EB-2004-0531

ENWIN POWERLINES

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

Dear Mr. Zych:

Re: *ENWIN* Powerlines Ltd. Conservation and Demand Management Plan – RP-2004-0203

As per the Board's Procedural Order dated October 5, 2004, please find attached *ENWIN* Powerlines Ltd.'s proposed Conservation and Demand Management Plan.

The plan includes Conservation and Demand Management activities that *ENWIN* believes will be very instrumental in conveying the Minister's directive for Conservation and Demand Management in the Province. These initiatives include system enhancements to address the issue of system losses, the co-funding of Conservation initiatives of our larger manufacturing customers and also a customer and elementary school education program.

ENWIN is seeking approval for a final order of this Plan as described in Option 2 of the Board's Procedural Order dated October 5, 2004.

We look forward to receiving Board approval of our proposed Conservation and Demand Side Management Plan. Should you have any questions regarding our Plan, please do not hesitate to contact me.

Yours very truly,

ENWIN Powerlines Ltd.

Giovanna Gesuale
Manager, Regulatory Affairs
(519) 251-7300 ext. 779
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Attach.

ENWIN POWERLINES CONSERVATION AND DEMAND MANAGEMENT PLAN

APPLICATION FOR FINAL ORDER OF THE OEB

December 1, 2004

Contents

1 Introduction

In order for electricity distributors to be eligible for the next installment of the allowable return on equity in March 2005, they must reinvest the equivalent of one year of this amount in C&DM initiatives. Electricity distributors may apply now to the OEB for approval of their C&DM Plans in advance of the distributors' ability to recover these costs.

1.1 Options Afforded By The OEB

Distributors may apply in accordance with one of the following three options for approval of their C&DM Plans:

(a) apply now for an interim order of the Board;

(b) apply now for a final order of the Board (subject only to the ultimate review of the actual expenditures);

(c) apply for a final order of the Board (subject only to the ultimate review of the actual expenditures) as part of their application for 2005 rates.

ENWIN has elected to apply for a final order of the Board. Based on communication with OEB Staff, the OEB will need approximately six weeks to process a final order application.

1.2 Information Filed with Application on the Proposed Programs

As prescribed in the Board's Procedural Order dated October 5, 2004, *ENWIN* has filed within this plan the prescribed information for each of its C&DM initiatives as follows:

(a) a description of the proposed programs identifying the affected customer classes and the specific details of each program;

(b) the total program budget including the total amount and schedule of the annual expenses for the 2004-2007 time period; and

(c) the anticipated program benefits, including quantifiable benefits where these can be identified (i.e. energy savings (kW or kWh)). Where the program has anticipated qualitative benefits (such as enabling technologies or customer education), these qualitative benefits must be described.

2 Activities

2.1 OEB Recommended Activities

Meetings with the OEB have revealed the following to also be acceptable types of programs:

- system improvements that result in decreased line losses (i.e. conversions from 4.16 kV to 27.6 kV);
- incentives (5-10% of total program cost) given for commercial and industrial building retrofits and equipment replacement

Furthermore, based on the OEB Information Bulletin dated August 30, 2004, the following types of programs shall qualify as C&DM initiatives:

- incentive programs to encourage consumers to purchase energy efficient equipment (e.g., ENERGY STAR® appliances);
- distributor load control programs (e.g., hot water heater, pool pump, air conditioning load control); and
- pilot programs on remote load management (e.g., for peak shaving or load shifting) that may involve the purchase of interval meters and communications equipment and development of data management and reporting systems.

This Bulletin also references some programs of interest to distributors to leverage and build upon, including but not limited to *The Commercial Building Incentive Program*, *EnerGuide for Houses*, as well as rebates and incentives for selected *ENERGY STAR®* qualified products in Canada.

In his May 31, 2004 letter to distributors, the Minister indicated that without limiting the range of innovative proposals that may be brought forward, he believes that:

> "reasonable new expenditures on the planning, delivery and evaluation of the following specific measures should be supported by the Board:
>
> - energy efficiency;
> - behavioural and operational changes, including the application of benchmarking to "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, cogeneration, ground source heat pumps, wind, and biomass systems."

3 EnWin's Proposals

This section outlines *ENWIN*'s approach to implementing our plan.

3.1 Basis for Evaluating Activities

ENWIN is evaluating each probable C&DM initiative on an individual basis. Each evaluation considers the activity's appropriateness and viability. The major constraint is the forecasted dollars for this program – approximately $2,253,650 (actual amounts may vary depending on consumption), not inclusive of the Ford Annex Rate Class and exclusive of any payments in lieu of taxes.

3.1.1 Customer Class

ENWIN's C&DM Plan will target many different customer classes. The purpose of this policy is to leverage risk, increase visibility, and promote education at all customer levels. Program spending by customer class will not necessarily be in proportion to the program revenues by customer class.

3.1.1.1 Residential and GS <50

A portion of the spending on this program shall be directed to residential customers. Residential programs may include customer education, incentives for energy efficient appliances, lighting, and home improvement programs such as EnerGuide for Houses evaluations.

3.1.1.2 Commercial and Industrial Customers

This includes GS >50, Intermediate, Large Use 3TS customers, and Large Use Remaining.

Industrial and commercial customers are facing rising energy costs and in some cases, have the technical knowledge to identify conservation efforts that may lead to substantial savings in electrical energy consumption. *ENWIN* has facilitated meetings with its commercial and industrial customer base to participate in discussing qualified programs. These programs must clearly identify the technology solutions that will result in energy savings. The energy savings must be measurable. The program funding will be contingent on OEB approval and will be subject to available funding.

3.1.1.3 Development Expenses

Research of technologies or programs that could be employed for conservation or demand management activities can be applied against the third instalment of market adjusted revenue requirement up to $25,000, irrespective of whether any program is subsequently undertaken. Considerations include pilot smart meter programs, pay-as-you-go programs, and an implementation of a real time feedback device for residential electricity consumption.

3.1.1.4 System Improvement

The OEB has stated that system improvements such as line loss reductions qualify as C&DM initiatives. For example, a conversion from 4.16 kV to 27.6 kV infrastructure can reduce line losses approximately 97.8%.

3.1.1.5 Core Business Related

Programs shall generally be related to *ENWIN*'s core business of distributing electricity. That is, *ENWIN*'s programs will focus on reducing *electrical* consumption.

3.1.1.6 Maximum EnWin Contributions

Maximum *ENWIN* contributions will be approximately based on incremental revenues by customer class and the available dollars for the entire program.

ENWIN recognizes that, although its C&DM plan is quite equitable as far as incorporating the various rate classes, the OEB framework is dynamic. *ENWIN* will continue to assess its plan as new proposals are submitted by its various commercial and industrial customers. If necessary, *ENWIN* will re-allocate funds to respond to changes in customer demand. However, *ENWIN* will make its best effort to conform to its current funding plan.

3.1.1.7 Government Grant Programs and Tax Rebates

Where possible, *ENWIN* will support programs that offer government grants and tax rebates. For instance:

"On October 15, 2003, the Government of Canada launched a grant program to encourage homeowners, particularly those who have older homes that are in need of energy efficiency upgrades, to retrofit their homes to make them more energy efficient."

"Only homeowners who have had the EnerGuide for Houses evaluation and have followed up on recommendations will be eligible for a grant. The house must achieve a minimum energy performance improvement."

In addition, there are provincial tax rebates on the latest ENERGY STAR® qualified appliances.

4 Public Awareness

Implementation at the residential level shall involve extensive advertising in the newspaper and on flyers, on the company website, and on the customer's bill. Community initiatives will involve EnerGuide for Houses audits. Larger customers will be targeted through meetings and/or town halls. EnWin has already met with its three largest customers and many of its other major commercial and industrial customers.

5 Project Evaluation – Commercial/Industrial Customers

Commercial/industrial customer proposals shall be evaluated as soon as possible after submission. *ENWIN* will use the following selection criteria to decide how it will co-fund submissions:

(1) Conservation with Peak Shift
(2) Peak Shift
(3) Conservation
(4) Other

Thus, proposed programs that conserve and shift the peak demand will be given the highest priority for co-funding from *ENWIN*'s list of received submissions. Additionally, *ENWIN* will evaluate submissions based on sustainability, that is, the ability of programs to generate year over year savings.

Finally, at the completion of customer C&DM projects, *ENWIN* will require a professional engineer to certify that the proposed improvements – kW or kWh reductions – were made.

6 Tracking of EnWin Costs

The various parties involved at *ENWIN* will track time spent on Conservation and DM in a daily log. It is expected that these overhead costs will be recoverable, provided that they are not exorbitant (i.e. 50% of Conservation and DM budget).

The major roles of the C&DM program include Accounting/Finance/Regulatory, Advertising/Marketing/Corporate Communications, and Engineering. *ENWIN*'s Accounting/Finance/Regulatory personnel will be responsible for overseeing accounts, filing applications, and communications with the OEB. The Advertising/Marketing/Corporate Communications representatives will be primarily responsible for *ENWIN*'s educational initiatives (i.e. seminars, town halls,

programs for elementary school students, and *ENWIN*'s radio campaign). Finally, Engineering is responsible for technical matters, including coordinating the C&DM plan, awarding contracts, and ensuring smooth deployment of all initiatives.

7 Proposed Programs

7.1 System Loss Reduction/Power Factor Correction

ENWIN's is considering a couple of different system improvements: (1) a feeder conversion program and/or (2) a power factor correction program at its two municipally owned transformer stations.

Affected Customer Classes

By customer class, the conversion program directly affects 627 Residential and General Service less than 50 kW Demand customers, and 9 General Service greater than 50 kW Demand customers. The largest customer affected by this conversion has a load of approximately 80 kW. However, the reduced losses would also have an indirect effect on all customers.

Alternatively, the power factor correction program would reduce generation capacity, thus potentially impacting all customers.

Budget (Amount and Schedule of Annual Expenses)

An estimate for the design and conversion of 42-F-3 has been conducted based on recent (2003) per unit labour, material, vehicle and contractor costs. The funding required for the power factor correction program is similar.

$	2004/05	2006	2007	Totals
Operating Expenses	0	0	0	0
Capital Expenditures	0	909,090	0	909,090
Totals	0	909,090	0	909,090

Anticipated Program Benefits

A review of all feeders on *ENWIN*'s 4.16 kV system has revealed that conversion of heavily loaded 42-F-3 will bring about the *greatest reduction in line losses*. An additional benefit of this new infrastructure is increased system reliability, since *ENWIN* will be replacing old and less dependable infrastructure (poles, conductor, transformers) with new, more durable infrastructure. It is also important to note that 42-F-3 currently has insufficient backup. The converted line will be safer to operate and will have a much better chance of holding up in storm conditions. An additional qualitative benefit is the improved aesthetics of the new lines. From a feasibility perspective, this is a standard conversion of overhead plant. 27.6 kV lines are readily accessible on nearby College Avenue and Tecumseh Road.

Alternatively, *ENWIN* is considering a program to reduce reactive power losses at its MTS sites through the purchase and installation of power factor correction capacitor equipment. The current power factor is approximately 0.89. The proposed change would increase the power factor to 0.95.

7.2 Energy Conservation Media Campaign

As part of its customer education portion of C&DM, *ENWIN* will educate customers on the financial and environmental merits of conserving electricity. This will be done using the following media:

(1) Radio Programs
(2) Newspaper Bulletins
(3) Bill Inserts
(4) Print Media

The radio program represents the most significant portion of this campaign.

Affected Customer Classes

The radio broadcasts will be specifically geared to *ENWIN* service area's residential customers. *ENWIN* intends for these radio broadcasts to foster changes in electricity consumption within the community. Home efficiency improvements will be stressed. The newspaper bulletins and print media will also have local circulation.

Budget (Amount and Schedule of Annual Expenses)

$	2004/05	2006	2007	Totals
Operating Expenses	50,000	50,000	50,000	150,000
Capital Expenditures	0	0	0	0
Totals	50,000	50,000	50,000	150,000

Anticipated Program Benefits

The radio campaign will foster increased energy efficiency throughout the residential community by promoting the use of energy efficient appliances, lighting, and home improvement programs such as EnerGuide for Houses evaluations.

7.3 Distributed Generation with Local Large Manufacturer

Affected Customer Classes

Approximately 10 MW of additional generating capacity is available at an unnamed facility. However, due to an agreement reached when *ENWIN* built a new substation for this customer, this customer is obligated to purchase a set amount of electricity from *ENWIN* as a means for *ENWIN* to recuperate the initial capital costs of this substation. The customer has thus been unable to make full use of its generating capacity. *ENWIN* sees this as an excellent opportunity to reduce demand on the grid and for the customer to reduce their energy bill when it is more economical for them to use their generator. A meeting was held to discuss this and other possible initiatives the customer would like to undertake. The customer has carried out an analysis and has submitted it to *ENWIN*. Upon review of this analysis, *ENWIN* has deemed that lifting the aforementioned agreement is an economical and effective DM program.

ENWIN would like to strongly emphasize that our understanding is that we will be made whole on lost revenues associated with this and other reduced demand. *ENWIN* will suffer an estimated $33,579 per month in reduced revenues as a result of this particular initiative (based on $3.3579/kW variable distribution rate charge).

Budget (Amount and Schedule of Annual Expenses)

$	2004/05	2006	2007	Totals
Operating Expenses	0	0	0	0
Capital Expenditures	0	0	0	0
Totals	0	0	0	0

Anticipated Program Benefits

According to preliminary figures, this customer could reduce consumption from the grid by approximately 20,000 MWH per year.

7.4 Local Large Manufacturers

Affected Customer Classes

ENWIN representatives have met with facility engineers from Windsor's three Large Use 3 TS customers to discuss their participation in the C&DM program.

Budget (Amount and Schedule of Annual Expenses)

ENWIN is looking to co-fund various ventures with these local large manufacturers. The anticipated funding scheme is shown below:

$	2004/05	2006	2007	Totals
Operating Expenses	118,000	118,000	118,000	354,000
Capital Expenditures	0	0	0	0
Totals	118,000	118,000	118,000	354,000

ENWIN proposes to provide co-funding to make these programs feasible while keeping funding within reasonable limits with other C&DM program requirements.

In summary, *ENWIN* wishes its spending on Large Use 3TS customers to be in proportion to MARR dollars allocated from this customer class of approximately $354,600. The spending schedule is at this time uncertain; thus, an equivalent amount has been placed in each year for convenience.

Anticipated Program Benefits

Thus far, one manufacturer has provided *ENWIN* with an analysis of a fluorescent light fixture replacement program (T8-type replaced by T4-type fixtures). This program has a simple payback period of about 2.18 years and is projected to result in power reductions of approximately 152 kW and energy reductions of 1,278,779 kWh. According to the manufacturer's representatives, the manufacturer will only fund programs of this sort if the payback period is less than one year. The manufacturer's representatives assured *ENWIN* that they could provide *ENWIN* with documentation to confirm this policy.

Another manufacturer sent *ENWIN* a proposal for (1) the replacement of one partially loaded large air compressor with a staged system of smaller compressors and for (2) the installation of a 20-ton chiller resulting in the shutdown of a 1000 ton chiller for 60 days of the year. The total energy savings from these two programs is estimated to be 5,412,687 kWh.

The same manufacturer sent *ENWIN* another proposal for its other facility: this proposal includes (1) a lighting upgrade, (2) lighting control, (3) lighting conservation in washrooms and stairwells, (4) motion sensors in washrooms, and (5) re-lamping. Details can be found in the chart below.

Proposed Initiatives for *ENWIN*'s Energy Conservation and Demand Side Management Grants

Project Title	Total Savings Per Year	Project Cost	Payback in Years	Project Description
1. Lighting Upgrade	$21,100	$58,000	2.74	Savings will be achieved by re-lamping the fluorescent F40 (34 W) to T12 w /T8 ballast – qty 400 and F96 (215W) to T12 (185W) – qty 600
2. Lighting Control	$24,000	$12,000	0.5	Through the use of programmable timers, 12 lighting panels in the New Paint Shop will be programmed to blackout lighting on weekends and holidays. Savings is based on 2,700 – 400 W lights being blacked out for 500 hrs in the New Paint Shop
3. Lighting Conservation	$12,768	$29,970	2.35	Savings will be achieved by re-lamping the fluorescent T12 (46W) to 25W fluorescents w/ T8 ballast in 54 washrooms
4. Motion Sensors in Washrooms	$8,475	$11,244	1.33	Savings is based on lighting being off in 54 washrooms for a minimum of 12 hrs per day through the use of motion sensors
5. Re-lamping	$70,430	$82,200	1.17	Savings will be achieved by re-lamping 3,000 – 400 W metal halide lamps with 350W lamps
Total	$136,773	$193,414	1.41	

In addition to the submitted initiatives, this manufacturer is reviewing a project to replace all existing EXIT signs with EXIT signs that have LED backlights.

Other possibilities discussed with manufacturers to date include a Demand Response Program; repairing a reducing station that produces 6-8 MW of steam; energy efficiency upgrades including a new gas-fired compressor; power quality improvements to 2-1000 HP motors (to have them run at unity power factor); and a cogeneration project. Details will be provided to *ENWIN* in separate proposals submitted by these manufacturers.

ENWIN has indicated its preference for turnkey-type programs with measurable results and a minimum of overhead. Representatives in meetings indicated that it would not be very difficult to draft a proposal for Conservation and/or DM initiatives in their facilities. However, many felt that the timeline for proposal submission is short and have asked that *ENWIN* also allow the submission of further proposals at a later date. *ENWIN* admitted that it would consider further proposals; however, there is no guarantee that these will gain acceptance.

7.5 GS > 50, Intermediate and Large Use Remaining

Affected Customer Classes

A forum for these customers was held on Wednesday, December 1, 2004. A package on C&DM was distributed to those who attended and a presentation was made on the merits of participating in the program.

Budget (Amount and Schedule of Annual Expenses)

Again, *ENWIN* would like to see program spending in proportion to the MARR dollars allocated to this group. However, *ENWIN* will be crediting some of the reductions in losses from its conversion initiative (see 7.1) to this customer class. Again, the spending schedule is at this time uncertain, so an equivalent amount has been placed in each year for convenience.

$	2004/05	2006	2007	Totals
Operating Expenses	134,283	134,283	134,283	402,850
Capital Expenditures	0	0	0	0
Totals	134,283	134,283	134,283	402,850

Anticipated Program Benefits

Large customers such as these are often the most knowledgeable sources on how to improve their energy efficiency; thus, this forum should give these customers the impetus to draft plans for energy efficiency improvements they would like *ENWIN* to co-fund. *ENWIN* expects that these programs will be similar in nature to the Large Use 3TS customer programs.

7.6 Residential and GS < 50

Residential programs may include compact fluorescent light bulb give-aways; refrigerator buy-back programs; and incentives to purchase new appliances and to conduct EnerGuide for Houses energy audits (separate from Little River Acres audits).

Affected Customer Classes

All residential customers will be able to participate in this program.

Budget (Amount and Schedule of Annual Expenses)

$	2004/05	2006	2007	Totals
Operating Expenses	33,333	33,333	33,333	100,000
Capital Expenditures	0	0	0	0
Totals	33,333	33,333	33,333	100,000

Anticipated Program Benefits

This program will increase homeowners' awareness of energy usage and will reduce consumption for this customer class. This program is expected to foster a much-needed cultural change within the community.

7.7 Home Improvements – Little River Acres

Affected Customer Classes

Due to electric-baseboard style heating, the lower middle class Little River Acres area (984 single-family homes) can benefit greatly from an energy efficiency improvement program. In order for improvements to be tracked, EnerGuide for Houses audits will be conducted for ten typical style homes in Little River Acres.

Budget (Amount and Schedule of Annual Expenses)

Ten volunteer participants will engage in audits at $125/home. These audits are to be conducted in early 2005, with incentives for energy-efficiency improvements given to the volunteer homes immediately after the audits. The second audit will be conducted in early 2006, after which the rest of the energy efficiency improvements will be administered.

$	2004/05	2006	2007	Totals
Operating Expenses	1, 250	48,750	0	50,000
Capital Expenditures	0	0	0	0
Totals	1, 250	48,750	0	50,000

Anticipated Program Benefits

"Do-it-yourself" improvements will be motivated by incentives for energy efficiency improvements. A registered contractor may be used to implement these improvements. These improvements are expected to at least partially alleviate the extra burden carried by this group of customers due to their electric-baseboard style heating.

7.8 Educational Program for Elementary School Students

Affected Customer Classes

This program will be administered in elementary schools with the expectation that children will encourage their guardians to make the recommended improvements to their home. The program will involve kits and programs administered to elementary school students attending schools within the Greater Windsor Essex School Board.

Budget (Amount and Schedule of Annual Expenses)

$	2004/05	2006	2007	Totals
Operating Expenses	59,236	59,236	59,236	177,710
Capital Expenditures	0	0	0	0
Totals	59,236	59,236	59,236	177,710

Anticipated Program Benefits

Program benefits include customer education, reduced usage resulting from recommended improvements, improved efficiency, and fostering a culture of conservation within the community.

7.9 Traffic Engineering – LED Lights

Affected Customer Classes

This is a program that will be co-funded with The City of Windsor Traffic Engineering Department. The City needs this extra funding in order for this program to proceed.

Budget (Amount and Schedule of Annual Expenses)

$	2004/05	2006	2007	Totals
Operating Expenses	0	110,000	0	110,000
Capital Expenditures	0	0	0	0
Totals	0	110,000	0	$110,000

Anticipated Program Benefits

LED traffic lights use approximately 80% less electricity. Thus, this is a major efficiency improvement.

8 Overall Program Budget and Timeline Summary

$	2004/05	2006	2007	Totals
7.1	0	909,090	0	909,090
7.2	50,000	50,000	50,000	150,000
7.3	0	0	0	0
7.4	118,000	118,000	118,000	354,000
7.5	134,283	134,283	134,283	402,850
7.6	33,333	33,333	33,333	100,000
7.7	1, 250	48,750	0	50,000
7.8	59,237	59,237	59,237	177,710
7.9	0	110,000	0	110,000
Totals	396,103	1,462,693	394,853	2,253,650

9 Conclusion

ENWIN feels that the plan set out in this document helps to meet the Province's Energy Conservation and Demand Management goals. This plan describes many of the potential initiatives described in the Minister's letters and represents a starting point for *ENWIN*.

ENWIN is seeking approval from the Board so that it may begin the program's implementation process.

The above plan includes system enhancements to address the issue of system losses, the co-funding of Conservation initiatives of *ENWIN*'s larger manufacturing customers, and also a residential customer and elementary school program.

ENWIN is seeking approval for a final order of this Plan as described in Option 2 of the Board's Procedural Order dated October 5, 2004.

10 Contact Information

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