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January 18th, 2005

John Zych
Board Secretary
Ontario Energy Board
Box 2319, 2300 Yonge Street
26th Floor
Toronto, Ontario
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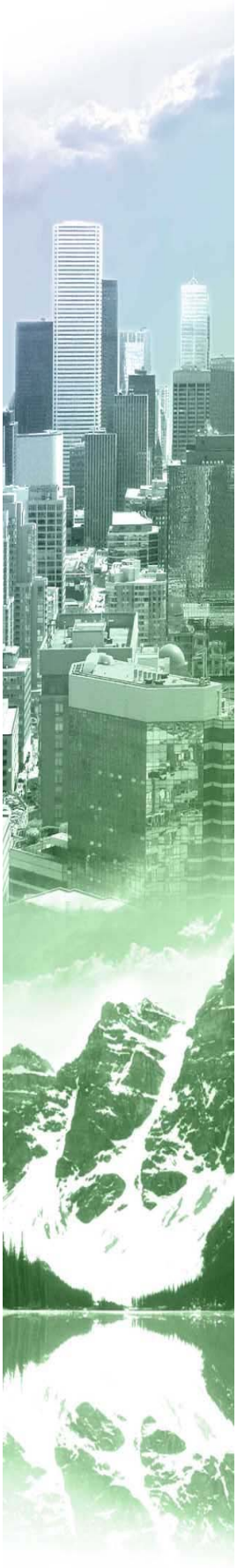
Dear Board Secretary,

Please find enclosed eight hard copies of *Towards standardization and simplicity for aggressive CDM in 2006* which is the reply evidence of the Canadian Energy Efficiency Alliance in the 2006 Electricity Rates Proceeding (RP-2004-0188).

In addition to these hard copies, electronic versions of the document have been sent via e-mail to Boardsec@oeb.gov.on.ca and Keith.Ritchie@oeb.gov.on.ca as required in Procedural Order 2 of 25 November 2004.

Sincerely,

Peter Love,
Executive Director



Towards standardization and simplicity for aggressive CDM in 2006

Prepared for the Canadian Energy Efficiency Alliance

OEB proceeding RP-2004-0188

INDEC

Towards standardization and simplicity for aggressive conservation and demand management in 2006

Prepared for

Canadian Energy Efficiency Alliance

OEB proceeding RP-2004-0188

INDEC

This document was prepared for the Canadian Energy Efficiency Alliance by IndEco Strategic Consulting Inc.

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Contents

1 Introduction

IndEco Strategic Consulting Inc. was retained by the Canadian Energy Efficiency Alliance[1] ('The Alliance') to review the conservation and demand management (C&DM) evidence filed in the Ontario Energy Board Proceeding RP-2004-0188 dealing with 2006 Electricity Distribution Rates, and to identify any matters of relevance to the Alliance that should be strengthened, clarified, corrected or added.

The Canadian Energy Efficiency Alliance supports mechanisms and approaches that will facilitate effective conservation and demand management by local distribution utilities in Ontario, These include approaches and mechanisms that remove any disincentives and that provide incentives to the achievement of C&DM.

As a result, the Alliance supports three key actions:

1. establishment of a lost revenue adjustment mechanism and an incentive mechanism for 2006 that sends the right financial and business signals to the utilities to carry out successful, aggressive CDM

2. a mechanism for local distribution companies (LDCs) who have spent their C&DM budgets from the third tranche to apply for inclusion of the costs of conservation and demand management programs in their 2006 rates

3. establishment of procedures to simplify calculation of incentives and to simplify auditing and evaluation.

The rationale and some suggestions for the actions to be taken are described in subsequent sections of this document.

The Alliance position on these matters is compared to those taken in other evidence filed with the Board, specifically:

[1] The Canadian Energy Efficiency Alliance is a not for profit organization established in 1995 to promote the efficient use of energy in Canada. The Alliance draws its membership from across industry and across Canada. As such, the focus of this reply evidence is on demand side management issues in the proceeding.

Paul Chernick. 2004. *Cost recovery for conservation and demand-management for Ontario electricity-distribution utilities*. Filed on behalf of The Green Energy Coalition (20 Dec).

Jack Gibbons, 2004. *A lost revenue adjustment mechanism and shared savings mechanism for Ontario's electric utilities*. Filed on behalf of Pollution Probe, (20 Dec).

London Economics International LLC. 2004. *Overview of C&DM practices in North America and potential alternatives for Ontario*. Prepared for the Ontario Energy Board (20 Dec).

2 Financial mechanisms – LRAM and incentives

The Alliance sees financial mechanisms as essential to realizing its goal that electric LDCs aggressively pursue conservation and demand management opportunities that are beneficial to their customers, to the distribution system, and to the overall provincial electricity system.

In an environment where conservation and demand management initiatives are undertaken by LDCs on a voluntary basis, aggressive C&DM requires that the:

- OEB put in place a lost revenue adjustment mechanism to offset financial losses LDCs incur as a result of undertaking conservation and demand management initiatives. This will ensure that LDCs will not be penalized for implementing aggressive and effective customer side of the meter programs and to allow the LDCs to recover the lost distribution revenues plus carrying costs incurred as a result of their programs. The Alliance supports approaches that remove disincentives to conservation; a lost revenue adjustment mechanism will ensure that LDCs are kept whole.

- LDCs are offered an incentive mechanism that makes it profitable for them to undertake C&DM.

In the next section, the specific needs for these incentives are described.

2.1 Lost revenue adjustment mechanism

The following principles should apply to the lost revenue adjustment mechanism for 2006:

- It should be straightforward and transparent, and easy to administer.

- It should be prospective, rather than retrospective, i.e. LDCs should estimate load reductions in advance and incorporate these reductions into their rate filings.

- There should be pre-approval of key input assumptions.

LDCs should be encouraged to take into account load reductions anticipated to occur as a result of C&DM initiatives, and thereby to keep the LRAM as small as possible. In an ideal world, LDC load forecasts would include the

expected impact of their C&DM programs and would be sufficiently accurate that no subsequent adjustment to rates would be necessary. In practice, this may be difficult to achieve, especially in 2006 because of the lack of experience with C&DM and load forecasting that includes C&DM. The methodology chosen for the lost revenue adjustment mechanism for 2006 should lead to small revenue adjustments to the extent possible to minimize rate shock.

Although the lost revenue adjustment mechanism is being set for 2006 only, it would be desirable for it to be developed with minimal change so that it can be applied going forward in a PBR framework beyond 2006. This would enable LDCs to begin to set up standard systems and approaches for the calculations which would minimize costs.

2.2 Incentive mechanisms

The Board has dealt with principles for incentive mechanisms for gas utilities for a number of years. Although the specific mechanisms used there may not be appropriate for electric utilities, there are lessons that can be drawn from that experience. In particular, in the Enbridge 2003 rates case decision, the Board adopted principles for incentives which are directly relevant to electric LDCs. The Board stated:

> "The Board agrees that the incentive mechanism should encourage the Company to continue to expand its DSM programs; the incentive should be based on the results achieved for ratepayers; risks and rewards should not be too high; and the incentive mechanism should be transparent and straightforward." (Partial Decision on RP-2002-0133, paragraph 243, 19 Aug 2003)

The Alliance supports these principles adopted by the OEB for Enbridge and recommends that they be adopted for the incentive mechanism for electric LDCs in 2006.

In addition, the following additional principle should be adopted:

- There should be pre-approval of key input assumptions.

Encourage conservation and demand management

The Alliance agrees with the principle that the incentive mechanism should encourage LDCs to continue to expand their conservation and demand management programs.

Based on results achieved

The goal of conservation and demand management programs is to achieve results, not just to spend money and therefore, the incentive should be based on these results. In theory, the results aimed for are those measured by the Societal Cost Test (SCT), which takes into account financial costs and benefits, and non-financial costs and benefits (like environmental externalities). In practice, the evaluation of non-financial costs and benefits is difficult and controversial, and many jurisdictions have chosen to consider only financial costs and benefits, which are measured by the Total Resource Cost (TRC). Another way of measuring results would be in physical energy or power units, such as kilowatt-hours or kilowatts.

All of these are more or less a measure of results achieved, and all are potentially acceptable. The choice of which to use is a practical matter, balancing complexity of determining the value and reaching agreement on it, against its ability to provide an effective incentive to the LDCs to realize societal benefits.

Although neither TRC nor kWh is likely to be perfectly correlated with total societal costs, either may be a reasonable indicator, particularly where there are other constraints on the program portfolio. These other constraints will include such considerations as program screening (possibly using the TRC), the expectation of programs for all major customer classes, and a mix of short- and long-term savings measures. Their greater simplicity may offset the loss of precision in measuring total net societal benefits.

The Board has already established an incentive for gas DSM by Enbridge based on TRC, and this measure is used in numerous other jurisdictions. Some other jurisdictions have incentives based on energy savings (what London Economics calls 'bonus mechanisms').

Regardless of whether the incentive for 2006 is based on TRC, LDCs should be encouraged to calculate the TRC of their programs for information and evaluation purposes. Similarly, the Board should recommend that the LDCs undertake an analysis of how indicative energy units are of overall benefits, and whether using these as the basis of the incentive going forward would be simpler and preferable.

Balancing risks and rewards

The Alliance agrees that neither risks nor rewards should be too high. If risks are two high, the first principle of encouraging continuing expansion of C&DM will be compromised. If rewards are too high, there may be undue impact on ratepayers.

The Board has approved an incentive for 2005 based on 5% of Total TRC, and the Alliance considers this a reasonable balance between risks and rewards as a starting point. This number may be re-visited once there is some experience to see whether it was large enough to encourage expansion of initiatives, or whether payments are unreasonably high.

The Alliance would find an incentive based on 5% of Total TRC or a comparable incentive one based on energy units acceptable for 2006.

Transparent and straightforward

Incentive mechanisms that are simple and provide adequate reward are preferred. As the incentive mechanisms become more complex, they become less effective, both because they become harder for those acting to see the line-of-sight between their actions and the incentive, and because the calculation of the incentive itself becomes a *disincentive*. In a survey of jurisdictions with DSM programs offered by gas utilities undertaken by IndEco and Navigant Consulting for Enbridge, some utilities advised that they did not apply for an incentive because it was too complex to do so, and others where the incentive was too small to justify the effort.

Finally, as the calculations become ever more complex, they are increasingly likely to be the source of controversy among stakeholders.

The Board has expressed concern with the complexity of the incentive calculation on the gas side, where TRC is used:

> "In general parties acknowledged the problem of subjectivity and complexity in the use of TRC in the current SSM formula. The Board shares intervenors' concerns regarding the complexity of the use of TRC. In the Board's view, an incentive mechanism should be simple and transparent to the public. While the Board recognizes that the TRC is an industry-accepted methodology in ensuring the benefits of utility DSM programs, there may be a more direct and simple design of an incentive mechanism that would avoid the inherent subjectivity and complexity of the TRC Test." (Partial Decision on RP2002-0133, paragraph 239, 19 Aug 2003)

The proposed measure of results, whether total TRC or total energy savings, will address much of the source of subjectivity and complexity experienced on the gas side, since it is based on total benefits realized, rather than the portion of TRC in excess of a target. Avoiding an incentive based on the difference between forecasted results and actual results, as is used for Enbridge's gas DSM program, will avoid many of the complexities associated with reconciling forecasts with actual results.

The calculation can be further simplified by reaching agreement before the fact on as many default program parameters as possible.

Pre-approval of key assumptions

The Board can reduce the subjectivity and complexity in the calculation of the LRAM and the incentive in 2006 by encouraging agreement at the start of the C&DM planning process on key variables, rather than doing so once the programs have already been delivered. Where improved data become available, these can be used going forward, but should definitely not be used retroactively.

The Board has already pursued this route somewhat in the regulation of gas utility DSM. For example, agreement was reached on a number of parameters, including measure lives.

The Board could designate the Conservation Working Group (CWG), or another group, to propose default values for as many as possible of the variables that go into the incentive calculation for 2006.[2] As a starting point, the CWG may wish to look at California's *Policy manual on energy efficiency*, which was updated in 2003 (CUPC 2003). Key data tables from this document are appended. Some adjustments may be required for application in Ontario.

Parameters that might be agreed to in advance of program delivery include:

- Avoided wholesale electricity costs (energy and capacity)
- Avoided transmission costs (energy and capacity)
- Avoided distribution costs (could develop a provincial average, and allow LDCs to proposed unique costs with supporting evidence)
- The discount rate to be used in net present value calculations
- Unit energy savings from common programs. For example, for a residential compact fluorescent lighting (CFL) program, agreement might be reached that a 13 W CFL could be assumed to replace a 60 W incandescent that operated 3 hours per day, hence saving 51 kWh per year (47 W x 3 h/d x 365 d/a).

[2] These should be 'default' values. If an LDC has better, local data the LDC should be invited to bring these forward to the OEB for consideration. These deviations from the 'default' values should still be specified at the start, rather than the end, of the process, and updated going forward, not retroactively.

- Measure lives. Some measure lives have already been agreed to for gas DSM, and equipment life for numerous types of equipment are given in the California *Energy policy manual*. Others could be calculated. For example, carrying on with the CFL example, assuming an operating life of 5000 hours, the "measure life" for a CFL would be 4.6 years (based on usage of 3 h/d).

- Net to gross ratios. These adjust total (gross savings) for 'free riders'. For example, if the net to gross ratio is 0.75, than total savings are multiplied by 0.75 to get net savings (i.e. savings net of free riders). These ratios are typically program specific, though a default value for non-listed programs may be specified.

- Attribution of program savings. The Minister, in his letter of 31 May 2004 to electric utilities, encouraged the formation of partnerships between LDCs and others to lever incremental investments, and the Board will want to encourage these partnerships. Again, a key consideration for LDCs will be the simplicity of monitoring and reporting results from these partnerships. LDCs can simplify this somewhat by reaching agreement with their partners at the outset on how net benefits will be allocated (particularly where multiple partners will be pursuing incentives, based on these net benefits). Reaching these agreements up-front should be strongly encouraged by the Board, if not required. Where some or all partners are not applying for an incentive based on the net benefit, the LDC should propose what fraction of net benefits it will be seeking credit for (and how this was arrived at), or what methodology the LDC will be using to do the allocation.

2.3 Comparison of the Alliance position with pre-filed evidence

The financial mechanisms are the key focus of the evidence filed by Gibbons and Chernick, and feature prominently in the London Economics report. There is general consistency across all three submissions about the rationale for and benefits of a lost revenue adjustment mechanism and incentives, and the Alliance concurs with the rationale and benefits presented in these submissions.

The Alliance supports the recommendation of Pollution Probe to have a lost revenue adjustment mechanism for 2006, and agrees with Gibbons' sensitivity analysis that suggests that an incentive based on 5% of total TRC would not be unreasonable from a ratepayer perspective. It is not clear, however, whether this incentive would be sufficiently substantial in all the scenarios to motivate LDCs.

The Alliance agrees with the evidence of Chernick that the adoption of a lost revenue adjustment mechanism and incentive mechanism by an LDC should

be voluntary. Depending on the size of the CDM budget, the resources of the LDC to track lost revenue and the likely magnitude of the revenues lost, an LDC may choose not to track these expenditures for recovery and should not be required to do so. Similarly, it may not be worthwhile for a particular LDC to apply for an incentive for 2006 and the LDC should not be required to do so.

Types of incentive mechanisms

The London Economics (LE) paper reviews a number of incentive mechanisms, both theoretical and as applied in other jurisdictions. Many of the other jurisdiction measures are from the early 1990s, and may no longer be in use.

Three main types of incentives are described:

- Shared savings mechanisms (SSM) – essentially a fraction of the net benefits generated
- Bonus mechanisms – essentially a reward for each unit of energy saved
- Markup mechanisms – essentially a fraction of the utility program costs

The key strengths and weaknesses are generally well described: the SSM provides the best link between a policy objective of maximizing benefits to society and the utility's objective of maximizing profit, but it may be difficult to estimate some of the costs and benefits.

The LE paper correctly points out that bonus mechanisms work when the regulator seeks the simplest method of calculating incentives. However, the description in the LE paper may overstate weaknesses and omits several other benefits.

Although bonus mechanisms themselves do not directly take into account net benefits, these may be addressed in the program screening stage, and through an appropriate mix of programs in the portfolio. In this circumstance, the criticism of excluding net benefits may well not apply, and there may be a reasonable correlation between net benefits and savings. This is a likely scenario for LDCs as the OEB has required the LDCs with approved C&DM plans to file annual cost-benefit analyses of each of their C&DM programs as a condition of approval of the plans. As well, the LE paper does not acknowledge that the bonus method may be more effective as an incentive because the measurement units (kWh) are better understood (than, for example, units of TRC) by those implementing programs, and there

is a clearer connection between their actions – saving energy - and their reward.

The LE paper sees a role for markup mechanisms where energy savings are difficult to measure (e.g. information programs) and this is appropriate.

The Chernick and Gibbons papers support Shared Savings Mechanisms, though Chernick favours using such a mechanism with the Societal Cost Test (SCT) which includes an evaluation of environmental costs and benefits in addition to financial ones, whereas Gibbons is content with using the Total Resource Cost (TRC) measure, which only considers financial benefits. Given the complexities surrounding the calculation of the value of the environmental externalities and that it is highly unlikely for C&DM programs to meet the TRC but fail the SCT, the OEB should not require the calculation of the SCT for 2006.

3 Budgeting for conservation and demand management programs

The Board must identify a mechanism for 2006 for setting a budget for continuing programs begun under 'third tranche spending', or initiating new programs that benefit the utility and their customers, and for recovering those expenditures in rates. Without such a mechanism, LDCs that spend their third tranche dollars early will have no mechanism to continue successful programs or develop new programs based on the experience they gained from their third tranche spending on C&DM. At least three approved plans – those of Brantford Power, Milton Hydro and Brant County Power – anticipate completing their "third-tranche spending" in 2005.

In December 2003, the Minister of Energy announced that electricity distribution utilities (LDCs) would be eligible to receive their third tranche of market adjusted rate of return (MARR) provided they invested an amount equal to one year of the incremental distribution revenues stemming from this increase in conservation and demand management initiatives. This "third-tranche spending" for conservation and demand management is to be spent by September 2007. To this end, the Board has published guidelines, frequently asked questions and procedural orders for LDCs to assist them in preparing plans for these programs, and a number of LDCs have received interim or final approval for their plans.

Although the Ontario Power Authority will be gearing up its Conservation Bureau in 2005, there will still be an important role for local distribution utilities in designing and delivering programs that address specific local needs in their service area, or that require direct customer contact. Some of these programs will build on the success of their 'third-tranche' programs.

3.1 Eligibility for post-third-tranche spending on C&DM programs

LDCs who expect to have used up all of the spending on C&DM programs financed through one year of their third tranche before or during 2006 should be eligible for a new C&DM budget for 2006 beyond their third tranche. LDCs that complete or expect to complete their third tranche spending by the end of 2005 should be able to incorporate a C&DM budget for 2006 in their 2006 rate application. LDCs that complete or expect to complete their third tranche spending by the end of 2006 should be able to obtain approval for a C&DM budget for the remainder of 2006 and track these expenditures in a deferral account for dispensation as part of their 2007 rate filing.

3.2 Principles for budget setting

In establishing the budget, it is important to do so on the basis of a set of principles. One possible set of principles is outlined in Table 1. Implicit in these principles is the assumption that the provincial government policy of C&DM being a voluntary rather than mandatory activity of LDCs will continue in 2006.

Table 1 -- Principles for budget setting in C&DM

1. The budget should be developed on a simple and uniform basis
2. There should be some flexibility in setting the level of the budget
3. There should be provision for building on successes
4. There should be provision for reallocating spending across programs

The budget should be developed on a simple and uniform basis

It will be important to ensure that the budget be developed using a simple and uniform basis. The simplest approach is probably to set the budget as a multiple of an existing indicator of LDC size, such as:

- Gross revenues
- Net distribution revenues
- Electricity sales (MWh)

The Alliance has previously endorsed setting budgets on the basis of a per kilowatt-hour charge to the end user (Alliance, p.14). This approach is still deemed reasonable, though all of the indicators are, in principle, acceptable.

Depending on the volatility of the measure shown, it may be desirable to use a running average, rather than the most current year's value. Assuming the same basis for budget setting is used going forward, using a running average would reduce the volatility of the C&DM budget due to exogenous factors such as fluctuating commodity costs or weather.

From a purely practical perspective, it would be desirable to base the calculation on data the LDCs are already filing in 2006 as input to the rate adjustment model, rather than to require the LDCs to file additional material.

There should be flexibility in setting the budget

Different LDCs will have different needs and different opportunities available to them. Consequently, it is not appropriate to set a single value and to require all utilities to undertake C&DM programs at that level, or to do no C&DM.

The Board should specify a pre-approved *range*. For example, the Board could specify that a budget for C&DM programs up to 5% of distribution revenue would be automatically approved. This would be expected to simplify approval processes, compared to requiring a special application for deviating from a specific value. This approach was advocated by Chernick (p.10) and he suggested the range be 0 – 2.5 $/MWh. LDCs wishing to spend more on the C&DM than the maximum suggested by the range would not be precluded from doing so, but would have to explain to the Board their reasons for wanting the higher budget.

Recognizing that C&DM spending for many LDCs in 2006 or 2007 will likely comprise both third-tranche spending and "new" C&DM funding, the approved budget for C&DM beyond the third tranche would include third-tranche spending, if some of these dollars remained to be spent, plus the additional funds required to meet the total approved budget. This approach will help to provide a seamless transition from the relatively short term third-tranche spending to a more sustainable funding mechanism.

LDCs want assurance on what level of spending the Board is comfortable with and that it can be recovered subject to prudency rules that have been developed in advance.

There should be provision for building on successes

It is also important to ensure that successful programs are not prematurely terminated because of budget constraints, and that unspent budgets are returned to ratepayers. Ontario gas utilities realize these through the Demand Side Management Variance Account (DSMVA), and such an account is appropriate for electric LDCs. As on the gas side, LDCs should be able to access this account up to a specified level without having to seek additional approvals. On the gas side for Enbridge Gas Distribution, this level has been 20% of the total DSM budget. This may be an appropriate starting point for electric LDCs for 2006.

There should be provision for reallocating spending across programs

In its decisions on approval of DSM plans of December 10th 2004, the OEB has permitted reallocations of up to 20% of the total C&DM budget, without having to seek approval from the Board. This kind of flexibility is important.

The Board may wish to consider refining these rules for 2006. As currently applied, such an approach may encourage applicants to have vague programs with large categories so that spending may be reallocated amongst sub-programs without counting towards the 20% limit on reallocation.

An alternative might be to limit movement across broad program categories, e.g. across sectors, say from residential to commercial, or from utility-side to customer-side programs. As LDCs gain experience with C&DM programs, setting limits on budget flexibility among programs may not be necessary; it has not been found to be necessary on the gas side in Ontario.

3.3 Comparison of the Alliance position with pre-filed evidence

We agree with Chernick that the Board should strive to reduce utilities' concerns with cash flow and accrual of deferred assets by allowing adjustment of rates to accommodate C&DM, and clearance of accounts as frequently as any other rate adjustments are allowed. We provide additional considerations for setting the C&DM budget that are not addressed in the pre- filed evidence.

4 Evaluation and audit of the incentive

It is important that the claimed incentive amount be accurate and appropriate. An independent audit will provide this assurance. In order to simplify the audit procedure, while ensuring a thorough evaluation, the evaluation process should be a two step procedure. The first step is an internal evaluation conducted by the LDC. An independent third party audit should be conducted on the evaluation report.

4.1 Internal evaluation

The OEB should specify a standard approach for the internal evaluation report for 2006. The standard approach should:

- Specify the parameters to be tracked by program (e.g. number of participants, measures installed, savings achieved/measure), how they should be reported (e.g. in tabular form) and the timing of the reports
- Evaluate the success of the individual programs and overall portfolio
- Contain recommendations for improvements to program design and delivery and for setting parameters
- Make it clear that the findings of the evaluation are to be used on a going forward basis, not retroactively, to inform the process for 2007.

4.2 Audit protocol

The OEB should specify a standard audit protocol on the evaluation report. The protocol should indicate that the purpose of the audit is to make a determination on whether the claimed amount of the incentive is accurate and appropriate. The LDC would be expected to retain a third party auditor to carry out the audit in accordance with the Board's audit protocol. Since the LDC is responsible for other audits related to its operations, having the LDC responsible for the incentive audit is a reasonable approach.

A standard protocol would include the following characteristics:

- Review of the steps that lead to the incentive calculation. These may include, but are not limited, to:

- Savings per measure
- Number of measures installed
- Number of participants
- Measure costs
- Total program costs

- Verification of the accuracy of the data and all calculations

- Identification of inconsistencies and errors, as well as assumptions requiring greater support and make recommendations for the future. The LDC will have the opportunity to accept or reject a recommendation with reasons.

- Permission for the LDC to focus the audit terms of reference and audit resources on those components that affect the calculation of the incentive to the greatest extent. The LDC will be in the best position (with a local audit advisory committee if one is struck) to guide the auditor to ensure this focussing.

- Granting the LDC discretion to select a different auditor each year. An LDC may choose to have an external advisory group or subcommittee to advise on the audit, depending on the scale and complexity of its C&DM portfolio and the particular programs within it.

For 2006 it may be appropriate for all LDCs with approved C&DM plans to carry out an audit of their programs as part of their learning. However, going forward, requiring an annual audit for every program should be reconsidered. This is a costly exercise, especially for LDCs with relatively small (e.g. under $3 M C&DM budgets) even with standard protocols and fixed input assumptions in place. Where annual audits are undertaken, these would not necessarily be comprehensive audits, but rather would be spot checks, as is done for financial analyses. More comprehensive audits could be undertaken where problems are identified or suspected.

4.3 Comparison of the Alliance position with pre-filed evidence

The Alliance position is consistent with the pre-filed evidence of Gibbons and Chernick in that it is supportive of pre-approving inputs and only making changes to these inputs going forward. It is also consistent with the evidence of Gibbons and Chernick in that it is supportive of having an independent

third party audit of the incentive calculation. The Alliance builds on the evidence of Gibbons and Chernick by providing more guidance to the Board on how to standardize and simplify the pre-approval of inputs and the audit process.

The Alliance position differs from that of Gibbons and Chernick on these matters in one respect. The Alliance is of the view that the LDC rather than the OEB should be responsible for the conduct of the audit based on a standard audit protocol approved by the Board. The audit would be conducted on an internal evaluation conducted by the LDC based on a standard approach to the evaluation specified by the OEB.

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Appendix A. Pre-approval assumptions from California Energy Policy Manual

The CUPC *Energy efficiency policy manual* is a useful prototype for the type of pre-approval, standardized assumptions a regulatory body can make available to distribution companies planning to deliver conservation & demand management programs. Below are two tables from this manual which may be useful to Ontario LDCs, possibly with some minor adjustment.

Table 2 - Net to Gross Ratios (CPUC 2003, p.19)

Program Area/Program	Net-to-Gross Ratio
Residential	
Appliance early retirement and replacement	0.8
California Home Energy Efficiency Rating System (CHEERS)	0.72
Residential Audits	0.72
Refrigerator Recycling/Freezer Recycling	0.53/0.57
Residential Contractor Program	0.89
Emerging Technologies	0.83
All other residential programs	0.8
Nonresidential	
Advanced water heating systems	1
Agricultural and Dairy Incentives	0.75
Coin Laundry and Dry Cleaner Education	0.7
Commercial and agricultural information, tools, or design assistance services	0.83
Comprehensive Space Conditioning	1
Lodging Education	0.7
Express Efficiency (rebates)	0.96
Energy Management Services, including audits (for small and medium customers)	0.83
Food Services Equipment Retrofit	1
Industrial Information and Services	0.74
Large Standard Performance Contract	0.7011
All other nonresidential programs	0.8
New Construction	
Industrial and Agricultural Process	0.94
Industrial new construction incentives	0.62
Savings by Design	0.82
All other new construction programs	0.8

Table 3 -- Equipment lifetime (CPUC, 2003. pp.17-18)

Measure	Lifetime	Measure	Lifetime
Lighting		**HVAC**	
Ballast – Dimmable	16	Air Conditioners – High Efficiency	15
Ballast – Electronic	16	Boiler – High Efficiency	20
CF- Screw-in Replaceable Lamp (Modular)	8	Bypass/Delay Timer	15
Compact Fluorescent Hardware Fixture	16	Chiller – High Efficiency	20
Delamping/Fixture Modifications/Removal	16	Chiller – Variable Speed Drive	20
Exit Sign – CF Hardware Kid/LED/ Electro-Luminescent	16	Cooling Towers/Evaporative Condenser	15
Fluorescent Fixture – T8	16	Furnace – High Efficiency	20
Halogen Lamp	0.6	Glazing – High Shade Coefficient	20
HID Fixture	16	Heat Pump – Packaged	20
Occupancy Sensor	8	HVAC/Space Heating/ Efficiency (Gas)	15
Photocell	8	Insulation	20
T8 Fixtures – 17 Watt Lamp, 2ft or 32-watt Lamp, 4ft	16	Reflective Window Film/ Windows	10
Time Clock – Lighting	8	Set-Back Thermostat	11
Fixture: T8 Lamp & Electronic Ballast	16	Time clock	10
High Efficiency Lighting	16	Heat Pump – Split System	20
High Output T5 Fixture	16	AC Packaged Terminal Units	15
Induction Lamps	2	Adjustable Speed Drive	15
Induction Fixture	16	Ground Source Heat Pump	15
Indoor or Outdoor System Modification	16	Heat Pump with Integrated Water Heating	20
Lighting Controls	16	Packaged HVAC Systems	15
Daylighting Controls	16	Water Cooled Chillers	20
Lighting Power Density	16	Insulation Package	20
Refrigeration		Energy Management System	15
Auto Closer for Cooler/Freezer	8	Reduce Internal Load	15
Door Gaskets	4	Evaporative Coolers	15
Floating Head Pressure	16	HVAC/Refrigeration – SPC	20
Heatless Door	16	Nonresidential Gas – AC	20
Humidistat Control for Anti-Sweat Heater	12	**Hot Water**	
Insulation on Refrigeration Suction Line	11	Water Heater – Gas	15
Night Covers for Display Cases	5	Horizontal Clothes Washer	10
PSC Evaporator Motor – Walk-in/Display	16	Efficient Dishwashing	5
Refrigeration Case Doors – Glass/Acrylic	12	Water Heater Controls	15
Refrigerator Case with Doors	16	Domestic Hot Water Boiler	20
Refrigerator Condensate Evaporator – Elec/Non Elec	8	**Miscellaneous**	
Strip Curtains for Walk-Ins	4	Cooking Equipment	12
Ballast: Electronic, for display case	16	High Efficiency Engine	15
Defrost	16	Kiln/Oven/Furnace	20
FHP & EFF Conditioner	16	Thermal Night Curtains	5
High-efficiency Liquid Suction Heat Exchangers	16	Custom Measures – SPC	15
Night Shields on Refrigerator and Freezer Cases	16	Local Government Initiatives	11
Refrigerator: Evaporative Fan Controller	5	Extrusion Equipment	15
Supermarket Systems	14	Audits	3
		Plug Load Sensor	10
		Information	1
		High Efficiency Motors	15
		Variable Frequency Drives	15
		Process Overhaul	20

Appendix B. Qualifications of David Heeney

David Heeney is President of IndEco Strategic Consulting Inc., a firm specializing in energy and environment consulting to private, public and third sector organizations. He has extensive experience in a wide range of environment and energy projects. Prior to founding IndEco in 1994, he was a partner in Hickling Corporation and VHB Research and Consulting, and a consultant with Middleton Associates.

Since 2002, Mr Heeney has been working with Enbridge Gas Distribution on various aspects of their DSM framework planning, and regulatory submissions. Part of the work involved co-authorship of *Principles and frameworks for DSM in Ontario – A policy paper by Enbridge Gas Distribution* which was submitted to the OEB pursuant to the Minister's directive (RP2003-0144).

Recently he has been working with several Ontario electric LDCs on their CDM plans, including Brantford Hydro, Milton Hydro, Brant County Hydro, Burlington Hydro and Kitchener-Wilmot Hydro.

Mr. Heeney has undertaken numerous projects on economic analysis (particularly as it applies to environmental issues), on evaluation methods and on indicators.

Mr. Heeney holds a Master in Environmental Design (Environmental Science – Information and Policy Analysis and Technological Systems) from the University of Calgary and a Bachelor of Science in Geography from McGill University.

specializing in industrial ecology and strategic management
providing environmental and energy consulting to private, public and non-governmental organizations

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