RÉGIE DE L'ÉNERGIE

HYDRO-QUÉBEC DISTRIBUTION'S RATE APPLICATION FOR 2007-2008

FILE: R-3610-2006

EVIDENCE OF

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ON BEHALF OF:
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1 INTRODUCTION

On August 16th, 2006 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, 2007. This is the fourth 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 requests approval for a revenue requirement of $10,215 M based on a 2007 test year, which translates into an average overall rate increase of 2.8%[2]. The Application also includes a cost allocation study that allocates the requested revenue requirement to customer classes and sets out the cross-subsidization ratios arising from an equal application of the 2.8% increase to all customer classes. Finally, the Application includes a proposed set of rates for each customer class that continues the rate design evolution initiated in earlier proceedings.

2 PURPOSE OF EVIDENCE

After reviewing HQD's Application and the Procedural Order[3] 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 various aspects of HQD's proposal.

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

[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] HQD-1, Document 1, page 13
[3] D-2006-128

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 2005 rate design proposals.
- The preparation of evidence and appearance as an expert witness on behalf of OC in the Régie proceeding (R-3579-2005) dealing with HQD's 2006 cost allocation and rate design proposals.
- Consultant to OC during Hydro Québec Distribution's 2006 Cost Allocation Working Group deliberations (following D-2006-34).
- 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.
- The preparation of evidence and appearance as an expert witness before the Manitoba Public Utilities Board with respect the Board's Generic Review of Manitoba Hydro's 2006 Cost Allocation Proposals.
- 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.
- Providing expert evidence and support to clients regarding BC Hydro's 2006 Application for Experimental Residential Time of Use Rates.

- Member of the OEB's 2005/06 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 calculation of the Pass-On account balances,
- HQD's proposed recovery plans for the Pass-On and Transmission deferral account balances,
- HQD's proposed cost allocation methodology changes, including the allocation of Post-Heritage Pool costs, Pass-On account costs and Transmission account costs,
- HQD's proposals for incorporating the effect of the 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 PROPOSED TREATMENT OF SELECT DEFERRAL ACCOUNTS

HQD has a number of Deferral Accounts which have been authorized by past decisions of the Régie[4]. For many of these accounts the determination and treatment (i.e., refund/recovery) of the balances for purposes of the 2007-2008[5] HQD rate application is straightforward and follows established practice. Examples of this include the PGEÉ account, the Commercial Program account and the BT account. There are, however, two deferral accounts, namely the Pass-On account for Post Heritage Electricity Supply and the Transmission account where HQD's proposals for 2007 rates represent either the changes from past applications or the first time the disposition of the account is to be considered.

[4] HQD-9, Document 1, page and HQD-4, Document 5
[5] Also referred to as the 2007 Rate Application

3.1 Determination of Account Balances

3.1.1 Pass-On Account for Post Heritage Supply

The Pass-On account tracks the differences between forecast and actual supply costs (associated with both the Heritage Pool[6] and the Post-Heritage Pool supplies) and records these in a deferral account for future refund/recovery. Prior proceedings and decisions by the Régie have dealt with the principles associated with the determination of the Pass-On account balance:

- As part of its R-3541-2004 Application, HQD requested[7] approval for a deferral account that would capture (without loss or profit) any variations between the forecast and actual cost of electricity procurement beyond the volume of the Heritage electricity. Under the proposal, the calculation of the variance would reflect (and report separately) the changes in cost of supply due to variations in volumes required and variations in the average cost of post Heritage supply. The account would also capture variances between forecast and actual revenues due to volume changes. In its decisions following the proceeding[8], the Régie ultimately adopted HQD's proposals and ordered that the information on the variances be collected on a monthly basis.
- As part of its R-3579-2005 Application, HQD outlined[9] the components of the proposed Pass-On account, described how the monthly variances were to be determined and presented the variances for the months of January through June 2005[10].

[6] Due to unutilized Heritage Pool Supply
[7] See R-3541-2004, HQD-5, Document 3
[8] D-2005-34 and D-2005-132
[9] R-3579-2005, HQD-4, Document 3
[10] Note: Final variances by month are not known until year-end after the hourly allocation of the Heritage Pool is established. See HQD-16, Document 1, Question 16.1

In its current Application, HQD has presented[11] the Pass-On account balance for 2005 ($31.4 M as of December 31, 2005 – excluding special contracts). HQD has also accumulated interest on the account, including a monthly interest accumulation in 2005 and interest for 2006. Overall, the balance, as of December 31, 2006, associated with the 2005 supply cost variances is $36 M.

Effective January 1, 2006, HQD is proposing to change the way the differentials to be accrued in the Pass-On account are calculated. Rather than calculating the differentials on a monthly basis, HQD proposes[12] to only perform the calculation on an annual basis. Furthermore, since the costs are being established on an annual basis, no interest would be accrued on the account (for the current year) until after year-end[13]. HQD's rationale for the change is that it reduces the complexity of the calculations and also reduces the interest accrued on the account. HQD also notes that an "annual calculation" is consistent with its cost allocation treatment of Heritage Pool costs and its proposed treatment of post-Heritage Pool supply costs which are both done using annual volumes and costs[14].

This change in approach also has an impact on the total annual variance. The reason for this is that an annual as opposed to a monthly allocation to customer classes changes the overall allocation by customer class, including the allocation to special contracts. This in turn, impacts on the total costs[15]. However, the impact is minor. For 2005, employing an annual method would have reduced the debit from $31.4 M to $30.2 M[16].

HQD has included in the Application a projection of the Pass-On account determination for 2006. The projected balance for December 31st, 2006 (related to 2006 supply

[11] HQD-4, Document 2, page 13
[12] HQD-4, Document 2, page 8 and HQD-16, Document 1 Question 23.1
[13] HQD-4, Document 2, page 17
[14] HQD-4, Document 2, page 9; HQD-16, Document 1, Question 23.2 and HQD-16, Document 7, Question 18 c)
[15] HQD-16, Document 1, Question 49.1
[16] HQD-16, Document 1, Question 23.2

cost/revenue differentials) is a credit of $182 M, excluding special contracts[17]. The main reason for the significant variance is a decrease in the purchase volumes (particularly in the initial months of the year) from what was forecast when the 2006 rates were set[18].

3.1.2 Transmission Cost Deferral Account

In D-2003-93, the Régie approved the creation of a deferral account to track the differences between the actual cost of transmission services (charged to HQD by HQT) and the costs included in rates. In April 2006, the Régie approved new rates for Transmission, including an increase in the charge to Native Load Service (i.e., HQD) retroactive to January 1, 2005[19]. Due to the timing, these increased Transmission charges ($170 M/ annum) were not included in HQD's application for rates effective April 1st, 2005 or April 1st 2006. Instead, the charges were accrued in the Transmission Cost deferral account.

The higher annual transmission cost (i.e., $2,483 M vs. $2,313 M) approved for Native Load in D-2006-66 is reflected in the current Application[20] for 2007 rates. However, HQT has recently applied (R-3605-2006) for a further increase in transmission rates effective January 1, 2007. If this application is approved, as filed, the charges to HQD for transmission service will increase to $2,598 M, representing a change of 4.6% or $115 M[21] over the annual transmission costs approved in D-2006-66.

[17] HQD-4, Document 2, page 14
[18] HQD-16, Document 1, Question 16.1
[19] D-2006-66
[20] HQD-7, Document 2, pages 3 and 8
[21] R-3605-2006, HQT-12, Document 1, page 12

3.1.3 Comments

Post-Heritage Pool Supply Pass-On Account

Forecast supply costs (excluding special contracts) are currently determined by HQD on an "annual basis"[22]. As a result, for purposes of calculating the discrepancies between forecast and actual cost of supply and holding HQD harmless, there seems to be little value in performing the calculation on monthly as opposed to annual basis. Indeed, calculation on a monthly basis will lead to inconsistencies in the derivation of the total post-Heritage Pool supply costs insofar as the costs used for rate setting would not be the same as the costs used in the Pass-On account calculations. For example, using 2005 data, the forecast cost of post-Heritage Pool supply when determined on an annual basis was 8.06 cents/kWh. In contrast, a "monthly" calculation would have yielded forecast supply cost of 7.93 cents/kWh[23].

Another consideration in establishing the level of detail required for the Pass-On account is the information that is required to allocate and recover the balances from individual customer classes. HQD's proposed cost allocation method for Post-Heritage Pool costs[24] only relies on annual values. As a result, in the context of HQD's proposal, calculating the balances on an annual basis is reasonable. HQD correctly points out that should an alternative cost allocation methodology be adopted for post-Heritage Pool Supply costs then this matter would need to be reconsidered. However, it should be noted that the question of a "monthly" calculation of the Pass-On account balance is not relevant if one uses an hourly method to allocate the costs to customer classes. Further discussion on this issue can be found in Sections 4.1.2 and 4.2.3.

[22] HQD-16, Document 7, Question 18 c)
[23] HQD-16, Document 7, Question 18 c)
[24] In the current Application HQD is proposing to allocate post-Heritage Pool Supply costs to customer classes using what the Régie refers to as the "global approach " (see D-2006-34, page 68). The methodology first establishes post-Heritage supply use by customer class based on post-Heritage Pool volumes as a percentage of total energy supplied (i.e., on a global basis). The Post-Heritage Pool Supply costs are then allocated to customer classes using total annual load factors and loss factors by customer class calculated on total class usage. For purposes of this Evidence, HQD's proposed method will be referred to as the "global load factor method".

Transmission Cost Deferral Account

There are no apparent issues associated with the determination of the balances in this account.

3.2 Proposed Recovery of Account Balances

3.2.1 Pass-On Account for Post Heritage Supply

In its R-3541-2004 Application[25], HQD put forward two options regarding the refund/recovery of Pass-On account balances. The first called for HQD to wait until the year end balance could be calculated entirely using "actual" data and then the results would be integrated into the rate case in the second subsequent proceeding (i.e., the 2006 balance would be integrated into the proceeding for 2008 rates). The second called for a mid-year calculation to be done based on the actual to date results and incorporated into the next rate proceeding (i.e., actual results known for initial months of 2006 would be incorporated into the proceeding for 2007 rates). Under the second option, a year end calculation would also be performed to capture the variances for the balance of the year and any true-up required for the first part of the year. This balance would be integrated into the rate case for the second subsequent proceeding. However, in the Application, HQD did not express a preference for one approach or the other. In its D-2004-34 decision the Régie also did not express a preference in terms of approaches.

In its R-3579-2005 Application[26], HQD put forward the same two options for the refund/recovery of the Pass-On account balances. However, this time HQD expressed a preference for the first option – namely calculate the variance at year end based on

[25] R-3541-2004, HQD-5, Document 3
[26] R-3579-2005, HQD-4, Document 3

actual data and integrate the results into the rate filing for the second financial year subsequent to the year end. The rationale offered was that while this approach delayed the recovery of the costs differences posted to the Pass-On account, certain variances are not known until year end and the mid-year calculation is subject to adjustment and change. As a result, the Application did not include any proposed refund/recovery of the mid-year 2005 balances calculated for the Pass-On account. In its decision D-2006-34, the Régie accepted HQD's proposal that the integration method for the Pass-On account should be based on actual data covering a 12 month period (January to December) and directed HQD to provide proposals for recovery of the 2005 balance in its next rate case[27].

In its current Application, HQD proposes to dispose of both the actual balance in the Pass-On account determined for 2005 (i.e., debit of $36 M including interest) and the forecast balance determined for 2006 (i.e., credit of $182 M)[28]. In explaining the change in approach HQD has noted that the proposal:

- Reduces the regulatory lag associated with the cost recovery and therefore improves intergenerational equity,
- Maintains the annual January to December perspective,
- Reduces interest costs attributable to the account,
- Captures for refund/recovery in the next rate year the supply cost differentials associated with three of four winter peak months, and
- Is easily implemented.

3.2.2 Transmission Cost Deferral Account

In its D-2003-93 decision, the Régie also approved the proposal by HQD that the balance in the Transmission Cost deferral account be integrated into the next rate case without stabilization measures. However, HQD has not included, in its 2007 Rate

[27] D-2006-34, pages 21-23
[28] HQD-4, Document 2, pages 7-6 and HQD-7, Document 2, page 4

Application, any planned recovery of the outstanding balance in the Transmission Cost Deferral account. It has also indicated that it will detail a strategy for disposition of the balance next year and currently plans to amortize the balance over a maximum period of three years[29]. HQD explains that through this change in approach it seeks to dampen the impact of the need to recover two years of retroactive charges for transmission service as well as reflecting the new higher annual transmission charges in its 2007 rates[30].

3.2.3 Comments

HQD has indicated[31] that the determination of the recovery period for deferral account balances must be considered on a case by case basis and that the factors that are to be taken into account include:

- The materiality of the dollars involved,
- The period over which the balance was accumulated,
- The period over which the amounts posted to the account created benefits, and
- The compensation over time of the sums in the account.

Overall, these considerations are very similar to the ones adopted by the Régie for determining whether HQD's rates overall are just and reasonable, namely cost recovery, inter-generational equity and rate stability[32]. As a result, the factors proposed by HQD seem reasonable.

However, for the current Application, it appears that HQD, in formulating its proposals for refund/recovery of the Pass-On and Transmission Costs deferral accounts, has placed considerably more emphasis on rate stability with the view of benefiting 2007 rate payers than on intergeneration equity. This observation is based on several

[29] HQD-4, Document 3, pages 6-7
[30] HQD-4, Document 3, pages 5-6
[31] HQD-16, Document 4, Question 12 a)
[32] HQD-16, Document 4, Question 13 a)

aspects of the Application. First, both the Pass-On and Transmission balances reflect under/over-recovered costs for 2005 and 2006 as shown in the following Table.

Table 1

Pass-On and Transmission Cost Deferral Account Balances ($M) (December 31, 2006)

Account	Balance Dec. 31 2005	Dec. 31 2006
Transmisison Costs[(1)]	0.0	355.4
Pass-On		
- 2005 Variances[(2)]	33.3	36.0
- 2006 Variances[(3)]	n/a	-182.0

Notes:
1) HQD-9, Document 1, Table 3
2) HQD-9, Document 1, Table 8
3) HQD-9, Document 1, Table 9

Intergenerational equity considerations would suggest a need to deal with the balances in both accounts. However, HQD is proposing to return the (credit) balance in the Pass-On account all to customers in the 2007 rates while not addressing at all the recovery of the (debit) balance in the Transmission Costs account.

Second, the 2006 balance with respect to Transmission Costs is known with certainty, while the final 2006 balance with respect to the Pass-On account is still uncertain. This would suggest that, strictly from an intergenerational perspective, the argument for recovery of the Transmission Costs account in 2007 rates is, if anything, stronger than in the case of the Pass-On account. It would also suggest that some caution should be taken in determining the treatment of the forecast 2006 Pass-On account balance.

Finally, HQD in order to mitigate the 2007 rate increase, finds itself seeking to change the approach that it previously supported with respect to the clearance of the Pass-On account balances[33].

HQD does note that the proposed treatment of the Transmission cost balances should be considered as exceptional[34]. HQD suggests that the proposed treatment specifically reflects the exceptional nature of the retroactive application of the transmission rates, the materiality of the amounts involved and the fact that the 2007 revenue requirement already includes a $170 M increase in transmission costs[35]. Indeed, full recovery of the Transmission Cost balance would give rise to a rate increase of 6.7%[36] - more than double that currently proposed and well above the projected rate increases for the next couple of years. Furthermore, an increase of this nature would result in virtually no requirement for a rate change over the subsequent couple of years. As a result, rate stability considerations would support a recovery period of more than one year for the retroactive Transmission costs.

However, HQD's proposal with respect to the refund of the Pass-On account balance is more problematic. As HQD has acknowledged, the $182 M credit balance for 2006 is currently just a forecast and subject to change. Indeed, even the $107.4 M credit currently calculated for the first four actual months of 2006[37] is subject to change at year end[38]. While HQD suggests that the changes will be relatively minor, a comparison of the June 30th, 2005 Pass-On account balance reported in last year's Application ($11.1 M – excluding special contracts and the adjustment for unutilized Heritage Pool energy[39]) with the final value established at year end for the first 6 months of 2005 ($21.4 M)[40] shows almost a 100% change. Adopting as future regulatory policy an approach which incorporates forecast Pass-On account balances into the next rate

[33] D-2006-34, pages 21-23
[34] HQD-16, Document 7, Question 27 a)
[35] HQD-4, Document 3, pages 4-6 and HQD-16, Document 5, Question 1.1
[36] HQD-16, Document 6, Question 3.1
[37] HQD-16, Document 1, Question 16.1
[38] HQD-16, Document 7, Question 21 b)
[39] R-3579-2005, HQD-4, Document 3, pages 10-11
[40] Rapport annuel 2005, HQD-7, Document 1, Annexe 1, page 11

application could well create rate instability over the long term if the forecasts are not accurate.

A preferred approach would be to follow the practice previously supported by HQD. This would lead to an additional $182 M being included in the revenue requirement and a rate increase of roughly 4.8%. If the Régie considers this increase to be excessive from a rate stability perspective, then, as an alternative, that still recognizes the uncertainty associated with the 2006 balance, only a portion (for example half) of the balance could be included for recovery in the 2007 rates[41] on an exception basis.

4 COST ALLOCATION

4.1 Post-Heritage Pool Supply Cost Allocation

4.1.1 HQD Proposal

Background

In the Régie's D-2005-34 decision, HQD was directed to establish a Working Group to consider various cost allocation methods for Post-Heritage Pool supply costs. HQD's subsequent proposal in its R-3579-2005 Application called for the Post-Heritage Pool supply costs to be allocated to customer classes using the same method and allocation factors as applied to the Heritage Pool costs. While the actual allocation of the Heritage Pool supply cost is established by Government decree[42], the methodology employed is based on utilization ratios (i.e., load factors) and loss factors by customer class. Also, the HQD proposal called for a "global approach" to establishing post-Heritage Pool

[41] See HQD-16, Document 7, Question 23 b) for the rate impact
[42] HQD-11, Document 1, page 11

usage by customer class under which Post-Heritage Pool usage would be proportional to each customer class' total usage[43].

During the R-3579-2005 proceeding, there was considerable debate as to the appropriate cost allocation method for HQD's Post-Heritage Pool supply costs. Issues included both the determination of the Post-Heritage Pool consumption by class (i.e., use of the global versus a marginal treatment[44]) and the approach to be used in subsequently allocating the Post-Heritage supply costs to Post-Heritage supply usage. With respect to the latter, the alternatives considered included both the global load factor based method proposed by HQD and variations[45] on a more detailed hourly cost method HQD had shared earlier with stakeholders during Working Group discussions.

In its decision (D-2006-34), the Régie concluded[46] that the Post-Heritage Pool consumption by customer class should be determined in a manner that takes into account Decree 759-2005. The Régie also concluded that other cost allocation methods (besides just HQD's proposed global load factor approach) could be adapted to meet this requirement[47]. In particular, the Régie noted that the hourly method adapted to take into account Decree 759-2005 satisfies in principle the requirements set out in D-2005-34[48]. However, the Régie also noted that while the hourly method was more precise in terms of cost causality, it was also more complex and that some concerns were raised regarding the method during the proceeding. As a result, the

[43] See Footnote #24
[44] In this Evidence, the term "marginal" refers to a method that fixes the Heritage Pool use by customer class, and thus does not take into account Decree 759-2005. In the last hearing, the Régie concluded that the Post-Heritage Pool cost allocation methodology should take into account the Decree. Therefore, any acceptable Post-Heritage Pool cost allocation methodology used a global method to determine volumes (i.e., Post-Heritage Pool supply use by customer class is based on the proportion of Post-Heritage Pool supply to Total Supply) and therefore takes into account Decree 759-2005. HQD continues to use the term "marginal" to define any treatment different from the global load factor treatment, including the hourly treatment that takes into account government decrees. In our view, the continued use of "marginal" to describe this hourly treatment creates confusion..
[45] The alternate methods originally considered by the Work Group all used a "marginal approach" to determining post-Heritage Supply use by customer class. The variation put forward in R-3579-2005 used a global approach to determining post-Heritage Pool use by customer class in order to take into account Decree 759-2005.
[46] D-2006-34, pages 66-67
[47] D-2006-34, page 67
[48] D-2006-34, page 67

Régie requested[49] that HQD present a Post-Heritage Pool cost allocation study of both the global (load factor) method and the hourly method at its next rate case. The Régie also asked HQD and intervenors to supply for the next rate case additional information regarding:

- The setting and evolution of the Post-Heritage Pool consumption profiles,
- The establishment of hourly costs based on the characteristics of HQD's supply contracts,
- The reflection of cost causality, and
- The treatment of constraints related to the confidentiality of data contained in the contracts.

Current Application

In the current Application, HQD has included a report[50] on the deliberations of the Working Group on Post-Heritage Pool Cost Allocation as well as its proposed approach which is to allocate costs for the Post-Heritage Pool in the same way as for the Heritage Pool (i.e., using a load factor based method)[51]. HQD indicates[52] that its main arguments for continuing to support this approach are that it:

- Uses load factors and loss factors for purposes of allocation as prescribed by the Act,
- Avoids the "first-come, first served" concept,
- Yields a cost signal for power and energy that reflects cost causation,
- Has served to date to establish rate structures and the level of rate cross-subsidization, and
- Is well founded on basic principles of allocation methods such as equity, stability, applicability and simplicity.

[49] D-2006-34, page 67-68
[50] HQD-11, Document 2
[51] HQD-11, Document 1, page 7
[52] HQD-11, Document 1, page 7

4.1.2 Comments

The following comments are divided into two parts. The first deals with the issues specifically raised by the Régie in D-2006-34. The second deals with a number of additional issues which have been raised by HQD either as advantages of the global load factor method or criticisms of the hourly method, which are not addressed in dealing with the Régie's concerns. Given the indication of the Régie[53] with respect to limiting the debate on this issue, the comments focus primarily on implications for a choice between the hourly method and the global load factor method.

Issues Raised by Régie

The terms of reference[54] set by the Régie for the Working Group reflect, to a significant degree, the concerns that the Régie noted[55] as being made by the expert for AQCIE/CIFQ in the last proceeding, namely that:

- The post-Heritage pool consumption profile (particularly by customer class) was not representative of the usual load profile and thus can not be used for cost allocation purposes,
- The unit costs of the contracts do not necessarily reflect cost causality even if they are based on the prices derived from CFT's due to the aggregation of the needs of different clients,
- A detailed examination of the contracts would be necessary to establish the causal links but this is precluded by confidentiality considerations.

a) Evolution of Consumption Profiles

The difference between the Post-Heritage Pool load curve and the Total System load curve arises from the fact that the Heritage Pool load curve is specified by Decree

[53] D-2006-136, page 6
[54] See Section 4.1.1
[55] D-2006-34, pages 63-64

1277-2001 and its "shape" differs from that currently exhibited by the system overall. Indeed, this difference in shape is explicitly recognized in the derivation of the Heritage Pool consumption by customer class for 2007[56].

The load profile differences are accentuated when the Post-Heritage Pool supply is small but will become less as the total system load (and therefore Post-Heritage Pool supply) increases[57]. This is specifically seen in the materials developed through the Working Group process, which indicate that the Post-Heritage Pool load profiles for various customer classes will eventually correct themselves (as system load increases), although the timing varies by customer class[58]. Thus, there can be some expectation that the shape of the post-Heritage supply requirements will differ from those of HQD's system overall for a period of time and that the same will the case for individual customer classes. Indeed, contrary to the suggestion of HQD that the profiles are not significantly different[59], information provided by HQD in response to an information request from the Régie clearly illustrates that there are differences for 2007[60].

However, the fact that: a) the post-Heritage Pool supply curve can differ from the total System supply curve and b) the load shape for Post-Heritage Pool use by customer class can differ from the total system load shape by customer class does not invalidate the hourly allocation method. Indeed, if anything, these differences call into question the appropriateness of using a global load factor method based on system-wide load factors by customer class. This same point was recognized by the Régie in D-2005-34[61]:

> *Le profil de consommation global du Distributeur pourrait, au fil du temps, différer significativement des spécificités et caractéristiques propres du produit patrimonial établiesau décret 1277-2001. D'ailleurs, pour l'année 2005, la Régie constate que les besoins en électricité postpatrimoniale sont davantage concentrés durant les mois d'été ou les périodes hors-pointe et, qu'en*

[56] HQD-11, Document 1, pages 11-12
[57] HQD-11, Document 1, page 9 and HQD-16, Document 3 (Request #2), Question 30 b)
[58] HQD-11, Document 2, page 48
[59] HQD-11, Document 1, page 13
[60] HQD-16, Document 1, Question 46.1
[61] page 132

> *conséquence, le profil de consommation associé au bloc d'énergie postpatrimoniale est significativement différent de celui du bloc patrimonial. La Régie est d'avis, que dans ce contexte, le traitement global proposé par le Distributeur pourrait ne pas permettre de refléter adéquatement la causalité des coûts.*

HQD manages its system such that Heritage Pool supply, long-term Post-Heritage Pool contracts and short-term (Post-Heritage Pool) contracts meet overall system requirements[62]. In this context and given that the Heritage Pool supply is fixed, HQD will design and manage Post-Heritage Pool supplies to meet the anticipated post-Heritage Pool requirements in each hour. Such requirements may have a different hourly profile than the system overall, but these are the requirements that HQD must meet with its Post-Heritage Pool supply contracts and short-term purchases. It is important, when allocating Post-Heritage Pool supply cost that the allocation method used actually reflects the characteristics of the Post-Heritage Pool supply requirements. The hourly method does this while the global load factor method does not.

b) Determination of Hourly Costs Based on Contracts

Precise details have not been provided by HQD as to how the capacity costs associated with each contract (even those that are publicly available) are allocated to the hours of year[63]. The contracts with HQP do provide for a variation in capacity payments depending upon the peak, off-peak and overall performance during each billing period (i.e., roughly 30 days)[64], but not directly on an hour by hour basis. This should provide some differentiation in costs over the year but will likely produce a weak peak-off peak price signal as concluded by HQD in the Working Group materials[65]. However, as HQD notes, this is due, in part, to the current predominance of the long-term base contracts. With time, as the post-Heritage supply requirements grow and its load shape evolves,

[62] HQD-16, Document 7, Question 75 a) & b)
[63] HQD-16, Document 7, Question 78 c)
[64] R-3515-2003, HQD-1, Documents 2 and 3
[65] HQD-11, Document 2, page 49

one would expect to see a variety of contracts for different modalities of supply. This will likely lead to a greater variation in hourly costs in the future.

There is also a related issue that needs to be explored and that is whether "as billed" represents an appropriate allocation methodology from a cost causality perspective. In the case of generation costs, traditional cost allocation approaches (such as outlined in the NARUC Manual[66]) are used to assess the cost causality associated with the generation investment and operating costs directly incurred by a utility. However, in HQD's case, the costs are for purchases of supplies from third parties. In such cases, the question arises as to whether one needs to look beyond how the costs are incurred on an "as billed" basis.

In the case of HQT and its transmission charges to HQD, the utility has chosen to argue that the allocation to classes should not be done based on HQT's cost allocation methodology, but rather on an "as billed" basis. In Section 4.3.2, this Evidence agrees with HQD's approach regarding transmission cost allocation. The logical conclusion would be that an "as billed" approach is appropriate for Generation Supply as well. It should also be noted that, over the longer term, the billing structure for competitively established generation contracts can not vary significantly from what one would expect using principles of cost causality and still meet the requirements of both the buyer and the seller[67].

c) Cost Causality

In order to assess the link to cost causality, the Working Group report compared[68] the results of two hourly-based methods[69] and two load factor-based methods[70] with two scenarios that allocated cost using power and energy costs in combination with peak

[66] Electric Utility Cost Allocation Manual, National Association of Regulatory Utility Commissioners, 1992, page 39
[67] Unless the contract specifically pre-establishes the dispatch profile for the seller over the course of the entire year.
[68] HQD-11, Document 2, slide 42 and HQD-11, Document 1, pages 14-16
[69] One of which was the hourly method adapted to the Decree
[70] One of which was the global load factor method currently preferred by HQD

and off-peak energy costs[71]. The following discussion focuses on the appropriateness of the power/energy cost scenarios developed as benchmarks for "cost causality".

The cost allocation in both scenarios[72] was based on:

- A capacity cost of $80/kW or $110/kW - which was applied to the Post-Heritage Pool demand of each customer class at the time of HQD's overall (one hour) system peak,
- A cost of energy of 12 cents / kWh for use in the 300 highest load hours of the year, and
- A cost of energy for the balance of the year (6.20 cents/kWh in the case of $80/kW and 5.59 cents / kWh in the case of $110/kW) that reconciles with the total Post-Heritage Pool supply costs.

The $80 and $110/kW are taken from the HQP contracts; while the 12 cents / kWh is meant to represent the cost of production (fuel, etc.) in peak hours.

As OC noted during the Working Group process[73], more information was required at that point in time to understand the appropriateness of the proposed calculations as benchmarks for "cost causality". Based on the information now available there are several issues concerning the proposed scenarios that need to be noted:

- First, the 12 cents/kWh used by HQD for peak period supply appears to be too high. During the review of Application R-3603-2006[74], HQD provided evidence that the average cost of electricity purchases on the NY-DAM was 89.92 cents/kWh (US) during the period December 1, 2005 to March 31, 2006 during HQD's 300 highest load hours. This translates[75] into l0.34 cents per kWh Canadian. Since market prices should cover both operating costs during the period as well as provide some return on capital, the 12 cents / kWh used by HQD appears to be excessive. Also, data from the 2005 operation

[71] HQD-11, Document 2, slide 42
[72] HQD-16, Document 1, Question 48.1
[73] HQD-11, Document 2, Annexe traitant les Commentaires et Constats, le 7 juillet 2006, Commentaires finaux d'OC, page 13 (ou p 116 du document pdf)
[74] HQD-2, Document 3, Question 3 d)
[75] The exchange rate used to determine the benchmark price DAM energy price in R-3603-2006 was $1.15 Cdn/US$ according to UMQ IR response 16.4, HQD 2, Doc 7, page 15.

of the Ontario Market indicates that the average price was 9.5 cents/kWh when natural gas was at the margin (i.e. setting price)[76].

- It appears that the $80-100 / kW referenced for the fixed cost of a gas turbine unit is based on the cost of combined cycle gas turbines. However, cheaper single cycle gas turbines would likely be used to meet short duration peak requirements.
- The development of the scenarios results in the off-peak energy price being determined as a "plug" that allows the overall methodology to "close" on the post-Heritage Pool supply costs as opposed to being established independently.

Furthermore, the cost allocaton scenarios employ generic data and costs rather than information specific to HQD circumstances. Following a recent generic proceeding into Manitoba Hydro's treatment of generation and transmission costs in its cost allocation methodology, the Manitoba Public Utilities Board approved[77] a change from the use of load factors to allocate generation costs to a methodology based on Manitoba Hydro's marginal (i.e., avoided) costs. The rationale was that this more closely tracked Manitoba Hydro's actual circumstances. HQD has developed[78] system avoided costs, which it uses for purposes of evaluating energy efficiency programs (and rate design issues). These costs have a very different profile (i.e., an average energy cost of 8.3 cents/kWh that includes long term capacity costs, a peak/off peak energy cost differential of 1 cent/kWh, based on a much broader peak period definition, and a capacity cost of $10/kW) than those developed using generic generation data and costs. Using these values would better represent HQD's circumstances. Use of avoided cost-based benchmark for cost allocation would also support the Régie's view that rate structures should more closely reflect marginal costs. Table 2 sets out the results of using HQD's avoided costs to allocate Post-Heritage Pool supply costs to customer classes using customer class demands coincident with the overall system peak.

[76] http://www.ieso.ca/imoweb/pubs/marketReports/MarketYearReview_2005.pdf, page 1
[77] Board Order 117/06
[78] HQD-15, Document 1, Annex A, pages 12-13

Table 2
2007 Post Heritage Pool Allocation
Using HQD's Avoided Costs

Customer Class	Capacity 1 CP MW	Capacity Cost[1] ($M)	Energy[4] Peak GWh	Energy Cost[2] ($M)	Energy Off Peak GWh	Energy Cost[3] ($M)	Total Energy (GWh)	Total Cost ($M)	ProRated Cost	Unit Cost (cents/kWh)
Domestic	817	8.2	1333	117.3	1498	116.8	2586	242.3	231.0	8.93
Small Power	145	1.5	364	32.0	334	26.1	638	59.5	56.8	8.90
Medium Power	212	2.1	680	59.8	623	48.6	1198	110.6	105.4	8.80
Large Power	412	4.1	1625	143.0	1755	136.9	3198	284.0	270.8	8.47
Total	1586	15.9	4002	352.2	4210	328.4	7619	696.4	664.0	8.72

Notes:
1) Based on HQD avoided capacity cost of $10/ kW per HQD-15, Document 1, Annexe A, page 13
2) Based on HQD avoided peak energy cost of 8.8 cents / kWh per HQD-15, Document 1, Annexe A, page 13
3) Based on HQD avoided off peak energy cost of 7.8 cents / kWh per HQD-15, Document 1, Annexe A, page 13
4) Period energy values taken from HQD-16, Document 7, Question 123 b)
5) Usage data taken from HQD-16, Document 1, Question 48.1

Table 3 replicates the analysis, but this time uses the customer class 1-CP at the time of the Post-Heritage Pool's peak requirements.

Table 3
2007 Post Heritage Pool Allocation
Using HQD's Avoided Costs

Customer Class	Capacity 1 CP MW	Capacity Cost[1] ($M)	Energy[4] Peak GWh	Energy Cost[2] ($M)	Energy Off Peak GWh	Energy Cost[3] ($M)	Total Energy (GWh)	Total Cost ($M)	ProRated Cost	Unit Cost (cents/kWh)
Domestic	1192	11.9	1333	117.3	1498	116.8	2586	246.1	234.6	9.07
Small Power	94	0.9	364	32.0	334	26.1	638	59.0	56.3	8.82
Medium Power	470	4.7	680	59.8	623	48.6	1198	113.1	107.9	9.00
Large Power	963	9.6	1625	143.0	1755	136.9	3198	289.5	276.0	8.63
Total	2719	27.2	4002	352.2	4210	328.4	7619	707.7	664.0	8.72

Notes:
1) Based on HQD avoided capacity cost of $10/ kW per HQD-15, Document 1, Annexe A, page 13
2) Based on HQD avoided peak energy cost of 8.8 cents / kWh per HQD-15, Document 1, Annexe A, page 13
3) Based on HQD avoided off peak energy cost of 7.8 cents / kWh per HQD-15, Document 1, Annexe A, page 13
4) Period energy values taken from HQD-16, Document 7, Question 123 b)
5) CP values obtained from HQD-16, Document 7, Question 78 k), while energy values are obtained from Question 123 b)

In both cases, the results more closely match those of the hourly method than the global load factor method as illustrated in the following Table.

Table 4
2007 Post Heritage Pool Cost Allocation Scenarios
Units Costs per Customer Class (cents/kWh)

Customer Class	HQD's Global Load Factor Method[1]	Hourly Method[1]	HQD Avoided Costs 1-CP with System Peak Method[2]	HQD's Avoided Cost 1-CP with PHP Peak Method[3]
Domestic	10.03	8.96	8.93	9.07
Small Power	9.04	9.01	8.90	8.82
Medium Power	8.40	8.66	8.80	9.00
Large Power	7.70	8.48	8.47	8.63
Total	8.71	8.71	8.72	8.72

Notes:
1) HQD-11, Document 1, Table 2
2) Table 2 above
3) Table 3 above

Thus, when assessed against allocation methods that reflect HQD's own circumstances and avoided costs, the load factor method does not send a better cost signal[79]. The method sends a more extreme cost signal. However, the signal overstates the cost differences in serving the various customer classes and, in particular, significantly overstates the cost of serving domestic customers.

d) Confidentiality

Admittedly, the confidentiality requirements of some of the supply contracts will limit the transparency of the hourly method's application. This is a significant drawback to the hourly method and must be taken into consideration when deciding on the appropriate cost of allocation method for Post-Heritage Pool costs.

[79] HQD-11, Document 1, page 18

Additional Issues Raised by HQD

a) Load Factor Method Prescribed by the Act

As noted in Mr. Harper's evidence last year[80], while the Decrees issued by the Government regarding the allocation of the Heritage Pool volumes rely on load factors, there is no statutory requirement that the Post-Heritage Pool costs be allocated using the load factor method. In fact, the Régie made the same finding in its D-2006-34 decision[81] and observed that the hourly method can be equally compliant with the Act. As a result, this issue/factor has no bearing on whether the global load factor method or the hourly method is more appropriate.

b) Avoids "First-Come, First Served" Concept

Both the hourly method and the global load factor method utilize a "global approach" in determining Heritage Pool and post-Heritage Pool use by customer class that conforms to the Decree. As a result, this issue/factor is also not relevant in helping to establish whether the global load factor method or the hourly method is more appropriate

c) Load Factor Method Has Served To-Date

HQD raises the fact that the load factor method has been used to date as the basis for establishing the level of cross subsidization and rates. However, this point, in itself, should not be used to stop the consideration and adoption of other cost allocation methodologies. Indeed, in both last year's and this year's Application, HQD continues to bring forward proposed changes to the cost allocation methodology where considered appropriate.

[80] page 11
[81] page 64

d) Applicability and Simplicity

HQD correctly notes that the load factor method can be readily applied and, indeed, it is relatively simple to do so. In contrast, the hourly method requires more detailed inputs and analysis. In particular, HQD has suggested that there is a range of issues that will arise with the hourly method when it is used to allocate actual Post-Heritage Pool supply costs in order to establish the Pass-On account balance[82]. However, a number of the issues raised by HQD (i.e., those related to who uses how much of the Heritage Pool and post-Heritage Pool resources in each hour) have already been resolved. Given that Post-Heritage Pool cost allocation must be compliant with government decrees, an acceptable hour method will employ a "global" approach (as opposed to a marginal method) to determine customer class Post-Heritage Pool energy usage on an actual basis.

HQD also raises the question of how one time costs and costs not originally considered in the forecast would be allocated. HQD rightly states that "rules" would have to be developed. However, this is neither impossible nor likely difficult. Admittedly the need to develop such rules makes the hourly method more complex. However, if the treatment of the Pass-On account is to be deemed an ongoing methodological change for purposes of determining the cross subsidization reference indices then the question arises as to whether an allocation of the Pass-On account refund/recovery that reflects detailed cost causality considerations is necessary. This issue is discussed in Section 4.2.3.

Overall

Overall, the conclusion to be drawn from the preceding discussion is similar to that presented in ECS's Evidence last year[83]. The hourly method is admittedly more complex and may produce more volatility in the year over year cross subsidization

[82] HQD-11, Document 1, pages 16-17
[83] See pages 13-14

indices. However, the hourly method provides a better allocation based on cost causality considerations in that it:

- uses the actual load characteristics and pattern of the post-Heritage pool supply and customer usage,
- captures the way HQD is actually billed for post-Heritage Pool supply by its third party suppliers and therefore reflects cost causality as defined by how HQD incurs the costs of supply, and
- more closely aligns with cost allocation results reflective of HQD's own circumstances and avoided costs.

The issue is therefore a matter of considering the trade-offs between these considerations. In this regard, the conclusions of this Evidence are the same as last year which were[84]:

> *given the pre-eminence that the Régie has assigned[85] 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 (the hourly method) on an ongoing basis and to improve this methodology over time.*

4.2 Methodological Changes

As part of its current Application HQD has submitted[86] a Cost Allocation Study which allocates the proposed 2007 cost of service (including return on rate base) to customer classes. The Cost Allocation Study incorporates a number of methodological changes to the study prepared in support of HQD's 2006-2007 Rate Application. These cost allocation methodology changes arise generally as a result of either a change in circumstances which affects the determination of HQD's revenue requirement, the

[84] See page 14, R-3579-2005, Evidence of Mr. William Harper
[85] D-2005-34, page 131
[86] HQD-11, Document 1 and Document 4

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 the proposed changes.

4.2.1 BT Rate

In previous decisions[87], 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 January 1, 2004 through to March 31st 2006. At the time of HQD's last Rate Application, it is anticipated that the balance in the account would be $176.9 M[88] as of March 31, 2006.

In D-2004-170, the Régie[89] 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 included, for first time, a BT amortization charge ($26.5M)[90]. In its R-3579-2006 Application, HQD also proposed that the amortization charge associated with the BT deferral account be allocated to customer classes based on revenues by class[91]. However, in its D-2006-34 decision, the Régie directed HQD to maintain a separate line item for the BT Rate and indicate the annual amortization for the deferral account.

In its current Cost Allocation Study, HQD has followed the Régie's direction and tracked both the rate base and amortization charges associated with the BT rate as a separate line item[92]. As a result, there are no apparent issues/concerns associated with this

[87] HQD-4, Document 5, page 11
[88] R-3579-2005, HQD-10, Document 1, pages 8-10
[89] D-2004-170, page 18
[90] R-3579-2006, HQD-6, Document 9, page 5. Note: The actual amortization of 2006 was $32M - HQD-9, Document 1, pages 9-10
[91] R-3579-2005, HQD-12, Document 1, page 35 and R-3579-2005, HQD-13, Document 5, page 3
[92] HQD-11, Document 4, pages 7, 12 and 13.

change. The impacts of the change (in terms of the costs allocated by customer class) are set out in Table 49B of HQD-16, Document 7.

4.2.2 PGEÉ for Remote Communities

HQD has noted that there are specific energy efficiency programs offered to customers in remote (non-Grid connected) communities[93]. However, the current cost allocation methodology does not allocate any PGEÉ costs to the customer classes in remote communities[94]. In order to correct this HQD proposes to allocate a share of the PGEÉ deferral account balances and amortization to the customer classes of the remote communities based on remote community generation costs[95] attributed to each customer class.

The allocation factor currently used for PGEÉ costs is the cost of electricity purchases (Heritage Pool and Post-Heritage Pool) by customer class[96]. For remote community customers, the comparable value would be the cost of local generation. Therefore, HQD's proposed treatment of PGEÉ cost is reasonable both in terms of the principle that remote communities should attract a share of the costs and in terms of the proposed allocation factor.

4.2.3 Pass-On Supply Cost Account

In its 3579-2005 Rate Application, HQD outlined its proposed approach for determining the Pass-On account variances attributable to each customer class on a monthly basis[97]. This same approach was used to determine the allocation of the 2005 Pass-On account balances to customer classes in the current Application[98]. However, for 2006,

[93] HQD 11-1, Document 1, page 27
[94] See R-3579-2006, HQD-12, Document 2, pages 33 and 35.
[95] HQD-11, Document 1, page 27
[96] R-3579-2005, HQD-12, Document 2, page 15
[97] R-3579-2005, HQD-4, Document 3.
[98] HQD-16, Document 7, Question 16

HQD has established the Pass-On account variances attributable to each customer class using an "annual" calculation[99].

In both cases, it is understood that the approach taken is as follows:

- The volumes of both Heritage and Post-Heritage Pool electricity use for each customer class are determined (either monthly or annually) in proportion to the relative sales to each customer class. This calculation is performed using both the load forecast data employed in the rate application and the actual sales data. The results are then used to establish the volume variances for both Heritage Pool supply and Post-Heritage Pool supply by customer class.
- The actual cost of Post-Heritage Pool supply (either monthly or annual) is assigned to customer classes in proportion to the actual cost of Heritage Pool supply by customer class. An actual unit cost is then determined by customer class and compared with the forecast post-heritage pool unit cost calculated on an annual basis. The forecast and actual unit costs are then compared for each customer class to establish the price variances for the Post-Heritage Pool supply.

Overall, the approach is reasonable. The determination of the Heritage Pool and Post-Heritage Pool volumes is consistent with the "global approach" endorsed by the Régie for determining Post-Heritage Pool volumes by customer class. Also, given that the global load factor method is currently used by HQD to allocate both Heritage Pool and Post-Heritage Pool supply costs to customer classes, the relative unit costs will be same for both (i.e., if Rate D unit costs for Heritage Pool supply are 30% higher than the unit cost for Rate L, then the same should be the case for Post-Heritage Pool supply). This means that the approach used to determine actual Post-Heritage Pool supply costs by customer class is consistent with the way Post-Heritage Pool costs were allocated in the original application.

[99] HQD-16, Document 1, Question 16.1

Link to Cost Allocation

As HQD has noted, if the cost allocation methodology applicable to post-Heritage Pool supply were to change, then the allocation of the Pass-On account refund/recovery to customer classes would have to be revisited[100]. If an hourly-type approach were adopted then the calculation becomes more complex, but not impractical. In order to determine the unutilized Heritage Pool energy, HQD must currently determine the hourly use of post-Heritage Pool supply and the optimal distribution of the Heritage Pool supply curve. As a result, the data is already available to determine the actual hourly allocation of most post-Heritage Pool supply costs. Similarly, actual hourly sales by customer class can be determined using metered data and the same methodologies used to develop the forecast usage by customer class.

Need for a Detailed/Accurate Methodology

Finally, there is an issue as to how closely the methodology used to allocate the refund/recovery of the Pass-On account balance needs to reflect cost causality. The purpose in undertaking a cost allocation study is to establish responsibility for the revenue requirement by customer class so as to assist a utility and its regulator in establishing the average rate level by customer class. This is typically done by comparing revenues to allocated costs (i.e. by looking at the revenue to cost ratios). In HQD's case, the requirements of the Act[101], have led to the establishment of cross-subsidization reference indices by customer class which are used as the benchmark for this purpose. In principle, the need for differentiated rate increases by customer class is then assessed by looking at the difference between the forecast cross-subsidization index for a class and its cross-subsidization reference index.

However, the Régie has determined that these cross-subsidization reference indices should be adjusted for the impact of "cost allocation methodology changes".

[100] HQD-4, Document 2, pages 21-22
[101] Section 52.1, fourth paragraph

Furthermore, HQD has proposed that the allocation of the Pass-On account refund/recovery be treated each year as a "methodology change". This means that the allocation of the Pass-On account refund/recovery will have no impact on the difference between the forecast cross-subsidization index and the cross-subsidization reference index since both will be equally affected by the allocation of the Pass-On account costs. As a result, one has to question the value in a complex allocation procedure based on either a global load factor method or an hourly allocation approach, if HQD's proposal is adopted. As HQD has noted, there are simpler approaches that give generally the same results[102].

4.2.4 Net Costs Retirement Costs Related to Tangible and Intangible Assets

In its 2007 Rate Application, HQD has reported separately the net costs related to the retirement of tangible and intangible assets[103]. Previously these costs were included as part of auxiliary assets (*actifs soutien*)[104].

For the portion of these assets associated with Customer Service functions, there is no need to change the allocation. However, for the Distribution and Remote Communities functions, HQD proposes to change the allocation such that the rate base component is to be allocated based on net tangible assets and intangible assets. Any amortization of these costs would then be allocated in line with the rate base allocation. In contrast, the rate base and cost of service components of these costs were previously included as part of auxiliary assets and allocated in the same manner (i.e., based on net tangible assets excluding both auxiliary assets and intangible assets) [105].

The proposed allocation treatment for the (now separately reported) net retirement costs associated with tangible and intangible assets is reasonable – as it reflects the

[102] HQD-16, Document 1, Question 23.1
[103] See HQD-8, Document 1, page 5 and HQD-8, Document 2, page 6
[104] HQD-16, Document 7, Question 51 c)
[105] HQD-16, Document 7, Question 51 a) & b)

functionalization of total tangible and intangible assets. While the impact is minimal[106], the new treatment actually represents an improvement in the cost allocation methodology. Previously, the net costs associated with the retirement of tangible and intangible assets were allocated solely on the basis of the functionalization of tangible assets. However, now intangible assets are also included in the allocation base. This represents an improvement, since the costs being allocated include the net retirement costs associated with both intangible and tangible assets.

4.3 Transmission Cost Allocation

4.3.1 HQD's Proposal

Following R-3492-2002 (Phase 1), the Régie concluded[107] that the cost of transmission service (as billed by HQT) should be allocated using the 1-CP method. However, the Régie's decision also noted that the Transmission Company's cost allocation study was to be the subject of future review. Indeed, in its D-2006-34 decision[108] concerning HQD's 2006 Rate Application[109], the Régie noted that a review of the cost allocation treatment of transmission costs should be undertaken the rate case following the decision on the allocation of transmission costs (for purposes of setting transmission rates).

As part of its 2005 Rate Application[110], HQT submitted for approval its proposed cost allocation methodology for transmission costs. In its decision regarding the Application, the Régie made a number of changes to HQT's proposal and established the methods that should be used by HQT in future cost allocation studies. However, in the same decision the Régie approved transmission rates for HQT based on the FERC pro-forma

[106] See HQD-16, Document 7, Question 51 c) and HQD-11, Document 1, page 29
[107] D-2003-93, page 150
[108] See page 58
[109] R-3579-2005
[110] R-3549-2004 – Phase 2

tariff as opposed to rates based on the results of the cost allocation methodology. In its decision the Régie noted[111] that:

> *La Régie considère que l'exercice de répartition des coûts permet de s'assurer d'un niveau adéquat des tarifs et d'une récupération équitable du revenu requis du Transporteur auprès de ses services. Cela n'oblige cependant pas à imposer une égalité parfaite entre les revenus produits par les tarifs et les résultats de l'étude d'allocation des coûts.*

The amount billed to Native Load differed from the amount allocated by roughly $81 M (3%). In the same decision, the Régie noted[112] that the cost of service allocation exercise which it had just completed for the Transmission Company was of particular importance with regard to the Distributor's transmission cost allocation.

A literal interpretation of the Régie's D-2006-34 decision might suggest that the allocation method adopted by the Régie for HQT should be "imported" into HQD's allocation of transmission costs to customer classes. However, HQD has rejected this approach and proposes[113] to continue to allocate transmission costs to customer classes based on 1-CP. At the same time, HQD has included in its current Application[114] a scenario which sets out the allocation of transmission costs if the allocation methodology adopted for HQT was extended to HQD.

4.3.2 Comments

HQD's rationale[115] for continuing with its current practice is based on the following considerations:

a) The basic rule governing allocation methods is to allocate costs in the same way they are billed, and this is especially true when the billing basis properly reflects cost causation.

[111] D-2006-66, page 22
[112] D-2006-66, page 20
[113] HQD-11, Document 1, pages 24-25
[114] HQD-11, Document 1, page 26
[115] HQD-11, Document 1, page 24

b) The transmission company's allocation method could change once the implications of this method for the customers are analyzed. In particular, HQD could not endorse a method that involves $81 M more in transmission costs than it pays.

c) There is no regulatory precedent for accepting an allocation method at one level (e.g. transmission) in order to establish the allocation method at a different level (e.g., distribution), particularly in the absence of the principal stakeholder.

Of the three considerations put forward by HQD, the first is the most compelling. The Québec electricity industry restructuring involved the functional separation of Hydro Québec's Production, Transmission and Distribution activities. Similarly, the regulation of HQT and HQD by the Régie treats them as separate entities. Within this context, it is appropriate to view financial arrangements between HQD and HQT (and for that matter between HQD and HQP) as arm's length transactions between distinct entities.

This means that, for purposes of assessing cost causality, it is appropriate to look at the contractual billing arrangements between the entities. This view is consistent with that put forward by ECS in its January 2003 Evidence[116] in R-3492-2002 Phase 1 concerning HQD's cost allocation practices. Therefore, since HQT determines the allocation/billing of transmission costs to HQD (i.e., Native Load) based on 1-CP and HQD's peak sets the timing of the HQT coincident peak, 1-CP (based on HQD's system performance) is the appropriate factor for HQD to use in assigning responsibility for transmission costs to customer classes. However, should the relationship between HQD's and HQT's peaks change in the future then the use of HQD's 1-CP as the allocation factor would have to be revisited.

A related observation is that very seldom are a regulated entities' rates set so as to perfectly match the results of their cost allocation studies (i.e., revenue to cost ratios are not typically 100% for all customers classes). Indeed, cost allocation study results are only one of the inputs/considerations that go into the development of a utility's rates and

[116] see page 27 of the referenced Evidence

revenue recovery by customer class. Thus the fact that HQT's "rates" do not precisely recover from each of its customers the same amount as suggested by the cost allocation study should be considered neither as surprising nor abnormal. Unless the Régie was to decide that the results of HQT's cost allocation methodology should be the only factor in determining transmission rates – the HQT cost allocation methodology can not (and should not) be used to determine the responsibility of HQD's customer classes for the transmission costs billed to HQD by HQT.

The fact that the Transmission cost allocation methodology could change in the future is not, in itself, a very compelling argument for not adopting the results for purposes of HQD's cost allocation. Indeed, it is fair to say that any regulated entity's cost allocation methodology could change in the future (including HQD's). However, this should not prevent the use of a cost allocation methodology and results – where appropriate. The key issue here is whether it is appropriate to impose the Transmission Company's cost allocation methodology on the Distributor. As discussed in the previous paragraph, the answer to this is no.

The fact that HQD did not actively participate in HQT's Rate Application proceeding is also not a valid argument. The Régie's proceedings are public processes that are announced well in advance and any party with a demonstrable interest is generally permitted to participate. The fact that HQD did not participate was its choice and does not mean that the findings of the Régie in that case are not applicable to it where appropriate. The HQD comment, however, does raise the question as to whether or not HQD should participate in future HQT proceedings. As it is, HQD is essentially relying on other parties in the HQT proceeding (e.g., groups representing HQD's ratepayers) to represent its interests.

Another key point is the one made by the Régie itself when it observed in its D-2003-93 decision[117] that it was not bound by Transmission Company's cost allocation method as

[117] page 150

regards to the choice to be made for the Distributor's transmission cost allocation method.

Overall, the cost causality rationale (the first of HQD's points) is sufficiently compelling to support the continued use of 1-CP for purposes of allocating transmission costs to customer classes.

5 THE CROSS-SUBSIDIZATION INDEX

5.1 HQD Proposal

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[118]. 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"[119].

Following Phase 1 of R-3492-2002, the Régie concluded[120] 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[121], the Régie adopted the revenue-to-cost ratio index proposed[122] by HQD as an appropriate "cross subsidization index". In the same decision, the Régie also adopted 2002 as the "reference year".

[118] Section 53.1, 1st paragraph of the Act
[119] Section 53.1, 4th paragraph of the Act
[120] D-2003-93, page 185
[121] D-2003-93, page 186
[122] HQD's index is described in R-3492-2002, HQD-2, Document 4.2

Following HQD's Application for 2005-2006 rates, the Régie noted[123] that modifications to the cost allocation methodology 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[124]. As a result, the Régie directed HQD to propose a method that would allow the effects of changes in the cost allocation methodology on the cross-subsidization index to be tracked and reflected in the reference indices.

In its 2006-2007 Rate Application, HQD proposed[125] to track the impacts of cost allocation methodology changes by:

- 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 was 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[126] 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 indices that result 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. This approach 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 [127].

[123] D-2005-34, pages 122-123
[124] Without such an "exclusion", changes in the cost allocation methodology would affect the difference between the observed and the reference cross-subsidization index and could trigger the need for differentiated rates increases to bring them back to a point of being comparable with the reference indices.
[125] HQD-12, Document 3
[126] The use of budget data was confirmed by the Régie in D-2005-34, page 123.
[127] HQD-12, Document 3, page 7

- 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.

In its D-2006-34 decision, the Régie approved HQD's proposed approach for determining the cross-subsidization reference indices for future rate cases. The Régie also asked HQD to calculate the cross subsidization indices based on the revenue generated by the application of the rates over the 12 months of the test year rather than using the revenue generated by the rates during the financial year[128]. Finally, the Régie indicated that it would like to hear from stakeholders during the next rates case, on the various avenues that will allow a better reflection, specifically of the costs of new supply in the rates of each of the customer classes and on the interpretation to give to the provisions of the Act with respect to cross subsidization in this new context[129].

2007 Cross-Subsidization Reference Indices

For its 2007 Rate Application, HQD proposes[130] to treat the following as cost allocation methodology changes and adjust the cross subsidization reference indices for their impact:

- The change in allocation of the Rate BT deferral account recovery,
- The inclusion of Remote Communities in the allocation of PGEÉ costs,
- The change in allocation treatment of net retirement costs for tangible and intangible assets, and
- The allocation of the Pass-On account refund/recovery.

HQD's current Application also includes the impact of reflecting the calculation of the cross subsidization indices the revenues generated by the application of the rates over the 12 months of the test year as directed by the Régie[131].

[128] D-2006-34, page 86
[129] D-2006-34, pages 77-78
[130] HQD-11, Document 1, pages 28-29
[131] HQD-16, Document 7, Question 54

5.2 Comments

5.2.1 Methodological Changes

The first three items (i.e., those related to the BT Rate, PGÉE costs and net retirement costs), along with the change in the determination of revenues for the cross subsidization index calculation are all methodology changes arising as a result of previous direction from the Régie, changes designed to improve cost tracking or changes in the availability and reporting of costs. As a result, factoring such changes into the determination of the reference cross subsidization index is consistent with the direction of the Régie in its D-2005-34[132] and D-2006-34[133] decisions.

The only issue of note is with respect to incorporation of the revised cost allocation treatment for the amortization of the BT Rate deferral account. There is some question as to which "rate year" the change should be reflected in. In its D-2006-34 decision, the Régie asked[134] HQD to correct the cost allocation study for the 2006 test year by modifying the cost allocation method of the Rate BT deferral account. However, it noted that it would not be necessary for HQD to file the study again with the Régie in the current proceeding and that the impact of the results should be presented in the next rates case. Based on this direction, HQD should treat the Régie direction on this matter as if it had been implemented for 2006 and should not treat it as a 2007 methodology change.

5.2.2 Pass-On Account Recovery

The Pass-On account refund/recovery is not a "methodology change" but rather a new cost in the revenue requirement that must be addressed in the cost allocation

[132] D-2005-34, Section 4.5.2, pages 122-123
[133] D-2006-34, pages 68-70
[134] D-2006-34, pages 61-62

methodology. As a result, based on the Régie's treatment[135] of cost allocation impacts of the BT Rate deferral account recovery and the post-Heritage Pool cost (both of which were new costs for 2006-2007), the impact on the cost allocation results of introducing the Pass-On account recovery would not normally be considered a methodological change. However, HQD's rationale for incorporating the impact of the Pass-On account refund/recovery into the determination of the cross subsidization reference indices is that the impacts are transitory and will vary from year to year[136]. Indeed, HQD proposes to treat the Pass-On account recovery as a "methodological change" in each year from here on out[137].

In order to assess the reasonableness of HQD's proposal, it is useful to recall what the purpose is for determining the cross subsidization reference indices. The role of the "reference index" for each customer class is to provide a benchmark against which the Régie can compare the forecast cross subsidization index and judge whether there is sufficient departure such that differentiated rate increases are required by customer class[138]. The purpose in adjusting the cross subsidization reference indices for cost allocation methodology changes is to ensure that such changes do not contribute to the observed difference between the reference index and the actual cross subsidization index for each customer class. This will ensure that only changes in price/volume/circumstances affect the observed difference.

As HQD has noted, the value of the Pass-On account balance included in the revenue requirement may be negative or positive and large or small in any given year, as evidenced by the actual 2005 and the forecast 2006 balances. To allow the allocation of the refund/recovery of the balance to impact the difference between a customer class' actual and reference cross subsidization indexes could result in the Régie making a decision regarding the need for differentiated rate increases on results that are more than likely to change again the following year. As result, HQD's proposed treatment of

[135] D-2006-34, pages 68-70
[136] HQD-16, Document 2, Question 22.6
[137] HQD-11, Document 1, page 30 and HQD-16, Document 3, Request #2, Question 20 d)
[138] For example, see D-2006-34, page 86

the Pass-On account refund/recovery as a cost allocation methodology change is reasonable.

5.2.3 Cross Subsidization Indices and Rate Structure Changes

In its D-2006-34 decision, the Régie raised the question as to whether the provision of the Act regarding cross subsidization had any implications for its preferred direction on rate redesign in order to better reflect the cost of new supply. Cost allocation and rate design are two distinct phases in the overall rate determination process. Cost allocation and cross subsidization considerations deal with comparing the revenues and costs at the customer class level in order to establish the total revenues that should be recovered from each customer class. In contrast, rate design starts after the revenue requirement has been established for a class and deals with how it is to be recovered from the individual customers within a class. As a result, rate design (and redesign) should be considered as being independent of cost allocation and the need to consider the cross subsidization requirements of the Act.

However, the ability to effectively design rates that reflect marginal costs is impacted by the difference between average costs attributed to a class (based on an allocation of the revenue requirement and consideration of cross subsidization) and the marginal costs of electricity for the class. The closer these two values are, the “easier” it is for a utility to implement rates that provide marginal cost signals for incremental use. In the case of HQD where average costs are less than marginal costs, the need to maintain the cross subsidization ratio at less than 1.0 for some customer classes increases the challenge involved in designing rates that send an effective marginal cost pricing signal for those classes. However, for the rate designer the need to adhere to the cross subsidization requirements of the Act should be viewed as just another operating constraint.

6 RESIDENTIAL RATE DESIGN

6.1 HQD's Proposal

Background

As part of its 2004-2005 Rate Application, HQD filed evidence[139] regarding the rate design for its various customer classes, including both rate design principles and possible directions for future rate design. In terms of rate design principles, HQD set out[140] three:

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

While not proposing any specific changes in rate design for 2004-2005, HQD concluded[141] that for residential rates:

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.

In its Decision regarding R-3541-2004, the Régie endorsed the rate making principles proposed by HQD. In the same Decision, the Régie noted[142] 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

[139] R-3541-2004 (Phase 1), HQD-1, Documents 1-5
[140] R-3541-2004 (Phase 1), HQD-1, Document 1, pages 6-7
[141] R-3541-2004 (Phase 1), HQD-1, Document 2, page 23
[142] D-2005-34, page 138

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[143] 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 2006 Rate Application, HQD reiterated[144] the rate making principles put forward the previous year and proposed changes to the residential rate structure that were generally consistent with both previous year's assessment and the Régie's subsequent direction. Specifically, HQD's 2006 Application[145] called for:

- 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[146]).

[143] D-2005-34, pages 138-139
[144] R-3579-2005, HQD-13, Document 1, pages 9-13
[145] HQD-13, Document 1, pages 23-28
[146] D-2005-34, page 139

As part of the same proceeding, Mr. Harper of Econalysis Consulting Services was retained by Option Consommateurs and prepared evidence regarding HQD's R-3579-2005 rate design proposals. In his evidence[147], Mr. Harper concluded that HQD's proposed changes in its residential rate design were consistent with the rate design principles endorsed by the Régie and also with the Régie's directive for gradualism regarding future rate design changes. He also recommended that HQD should assess the merits of adopting a first energy block usage size that varied by season.

In its decision regarding R-3579-2005, the Régie accepted[148] HQD's rate design proposals noting that they permitted a gradual reform towards a better price signal. However, the Régie did direct[149] HQD to examine the feasibility and impacts of adopting a lower first energy block usage level in the summer as opposed to the winter.

Finally, in May 2006, the Québec Government published its Energy Strategy which contained a number of rate design related requests[150] including:

- that HQD should submit proposals to the Régie for a new residential rate structure that include greater price variation between the usage blocks, possibly increase the 30 kWh size of the first block or eventually introduce a third energy block, and
- that HQD should progressively implement rates that are based on seasonal and hourly use in Québec and submit proposals to this effect to the Régie in 2007.

HQD's 2007-2008 Rate Design Application

In its current Application[151], HQD reaffirms the rate making principles accepted by the Régie in previous decisions. Indeed, the proposed residential rate design[152] (i.e., Tariffs D and DM) effectively represents a continuation of the approach initiated last year in that:

[147] R-3579-2005, Evidence of Mr. Harper, page 35
[148] D-2006-34, page 11
[149] D-2006-34, pags 72-73
[150] La stratégie énergétique du Québec 2006-2015, pages 56-57
[151] HQD-12, Document 1, pages 10-17
[152] HQD-12, Document 1, pages 33-34

- The daily fixed charge is held constant (at 40.64 cents),
- The rate for the second block is increased by 4.2% which is double the increase of the rate for the first usage block, and
- The winter demand charge (for usage over 50 kW) is increased by $0.75 ($0.18/kW for bulk metered contracts.

The current residential rates and those proposed to be effective April 1, 2007 are set out in Table 5.

Table 5
Domestic Rates
2006 versus2007

	April 1, 2006	April 1, 2007
Fixed Charge (cents per day)	40.64	40.64
First 30 kWh per day (cents/kWh)	5.22	5.32
Balance of Use (cents/kWh)	6.83	7.12
Winter Demand (> 50 kW - $/kW))	4.71	5.46

In its Application, HQD also discusses the issues identified by the Régie in Decision D-2006-34 and the Québec Government in its Energy Strategy document. With respect to the issue of varying the size of the first usage block by season, HQD presents more refined data regarding basic use by month and concludes that 30 kWh/day is an appropriate usage block in the winter[153]. In the case of summer months, HQD submits that the data does not permit a clear delineation of the months during which the reduction should occur[154]. Furthermore, HQD argues that the rationale used in Ontario for a higher winter threshold is not applicable in the Quebec context[155]. With respect to

[153] HQD-12, Document 1, page 38, lines 3-5
[154] HQD-12, Document 1, page 40, lines 20-25
[155] HQD-12, Document 1, pages 39-40

time of use (TOU) rates, HQD briefly reviews[156] its experience with the experimental DH rate first introduced in 1993. HQD also notes[157] limitations regarding both the ability of TOU rates to reduce the cost of supply and HQD's current inability to offer a significant peak/off peak financial differential; however HQD does indicate that it will be filing analyses on time of use (hourly and seasonal) rates in 2007[158].

6.2 Comments

6.2.1 Fixed Customer Charge

In support of the proposed freeze of the current residential customer charge of 40.64 cents/day, HQD notes that the per customer cost of metering and customers service is 37.08 cents/day but the cost increases to 41.42 cents if the cost of customer connection is also included[159]. This range is just slightly less than that calculated last year for the 2006-2007 Rate Application (37.73 – 42.13 cents/day)[160]. Given these results there is no rationale for increasing the level of the fixed daily charge.

6.2.2 First Usage Block

HQD reiterates in its Application[161] that conceptually the first block is meant to cover basic uses (lighting, appliance, water heaters), while the second block is meant to cover other uses, including heating. The rationale for taking this approach appears to be based on the following considerations:

a) Consistent with economic theory, the first block is meant to capture the more inelastic uses of electricity, whereas the second block (which will be priced closer to marginal cost) is meant to capture the more elastic uses of electricity[162],

[156] HQD-12, Document 1, pages 41-43
[157] HQD-12, Document 1, page 43
[158] HQD-12, Document 1, page 44
[159] HQD-12, Document 1, page
[160] R-3579-2006, Evidence of Mr. Harper, page 28
[161] HQD-12, Document 1, page 29
[162] HQD-16, Document 7, Question 58 a).

b) Customers should see the marginal cost of electricity supply as the price signal for decisions regarding increased or decreased consumption[163], regardless of the use, and
c) Selection of the first usage block should not unduly penalize customers consuming electricity for "basic uses"[164].
Support for the last two considerations can also be found in the Energy Strategy recently issued by the Québec Government[165].

Determination of Basic Use

The data used by HQD in the current filing to establish the electricity use associated with "basic uses" is taken from a 2002 report on residential electricity use[166]. HQD claims that this data is more representative of "basic use" since the non-electric heating customer data presented last year included a significant number of customers with auxiliary electric heating systems[167]. Based on this new data, basic use in the core winter months (December to March) is 30 kWh/day or slightly more, while it declines in the core summer months to 25 kWh/day or less.

The following table (Table 6) compares the monthly usage values from this analysis with that presented last year.

[163] HQD-16, Document 7, Question 58 a)
[164] HQD-16, Document 1, Question 52.1
[165] La stratégie énergétique du Québec 2006-2015 (English Translation), pages 53 and 54
[166] HQD-12, Document 1, page 37
[167] HQD-12, Document 1, page 33

Table 6
Average Daily Non-Heating Use (kWh)

	2002 Survey Data[1]	2004-05 Billing Data[2]
January	31	46
February	30	44
March	30	38
April	28	32
May	27	26
June	25	23
July	25	23
August	25	22
September	24	23
October	24	27
November	27	35
December	33	43
Summer (May-Oct)	25	24
Winter (Nov-April)	30	40
Core Winter (Dec-Mar)	31	43

Notes:
1) HQD-11, Document 1, Table 15
2) R-3579-2005, HQD-14, Document 11, page 105

In winter, the average use for non-all electric heating customers is understandably higher than with the newly introduced HQD data. But, in the summer time there is no systematic reason why the values for the two should differ. The differences are attributable to the actual data sets used and the year considered. Within this context, it would appear that both sets of data support the use of a lower (e.g., 25 kWh/day) value. However as HQD notes, in the spring and fall shoulder months, there is no natural breakpoint between the 25 and the 30 kWh/day values.

Ontario Precedent

HQD contends that Ontario adopted a lower threshold in the summer time because its electricity requirements were more sensitive to climate variation in the summer and the

lower threshold meant a better price signal for uses that exacerbated the system's peak[168]. However, it is clear, even from the quote HQD referenced[169], that:

> "*the primary rationale for this option (i.e., a lower threshold in the summer vis-à-vis the winter) is that a necessity in Ontario's climate, space heating, would be less costly while discretionary uses, such as air-conditioning and pool heaters, would be relatively more expensive*"[170].

As HQD noted, an additional consideration taken into account by the OEB was the fact that a disproportionate share of residential customers with electric space heating have low incomes.

The OEB's concept of non-discretionary use is similar to the "basic use" concept adopted by HQD. This is particularly evident in light of the Board's observation[171] that:

> *"consumers are unlikely to turn off heat on cold winter nights to save money by remaining below the higher priced threshold. They are more likely to turn off air conditioning on a hot summer day to reduce costs".*

This is effectively a simple way of saying that electricity use for space heating is considered to be more inelastic than electricity use for air conditioning.

As a result, the principle underpinning the first usage block threshold is the same in both jurisdictions.

HQD also notes that increasing the energy threshold block in the winter to 35 kWh would lead to more kWh being billed at the (lower) first block rate in the winter time – which contributes to the overall system peak and creates upward pressure on HQD's costs[172]. There are three observations to be made regarding this point:

[168] HQD-12, Document 1, page 39-40.
[169] HQD-17, Document 7, Question 64 a)
[170] Board (OEB) Proposal, Regulated Price Plan for Electricity Consumers, December 7, 2004, page 17
[171] Ibid, page 17
[172] HQD-12, Document 1, page 40

- First, even if the threshold level for the first energy usage block was increased to 35 kWh, during the four core winter months that are critical for determining HQD's system peak over two thirds of all bills issued would include usage in the second energy block and, for all electric customers, this percentage increases to 79.1%[173]. In contrast, at the 30 kWh level, 72.5% of all bills and 84.5% of bills to all electric customers would include usage in the second block. While increasing the threshold to 35 kWh admittedly leads to is some reduction in the number of customers captured by the second block, a substantial portion of the bills issued in this critical period would reflect the price of the second usage block.
- Increasing the threshold for the second usage block, would permit a higher price (closer to marginal costs) to be set for this block[174].
- The daily use values reported by HQD are "averages" and there will be some customers whose basic use in the winter is below 30 kWh and that of others will be above 30 kWh per day[175].

Overall

There is a degree of conflict between the three considerations put forward by HQD as the basis for selecting the threshold for the first energy usage block (as outlined above). Marginal cost price signal considerations would suggest setting the size of the first usage block as low as practical. It should be noted however, that an offsetting consideration is that if one adopts a smaller first usage block, then in order to not over recover the total revenue requirement, it would be necessary to either:

- Reduce the price of the second energy use block which would conflict with the first consideration, or
- Reduce the price of the first energy use block, which would further distort the price signal for those customers with usage only in the first block.

[173] HQD-16, Document 7, Question 56 b)
[174] HQD-16, Document 7, Question 65
[175] HQD-16, Document 1, Question 52.1

At the same time, concerns that a higher price for the second energy usage block could penalize customers using electricity for basic applications that are relatively inelastic, suggest that there is a need for caution in reducing the size of the first energy usage block. Not all customers have the same level of basic use and reducing the size of the first block is likely to expose the basic uses of more consumers to the higher second block price. Indeed if one accepts HQD's concerns that lowering the summer usage block to 25 kWh would risk billing basic uses at the second block, one could similarly argue in favour of increasing the winter threshold above 30 kWh per day[176], particularly for the core winter months (i.e., December to March).

There are effectively three options open to HQD and the Régie. These include the HQD proposal as well as the following two – whose merits are each reviewed relative to the HQD proposal:

- The first alternative option would be to reduce the summer threshold to 25 kWh/day but maintain the winter threshold at 30 kWh. While supported somewhat by HQD's new data, this approach has a number of drawbacks. First, it would (keeping all other elements unchanged) lead to a reduction in the price for the first and/or second energy block. Neither result is consistent with the objective of sending marginal cost signals for incremental use. Second, it is likely to increase the number of customers who are exposed to the price of the second energy block for basic uses. Finally, the improvement in the number of customers exposed to the second block pricing signal would occur in the summer time which is not the critical period for HQD's system overall.
- A second alternative option would be to increase the threshold for the first energy block in the four core winter months (i.e., December through March). The first advantage to this approach is that the price of second energy block would have to increase (in order to maintain the same revenues) which would improve the marginal cost pricing signal for this block. The second advantage is that it would increase the

[176] HQD-12, Document 1, page 40

number of customers whose basic use is billed according to the price of the first energy block.

The main drawback is that it would decrease (during the core winter months) the number of bills that would experience the higher second energy usage block price for incremental use (by roughly 5 to 6 percentage points). It would also increase the bill impact dispersion. The percentage of bills seeing increases in excess of 4% would rise from 0.2% to 4.8%[177]. Furthermore the maximum increase experienced by a customer would increase from 6.4% to 7.6%.

Both the HQD proposal and the second option discussed above have merit and the decision of the Régie will depend upon the relative weight it attaches to the various considerations. However, for purposes of this Evidence, the alternative involving a higher winter threshold is considered the preferred alternative of the two. This conclusion is based on the Consultant's weighting of the various factors and the direction set out by the Québec Government's Energy Plan regarding HQD's rates. However, given that HQD has committed to bring forward in 2007 a strategy for time of use rates, it would advisable for the Régie to direct HQD to consider the change in the winter threshold at that time (i.e., for 2008 rates).

6.2.3 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 a continuation of the policy adopted by HQD (and the Régie) for last year's rate application. It results in a price of 7.12 cents / kWh for the second energy usage block and the differential between the two usage blocks increasing from 31% to 34%[178].

[177] HQD-12, Document 1, page 67 and HQD-16, Document 7, Question 69 b)
[178] HQD-12, Document 1, page 34

As mentioned in previous evidence prepared by ECS and in HQD's current application, there are a number of considerations/benchmarks in assessing the reasonableness of the proposed differential between the first and second usage blocks:

- The first is how the price for the second energy block compares with HQD's marginal costs. In this regard the 7.12 cents is well below HQD marginal supply costs for 2007 of 8.83 cents / kWh. Indeed, if HQD continues to apply the same policy, the price of the second usage block will continue to be well below marginal supply costs for the foreseeable future[179].
- The second is how the price compares to the cost of heating with natural gas. When converted to a kWh equivalent, the cost of natural gas space heating is 8.90 cents based strictly on energy alone and increases to 12.64 cents if one takes into account additional acquisition and maintenance costs[180]. This price can be viewed as an upper benchmark. However, the price of the second energy usage block is still well below it.
- The third consideration is the bill dispersion resulting from the change in the differential. The average rate increase is 2.8% and, even with the increase in price differential, virtually all of the customers will experience overall increases of less than 4%[181]. This represents a fairly "tight" distribution of bill impacts.
- The fourth is the results of the cost allocation study which provide an indication of the appropriate differentials based on the principle of cost causality (as applied to the proposed revenue requirement). In this regard, analysis provided by HQD indicates that based on uniform supply costs the differential would be 33%. However, based on differentiated supply costs, the differential increases to 50%[182]. While this is not a key consideration from either HQD's or the Régie's perspective, it too supports a further differentiation of the prices for the two energy usage blocks.
- Finally, a larger differential would lead to a lower increase in the rate for the first energy usage block. Since incremental usage for some customers will be "priced" at this rate, there is some interest in ensuring that this price does not decline year over year (unless there is decrease in average rates) and, preferably shows at least a

[179] HQD-12, Document 1, pages 34-35
[180] HQD-12, Document 1, page 31
[181] HQD-12, Document 1, page 67
[182] HQD-16, Document 7, Question 59 a)

modest increase[183]. However, the Energy Strategy recently released by the Québec Government appears to discount this concern[184]. Under the HQD proposal, the rate for the first energy usage block increases by 1.9% as of April 1, 2007 to 5.32 cents/kWh. In contrast, if the 2.8% average rate increase was applied entirely to the second energy usage block then the second block's energy rate would increase by 5.9% to 7.23 cents/kWh[185].

Overall, HQD's proposed increase in the differential between the first and second usage blocks is a move in the right direction. Indeed, all the benchmarks suggest there is some scope for a larger increase in the differential although, given the impact on the rate for the first energy usage block, the scope is limited.

6.2.4 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 a demand charge of $5.46 / kW. This is equivalent to a charge of $0.0053 /kWh[186]. When combined with the proposed second block energy rate of $0.0712 / kWh, the net effective rate for usage over 50 kW is 7.65 cents per kWh (on an annual basis). This is still significantly less than HQD's marginal supply cost for space heating[187] (10.56 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.

6.2.5 Customer Bill Impacts

The individual residential customer bill impacts arising from HQD's proposed 2.8% average class increase and the rate structure changes range from zero to 6.4%[188]. However, only 0.2% of the customers will experience annual bill impacts in excess of

[183] HQD-16, Document 4, Question 24
[184] See page 54 – English Translation.
[185] HQD-16, Document 4, Question 24
[186] See R-3579-2005, HQD-14, Document 6, Question 30 a) for conversion formula
[187] HQD-12, Document 1, page 31.
[188] HQD-12, Document 1, page 67

4%[189]. For typical levels of use the impacts range from 1.4% (for monthly use of 625 kWh) up to 3.5% (for monthly use of 3000 kWh). The range of rate impacts around the average rate increase is fairly tight and can be considered acceptable[190].

Table 7 sets out the monthly bill impacts for selected levels of use assuming a 35 kWh/day first energy block threshold was adopted for the core winter months and the second energy usage block rates as adjusted accordingly.

Table 7
Bill Changes Under Alternative Energy Block Proposal

Monthly Use	HQD Current Rates Monthly Bill	2007 Alternative Core Winter - 35 kWh Balance - 30 kWh Monthly Bill		HQD Proposal Monthly Bill
		Core Winter	Other Months	
900	$59.17	$60.07	$60.07	$60.07
1000	$66.00	$65.39	$67.29	$67.19
1050	$69.42	$68.05	$70.90	$70.75
1500	$100.15	$100.54	$103.39	$102.79
2000	$134.30	$136.64	$139.49	$138.39
2500	$168.45	$172.74	$175.59	$173.99
3000	$202.60	$208.84	$211.69	$209.59

a) 2007 Alternative Rates based on HQD-16, Document 7, Question 65 c)

For a customer with 1,000 kWh of monthly use the revised rate structure leads to a higher increase in a summer month bill (1.95% vs. 1.8%), while the bill in a winter month would actually decrease slightly (less than 1%). In the case of a customer using 3,000 kWh per month the summer bill increases by 4.49% while the winter bill increases by 3.08% - as compared to 3.5% under HQD's proposal.

[189] HQD-12, Document 1, page 67
[190] D-2006-34, page 18

For the 1,000 kWh per month customer, the summer bill increase while higher is still less than the overall average increase of 2.8%. The winter bill decrease may be considered problematic in terms of the overall price signal it sends. However, its must be recalled that this bill would apply only in the core winter months and for these months 1,000 kWh of usage is likely associated primarily with basic uses.

For the 3,000 kWh per month customer, the winter bill increases by 3.1%. This level of use generally signifies the presence of electric space heating. While the bill increase is slightly less than that experienced under the HQD proposal, the price signal for incremental consumption choices is higher and closer to the marginal cost of supply. For the summer period, the bill increase is one percentage point higher than under the HQD proposal (i.e., 4.5% vs. 3.5%). However 3, 000 kWh of monthly use (i.e., 100 kWh per day) in the summer time is a significant amount even if one takes into air conditioning requirements[191].

[191] HQD-16, Document 1, Questions 51.1 and 51.2

7 CONCLUSIONS

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

7.1 Treatment of Select Deferral Accounts

7.1.1 Pass-On Account

Calculation of Deferral Account Balances

- HQD's proposal to adopt an "annual" as opposed to a "monthly" calculation of the supply cost differentials and the Pass-On account balance is reasonable and consistent with its current methodology (i.e., the global load factor method) for allocating Post-Heritage Pool supply costs. However, if another allocation methodology was adopted for Post-Heritage Pool supply costs, then this issue would need to be revisited. A "monthly" calculation is also incompatible with the use of the hourly method for allocating Post-Heritage Pool Supply costs.

Refund/Recovery of Deferral Account Balances

- The Régie should not approve HQD's proposal to refund/recover forecast Pass-On account balances in the next rate case as a regulatory policy change. For purposes of 2007, the Régie may wish to consider directly a "partial" refund of the projected 2006 balance in the interest of rate stability.

7.1.2 Transmission Cost Account

- Given the exceptional circumstances associated with the development of the current balance, HQD's proposal to recover the Transmission Cost account balance over a number (not more three) years is reasonable.

7.2 Cost Allocation

7.2.1 Post-Heritage Pool Supply Costs

- The hourly method is admittedly more complex and may produce more volatility in the year over year cross subsidization indices than the global load factor method. However, it provides a better allocation of costs based on cost causality in that it:

o uses the actual load characteristics and pattern of the post-Heritage pool supply and customer usage,

o captures the way HQD is actually billed for post-Heritage Pool supply by its third party suppliers and therefore reflects cost causality as defined by how HQD incurs the costs of supply, and

o more closely aligns with cost allocation results reflective of HQD's own circumstances and avoided costs.

- The issue is therefore a matter of considering the trade-offs between these considerations. If, as the Régie has suggested in the past, pre-eminence is to be given to cost causality then the hourly method should be adopted for allocating Post-Heritage Pool supply costs.

7.2.2 Transmission Costs

- Transmission cost should continue to be allocated on the basis of 1-CP.

7.2.3 Methodology Changes

- HQD's proposed cost allocation methodology changes with respect to BT Rate Deferral account costs, PGEÉ costs and Net Retirement Costs for Tangible and Intangible assets are all reasonable and should be approved by the Régie.
- HQD's proposed allocation of the Pass-On account costs/charges is also reasonable, given it cost allocation proposals for the Post-Heritage Pool supply costs. However, if HQD's proposal to treat this allocation as an ongoing "methodology change" for purposes of the cross subsidization reference indices, then consideration should be given to adopting a more simplified allocation method.

7.3 Cross Subsidization Index

7.3.1 Reference Index Adjustments

- HQD's proposal to adjust the cross subsidization reference index for PGEÉ and Net Retirement Costs related methodology changes is reasonable and consistent with previous Régie decisions.
- The BT Rate deferral account treatment should not be considered a "methodology change" for 2007 rates. Rather, it should be treated as if implemented for 2006 rates.
- While not a true "methodology change", HQD's proposal to incorporate the Pass-On account effects into the calculation of future year's cross subsidization reference indices is reasonable and consistent with the overall purpose and role of the reference indices.

7.4 Residential Rate Design

- HQD's proposed changes in residential rate design for 2007 rates are reasonable. Similar to past proposals, they represent a gradual but directionally correct change.

- In conjunction with its time of use proposals planned for next year, HQD should be directed by the Régie to bring forward a proposal to increase the threshold for the second energy block in the core (i.e., December to March) winter months to 35 kWh/day.

APPENDIX A

CV FOR ECS CONSULTANT

William O. Harper

Mr. Harper has over 25 years experience in the design of rates and the regulation of electricity utilities. While employed by Ontario Hydro, 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 also 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, the Ontario Energy Board 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 (Ontario)
  - 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*
  - OEB – 2006 Rate Applications by Various Electricity Distributors
  - OEB – 2006 Guidelines for Regulation of Prescribed Generation Assets

- Electricity (British Columbia)
  - BC Hydro IPP By-Pass Rates
  - BC Hydro Heritage Contract Proposals
  - BC Hydro's 2004/05 and 2005/06 Revenue Requirement Application

- BC Hydro's CFT for Vancouver Island Generation – 2004
- BC Hydro's 2005 Resource Expenditure and Acquisition Plan
- BC Hydro's 2006 Residential Time of Use Rate Experiment Application
- BC Transmission Corporation – Open Access Transmission Tariff Application - 2004
- BCTC's 2005/06 Revenue Requirement Application
- BCTC's – 2005 Vancouver Island Tranmission Reinforcement Project
- BCTC's 2006/07 Revenue Requirement Application
- WKP Generation Asset Sale
- Fortis BC's 2005 Revenue Requirement and System Development Application
- Fortis BC's 2006 Revenue Requirement Application
- Fortis BC's 2007/08 Capital Plan and System Development Plan

- Electricity (Quebec)
  - 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*
  - Hydro Québec - Distribution's 2006/2007 Tariff Application*
  - Hydro Québec - Transmission's 2005 Tariff Application*
  - Hydro Québec – Distribution's 2006 Interruptible Tariff Application
  - Hydro Québec – Distribution's 2006 Cost Allocation Work Group

- Electricity (Manitoba)
  - 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*
  - Manitoba Hydro's 2005 Cost of Service Methodology Submission*

- 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 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
- Member of the OEB's 2005/06 Cost Allocation Technical Advisory Team
- Member of the IESO Technical Panel (April 2004 to Present)

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