RÉGIE DE L'ÉNERGIE

HYDRO-QUÉBEC DISTRIBUTION'S APPLICATION FOR 2006-2007 RATES

FILE: R-3579-2005

EVIDENCE OF

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ON BEHALF OF:
OPTION CONSOMMATEURS

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1 INTRODUCTION

On August 30th, 2005 Hydro-Québec Distribution (HQD) filed an Application with the Régie de l'énergie (the "Régie") for approval of a revised revenue requirement and distribution rates effective April 1st, 2006. This is the third such application HQD has made since the *Act respecting the Régie de l'énergie* ("the Act") came into force on June 2nd, 1997, whereby the Régie was established and its jurisdiction was extended to cover electricity (Hydro-Québec[1]). The Application contains all the elements of a traditional cost of service based filing including:

- A requested revenue requirement of $10,051.4 M based on a 2006 test year,
- A cost allocation study that allocates the requested revenue requirement to customer classes, and
- A proposed set of rates for each customer class that reflects a number of changes in HQD's rate design practices.

2 PURPOSE OF EVIDENCE

After reviewing HQD's Application and the Procedural Order[2] issued by the Régie, Option Consommateurs (OC) retained Econalysis Consulting Services (ECS), a Canadian consulting firm offering regulatory services to clients in the electricity and natural gas sectors to provide evidence that would assist OC and the Régie in assessing HQD's proposals with respect to cost allocation and rate design.

[1] At that time the Régie's jurisdiction covered the generation, transmission and distribution functions of Hydro-Québec. On June 16th, 2000, the *Act respecting the Régie de l'énergie* was amended by Bill 116. The effect of Bill 116 was, among other things, to exclude from the Régie's regulatory oversight the generation function of Hydro-Québec and to create the Heritage Pool for electricity.
[2] D-2005-156

The Evidence was prepared by Bill Harper who, prior to joining ECS in July 2000, worked for over 25 years in the energy sector in Ontario, first with the Ontario Ministry of Energy and then, with Ontario Hydro and its successor company Hydro One. Since joining ECS, he has assisted various clients participating in regulatory proceedings on issues related to electricity and natural gas utility revenue requirements, cost allocation/rate design and supply planning. Mr. Harper has served as an expert witness in public hearings before the Manitoba Public Utilities Board, the Manitoba Clean Environment Commission, the Régie, the Ontario Energy Board, the Ontario Environmental Assessment Board and a Select Committee of the Ontario Legislature on matters dealing with electricity regulation, rates and supply planning. His most recent experience with cost allocation and rate design matters includes:

- The preparation of evidence and appearance as an expert witness on behalf of OC in both Phase 1 and Phase 2 of Régie proceeding (R-3492-2002) dealing with HQD's 2002 and 2003 cost allocation proposals.
- The preparation of evidence and appearance as an expert witness on behalf of OC in the Régie proceeding (R-3541-2004) dealing with HQD's 2004 rate design proposals.
- The preparation of evidence and appearance as an expert witness before the Manitoba Public Utilities Board with respect to its review of proposals filed by Manitoba Hydro in both 2002 and 2004 regarding cost allocation and rate design.
- Providing expert advice and support to clients in British Columbia participating in the BCUC proceedings dealing with BCTC's 2004 Open Access Transmission Tariff (OATT) Application.
- Member of the OEB's 2005 Technical Advisory Team regarding cost allocation and rate design for Ontario electricity distributors.

A full copy of Mr. Harper's CV is attached in Appendix A.

The evidence specifically addresses the following aspects of HQD's Application:

- HQD's proposed cost allocation methodology changes, including the allocation of post-Heritage Pool supply costs,
- HQD's proposed methodology for incorporating the effect of cost allocation methodology changes into the cross subsidization reference indices, and
- HQD's proposed rate design changes for the residential customer class.

Applicable comments are noted throughout the text and summarized in the concluding section.

3 COST OF SERVICE ALLOCATION

3.1 Methodological Changes

As part of its current Application HQD has submitted[3] a "Cost Allocation Study" which allocates the proposed 2006-2007 cost of service (including return on rate base) to customer classes. The Cost Allocation Study incorporates a number of methodological changes from the study prepared in support of HQD's 2005-2006 Rate Application. The cost allocation methodology changes arise generally a result of either a change in circumstances which affects the determination of HQD's revenue requirement, the availability of new information which can be used in the cost allocation process or directions from the Régie following the last rate proceeding. The following sections review/discuss each of these changes.

3.1.1 BT Rate

In previous decisions,the Régie authorized HQD to phase out the BT rate and to create a deferral account to record the difference between the revenues received under the tariff and the cost of supplying the associated electricity over the period of 2004 through to March 31st 2006. It is anticipated that, at that point in time, the

[3] HQD-12, Document 1 and Document 2

balance in the account will be $176.9 M[4]. In D-2004-170 the Régie[5] determined that the balance in the deferral account should be amortized over a 60 month period starting April 1st, 2006. As a result, HQD's cost of service for 2006-2007 includes, for first time, a BT amortization charge.

In D-2004-170, the Régie also specified that HQD should allocate the amortization charge associated with the BT deferral account to customer classes based on revenues by class[6]. In its current Cost Allocation Study HQD has followed the Régie's direction and allocated the amortization charge based on anticipated revenue by class for 2006[7]. In making this allocation, the revenues from the BT class for the first three months of 2006 have been excluded from the allocation base. This appropriate since the BT Tariff is closed as of April 1, 2006 when the new rates come into effect.

3.1.2 Special Contracts

The determination of HQD's overall revenue requirement and preparation of its Cost Allocation Study reflected the transfer of two Large Power customers to the Special Contract Category[8]. The result is an increase of $15.3 M in HQD's total revenue requirement[9] as a result of reduction in the Contract Adjustment required after the transfer of the two customers[10]. This change in customer classification is reflected in Décret 759-2005 which establishes the 2006 volumes and costs of the Heritage Pool. As a result, the Cost Allocation Study presented in HQD-12, Document 2 properly captures the change.

[4] HQD-10, Document 1, pages 8-10
[5] D-2004-170, page 18
[6] D-2004-170, page 20
[7] HQD-12, Document 2, page 35 and HQD-13, Document 5, page 3
[8] HQD-12, Document 1, pages 17-18
[9] HQD-14, Document 6, Question 4 a) and HQD-14, Document 3, IEC Question 5
[10] Intuitively one would expect that an increase in the number of special contract customers would increase the Special Contract Adjustment required. However, given that large power customer revenues currently exceed their allocated costs (including cost of supply) it is conceivable that a transfer of customers to Special Contracts could reduce the adjustment required for Special Contracts (i.e., the Special Contracts could result in less revenue to HQD than standard L Rates but more revenue than allocated costs)

However, there appears to be a minor issue with the calculation of the impact of the change. HQD's determination of the allocation of electricity purchases prior to the transfer of the two customers does not yield a total cost of supply that reconciles with the electricity purchase costs in the Application for either the Heritage Pool or the post-Heritage Pool[11].

The discrepancy appears to result from HQD using the unit costs by customer class for the Heritage Pool as specified in Décret 759-2005 and the unit costs for post-Heritage Pool supply as presented in the Application for both calculations. In principle, the two sets of values should be different particularly for Tariff L and the Special Contract Class. The allocation of Heritage Pool (and post-Heritage Pool) costs and the resulting unit costs of supply are determined based on the usage characteristics of the various customer classes and when customers are transferred between classes it will typically result in a change in the usage characteristics of both classes. However, the discrepancy is fairly small and impact on costs allocated to the L Class (the only class to be affected) is in the order of 0.1%.

3.1.3 Depreciation of Distribution Assets

In previous Cost Allocation Studies, while data was available regarding the net book value for sub-stations & operating centres, overhead distribution lines and underground distribution lines, the specific depreciation charges associated with each were not known[12]. While HQD was able to split depreciation charges between the Network System and the Remote Systems based on direct assignment, the Network System charges were then allocated to the individual

[11] This can be seen by comparing Table R-5a from HQD-14, Document 3 (which shows the pre-transfer unit costs) with Table 9 from HQD-12, Document 2 (which shows the post-transfer unit costs).
[12] HQD-14, Document 6, Question 5 b)

sub-functions based on the total net fixed assets and intangible assets that had been allocated to each[13].

However, for the 2006 Cost Allocation Study, HQD does have data regarding the specific depreciation charges associated with substations & operating centres, overhead lines and underground lines. As a result, it is now possible for each of these charges to be allocated to the Network sub-functions separately based on the net book value of the associated assets that has been assigned to each sub-function[14].

This change represents an improvement in the allocation depreciation charges that will lead to more accurate results.

3.1.4 Number of Customers and Connections

In its current Application HQD notes[15] that previous Cost Allocation Studies[16] did not include vacant buildings when determining either the number of customers (with and without the DM multiplier) or the number of connections. Since network and connection facilities have also been put in place to service "vacant" buildings, it is appropriate that they be included in the cost allocation methodology. This serves to increase the total number of customers (with multiplier) by 8950 or 0.24%. Overall, it should be noted that the impacts on the Cost Allocation Study results are minor – as would be expected given the small impact on the class allocation factors.

[13] R-3541-2004, HQD-12, Document 4, page 101 and HQD-14, Document 6, Question 5 b)
[14] HQD-12, Document 1, page 18 and HQD-14, Document 6, Question 5 g)
[15] HD-12, Document 1, pages 18-19
[16] Such as the one filed for R-3541-2004

3.1.5 Determination of Medium and Low Voltage Line Costs

The current cost allocation methodology splits the cost of distribution poles and conductors between the medium and low voltage sub-functions based on an analysis of the expenditures made over a number of years. For R-3541-2004, the poles and lines installed over the period 1999-2003 were assigned to either the Medium Voltage or the Low Voltage sub-function and then "costed" using 2005 unit costs[17].

For the current Application, HQD has expanded the historical period used to include 2004 and also changed the approach used to value the poles and lines installed. Instead of using a single year's "unit costs", HQD determines the unit cost for each type of pole and conductor installed in every year from year 1999 through 2004 inclusive and then calculates an average cost for each type of equipment based on the entire period's expenditures[18]. The results of such a calculation will more closely mirror the costs as recorded on HQD's balance sheet and therefore provide a more accurate allocation of the value of the assets between the two sub-functions.

3.1.6 Organizational Changes

During 2005 various organizational changes have been implemented by HQD which has resulted in the transfer of costs between units. These changes have been reflected in the allocation of Direct Gross Charges, Capitalized Costs (Imputations and Disbursements) and Corporate Costs to the various functions[19]. In addition, reorganization made it possible to specifically identify and incorporate

[17] R-3541-2004, HQD-12, Document 4, Appendix 2
[18] HD-14, Document 6, Question 7 a)
[19] HQD-14, Document 6, Question 8 a)

in the cost allocation methodology a “Conditions of Service” unit, the costs for which are allocated to all customer classes based on energy sales[20].

A utility’s organizational structure is not static and changes will occur from time to time in response to changes in the roles, strategies and plans of the utility. HQD is no exception and the cost allocation methodology must adjust if it is to continue to properly track costs to customer classes. As a result, changes made by HQD in the allocation of expenses to functions that reflect organizational changes are appropriate. Furthermore, the adoption of “energy sales” as the allocator for the new “Conditions of Service” sub-function is reasonable as it provides a measure of the level of service received by each customer class.

3.1.7 Other Income

In D-2005-34, the Régie requested[21] that HQD separately identify in its cost allocation methodology the revenue from other sources. In the current Application HQD has done so. While this leads to a different presentation, none of the underlying allocations have changed and the results, in terms of the costs allocated to customer classes, are not affected.

3.1.8 General Comments

Overall, the various cost allocation methodological changes that HQD has incorporated into its 2006-2007 Rate Application are reasonable. Such changes are to be expected as HQD faces continuing changes in:

- its cost structure (e.g., new charges such as the BT amortization),
- the way it does business (e.g., organizational changes),
- prevailing circumstances (e.g., recognition of vacant buildings), and

[20] HQD-12, Document 2, pages 35 and 81
[21] D-2005-34, page 89

- the availability of information (e.g., improved information/details regarding depreciation charges and for medium/low voltage facility split).

The cost allocation methodology must be adapted to reflect such changes as they arise and should not be considered something which is fixed in time.

3.2 Post Heritage Pool Allocation

3.2.1 HQD's Proposal

With the anticipated attainment of consumption volumes in excess of the Heritage Pool supply in 2005, HQD filed as part of last year's Rate Application[22] a proposal regarding the allocation of the post-Heritage Pool costs to customer classes. The proposal called for both the Heritage Pool supply costs and the post-Heritage Pool supply costs to be allocated to customer classes using the same methodology and allocation factors (i.e., utilization ratios and loss factors). Accordingly, under this "Global Treatment", the consumption volumes of the Heritage Pool (and the non-Heritage Pool) by customer class are established as a proportion of the total sales by customer category.

In its D-2005-34 decision, the Régie adopted[23] HQD's proposal for purposes of setting 2005-2006 rates but requested that, in its next case, HQD file a proposal for an allocation method based on the post-Heritage Pool consumption characteristics by customer class and the characteristics of the post-Heritage Pool supply contracts.

In its current Application, HQD has requested[24] that the Régie approve an allocation of post-Heritage Pool costs based on the same Global Treatment as

[22] R-3541-2004, HQD-12, Document 1
[23] D-2005-34, page 133
[24] HQD-12, Document 1, page 8

proposed last year. However, HQD has also submitted[25], for the Régie's consideration, an alternative allocation method which utilizes a different methodology for allocating the post-Heritage Pool costs. The alternative approach (Scenario A) attempts to determine the use of post-Heritage Pool volumes by customer class for each of the hour of the year and then allocates the post-Heritage Pool supply costs based on how the contracted supplies would be dispatched to meet the post-Heritage Pool demand on an hourly basis.

In support of the Global Treatment HQD puts forth three main arguments:

- First[26], that Décret 759-2005 also (implicitly) establishes the consumption volumes of the post-Heritage Pool by customer class,
- Second[27], a marginal treatment is more likely to trigger differentiated cost changes by customer class that may have to be readjusted to address their impact on cross-subsidization and the requirements of the Act[28], and
- Third[29], over time there is likely to be balanced growth in consumption by consumer class. Also, differentiated rate increases by customer class will likely have different and unforeseen impacts on consumption and are likely to result in larger impacts on customer classes where demand is less flexible (i.e., less price elastic).

In its Application HQD also reiterates[30] arguments made in the R-3541-2004 proceeding that the Global Treatment is more consistent with regulatory practice and principles than a marginal treatment that pre-sets the use of the Heritage Pool by customer class and assigns any subsequent growth by customer class post-Heritage Pool costs.

[25] HQD-12, Document 1.1, page 8
[26] HQD-12, Document 1, Section 2.3
[27] HQD-12, Document 1, Section 2.4, page 13, lines 7-11
[28] Section 52.1 of the Act.
[29] HQD-12, Document 1, Section 2.5, page 14, lines 14-16 and page 15, lines 5-12
[30] HQD-12, Document 1, Section 2.6, pages 15-17

3.2.2 Comments

There are two essential steps in the allocation of post-Heritage Pool costs:

- The first step is to identify post-Heritage Pool supply volumes by customer class, and
- The second is to determine the method that will be used to allocate the post-Heritage Pool supply costs to the customers.

With respect to the first step, HQD's proposed Global Treatment is appropriate from a number of perspectives:

- First, as noted in HQD's evidence[31] and in Intervenor evidence presented in last year's proceeding, the Global Treatment is consistent with regulatory practices and principles and in particular the view that there are no seniority rights (or conversely that all consumption is new consumption).
- Second, and from a more practical perspective, given that the Heritage Pool volumes by customer class set out in Décret 759-2005 were established using the Global Treatment[32], by default the post-Heritage volumes by customer class must be established the same way if the two are to reconcile with the total usage forecast for each customer class.

However, with respect to the second step the answer is not as definitive:

- While Décret 759-2005 implicitly defines the post-Heritage Pool volumes by customer class it does not impose (either explicitly or implicitly) a particular method for the allocation of post-Heritage Pool supply costs to customer classes as HQD[33] appears to suggest.
- The concerns[34] about customer classes (particularly those with inelastic demand) being burdened with the higher cost as a result of not adopting the

[31] HQD-12, Document 1, Section 2.6
[32] HQD-14, Document 6, Questions 36 b) and 38 a) & b)
[33] HQD-12, Document 1, page 10, lines 1-4
[34] HQD-12, Document 1, page 15

Global Treatment are unfounded provided usage of the Heritage Pool by customer class is determined based on the Global Treatment.

- HQD's arguments[35] that the results of a different allocation of post-Heritage Pool costs to customer classes will not achieve the desired objectives due to the requirement[36] to maintain the existing cross-subsidization by customer class are somewhat misdirected. According to HQD's proposal for tracking the impacts of cost allocation changes, year to year changes in both the overall post-Heritage Pool costs and their allocation to customer classes would not impact on the cross-subsidization reference indices and therefore could potentially lead to differentiated rate increases by customer class. The requirements of the Act regarding maintenance of the cross subsidization indices means that all of the impact of the allocation of post-Heritage Pool costs can not be fully passed through to the respective customer classes – regardless of which allocation method is ultimately adopted by the Régie. This, however, should not detract from the objectives of the current process – which is to find the most appropriate method for allocating post-Heritage Pool costs.
- While Décret 759-2005 specifies the volume of Heritage Pool used by each customer class, the customer class usage characteristics used to determine the Heritage Pool costs for each customer class are based on customer class load profiles derived from HQD's total usage curve. As a result, the concern that Scenario A gives rise to the need for various adjustments to the initial profile determined based on the Global Treatment in order that the hourly use ascribed to each customer class will reconcile with the overall characteristics of the Heritage Pool as specified in Décret 1277-2001 is not a flaw in Scenario A. Rather, it points to an inconsistency between the class consumption characteristics assumed in the derivation of the Heritage Pool costs and volumes by customer class for Décret 759-2005 and the overall

[35] HQD-12, Document 1, pages 12-13
[36] The Act, Section 52.1

load profile ascribed to the Heritage Pool in Décret 1277-2001[37]. The simple fact is that the inconsistency does not have to be resolved under HQD's proposed Global Treatment; whereas under the more detailed Scenario A it does. However, the use of the Global Treatment does not negate the fact that an inconsistency exists.

The Global Treatment's use of load factor to allocate supply costs is directionally correct from a cost causality perspective (i.e., the lower a customer class' load factor the higher the supply cost on a kWh basis). However, Scenario A attempts to perform a more detailed and precise allocation of post-Heritage Pool supply costs to customer classes. It would appear, therefore, that a key question to be addressed is whether the results are a sufficient improvement in cost tracking to warrant the additional effort. In this regard, the two methods yield significantly different results for both 2006 and subsequent years[38].

All of the differences can not necessarily be attributed to improved cost tracking as there are a number of areas where the calculations have had to be simplified in Scenario A which could impact also on the results. A critical one is the degree to which the cost of the various supply contracts can be disaggregated for purposes of cost allocation. Confidentiality requirements preclude an allocation based on individual contracts[39]. Another issue is that the forecast supply usage does not necessarily include all products under contract (i.e., some are only used in real time whereas others represent required reserves). However, to the extent that there are forecast costs associated with these products, they must be assigned to customer classes in some manner. Overall, it is still reasonable to conclude that Scenario A leads to a more accurate allocation of post-Heritage Pool supply costs[40].

[37] HQD-14, Document 6, Question 39 a) & b)
[38] The projected differences for 2006 can be seen by comparing the Global Treatment results per HQD-12, Document 1, Table A with the Scenario A results per HQD-12, Document 1.1, Table A. The projected results of the two methods for 2014 can be found in HQD-12, Document 1.2, pages 24 and 26
[39] HQD-12, Document 1.1, page 14
[40] HQD-12, Document 1.1, page 9, lines 7-12 and HQD-12, Document 1.2, page 37

A secondary consideration is that the year over year results of the Global Treatment are likely to be more stable than those based on Scenario A. The reason being that Scenario A relies on the economic dispatch of available resources and, with new resources being added through time, the dispatch of existing contracts could change from year to year. This would tend to change the allocation of costs even if all other factors remained unchanged. This in turn could produce more volatility in the year to year cross subsidization index calculated for each customer class.

On balance, given the pre-eminence that the Régie has assigned[41] to cost causality in establishing cost allocation procedures and the increasing significance of the dollars associated with post-Heritage Pool supply, it would be reasonable for the Régie to direct HQD to invest the effort required to implement the more detailed cost allocation represented by Scenario A on an ongoing basis and to improve this methodology over time.

4 COST ALLOCATION AND THE CROSS-SUBSIDIZATION INDEX

4.1 Background

The Act states that when setting the rates to be charged to consumers for electricity by HQD the regulator shall consider the cost of electric power to the distributor, transmission costs as well as the costs incurred by electricity distributor itself[42]. However, the Act also requires that "the Régie shall not modify the rates applicable to a class of consumers in order to alleviate the cross-subsidization of rates applicable to classes of consumers"[43].

[41] D-2005-34, page 131
[42] Section 53.1, 1st paragraph of the Act
[43] Section 53.1, 4th paragraph of the Act

Following Phase 1 of R-3492-2002, the Régie concluded[44] that in order to satisfy the Act's requirements with respect to cross-subsidization an objective guideline must be established to reflect the cross-subsidization at a given time so that the level of cross-subsidization can be monitored over time. In its decision[45], the Régie adopted the revenue-to-cost ratio index proposed[46] by HQD as an appropriate "cross subsidization index". In the same decision the Régie also adopted 2002 as the "reference year". For purposes of Phase 2 of R-3492-2002, HQD prepared a Cost Allocation Study for 2002 based on actual data and the Régie's directions regarding cost allocation following Phase 1.

In its decision regarding Phase 2, which dealt with HQD's rate proposal for 2004-2005, the Régie noted[47] that the cross-subsidization index for 2004 was comparable with that for 2002 and that the observed variance was acceptable. In the same decision, the Régie directed[48] HQD to pursue a number of improvements to its cost allocation methodology.

As part of its Application for 2005-2006 rates, HQD addressed[49] a number of cost allocation methodology issues. These generally fell into three categories[50]:

- New elements and/or elements that had not previously been reviewed by the Régie,
- Modification to the cost allocation methodology as presented in the last rate case, and
- Matters of clarification (Note: These have no monetary impact on the cost allocation methodology results).

The Régie generally accepted the proposals put forward by HQD. However, in its findings regarding the proposed modifications to the cost allocation

[44] D-2003-93, page 185
[45] D-2003-93, page 186
[46] HQD's index is described in R-3492-2002, HQD-2, Document 4.2
[47] D-2004-47, page 133
[48] D-2004-47, pages 104-105; 108-109; 112-113; 115-116; 118-119; and 120-121
[49] R-3541-2004, HQD-1, Document 1
[50] D-2005-34, page 113

methodology (bullet two above), the Régie noted[51] that such modifications can have an impact on the cross-subsidization index and concluded that such impacts should be excluded for purposes of comparing the current cross-subsidization index for each customer class with the reference values for 2002[52]. As a result, the Régie directed HQD to propose a method that would allow effects of changes in the cost allocation methodology on the cross-subsidization index to be tracked and reflected in the reference indices.

4.2 HQD's Proposal

HQD notes[53] that it is necessary to separate the impact of cost allocation changes on the cross-subsidization index from the impacts of price/volume/cost. HQD's proposal for tracking the impacts of cost allocation methodology changes consists of:

- First, adjusting the 2002 cost allocation results adopted by the Régie for purposes of establishing the reference index for each customer class to remove weather effects. This is deemed necessary since the initial 2002 results were based on actual data; while the indices calculated for purposes of comparison will be based on forecast/budget data[54] which is weather normalized.
- Second, for each year after 2002, determining the impact of cost allocation methodology changes adopted in that year by comparing the cross-subsidization index that results from: a) the application of the cost allocation methodology as proposed/approved for the budget year in question with b) the application of the cost allocation methodology as approved for the previous year.

[51] D-2005-34, pages 122-123
[52] With such an "exclusion" changes in the cost allocation methodology would affect the difference between the observed and the reference cross-subsidization index to the point of triggering the need for differentiated bring them back to a point of being comparable with the reference indices.
[53] HQD-12, Document 3, page
[54] The use of budget data was confirmed by the Régie in D-2005-34, page 123.

- Finally, the reference index for each customer class is adjusted based on the calculated change in the preceding step attributable to cost allocation methodology changes.

HQD notes[55] in its Application that the proposed methodology calculates the effect of cost allocation methodology changes on an "incremental basis" and updates the reference index just for the incremental effects of the new changes introduced each year. This is in contrast to an approach that would re-calculate for each budget year the impacts of all of the cost allocation changes that have taken place since 2002 (i.e., a "global" approach).

4.3 Comments

The Régie has directed HQD to develop a methodology that would allow the impact of changes in cost allocation methodology on the cross-subsidization index for each customer class to be isolated. The purpose in doing so is to ensure that the impacts of such changes on the cross-subsidization indices are excluded when assessing the difference between the observed cross-subsidization index for a class with its reference marker and any subsequent determinations as to whether the deviation is substantial enough to require correction.

Definition of a "Change in Cost Allocation Methodology"

The first question that arises is what should be considered a "cost allocation methodology change". In its Application, HQD has included in this category cost allocation methodology changes that arise as a result of:

- Improvements in data availability that allow for more accurate cost allocation. Examples of this include current proposals to more directly assign depreciation costs and the use of full period cost data to split MT/BT facilities.

[55] HQD-12, Document 3, page 7

One could also consider the adjustment of vacant buildings as falling into this category.

- Refinements to the methodology to improve cost tracking and/or stability. Examples of this include the 2005 change regarding allocation of corporate expense and working capital as well as the averaging of the minimum system results and the use of three years' data to determine the allocation factors for various customer service sub-functions.
- Changes in the availability of data that trigger a need to modify the cost allocation methodology. An example of this is the HQD organizational changes for 2005 that must be worked through the cost allocation methodology.

In contrast, HQD has excluded the impact of the cost allocation treatment of the BT depreciation charges from the cost allocation "methodology" changes to be included in the adjustment of the reference cross-subsidization[56]. Similarly, the cost allocation treatment of the post –Heritage Pool cost, which arose for the first time in 2005, was not considered a cost allocation methodology change[57].

This approach is reasonable and consistent with the Régie's D-2005-34 decision. In that decision, the Régie's concerns with respect to cost allocation changes arose in the discussion of HQD's proposed changes to existing cost allocation methods[58] and not with respect to the proposed methods for dealing with new costs/issues which were addressed earlier in the Decision[59].

Overall, and as guiding principle, the cross-subsidization index for each customer class should track the impacts of events external to HQD and which impact on the costs HQD incurs to serve customers. Examples would be changes in the costs of procuring the goods and services necessary to meet customer requirements and/or changes in customer needs. These types of changes, when

[56] HQD-14, Document 6, Question 33 a)
[57] This is evident from the fact it was not included as one of the changes documented in HQD-12, Document 3, Table 2.
[58] D-2005-34, Section 4.5, pages 122-123
[59] D-2005-34, Section 4.4.2, page 118

worked through the cost allocation methodology, can impact on the cross-subsidization indices. But since they reflect real changes in HQD's operating circumstances and costs it is reasonable for them to potentially lead to differentiated rate increases by customer class. Indeed, customers are likely to understand, if not necessarily accept, the need for differentiated rate increases based on such circumstances.

In contrast, changes in the observed cross-subsidization indices that arise as result of HQD seeking to improve the cost tracking/stability of its existing cost allocation methodology or to react to changes in its organizational structure are not the result of real events or change in circumstances that customers can readily observe and/or understand. Customers are likely to be more sceptical and question why such changes should impact on them. As a result the impacts of such changes should be incorporated into the cross-subsidization reference indices.

However, application of this principle may not always be as straight-forward as it would appear and the Régie may have to specifically indicate in its Decisions what cost allocation "changes" are to be factored into the year over year adjustment to the cross-subsidization reference indices. One example of this is the inclusion in the adjustments to the 2006 reference indexes of the cost allocation impacts on L tariff customers of the two additional Special Contracts. One could argue that this was a change in external circumstances and therefore should be permitted to impact on the measure of cross subsidization. However, the contracts are the result of a government decision and, furthermore, the Act[60] indicates that Special Contracts are not suppose to affect the costs applicable to other classes of consumers. As a result, HQD inclusion of the Special Contracts in the adjustment to the reference marker is appropriate.

[60] Section 52.2

A second example is HQD suggestion[61] that if the Régie were to adopt a different methodology for allocating post-heritage pool costs this change would be considered a methodological change and the impact included in the calculation of the cross-subsidization reference indices. HQD takes this position based on the view that the Régie "approved" the use of the Global Method in D-2005-34 and that, therefore, any alternative approach would be a change. However, in D-2005-34, the Régie's approval of the Global Method is better characterized as being "tentative", as it directed HQD to file additional information for the next rate case. As a result, one could consider the question of cost allocation for the post Heritage Pool as still being undecided until the Régie has issued a "final" decision on the issue.

Another type of situation where it may not be appropriate to include a change in cost allocation methodology in the adjustment to the cross-subsidization index is where the change is the result of a change in external circumstances such that the cost allocation treatment of an existing element HQD's revenue requirement were to change. For example, if distribution loads were to become more constant though out the year such that 3-CP or 12-CP was deemed to be a more appropriate allocation factor for Distribution Stations, an argument could be made that the impact of this change should not factored into the cross-subsidization reference indices as it reflects changes in customer load patterns. Should such types of changes arise their treatment will have to be determined by the Régie at that time.

HQD's Proposed Approach

Apart from establishing what qualifies as a change in cost allocation methodology for purposes of adjusting the reference cross-subsidization indices, two key issues are the weather-normalization that HQD applied to the 2002 results and the question of whether an Incremental or Global approach should be used.

[61] HQD-14, Document 3, page 65, Question 10 a)

With respect to the weather normalization performed by HQD on the 2002 results, this adjustment is reasonable. It ensures comparability between the 2002 reference indices and the cross-subsidization indices that will be prepared for subsequent years, which will all be based on a weather normalized forecast "budget" data[62]. To do otherwise would mean that the cross-subsidization reference values will continue to reflect the impact weather deviations had on 2002 loads which is inconsistent with the determination of the budget data which the Régie has directed HQD to use going forward.

With respect to the choice between an Incremental or Global approach to the calculation, the Incremental approach (as proposed by HQD) is preferable for a couple of reasons.

First, it is more practical and easier to implement. The Global approach requires calculating for each year (i.e., each Rate Application) the impact of all of the changes in cost methodology adopted since 2002. This could be done in one of two ways. First, one could use the 2002 data and re-do the cost allocation study with a cost allocation methodology that reflects all of the changes implemented since and those proposed/approved for the given rate year. The difficulty with this approach is that the necessary 2002 data may not be available to allow the updated cost allocation methodology to be applied. An example of this is the availability of new data which allows deprecation charges for wires and poles to now be assigned more directly to sub-functions. Such data is not available for 2002 and the impact could only be "estimated" by using various assumptions as to what the values would have been.

The alternative Global approach is to apply the 2002 cost allocation methodology to the budget data for the year in question. This would require HQD to maintain/compute the data necessary to perform the 2002 cost allocation

[62] HQD-12, Document 3, pages 9-10.

methodology on a going forward basis. There is clearly additional effort and cost associated with such a requirement. Also, there may be instances where it is impractical to do so. One example would be organizational changes, where it is unlikely HQD would be able to accurately determine what the budget would have been for an organizational structure that no longer exists and estimates would have to be made.

Second, the Incremental approach is likely to be less contentious. The need to make assumptions/estimates under either of the Global approaches means the calculation of the impacts is subjective. This is likely to lead to disagreements amongst stakeholders and increase the regulatory burden on the Régie. Furthermore, even if parties can agree on the required assumptions the accuracy of the subsequent calculations is subject to question.

Finally, while the second alternative to the Global approach outlined above (namely apply the 2002 cost allocation methodology to the 2005 budget data) is likely to give rise to fewer data problems – there are other problems with this approach.

Applying the 2002 cost allocation methodology to the current year's budget data means that the results will capture not only the impact of the change in the cost allocation methodology in the year that the change is made but will also capture any changes in the cross-subsidization indices that have subsequently arisen due to changes in costs/volumes.

5 RESIDENTIAL RATE DESIGN

5.1 HQD's 2004 Application (R-3541-2004)

As part of its 2004-2005 Rate Application, HQD filed evidence[63] regarding the rate design for its various customer classes, including both rate design principles and possible directions for future rate design. In terms of the principles, HQD evidence[64] set out three:

- Reflect the cost of service structure,
- Provide a signal to encourage energy efficiency, and
- Promote simplicity, equity, continuity and stability.

Using these principles, HQD provided an assessment of its current residential rate structure and concluded that:

a) the 30 kWh/day consumption level for the first usage block should be maintained,
b) the fixed customer charge should be frozen at its current level,
c) a third consumption block is not warranted,
d) the price difference between the first and the second consumption block should be increased, and
e) the demand charge for usage in excess of 50 kW should also be increased.

HQD's rationale[65] for the 30 kWh per day was that it reflected the average daily use for customers without all-electric space heating and involved the more basic uses of electricity. As a result, the uses involved were those for which there were generally no alternative energy sources and where the ability of consumers to change their electricity use was more limited. Also, given the different underlying

[63] R-3541-2004, HQD-1, Documents 1-5
[64] R-3541-2004, HQD-1, Document 1, pages 6-7
[65] R-3541-2004, HQD-1, Document 2, page 20

uses associated with consumption below 30 kWh/day, the load profile and associated cost of service would be different[66].

HQD's rationale for maintaining the customer charge at current levels was that the existing charge of 40.64 cents / day more than covered the fixed customer service costs (roughly 35 cents) identified through the cost allocation study[67].

In rejecting the introduction of a third energy block, HQD noted[68] that:

- There was no basis for selecting the cut-off point between the second and third energy usage blocks,
- There would be a substantial amount of consumption where the incremental use was priced at the rate for the second energy block – which would be priced at less than marginal costs, and
- Introduction of a third energy block would likely result in no increases for the rate applicable to the second energy block, even if the general level of rates were to increase.

In support of its conclusion that the differential between the rates for the first and second energy blocks should increase, HQD noted that:

- The existing differential of 26% was less than the cost differential between the two usage blocks based on its cost allocation methodology results. Depending upon whether just distribution costs or also electricity supply costs were differentiated by usage block the cost differences were 34% and 50% respectively[69].
- There was a need to send a price that encouraged energy efficiency for the more the elastic usage in the second block[70].

[66] R-3541-2004, HQD-1, Document 2, page 14
[67] R-3541-2004, HQD-1, Document 2, page 17
[68] R-3541-2004, HQD-1, Document 2,page 35
[69] R-3541-2004, HQD-1, Document 2, pages 16-17
[70] R-3541-2004, HQD-1, Document 2, page 21

Finally, the need to increase the demand charge for excess use (over 50 kW) was justified on the basis that this would bring the overall rate for incremental use in line with HQD's marginal cost for residential space heating[71].

In terms of implementation, HQD's Phase 1 evidence[72] suggested that a 34% differential between the first and second energy usage block could be phased in over four years with an acceptable level of annual bill impacts. However, HQD's actual rate application did not call for any changes in its residential rate design[73]. The rationale provided by HQD was a lack of consensus among stakeholders and a lack of urgency[74].

5.2 ECS' 2004 Rate Design Evidence

Mr. Harper of Econalysis Consulting Services was retained by Option Consommateurs and prepared evidence regarding HQD's rate design proposals for the R-3541-2004 proceeding. In this evidence, Mr. Harper concluded that HQD's rate making principles were appropriate and consistent with industry practice. He also agreed that the analytical approach used by HQD in assessing the appropriateness of its current rate structures was reasonable. The only concern in this regard was that the analysis did not include consideration of the degree to which the resulting rates for incremental consumption reflected HQD's current marginal cost of supply[75]. In terms of the rate structure proposals themselves, he concluded that HQD's proposals represented "an improvement over the current rate structure when assessed against the rate making principles". The only caution he offered was with respect to the level of the customer charge and whether or not there was actually some scope to reduce it. Subsequently, during the oral phase of the R-3541-2004 proceeding, Mr. Harper

[71] R-3541-2004, HQD-1, Document 2, page 22
[72] R-3541-2004, HQD-1, Document 2, pages 27-28
[73] R-3541-2004, HQD-13, Document 1, page 6
[74] R-3541-2004, HQD-14, Document 6, Question 1.1
[75] R3541-2004, Evidence of Mr. Harper, page 34

encouraged to HQD to take the initial steps towards implementing its rate structure proposals.

5.3 HQD's Current Rate Design Proposal

In its Decision regarding R-3541-2004, the Régie endorsed the rate making principles proposed by HQD. In the same Decision, the Régie noted[76] that there were still major outstanding issues to be resolved regarding HQD's cost allocation methodology and that when they had been resolved HQD would be in a better position to determine the rate structure modifications required. However, the Régie also expressed the view that there were grounds for beginning the reform of HQD's rate structures and indicated that it favoured modification that, on a gradual basis, would move towards a better price signal and a just reflection of costs. To this end it directed HQD to modify the residential rate structure for 2005-2006 as follows:

- Freeze the customer charge portion of the rate structure,
- Apply the required increase to the energy rates applicable to the first and second usage blocks,
- Increase materially (i.e., more than 23%) the demand charge applicable to residential use in excess of 50 kW, and
- Implement a demand charge for DT rate equivalent to that of the D rate.

The Régie also requested that, in upcoming cases, HQD present an update of the alignment between the rate structures and costs.

In its current Application, HQD has reiterated[77] the rate making principles put forward last year and proposed changes to the residential rate structure that are generally consistent with both last year's proposals and the Régie's subsequent direction. More specifically, HQD's Application[78] calls for:

[76] D-2005-34, page 138
[77] HQD-13, Document 1, pages 9-13
[78] HQD-13, Document 1, pages 23-28

- Continuing the freeze on the fixed component of the residential rates applicable to D, DM, DT and DH customers (currently set at 40.64 cents/day),
- Maintaining the first energy usage block at 30 kWh/day,
- Increasing the energy rate for the second block of usage (i.e., use over 30 kWh / day) by twice as much as the increase that is applied to the first block of energy usage.
- Increasing the demand charge for usage over 50 kW by $0.75/kW (the same increase as directed by the Régie for 2005-2006)

In its Application HQD also indicates that, when combined with the 3% proposed overall rate increase, 94% of residential customers will experience bill impacts in the range of 1 to 4 % and that only 0.5% of the customers will see bill impacts in excess of 4%

5.4 Comments

HQD's current proposed rate structure changes for residential customers are directionally consistent with last years' proposals and the conclusions presented in ECS's 2004 Evidence. The specific aspects of the proposal are discussed in more detail below.

Fixed Customer Charge

In support of the proposed freeze of the current residential customer charge of 40.64 cents/day, HQD references[79] its evidence from last year that the basic costs of serving residential customers (i.e., customer service and metering) was 35 cents/day. HQD also notes that Régie froze this portion of the rate structure in its D-2005-34 decision.

[79] HQD-13, Document 1, page 23

In response to OC's information requests, HQD has updated the value of basic residential customer costs (i.e., customer service and metering) derived by the cost allocation methodology and the 2006 value is 37.73 cents per customer per day[80]. This value continues to be less than the current level of fixed customer charge.

In last year's OC Evidence, the question was raised as to whether basic customer costs should also include the cost of connection facilities. Including the cost of these assets would increase the 2006 basic customer costs to 42.13 cents per customer per day. Given the range of basic customer costs for 2006 (i.e., 37.73 to 42.13 cents per customer per day) and the fact that the cross subsidization ratio for the residential class is 0.81[81], continuing the "freeze" on the residential fixed charge is reasonable.

First Usage Block

HQD reiterates in its Application[82] that the intent of the first block is to cover basic usage (e.g., lighting, electric appliances, water hearing) and that since the average daily use for customers without all electric space heating is roughly 28 kWh per day the 30 kWh value is still appropriate.

In its Application and responses to information requests, HQD has provided updated statistics regarding usage per day for residential customers that support a first block size in the order of 30 kWh per day:

- Using 2004-2005 data, the average use per customer for those without all electric space heating (and no capacity invoices) is 32.4 kWh[83].
- Using 2004-2005 data, the average use per customer for those without electric space heating is 29.1 kWh[84].

[80] HQD-14, Document 6, Question 26 a)
[81] HQD-12, Document 3, page 13
[82] HQD-13, Document 1, page 23
[83] Based on the annual usage figures in HQD-13, Document 1, Table 3 and the customer count from HQD-14, Document 3, Question 25 a)

In assessing the size of the first usage block it is also useful to look at the implications as to how frequently customer with different usage characteristics will be paying the second usage block energy rate for their incremental use. Based on 2004-2005 data provided by HQD[85], continuing to use 30 kWh per day for the first usage block means that:

- For customers without all electric space heating, only 37% of the bills will have incremental usage above the first block, while
- For customers with all electric space heating, 64% of the bills will have usage in the second energy block and the customers will be paying the associated rate for their incremental usage.
- Overall, more than half the residential bills issues by HQD will involve incremental usage in the second block.

As a result, continued use of the 30 kWh / day as the first energy usage block appears reasonable. However, there are ways this could be refined in the future. In 2004, the Ontario Energy Board was directed by the Provincial government to develop a "regulated price plan" that would ensure that residential and small business customers pay the true cost of electricity overtime but within a stable and predictable price framework. The Regulated Price Plan, ultimately implemented by the OEB in April 2005, built on the two-tiered price structure that was already in place for low-volume customers[86]; but for residential customers, the size of the first usage block varied by season – 600 kWh per month from May 1st to October 31st and 1000 kWh from November 1st to April 30th. The rationale behind varying the first usage block was that more electricity is typically used in those months for basic uses such as lighting and indoor requirements as well as to help alleviate the potential impact of the higher second tier's price on space heating customers.

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[84] HQD-14, Document 6, Question 25 b)
[85] HQD-14, Document 1, Question 31 a)
[86] The rate for qualifying customers in 2004 was 4.7 cents per kWh for the first 750 kWh per month and 5.5 cents per kWh for any additional use.

Data provided by HQD[87] suggests that for rate D customers without all-electric space heating the average use per month is significantly less than 30 kWh / day in the summer months (i.e., in the order of 22-25 kWh per day); while in the winter months average daily usage increases to over 40 kWh per month. As a result, there is merit in HQD also considering a first energy block usage size that varies by season. Very preliminary inspection of the available data suggests that a first energy block of roughly 25 kWh per month in the summer (April 1st to October 31st) and 35 kWh per month in the winter might be appropriate. Clearly further analysis is required including:

a) billing frequencies with break points at 25 and 35 kWh per day;
b) usage for DM as well as D customers;
c) usage for customers with no electric space heating;
d) consistency with rate making principles; and
d) possible implementation strategies.

The Régie should direct HQD to provide an assessment of such a refinement in its residential rate structure in conjunction its next Rate Application.

First/Second Usage Block Rate Differential

HQD's proposal to increase the rate applicable to the second usage block by twice as much as the rate applicable to the first block is based on a number of considerations[88]:

- Evidence presented in R-3541-2004 demonstrated that the average "cost differential" between the first and second usage blocks was between 34% and 50% as compared to the current rate differential of 26%,
- The marginal cost of meeting residential space heating requirements is 8.56 cents / kWh, considerably higher than the current second usage block rate of 6.33 cents per kWh,

[87] HQD-14, Document 11, pages 104-105
[88] HQD-13, Document 1, pages 23-27

- The cost of heating with natural gas – when converted to a kWh-equivalent – is 6.83 cents / kWh and increases to 10.45 cents / kWh when the additional operation and maintenance costs of a natural gas heating system are factored in, and
- The price for the first usage block will have less impact on consumption than the price for the second usage block.

When combined with HQD's overall proposed rate increase of 3%, the results are an increase in the rate for the first usage block from 5.02 cents to 5.13 cents / kWh and an increase in the rate for the second usage block from 6.33 cents to 6.61 cents per kWh.

HQD did not, in its Application, provide an update of the average cost differential between the first and second usage blocks. However, in response to OC information requests[89] the values were updated using the results of the most recent cost allocation study:

- The cost differential based on uniform supply costs is 31%, and
- The cost differential based on differentiated supply and distribution costs is 49%.

In comparison, the differential between the two proposed rates for the first and second usage blocks is 29% which is still below the average cost differential range. Furthermore, the resulting rate for the second usage block is still well below HQD's marginal cost.

Overall, HQD's proposed increase in the differential between rates for the first and second usage blocks is a move in the right direction. While there is scope for further increases in the differential, the proposal is consistent with the Régie's view that changes should be gradual.

[89] HQD-14, Document 6, Question 29

Demand Charge for Excess Use

The proposed $0.75 / kW increase in the demand charge applicable to usage in excess of 50 kW results in an excess demand charge of $4.71 / kW. This is equivalent to a charge of $0.0046 /kWh[90]. When combined with the proposed second block energy rate of $0.0661 cents / kWh net effective rate for usage over 50 kW is 7.07 cents per kWh (on an annual basis). This is still less than HQD's marginal supply cost for space heating[91] (8.56 cents/kWh). As a result, the preceding comments with respect to the proposal representing a gradual move in the right direction apply here as well.

Customer Bill Impacts

HQD suggests that one of factors limiting the degree to which the differential between the rate for the first and second usage blocks can be increased is the impact the results would have on customers' bills[92].

The residential customer impacts arising from HQD's proposed 3% average class increase and the rate structure changes range from zero to 8.1%. However, only 0.5% of the customers will experience annual bill impacts in excess of 4%[93]. For typical levels of use the impacts range form 1.6% (for monthly use of 625 kWh) up to 3.6% (for monthly use of 3000 kWh). These bill impacts are modest and generally within the range of rate impacts that would be considered acceptable elsewhere[94].

[90] HQD-14, Document 6, Question 30 a)
[91] HQD-13, Document 1, page 26.
[92] HQD-14, Document 3, page 68
[93] HQD-13, Document 1, page 41
[94] Evidence prepared by ECS earlier this year and filed with the OEB (R-2004-0188) concluded that rate increases the order of 10% attracted significantly more attention of regulators and would generate concerns regarding rate shock.

6 CONCLUSIONS

A summary of the key comments and conclusions is set out below.

6.1 Cost Allocation Methodology Changes

- Overall, the various cost allocation methodology changes that HQD has incorporated into its 2006-2007 Rate Application are reasonable. Such changes are to be expected as HQD faces continuing changes in:
  - its cost structure (e.g., new charges such as the BT amortization),
  - the way it does business (e.g., organizational changes),
  - prevailing circumstances (e.g., recognition of vacant buildings), and
  - the availability of information (e.g., improved information/details regarding depreciation charges and for medium/low voltage facility split).
- The cost allocation methodology must be adapted to reflect such changes in HQD's circumstances as they arise.

6.2 Allocation of Post-Heritage Pool Costs

- There are two steps in the allocation of post-Heritage Pool costs:
  - The first step is to identify post-Heritage Pool supply volumes by customer class, and
  - The second is to determine the method that will be used to allocate the post-Heritage Pool supply costs to the customers.

- The use of the Global Treatment, as proposed by HQD, is appropriate for identifying the post-Heritage Pool supply volumes by customer class.

- Scenario A, as outlined by HQD in HQD-12, Document 1.1, is a more appropriate method for allocating the post-Heritage Pool supply costs to customer classes. Scenario A represents an improvement over HQD's proposed Global Treatment in terms of cost tracking. Furthermore, Scenario A is not inconsistent with either Décret 759-2005 or the Act. Any apparent inconsistencies will exist even if HQD's Global Treatment approach is adopted.

6.3 Cost Allocation and Determination of the Cross-Subsidization Reference Indices

- HQD's proposed approach to adjusting the cross-subsidy reference indices using an Incremental approach is reasonable as is the proposal to weather-normalize the results for the 2002 base year. The Incremental approach is more practical to implement, will be less free of controversy and will more properly capture the impacts on the cross-subsidization reference indices due to changes in the cost allocation methodology.
- There is a need to define what should be considered a "change in cost allocation methodology". The principle behind adjusting the cross-subsidization reference indices for cost allocation changes is to ensure that any observed difference between the reference index and actual cross-subsidization index for each customer class is the result of real changes in HQD's operating circumstances. As a result, the cross-subsidization indices should be adjusted to reflect changes in the results of HQD's cost allocation methodology that arise as due to changes introduced by HQD to improve the attributes of its existing cost allocation methodology.
- It will be necessary for the Régie to provide direction as to the specific changes that are to be factored into the reference indices.

6.4 Residential Rate Design

- HQD's proposed changes in its residential rate design for 2006-2007 are consistent with the rate design principles adopted following last year's proceeding and the Régie's directive for gradualism regarding future changes.
- HQD should assess the merits of adopting a first energy block usage size that varies by season.

APPENDIX A

CV FOR ECS CONSULTANT

William O. Harper

Mr. Harper has over 20 year experience in the design of rates and the regulation of electricity utilities. He has testified as an expert witness on rates before the Ontario Energy Board from 1988 to 1995, and before the Ontario Environmental Assessment Board. He was responsible for the regulatory policy framework for Ontario municipal electric utilities and for the regulatory review of utility submissions from1989 to 1995. Mr. Harper coordinated the participation of Ontario Hydro (and its successor company Ontario Hydro Services Company) in major public reviews involving Committees of the Ontario Legislature, the Ontario Energy Board and the Macdonald Committee. He has served as a speaker on rate and regulatory issues for seminars sponsored by the APPA, MEA, EPRI, CEA, AMPCO and the Society of Management Accountants of Ontario. Since joining ECS, Mr. Harper has provided consulting support for client interventions on energy and telecommunications issues before the Ontario Energy Board, Manitoba Public Utilities Board, Québec's Régie de l'énergie, British Columbia Utilities Commission, and CRTC. He has also appeared before the Manitoba's Public Utilities Board, the Manitoba Clean Environment Commission and Quebec's Régie de l'énergie. Bill is currently a member of the Ontario Independent Electricity System Operator's Technical Panel.

EXPERIENCE

Econalysis Consulting Services- Senior Consultant
2000 to present

- Responsible for supporting client interventions in regulatory proceedings, including issues analyses & strategic direction, preparation of interrogatories, participation in settlement conferences, preparation of evidence and appearance as expert witness (where indicated by an asterix).

- Electricity
  - IMO 2000 Fees (OEB)
  - Hydro One Remote Communities Rate Application 2002-2004
  - OEB - Transmission System Code Review (2003)
  - OEB - Distribution Service Area Amendments (2003)
  - OEB – Regulated Asset Recovery (2004)
  - OEB – 2006 Electricity Rate Handbook Proceeding*
  - BC Hydro IPP By-Pass Rates
  - WKP Generation Asset Sale
  - BC Hydro Heritage Contract Proposals
  - BC Hydro's 2004/05 and 2005/06 Revenue Requirement Application
  - BC Transmission Corporation – Open Access Transmission Tariff Application - 2004
  - BCTC's 2005/06 Revenue Requirement Application
  - BC Hydro's CFT for Vancouver Island Generation – 2004

- BC Hydro's 2005 Resource Expenditure and Acquisition Plan
- Fortis BC's 2005 Revenue Requirement Application
- Hydro Québec-Distribution's 2002-2011 Supply Plan*
- Hydro Quebec-Distribution's 2002-2003 Cost of Service and Cost Allocation Methodology*
- Hydro Québec-Distribution's 2004-2005 Tariffs*
- Hydro Québec – Distribution's 2005/2006 Tariff Application*
- Hydro Québec – Distribution's 2005-2014 Supply Plan*
- Manitoba Hydro's Status Update Re: Acquisition of Centra Gas Manitoba Inc.*
- Manitoba Hydro's Diesel 2003/04 Rate Application*
- Manitoba Hydro's 2004/05 and 2005/06 Rate Application*
- Manitoba Hydro/NCN NFAAT Submission re: Wuskwatim*

- Natural Gas Distribution
  - Enbridge Consumers Gas 2001 Rates
  - BC Centra Gas Rate Design and Proposed 2003-2005 Revenue Requirement
  - Rate of Return on Common Equity (BCUC)
  - Terasen Gas (Vancouver Island) LNG Storage Project (2004)

- Telecommunications Sector
  - Access to In-Building Wire (CRTC)
  - Extended Area Service (CRTC)
  - Regulatory Framework for Small Telecos (CRTC)

- Other
  - Acted as Case Manager in the preparation of Hydro One Networks' 2001-2003
  - Distribution Rate Applications
    - Supported the preparation of Distribution Rate Applications for various Ontario municipal electric utilities.
  - Supported the implementation of OPG's Transition Rate Option program prior to Open Access in Ontario
  - Prepared Client Studies on various issues including:
    - The implications of the 2000/2001 natural gas price changes on natural gas use forecasting methodologies.
    - The separation of electricity transmission and distribution businesses in Ontario.
    - The business requirements for Ontario transmission owners/operators.
    - Various issues associated with electricity supply/distribution in remote communities
  - Member of the OEB's 2004 Regulated Price Plan Working Group

Hydro One Networks
Manager - Regulatory Integration, Regulatory and Stakeholder Affairs
(April 1999 to June 2000)

- Supervised professional and administrative staff with responsibility for:
  - providing regulatory research and advice in support of regulatory applications and business initiatives;
  - monitoring and intervening in other regulatory proceedings;
  - ensuring regulatory requirements and strategies are integrated into business planning and other Corporate processes;
  - providing case management services in support of specific regulatory applications.
- Acting Manager, Distribution Regulation since September 1999 with responsibility for:
  - coordinating the preparation of applications for OEB approval of changes to existing rate orders; sales of assets and the acquisition of other distribution utilities;
  - providing input to the Ontario Energy Board's emerging proposals with respect to the licences, codes and rate setting practices setting the regulatory framework for Ontario's electricity distribution utilities;
  - acting as liaison with Board staff on regulatory issues and provide regulatory input on business decisions affecting Hydro One Networks' distribution business.
- Supported the preparation and review before the OEB of Hydro One Networks' Application for 1999-2000 transmission and distribution rates.

Ontario Hydro
Team Leader, Public Hearings, Executive Services (APR. 1995 TO APR. 1999)

- Supervised professional and admin staff responsible for managing Ontario Hydro's participation in specific public hearings and review processes.
- Directly involved in the coordination of Ontario Hydro's rate submissions to the Ontario Energy Board in 1995 and 1996, as well as Ontario Hydro's input to the Macdonald Committee on Electric Industry Restructuring and the Corporation's appearance before Committees of the Ontario Legislature dealing with Industry Restructuring and Nuclear Performance.

Manager – Rates, Energy Services and Environment (June 1993 to Apr. 95)
Manager – Rate Structures Department, Programs and Support Division
(February 1989 to June 1993)

- Supervised a professional staff with responsibility for:
  - Developing Corporate rate setting policies;
  - Designing rates structures for application by retail customers of Ontario Hydro and the municipal utilities;
  - Developing rates for distributors and for the sale of power to Hydro's direct industrial customers and supporting their review before the Ontario Energy Board;
  - Maintaining a policy framework for the execution of Hydro's regulation of municipal electric utilities;

    - Reviewing and recommending for approval, as appropriate, municipal electric utility submissions regarding rates and other financial matters;
    - Collecting and reporting on the annual financial and operating results of municipal electric utilities.
- Responsible for the development and implementation of Surplus Power, Real Time Pricing, and Back Up Power pricing options for large industrial customers.
- Appeared as an expert witness on rates before the Ontario Energy Board and other regulatory tribunals.
- Participated in a tariff study for the Ghana Power Sector, which involved the development of long run marginal cost-based tariffs, together with an implementation plan.

Section Head – Rate Structures, Rates Department
November 1987 to February 1989

- With a professional staff of eight responsibilities included:
    - Developing rate setting policies and designing rate structures for application to retail customers of municipal electric utilities and Ontario Hydro;
    - Designing rates for municipal utilities and direct industrial customers and supporting their review before the Ontario Energy Board.
- Participated in the implementation of time of use rates, including the development of retail rate setting guidelines for utilities; training sessions for Hydro staff and customers presentations.
- Testified before the OEB on rate-related matters.

Superintendent – Rate Economics, Rates and Strategic Conservation Department
February 1986 to November 1987

- Supervised a Section of professional staff with responsibility for:
    - Developing rate concepts for application to Ontario Hydro's customers, including incentive and time of use rates;
    - Maintaining the Branch's Net Revenue analysis capability then used for screening marketing initiatives;
    - Providing support and guidance in the application of Hydro's existing rate structures and supporting Hydro's annual rate hearing.

Power Costing/Senior Power Costing Analyst, Financial Policy Department
April 1980 to February 1986

- Duties included:
    - Conducting studies on various cost allocation issues and preparing recommendations on revisions to cost of power policies and procedures;
    - Providing advice and guidance to Ontario Hydro personnel and external groups on the interpretation and application of cost of power policies;
    - Preparing reports for senior management and presentation to the Ontario Energy Board.
- Participated in the development of a new costing and pricing system for Ontario Hydro. Main area of work included policies for the time differentiation of rates.

Ontario Ministry of Energy
Economist, Strategic Planning and Analysis Group
April 1975 to April 1980

- Participated in the development of energy demand forecasting models for the province of Ontario, particularly industrial energy demand and Ontario Hydro's demand for primary fuels.
- Assisted in the preparation of Ministry publications and presentations on Ontario's energy supply/demand outlook.
- Acted as an economic and financial advisor in support of Ministry programs, particularly those concerning Ontario Hydro.

EDUCATION
Master of Applied Science – Management Science

- University of Waterloo, 1975
- Major in Applied Economics with a minor in Operations Research
- Ontario Graduate Scholarship, 1974

Honours Bachelor of Science

- University of Toronto, 1973
- Major in Mathematics and Economics
- Alumni Scholarship in Economics, 1972