EB-2004-0532

BarrieHydro Distribution Inc.

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December 3, 2004

(sent via e-mail & courier)

Ontario Energy Board
2300 Yonge Street
26th Floor
P.O. Box 2319
Toronto, Ontario
M4P 1E4

Attention: Mr. John Zych
Board Secretary

Re: 2005 Conservation and Demand Management (CDM) Plan
RP-2004-0203

Dear Sir:

Per the OEB Procedural Order RP-2004-0203 dated October 5, 2004 Barrie Hydro Distribution Inc. ("Barrie Hydro") is hereby applying for a final order (Option # 2) of the Board (subject only to the ultimate review of the actual expenditures) for "Barrie Hydro's" 2005 CDM Plan in advance of Barrie Hydro applying for their third installment of market adjusted revenue requirement in 2005.

The attached document, prepared by Barrie Hydro, entitled "2005 Conservation and Demand Management (CDM) Plan' dated November 30, 2004 and identified as Revision # 3 outlines our planned spend of the amount $1,907,855.00 or an amount equal to one year's incremental returns from the third installment of the market adjusted revenue requirement.

Trusting the above is acceptable and should the Board require further information please do not hesitate to contact the undersigned.

Respectfully Submitted,

Glen R. Dufton, P. Eng., M.B.A.
Vice President - Corporate Affairs, Corporate Secretary
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GRD/grd

Encl: BHDI 2005 CDM Plan

cc. G. Todd, President & C.E.O., Barrie Hydro Distribution Inc.

BarrieHydro
Distribution Inc.

2005
CONSERVATION AND DEMAND MANAGEMENT (CDM) PLAN

BARRIE HYDRO
DISTRIBUTION INC.

November 30, 2004

Revision # 3

This document was prepared by:

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1 The context for Barrie Hydro's 2005 CDM Plan

- Barrie Hydro's 2005 CDM Plan supports Ontario's Energy Policy and through example Barrie Hydro will continue to do its part to create a 'conservation culture' in Ontario.

- Through this plan, Barrie Hydro will be better able to "Walk the Talk" with regard to Conservation and Demand Management. The Barrie Hydro programs in this Plan go towards putting its own house in order, so that we can advise and demonstrate to our customers how to conserve.

- Barrie Hydro has already implemented many Conservation measures such as the installation of 'anti-idling' engine start-stop devices on Barrie Hydro Aerial Trucks, a Domestic HWT Storage System, a No Heat Vehicle Storage Building, a Low Heat Warehouse, installation of Low e-glass Windows, and Zone HVAC. Barrie Hydro, during 2005, plans to use 'BioDiesel' fuel for its heavy vehicle fleet. In addition, it will be considering other Conservation measures that will lower its operating costs.

- Barrie Hydro's Web site www.barriehydro.com offers both its Residential and Business Customers suggestions on how to save energy. This site will continue to be updated with the latest Conservation and Demand Management information.

- Promoting Conservation and Demand Management is another tool for Barrie Hydro to ensure that the electrical distribution system is of sufficient capacity for its seven (7) Service Area's. These areas are high growth relative to other areas of the Province. Growth for 2005 is predicted to be 4.5% in terms of Customer growth, 5.1% kW electrical demand & 3.2% kW in terms of consumption.

- Barrie Hydro's 2005 CDM Plan assumes that the required CDM spent is $1.9 million ($1,907,855.00 actual).

- This report deals specifically with Barrie Hydro Distribution Inc.'s 'Conservation and Demand Management' Plan for 2005. That said, the 2005 CDM Plan assumes that of the $1.9 million, $750,000 will be spent during 2005, a large portion of the balance will be spent in 2006 with the remaining balance to be spent prior to September 2007.

- The programs in this Plan generally implement Conservation Measures that do not have reasonably short payback periods (greater than 3 years) and these programs will virtually end with the 2005 CDM plan spent.

- The individual programs listed in this plan will all be tracked for costs and energy savings achieved.

- In his letter of May 31, 2004, the Minister indicated his expectation of expedited short-term actions, and identified some of the areas for which prudent expenditures could be recovered:

    - Energy efficiency;
    - Behavioural and operational changes, including the application of benchmarking or "smart" control systems;
    - Load management measures which facilitate interruptible and dispatchable loads, dual fuel applications, thermal storage, and demand response;

- Measures to encourage fuel switching which reduces the total system energy for a given end-use;
- Programs and initiatives targeted to low income and other hard to reach consumers; and
- Distributed energy options behind a customer's meter such as tri-generation, co-generation, ground source heat pumps, solar, wind, and biomass systems.

- Barrie Hydro's 2005 CDM Plan is a 'balanced spend' of these funds with:

  - 18% targeted to low income and other hard to reach consumers
  - 18% targeted to the Municipality
  - 7 % targeted to overall Residential/Small Business
  - 4 % targeted to the Business community
  - 53% targeted to Barrie Hydro's Conservation Assets

2 Barrie Hydro's 2005 CDM portfolio – the programs

This section of the Plan includes a description of the proposed programs of Barrie Hydro's 2005 Conservation and Demand Management Plan. For each program, the following information is provided:

- A brief description of the program, its key measures, major objectives and outcomes, and the rationale behind the program.

- The implications of the program for Barrie Hydro, its customers and the marketplace.

- The proposed budget for the program.

2.1 Building - Control of Lighting & Equipment, Lighting Retrofit, & Building Sealing

- Barrie Hydro in addition to its head office building has 40 substation buildings.

- The head office was designed and built in the late 80's. Some energy efficient measures were incorporated but they are insufficient relative to today's requirements.

- In that the Head Office is the most visible of our buildings to the public, and the utilities desire to "Walk the Talk", the focus of this particular program will be on this facility and the substation buildings will be considered as part of future CDM Plans, especially looking towards lowering our operating costs.

- This program will deal with reducing the electrical consumption by:
  - Installation of motion/photo detectors and other automatic control devices on building lighting where appropriate;
  - Consideration will be given to reducing light levels where appropriate. Where higher light levels are required, task lighting will also be considered. The installation of additional lighting switches such that light levels can be set to Zero, 1/3, 2/3^{rds}, or 100% will also be evaluated;

- Installation of appropriate automatic controls such that building electrical/mechanical equipment are automatically turned off when not required (e.g: exhaust fans during non working hours, the existing electric HWT during peak demand periods and non working hours);
- Upgrading the existing fluorescent lighting to at least T-8, or better energy efficient lamps, thus reducing the wattage of a typical fixture by at least 40%;
- Consideration of using 'light diffusers' at the existing Sky Lights to project light further into the building will also be evaluated; in particular the vehicle storage and warehouse sections of the building;
- Retro Sealing of the building exteriors where appropriate;
- Improvements to the HVAC system to reduce the energy requirements.

- Reduction of electrical consumption within Barrie Hydro's buildings benefits all classes of customers; it will reduce the consumption and demand for electricity both within our service areas and provincially. It also sets an example for others to follow.

- The overall cost of the Building - Control of Lighting & Equipment, Lighting Retrofit, & Sealing Program is estimated at $225K and is made up of the following:

Head Office – 55 Patterson Road

	2005	2006	Total
o Installation of lighting & equipment controls	$ 25K	$ 50K	$ 75K
o Upgrade lighting to T-8 lamps or better	$ 75K	$ 25K	$100K
o Retro Sealing of Building exterior	$ 25K	-------	$ 25K
o Improvements to HVAC System	----------	$ 25K	$ 25K
	$125K	$100K	$225K

2.2 Building - Peak Shaving/Demand Response Generator Pilot

- Installation of a 300kW Generator and Controls such that Barrie Hydro's Head Office building can automatically be taken 'off the distribution grid' during times of Barrie Hydro's and/or the Province's peak power requirements (Peak Shaving) and/or at times when the market price of the electrical commodity exceeds the cost of running the 300kW Generator (Demand Response) and/or at times of power outages to the building (i.e. Stand-by Generation).

- The program has been identified as a pilot in that, if successfully deployed at this facility, it could be 'rolled out' to other non-utility owned buildings within our service area. That is, Barrie Hydro could 'call on the services of emergency standy-by generators owned by businesses and institutions' within our service area. For example, most if not all, of the City of Barrie's buildings and water well facilities have existing stand-by or back up generators. Using the outcomes of our Pilot they could be 'powered up' by the utility sending out an appropriate control signal over a secure communications network.

- This program will benefit all classes of customers, both within our service areas and provincially as it will reduce the demand (Peak Shaving/Demand Response) for electricity on our 'distribution grid', and in turn, the provincial grid.

- The estimated cost of the Building - Peak Shaving/Demand Response Generator program is: $150K and is intended to be completed over two years.

2.3 Building - Solar HWT Demonstration Project

- Installation of Solar Panels to supplement the heating of our existing Potable Hot Water System at Barrie Hydro's Head Office.

- The sizing of the Solar Panels would be similar to those installed in a typical residence so that Barrie Hydro can demonstrate and monitor the energy savings of this equipment and project the savings for residential applications.

- The existing system consists of a 24kW electric 52 gallon HWT connected to a 300 gallon insulated storage tank.

- This program will initially reduce the size of the insulated storage tank; Residential Sized Solar Panels or what is called a Hot Water Appliance will then be added to supplement the existing electric HTW.

- Information about the installation and operation would be made readily available to the public perhaps through the use of an appropriate monitor located in Barrie Hydro's front lobby.

- The attempted location of the Solar Panels will be such that they would be clearly visible by the public.

- It is noted that if the above Solar Panel assisted Potable HWT system proves to be successful, meaning demonstrated energy savings, a similar installation could be considered in the future to supplement the heating of the water used to heat the building.

- This program will benefit all classes of customers, as it will reduce the consumption and demand for electricity both within our service areas and provincially.

- The estimated cost of the Building - Solar HWT Demonstration Project is $10K, the intention is to complete over two years.

2.4 Distribution – Reduce Line Losses

- This program is focused on our distribution 'wires assets' to reduce our line losses.

- This program will deal with reducing the electrical consumption by:
    - Installing capacitors on appropriate distribution circuits to improve power factor and reduce line losses;

- Conversion of existing distribution systems to higher voltages to reduce line losses.

- With regard to the anticipated capacitor projects and where they will be installed, Barrie Hydro will select the feeders via a simulated 'load flow' study. This study will identify our 'worse' feeders and thus the capacitor banks will be deployed to improve these feeders first. It is anticipated that 60 to 80 kW of line loss reduction will be achieved by the 2005 CDM Plan spend on the capacitor program.

- With regard to the voltage conversion projects they will also be selected via a simulated 'load flow' study; two have already been identified. One area involves conversion from 8.32 kV to 13.8 kV and this area has long feeders where the supply is a significant distance away. The second area involves conversion from 4.8 kV to 13.8 kV. When converted both of these areas should result in combined savings of 80 to 100 kW.

- This program will benefit all classes of customers, as it will reduce the consumption and demand for electricity.

- The overall estimated cost of this specific Distribution – Reduce Line Losses program is $600K and is made up of the following:

	2005	2006	Total
o Installation of Capacitors	$ 50 K	$ 50 K	$100 K
o Conversion to higher voltages	$190K	$310K	$500 K
	$240K	$360K	$600 K

2.5 Business – Power Factor Penalty Awareness

- This program is somewhat similar to the installation of capacitors noted in the aforementioned program, except that the focus would be on those business customers who have poor Power Factor's, and would result in the reduction of line losses for both the utility and provincial grid.

- Poor Power Factor would be defined as anything less than 90%.

- Through appropriate programming of our CIS software business customers consumption records, who presently have appropriate metering installed to indicate same, would be used to automatically identify those business customers who have poor Power Factor. Unknowingly, on a monthly basis these customers are paying, what could be termed a Power Factor Penalty.

- Upon identification of poor Power Factor, the estimated dollar amount of the monthly penalty paid and the Power Factor would be printed on the business customer's bill as a separate and independent line item of the bill. Something like 'Did you know your Power Factor was XX% and a Power Factor Penalty of approximately $X,XXX.00 is included in the billing amount above'.

- The concept is that the Accounts Payable sections of the respective business customer would, upon seeing a penalty, alert and cause the firm's technical people to complete an evaluation of whether power factor capacitors should be installed or whether Power Factor corrected equipment should be purchased.

- At this time, other than identifying the Power Factor penalty, Barrie Hydro does not intend to become involved in the technical evaluations and/or the recommendations for the customer. Barrie Hydro would only assist the business in finding the appropriate consultants to complete the evaluations.

- This program will benefit the targeted Business Customers within our service areas.

- The energy savings success of this program will be challenging. That is, individual Business Customers could install capacitor banks or purchase Power Factor corrected equipment without the knowledge of Barrie Hydro. That said, we'll track/monitor the number of customers with 'Poor Power Factor'. A reduction of the number of customers and improvements in their Power Factor would be an indicator of the success of this program.

- The estimated cost of the Business – Power Factor Penalty Awareness program is $ 50K and would be spread over two years.

2.6 Municipal – LED Traffic Lights Pilot

- This program is somewhat similar to that of BC Hydro's successful Traffic Light Exchange Program.

- Within the City of Barrie a typical traffic control signalized intersection consumes 1177 kWHr's of electricity per month utilizing incandescent lamps whereas it would only use 193 kWHr's during the same period when the refractor and bulb is converted to a LED (Light Emiting Diodes) light source. A savings of roughly 83% on both kWHr's and kW's.

- This pilot program would be initially focused towards the City of Barrie who presently has approximately 120 non-LED equivalent traffic control signalized intersections. Per the City of Barrie the estimated capital cost to equip a typical intersection is $4,750.00 and thus the cost to convert all 120 would be $570,000.00.

- In addition to the reduction of consumed electricity, this program would also reduce the municipality's emergency callouts for burnt out incandescent bulbs as LEDs have much longer lifetimes.

- One of the conditions of contributing to the City of Barrie or other municipality through this program will be that they seek on a 'best efforts' basis other funding sources such as Natural Resources Canada's Office of Energy Efficiency and/or Green Municipal Funds so as to leverage this contribution by Barrie Hydro. Appropriate documentation that they sought other funding sources will be required.

- The program has been identified as a pilot, in that, if successful for the City of Barrie, it could be considered for future CDM programs and deployed throughout our service area to other municipalities. This would especially be true if the City is successful at obtaining other funding sources.

- This program will benefit the City of Barrie's taxpayers and ultimately the provincial electrical grid through reduced consumption of electricity.

- This Municipal-LED Traffic Light Pilot program is proposed to be funded a total of $350K spread over two years. If 'additional funding' from other sources is not successful then this budgeted amount will only convert 61% of the City of Barrie's traffic signals. Should 'additional funding' be made available then perhaps all of Barrie's traffic signals may be converted. Any excess funds from this program would either be deployed to another municipality within our service area or redistributed to another Barrie Hydro 2005 CDM Plan program.

2.7 Municipal Non-Profit Housing – Electrical Conservation Pilot

- This program is similar to that of Barrie Hydro's item 2.1. That is, it will focus on the reduction of electrical consumption within appropriate and selected buildings/units owned by Municipal Non-Profit Housing Corporations.

- This program will deal with reducing the electrical consumption by:
    - Installation of motion/photo detectors and other automatic control devices on lighting where appropriate;
    - Consideration will be given to reducing light levels where appropriate;
    - Upgrading the existing lighting and thus reduce the wattage of a typical fixture used in the building/unit;
    - Installation of appropriate automatic controls such that building/unit electrical/mechanical equipment are automatically turned off when not required;
    - Retro Sealing of the building exteriors where appropriate in electrically heated buildings/units;
    - Installation of Insulation where appropriate in electrically heated building units.

- This pilot program would be initially focused towards the Barrie Municipal Non Profit Housing Corporation (BMNPHC). BMNPHC operates roughly 1000 housing units within the City of Barrie. Of these units, approximately 60% are Subsidized Rental Units. That is, the County of Simcoe provides Rent Subsides so that low-income population and other hard to reach consumers can afford the units. The units are both bulk and individually electrically metered, a mix of electric and gas heated and the age of the units varies considerably.

- One of the conditions of contributing to the BMNPHC or other Municipal Non-Profit Housing Corporations through this program will be that they seek on a 'best efforts' basis other funding sources such as Natural Resources Canada's Office of Energy Efficiency and/or Green Municipal Funds so as to leverage this contribution by Barrie Hydro. In addition that they seek involvement with the Minister of Energy's projects focused on low income programs. (EDA Weekly Vol. 4, Issue 44). Appropriate documentation that they sought other funding sources will be required.

- The program has been identified as a pilot in that, if successful for the BMNPHC, it could be considered for future CDM programs and deployed throughout our service area to other municipal non-profit corporations. This would especially be true if the BMNPHC is successful at obtaining other funding sources. Should 'additional funding' be made available then any excess funds from this BMNPHC focused program would either be deployed to another municipality within our service area or redistributed to another Barrie Hydro 2005 CDM Plan program.

- This program will benefit those low income and hard to reach consumers mentioned in the Minister of Energy's letter of May 31, 2004 and ultimately provincial electrical grid through reduced consumption of electricity. It will also benefit the Tax Payers of the Province of Ontario, as the Rent Subsides is tax funded.

- This Municipal Non-Profit Housing - Electrical Conservation Pilot program is proposed to be funded a total of $350K spread over two years.

2.8 Residential/Small Business – Electrical Appliance Rebate Pilot

- The concept of this program would be to provide the target group a rebate for the purchase and/or elimination of such items as:
    - CRT (Cathode Ray Tube) P.C. Monitors for their computers and/or
    - Refrigerators
    - Electric Dryers
    - Household Appliances

- For example, rebates might be conditional on such things as:
    - It is a limited time offer only to Barrie Hydro customers;
    - Limited on a first come first served basis, one per household/business unit;
    - The rebate be a credit adjustment on their Barrie Hydro bill;
    - The old unit is destroyed – certification or proof required;
    - In the case of purchases the new unit is EnergyStar rated.

- Whenever possible the electrical wattage of the destroyed and new units would be recorded to track the estimated kW saved on a yearly basis.

- While the size of the rebate has not been decided at this juncture it could range between $30 to $100 dollars. Barrie Hydro believes other LDCs such as Toronto Hydro intend to include a similar program in their 2005 CDM Plan spend and we will be attempting to partner with another LDC in this specific program.

- This program will benefit the targeted Customers.

- The estimated cost of the Residential/Small Business – Appliance Rebate Pilot is $115K spread over two years.

2.9 Consumer Education & Training

- In order to satisfy the Governments objective to create a 'Conservation Culture' Barrie Hydro will have to continue to do its part by actively promoting Conservation and Demand Management by participating in local events, producing/purchasing Conservation flyers, Radio/TV advertisements, etc.

- Additionally, Barrie Hydro will assist customers to make the best use of consumption information provided through their customer bills.

- This program will benefit all Barrie Hydro customers.

- The estimated cost of the Consumer Education & Training program is proposed to be funded at a total of $25K spread over two years.

2.10 Conservation & Demand Management Research

- Research will be required to assist in the design of the 2005 CDM Plan programs and prepare for 2006 and beyond. The research program will involve identification of priority research areas, investigation of these areas and documentation of findings.

- Additionally, Barrie Hydro will have to 'out source' some aspects of the aforementioned programs, particularity where it does not have the resources within the organization.

- Barrie Hydro has identified the following areas where it may wish to research opportunities in the short term:

    - Technologies for automatic load-shedding from appliances behind the customers meter such as air conditioners, electric hot water tanks;
    - Distribution system standards, and how these might contribute to reducing electricity losses.

- These, and possibly other research areas will be considered, and the specific work to be undertaken will be selected.

- This program will benefit all Barrie Hydro Customers.

- The estimated cost of the Conservation & Demand Management Research program for is $25K.

3 CDM Budget Summary

The following table presents a summary of the total Barrie Hydro 2005 CDM Plan for the period 2005, 2006 & 2007.

	Program Item:	2005	Total
2.1	Building - Control of Lighting & Equipment, Lighting Retrofit & Building Sealing	$ 125K	$ 225K
2.2	Building - Peak Shaving/Demand Response Generator	$ 75K	$ 150K
2.3	Building - Solar HWT Demonstration Project	$ 5K	$ 10K
2.4	Distribution – Reduce Line Losses	$ 240K	$ 600K
2.5	Business – Power Factor Penalty Awareness	$ 25K	$ 50K
2.6	Municipal – LED Traffic Lights Pilot	$ 100K	$ 350K
2.7	Municipal Non-Profit Housing – Electrical Conservation Pilot	$ 100K	$ 350K
2.8	Residential/Small Business – Electrical Appliance Rebate Pilot	$ 50K	$ 115K
2.9	Consumer Education & Training	$ 15K	$ 25K
2.10	Conservation & Demand Management Research	$ 15K	$ 25K
	Total *	$ 750K	**$1900K

* Note: As noted in some of the previous sections of this report, should one of the programs listed above be under or overspent then Barrie Hydro reserves the right to re-deploy the funds within the programs listed in this 2005 CDM Plan. It does not intend to create new programs should the above plan be underspent for the 2005 CDM Plan spend.

** Note: Amount has been rounded as the actual 2005 CDM Plan spend is $1,907,855.00