussion of 2006 Activities

Action

- OPUCN has signed up for the initial stages to become an affiliate member. Early indication suggested the powerWISE™ branding would be available to OPUCN in March 2007. At the time of this report, there is no available date set when this brand sharing will take place.
- Keeping with the co-branding promotions, OPUCN partnered with the Conservation Bureau and participated in a seasonal LED light exchange. With local media present, Oshawa customers brought in a string of Christmas lights and exchanged them – for free – for a string of energy-saving LED lights. This program was launched at a local retail location.

Results to Date

- Generally the powerWISE™ brand has gained recognition and the large media exposure has helped it keep its momentum. The brand is recognizable for many now but needs to be released for all to use under license in Ontario.

Next Steps

- Once the branding of powerWISE™ becomes available to OPUCN, we will be evaluating the costs involved. The primary concern is how the cost of media purchases will be allocated to the powerWISE™ affiliates.

Smart Meter Residential

Program Description

- OPUCN actively supports the Minister of Energy's directive for the installation of 800,000 Smart Meters across Ontario by 2007. Keeping with this mandate, a study including an additional 300 Smart Meters was slated for 2006. It is important to understand which of the advancing communications technology is most efficient in order to effectively expand the Smart Meters citywide.
- Two pilot programs for residential "Smart" meters are already in place to enable the assessment of metering, communications, settlement, load control and other technologies used to accommodate the universal application of "Smart" meters. This also provides customers participating in the pilot programs with an incentive to conserve or shift energy use.
- As an element of the joint effort with the University of Ontario Institute Of Technology, the additional 300 Smart Meters play a key role in the execution of this study.

Target

- Residential Homes

Benefit

- This effort is designed to test technology that will assist the government in meeting its goal of 800,000 "Smart meters" installed by the end of 2007.

Discussion of 2006 Activities

Action

- Monitored and expanded existing Smart meter locations to assist in data acquisition for University of Ontario Institute of Technology residential energy use study.
- Participated as an active member in the Ontario Utility Smart Metering (O.U.S.M.) working group to share our results with utilities across the province.

Results to Date

- Meter functionality has been encouraging and meter testing continues.

Next Steps

- Complete the install of 300 Smart meters in the City to continue the test the technology.

Harris CDM Customer Module

Description

- In late 2006 Oshawa added the Harris CDM customer care module to its billing system and has made it available to customers. This software allows customers to look at their billing data on line and make choices of energy retro fits in the home and see the cumulative results.

Results to Date

- The module has only been in service three months and has not been widely advertised until it has been thoroughly tested by staff.

Next Steps

- We plan to introduce module to more customers in the first half of 2007. We will do this through our own website, mailings and seminars.
- We will monitor the “hits” to this portion of the customer platform and customer feed back. In future we may compare consumptions to see if actual reductions have resulted from the customer’s changes.

3.2 Commercial and Industrial Customers

Independent Electricity System Operator Demand Response Pilot Project (TDRP)

Program Description

- This program was designed to help customers benefit from the I.E.S.O’s demand response pilot project. Customers were assisted in determining what load they could easily drop from when requested to by the I.E.S.O. This was a two-year pilot, directed at customers who can reduce demand when notified.

Target

- This program is aimed at interval metered larger customers who can shed loads on notification from the I.E.S.O.

Benefits

- Allows the I.E.S.O. to shed load in emergencies and high price point times quickly.

Discussion of 2006 Activities

Action

- An email advisory program that was price driven was set up. This program sent alerts to a customer indicating a price threshold has been attained and that it would be beneficial for the system and for them financially to drop load.
- Given the cooler summer of 2006 there was less of a system loading issue.

Results to Date

- There were 1282 notifications to customers to drop load from the system
- There were 8 customer responses to this request
- A total of 88,000 kWh were removed from the system in 2006.

Next Steps

- The TDRP program winds up in April of 2007.
- We are reviewing what program(s) might provide viable alternatives to TDRP. OPUCN continues to have interest in Commercial and Industrial load control and we look forward to offering this to our customer base.

LED Street Light Initiative

Program Description

- This initiative involves replacing traffic signals at intersections with light-emitting diode (LED) technology that is quickly becoming the standard due to its longevity and energy saving qualities.

Target

- The initial target is intersections that will provide the highest level of return on investment (ie the largest energy reduction per intersection).

Benefits

- The LED technology in traffic lights reduces energy use by over 80%. Coincidental benefits include less maintenance (due to the longer life span) and improved signal visibility.

Action

- OPUCN and the City of Oshawa have agreed on a funding formula of one third of the costs to a maximum of \$25,000 to retrofit 8 intersections with LED technology.

Results to Date

- City counsel is currently finalizing their 2007 budget and this project will go forth once these details are established.

Next Steps

- Begin installations in mid summer of 2007.

Multi Unit Residential Bulk Meter Conversion

Program Description

- Switch multi rental units from a bulk metering style to individual metering units.

Target

- Pilot One Bulk Metered Residential Apartment Complex.

Benefits

- Studies have shown that switching from bulk metering to individual metering generates an energy savings between 15% and 25% for non-electrical heated buildings and over 30% in electrically heated buildings
- By enabling residents to track their consumption and take advantage of possible price differences, choices of energy conservation or shifting their electricity use to off peak hours becomes beneficial.

Action

- 155 Colborne St. has been switched from bulk metering to individual metering.
- This building now consists of eight apartment meters and one house meter.

Results To Date

- When comparing the three years average consumption to the first full year of individual metered consumption there has been a 23,000 kWh reduction in consumption. This translates into a savings of just over 10% from the baseline consumption of the bulk meter.

Next Steps

- There are no plans to further retro fit other buildings with individual metering at this time.

Commercial “LED Seasonal Lighting Retrofit”

Program Description

- The Utility has had seasonal lighting on its building for more than 40 years. The fixtures were illuminated with 900-7 watt bulbs. In order to showcase LED Technology we investigated the cost of fixture replacement or a bulb retro fit. It was decided the bulb retro fit was far less costly.
- The existing seven-watt bulbs were replaced with comparable lumen output LED bulbs.
- The original load for the fixtures was 6.3 kW after the retro fit the load dropped to .405 kW. These displays were illuminated five hours a day for 45 days. Savings over a ten year life span of the bulbs is estimated to be 13000 kWh

“The Power Corner” Articles

Program Description

- A monthly advertorial column sponsored by OPUCN's in the Greater Oshawa Chamber of Commerce Business Matters monthly publication entitled “The Power Corner” aimed directly at the commercial and industrial sector.

Target

- All commercial and industrial customers in the City of Oshawa.

Benefits

- In preparation for the upcoming OPA programs, it is necessary to inform commercial and industrial customers regarding the forthcoming projects so they can prepare to take advantage of such programs. It is imperative that these customers recognize that energy conservation is a win-win situation.

Action

- Monthly articles are written from an energy management standpoint for industrial and commercial customers to promote the understanding of the electricity markets and programs.

Results to Date

- Two monthly articles have appeared with several more slated for the upcoming year.

Next Steps

- Continue to use the column as a vehicle to communicate any prospective information from the OPA to business customers in our community.

3.3 System Optimization

Program Description

- OPUCN has identified that it requires technology enhancements in order to properly perform distribution system optimization. The technology enhancement involves the purchase of distribution system software.
- Distribution system optimization software has been researched and a software package has been selected for purchase. The components of the GIS system requiring upgrade have been identified and a short list of vendors has been created.

Results to Date

- We have reviewed and assessed several geographical information systems and have selected a vendor.

Next Steps

- Purchase and install the distribution system optimization software (We have secured a satisfactory quote and the software will be installed shortly after the completion of the GIS upgrade).
- Use the software to perform the distribution system optimization calculations.
- Perform the necessary field operations to optimize the distribution system.
- Measure the actual results of optimizing the distribution system.

4. Lessons Learned

Working Together

This year OPUCN partnered with two other local utilities to develop and launch a pilot education program. The result was the Generation Conservation grade 5-science program that designed to create a generation of conservers. Without the co operation and financial support of the other utilities the program could not have been developed. Generation Conservation is scheduled for launch in all Durham Public and Catholic School Board grade five classrooms fall of 2007.

We are pleased to be participating with the University of Ontario Institute of Technology (UOIT) and The Ontario Centers of Excellence in a jointly funded study of residential customer energy consumption patterns. Looking for synergies and partnerships in CDM is essential to the success of future CDM initiatives and maximizing the return for each CDM dollar invested.

In conjunction with the Independent Electricity System Operator (IESO), OPUCN distributed an introductory letter and a guide entitled "Managing Your Electricity Costs – A Guide For Business" to local businesses not only to educate and instigate energy conservation, but also to invite comments and questions on a feedback basis to build a trusting relationship with our commercial clientele. An ongoing database has been established to keep abreast of any energy conservation issues and questions that arise.

Oshawa is located ½ hour east of Toronto and we often find ourselves challenged to provide similar CDM programs to those offered by utilities in the Toronto market. A unified approach to programs from the Ontario Power Authority coupled with customized local programs should help drive customer participation.

Market Conditions

The term "greening" has picked up considerable momentum in the media and this is helping to drive many residences and business to review their personal and operational impacts on the environment and community. This continued focus should help contribute to the success of both existing and new programs.

The current form of pricing in the residential sector has taken some of the "sting" out of the pricing of electricity and may not be sending the kind of price signals to customers that would drive load shifting through savings.

Through our continued efforts to target residential customers to educate them on energy conservation using the media (such as the Rogers Television Energy Saving Tips) customers are becoming more and more comfortable with the term "Smart" meter and there seems to be a growing appetite for this metering style.

We believe that ongoing education is key ingredient to the success of all CDM initiatives. It is essential that we make the young energy users of today aware of the finite energy resources and create a new culture of conservation that stays with them for a lifetime.

Regulatory and Policy Environment

During 2006 the Ontario Power Authority (OPA) emerged as the primary agency charged with developing and delivering Conservation and Demand Management (CDM) programs for electricity consumers in Ontario. The OPA is gearing up to provide \$400 million in funding for CDM programs targeted at all classes of consumers. The Local Distribution Companies (LDCs) will be the primary delivery agents for the programs. The relationship between individual LDCs and the OPA will be formalized by means of contracts between the two parties. These contracts consist of a master contract governing the roles and responsibilities of each party and schedules containing the details of each program to be delivered.

The OPA programs are designed for universal, or at the least regional, delivery throughout the province. The Ontario Energy Board (OEB) will continue to fund local initiatives which are designed for unique local conditions through distribution rates.

1. Conclusion

Overall, 2006 has proved to be a very successful CDM year for Oshawa PUC Networks Inc. An internal reorganization coupled with incremental staffing allowed a more refined and focused approach generating stronger results.

We believe that education is key to the sustainability of all CDM programs and to that end we encourage the Board to review its treatment of educational CDM expenditures. Creating a “Culture of Conservation” is an ongoing process and with the appropriate funding model Local Distribution Companies will be able to play an important role in this area.

2007 will prove to be an aggressive year for Conservation and Demand Management at OPUCN. Programs targeting peak load control, continued education, the Every Kilowatt Counts Campaign, and a stronger focus on industrial and commercial customers should yield some of the greatest reductions in energy and demand to date. OPUCN looks forward to continuing to assist the province in achieving “a Culture of Conservation” in Ontario.

For further Information about Oshawa PUC Networks Inc. and it's Conservation and Demand efforts please contact:

D.J. (Don) Pitman
Manager of Communications and Energy Conservations
Oshawa PUC Networks Inc.
100 Simcoe St. South.
Oshawa, Ontario, L1H 7M7
dpitman@opuc.on.ca
Toll free: 1-677-997-2899 Ext. 5238
www.opuc.on.ca