EB-2005-0207

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January 17, 2005

Mr. John Zych, Board Secretary
Ontario Energy Board
26th Floor
2300 Yonge Street
Toronto, Ontario
M4P 1E4

Re: 2005 Rate Filing – ED-2002-0575 (RP – 2005-0013, EB – 2005-0088)
Conservation & Demand Management Plan (RP – 2004 – 0203)

Pursuant to the OEB's December 20, 2004 Filing Guidelines for Distribution Rate Adjustments, Waterloo North Hydro Inc. hereby submits its April 1, 2005 rate application. We enclose six (6) hard copies and two diskettes containing an electronic format of the 2005 RAM spreadsheets.

We also include six (6) copies of our Conservation & Demand Management Plan for final order of the Board.

Please contact Albert Singh at (519) 886-5090 Ext. 210, Email asingh@wnhydro.on.ca should Board staff require further information.

Yours truly,

Rene W. Gatien

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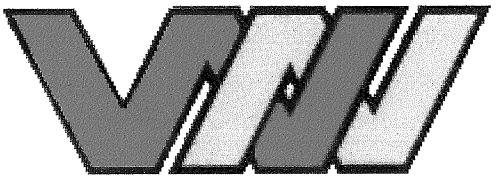
President & CEO

OEB BOARD SECRETARY	
File No: EB-2005-0207	SubFile:
Panel	
Licensing	ZC-SM-AF
Other	
00/04	MH

Attachments: Manager's Summary & 2005 RAM spreadsheets – 6 copies
2005 RAM Diskettes
Conservation & Demand Management Plan – 6 Copies

CONSERVATION AND DEMAND MANAGEMENT PLAN

ONTARIO ENERGY BOARD FILE NO. RP-2004-0203



WATERLOO NORTH HYDRO INC

January 11, 2005

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INTRODUCTION AND BACKGROUND

Waterloo North Hydro Inc. is the local electricity distribution company providing electricity distribution services to 46,000 customers in the City of Waterloo, the Township of Wellesley and the Township of Woolwich. Our service territory is 656 square kilometres, consisting mostly of rural areas – 590 square kilometres of rural territory and 66 square kilometers of urban territory. However, only 5% of our customer base is rural.

In December of 2003, the Minister of Energy indicated the government's intention to permit Local Distribution Companies (LDCs) to apply to the Ontario Energy Board (OEB) for the next installment of their allowable return on equity beginning March 1, 2005. The approval by the OEB for this final installment or third tranche was on the condition that LDCs reinvest an amount equal to one year's incremental returns of their third tranche, in conservation and demand management activities. The Minister of Energy in a letter dated May 31, 2004, granted written approval to all distributors to apply to the Ontario Energy Board for approval to establish a deferral account to record costs incurred with respect to conservation and demand management activities.

The Minister's letter indicated that LDCs should pursue a broad range of programs that support the more efficient use of electricity in Ontario, including those that were discontinued on the opening of the electricity market, to reduce customers' overall energy demand and/or demand for purchased energy.

The letter also indicated that reasonable expenditures on the planning, delivery and evaluation of any of the following measures should be supported by the Ontario Energy Board:

- 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.

On October 5, 2004 the Board issued a procedural order (RP-2004-0203) setting out the process for how distributors may apply for approval of a Conservation and Demand Management Plan, and stipulating the filing requirements for a distributor's plan. Distributors were given the option of applying for interim or final approval of their plan.

This document outlines the programs proposed as Waterloo North Hydro's conservation and demand management program in response to the Minister's Directive and the Procedural Order from the OEB.

OUR APPROACH

Prior to the opening of the electricity market, Waterloo North Hydro had an Energy Services Group that provided advice to customers on energy conservation and demand side management. Under restructuring for the electricity market, this function was discontinued. Our water heaters were sold to a gas company; some of our staff with expertise in this area retired and some were deployed elsewhere in the company.

Our approach to responding to the Minister's directive, has been to draw on the internal expertise, some outside expertise, discussion of programs with other utilities and information from various websites and sources listed by groups such as The Canadian Energy Efficiency Alliance. We have borrowed ideas from the experiences of B.C. Hydro, Manitoba Hydro and a few energy efficiency and geothermal websites in the United States.

The time frames are short to compile a plan and as such we have not completed thorough studies on the initiatives proposed. We have put together a number of programs to touch on several customer sectors and address several of the objectives from the Minister's letter.

CONSERVATION AND DEMAND MANAGEMENT PROGRAMS

1. Residential Energy Efficiency Project:

   The Residential Energy Efficiency Project (R.E.E.P.) is a non-profit initiative of the Faculty of Environmental Studies at the University of Waterloo and the Elora Centre for Environmental Excellence. Evaluators are trained and certified in accordance to Natural

Resources Canada standards. R.E.E.P. uses the *Energuide for Houses* system to conduct a comprehensive assessment of a home's energy efficiency and provide recommendations for improvement.

The audit involves examining the windows and doors, attic and wall insulation, foundation, and heating/ventilation system, as well as executing a scientific air leakage test.

This program is aimed at raising consumer awareness of the benefits of energy efficiency, such as energy-cost savings, improved home comfort and indoor air quality. It will also identify and prioritize energy efficiency upgrades, providing consumers the facts needed to make informed decisions about their home energy use. The program leverages an existing program that is well established in the area.

Waterloo North Hydro will provide $30,000 to R.E.E.P. in 2005 to sponsor *Energuide for Houses* audits for residential customers in our service area.

2. Energy Efficient Traffic Lights and Street Lighting

The Region of Waterloo provides traffic lights at all intersections throughout the Regional Municipality of Waterloo. New traffic light installations use LED lights to illuminate the vehicle and pedestrian signals, while older installations use incandescent light bulbs. The LED lights use significantly less electricity than incandescent bulbs and the LED lights last six to ten times longer. However, the LED lamps are substantially more expensive and can range up to $150 per LED lamp compared to $2 per incandescent bulb.

Waterloo North Hydro, along with Cambridge and North Dumfries Hydro and Kitchener-Wilmot Hydro, propose to partially fund the replacement of incandescent bulbs with LED bulbs in the traffic lights throughout the Region.

This program will result in significant energy savings as the LED lights use 80 to 90% less electricity. It will also reduce maintenance costs as the LED bulbs last longer and are more visible.

Waterloo North Hydro will commit $100,000 towards this project. The project is expected to take until 2007 to complete.

Several years ago, Waterloo North Hydro worked with the municipalities in our service area to replace old streetlighting with energy efficient high-pressure sodium (HPS) streetlights. A number of streetlights were not replaced at the time in the rural areas and some villages of the townships in the service area. Waterloo North Hydro proposes to

work with the municipalities to fund the replacement of these old street light fixtures with newer, energy efficient HPS streetlights.

This program will result in energy savings, as the HPS streetlights are more efficient. It is difficult to determine the amount of savings until the individual street light locations and existing equipment is identified. This program will also reduce maintenance costs.

Waterloo North Hydro will commit $50,000 towards this project. The project is expected to take until 2007 to complete.

3. Loss Reduction on the Distribution System

Waterloo North Hydro will investigate and install technologies that will reduce losses on the distribution system. These technologies will include the deployment of capacitor banks, voltage conversion programs and upgrading of old transformers to newer low loss transformers.

All of these programs are aimed at energy efficiency of the distribution system, will help to reduce distribution system losses and will reduce the system demand. This in turn will help relieve growth strains on transmission network capacity and demand for generation capacity. These reductions will benefit all customers and will effect permanent changes that are not reliant on sustained changes in customer consumption.

Waterloo North Hydro will commit $365,000 towards this initiative. These projects are expected to be completed in 2005.

4. Smart Metering Pilot Project

Waterloo North Hydro has been reviewing several technologies as possible metering replacements for single-phase customers less than 50 kW demand (mostly residential). WNH has several areas where wireless communication may be an issue that will test the effectiveness of the Smart Meter technologies. We propose a pilot involving approximately 1,500 locations to be retrofitted with Smart Meters.

This project will support the Ministry of Energy commitment to deploy Smart Meters and is a technology that will enable behavioural changes in conservation and demand management. We are, however, unable to determine the net effect as this project must work in conjunction with rate structures to be determined by the OEB to encourage customers to conserve energy or shift the time of day for energy use.

Waterloo North Hydro will commit $300,000 towards this project. We expect the pilot program to be implemented in 2005.

5. Geothermal Energy Program

About 5% of Waterloo North Hydro customers are rural customers without access to natural gas for their primary heating source. Approximately 20% of our customers use electricity for the primary fuel source for home heating and hot water heating, and a larger percentage use electricity for home air conditioning.

An alternative source is available in geothermal energy systems for heating and cooling of homes, as well as hot water heating. The technology has been used in commercial buildings and custom homes for many years, and the technology has developed to a point where it is quite feasible to heat and cool all sizes of homes. The hurdle for some homebuilders is that the initial investment of installing a geothermal system costs more than the installation of a traditional furnace. The savings in energy costs however will more than pay for the extra initial costs of the geothermal system.

Waterloo North Hydro believes that finding alternative energy sources is very important for our rural customers and customers on electric heating. The Draft Report on implementing Smart Meters suggest that these customers may see rising heating costs under the proposed RPP under Smart Meters in the future. We also see fuel switching to geothermal systems as a long term and more dependable form of conservation, than programs where we need to rely on customer awareness and self-discipline to conserve energy. Waterloo North Hydro proposes to invest seed money into a local initiative that will promote the installation of geothermal systems for residential customers by funding the initial capital costs and then obtain repayment for the capital costs from the energy savings that the customer will be expected to see on their electricity bill.

Waterloo North Hydro will match the funds put into this initiative by a local geothermal energy company to allow the joint venture initiative to obtain support and funding from the financial institutions. The seed money will be required over a two to three year period to allow the joint venture to become self-sustaining.

This initiative will encourage fuel switching from electricity as a heating and cooling source. Waterloo North Hydro sees this as a more permanent and sustainable reduction in demand on the electricity energy supply as well as being a form of distributed energy sources.

Waterloo North Hydro will commit $250,000 to this initiative. The start-up funding will be required over 2005 to 2007.

6. Energy Audits for Industrial, Commercial and Institutional Customers

Waterloo North Hydro recognizes that we need to work with our customers to keep them successful in business if we are to retain them as viable successful customers. Energy Audits for Industrial, Commercial and Industrial customers will help these customers to shift load from peak times and to find ways to conserve energy. We propose to partner with a local Energy Audit Services provider to deliver audits to our customers. Waterloo North Hydro will investigate methods to promote to our customers the use of Energy Audits and the implementation of the recommendations from Energy Audits.

This program is aimed at consumer awareness and education at the business and institutional level. It should encourage behavioural and operational changes that will reduce demand and conserve energy. This program will leverage the expertise of a local, established services provider.

Waterloo North Hydro will commit $50,000 to this initiative for audits to be completed in 2005 and 2006.

7. Low Income Consumer Retrofit Program

Waterloo North Hydro has been a supporter of the Heat Bank in the Region of Waterloo. The Heat Bank is a service in its third year of operation, funded by the local hydro companies and administered through the Regional Social Services. The Heat Bank serves as a last source of support to purchase heat and energy for low-income households.

In the 2005 season, Waterloo North Hydro will work with the Regional Social Services to identify and implement energy efficiency programs for Heat Bank recipients. These programs may include home energy assessments and will look at retrofit programs for such items as occupancy sensor thermostats and lower wattage stove elements.

This project is aimed at raising awareness of the benefits of energy efficiency and energy-cost savings for low-income consumers. The project will leverage the expertise of an existing program in the area for home audits as well as the knowledge of the Regional Social Services network.

Waterloo North Hydro will commit $30,000 to this project, in addition to the financial support already provided to the Heat Bank. This project is expected to be completed in 2006.

8. Energy Conservation Information for Consumers

Waterloo North Hydro currently has a website that has some information on energy conservation for homeowners. Most of the information is simply retained from our expertise prior to utility restructuring. We are working with a website developer, updating our website to provide easier access to more information on energy efficiency and links to other websites.

Waterloo North Hydro will commit $30,000 to this initiative for completion in 2005.

ADJUSTMENTS TO THE PLAN

We have been unable to complete thorough studies and finalize the implementation details of various programs being proposed. This is especially true of programs involving municipal, regional or other parties in the implementation of the program. Waterloo North Hydro would ask that we be granted by the Board, the ability to shift funds within the programs of up to 20%, to allow for appropriate use of funds as the details of the program are flushed out.

SUMMARY AND REQUEST FOR APPROVAL

Waterloo North Hydro will make application for approximately $1.2 million as the third tranche of the Market Approved Rate of Return. The attached table summarizes the Conservation and Demand Management programs that we propose to undertake.

Initiative	**Funds Proposed**	**Expected Date of Completion**
Residential Energy Efficiency Project	$ 30,000	2005
Energy Efficient Traffic Lights and Street Lighting	150,000	2005 – 2007
Loss Reduction on the Distribution System	365,000	2005
Smart Metering Pilot Project	300,000	2005
Geothermal Energy Program	250,000	2005 – 2007
Energy Audits for Industrial, Commercial and Institutional Customers	50,000	2005 – 2006
Low Income Consumer Retrofit Program	30,000	2005 – 2006
Energy Conservation Information for Consumers	30,000	2005
Total Commitment	**$1,205,000**	

Waterloo North Hydro has endeavoured to put forward programs that are balanced in terms of touching on the different aspects of the letter from the Ministry of Energy. We trust these programs will receive the full and final approval of the Ontario Energy Board.