BEFORE THE RÉGIE DE L'ÉNERGIE

IEc

IN THE MATTER OF:

HYDRO QUÉBEC DISTRIBUTION

Demande du Distributeur relative à l'établissement des tarifs d'électricité pour l'année tarifaire 2011-2012

DOSSIER R-3740-2010

22 October 2010

prepared on behalf of:

l'Association québécoise des consommateurs industriels d'électricité (AQCIE)

Conseil de l'industrie forestière du Québec (CIFQ)

prepared evidence of:

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INTRODUCTION

My name is Robert D. Knecht. I am a Principal and the Treasurer of Industrial Economics, Incorporated ("IEc"), a consulting firm located at 2067 Massachusetts Avenue, Cambridge, MA 02140. As part of my consulting practice, I prepare analyses and expert testimony in the field of regulatory economics. In Canada, I have submitted expert evidence in regulatory proceedings in Québec, Ontario, Alberta, New Brunswick, Nova Scotia, Manitoba, and Prince Edward Island. In matters regarding Hydro Québec Distribution ("HQD"), I have submitted evidence or reports before the Régie in various dockets since 2001.

I obtained a B.S. degree in Economics from the Massachusetts Institute of Technology in 1978, and a M.S. degree in Management from the Sloan School of Management at M.I.T. in 1982, with concentrations in applied economics and finance. My *curriculum vitae* and a schedule of my expert evidence presented to regulatory tribunals during the past five years are attached as Exhibit IEc-1.

I was retained by l'Association québécoise des consommateurs industriels d'électricité ("AQCIE") and the Conseil de l'industrie forestière du Québec ("CIFQ") to evaluate the following aspects of HQD's filing:

- History of cross-subsidies;
- The Rate M/RateL tariff interface;
- HQD's pension cost claims.

1. CROSS-SUBSIDIZATION HISTORY

PLEASE PROVIDE A BRIEF BACKGROUND OF THE REGULATORY ISSUES SURROUNDING REVENUE ALLOCATION FOR THIS PROCEEDING.[1]

The regulation of HQD is subject to the unusual (and quite possibly unique) requirement that rates may not be adjusted in order to cause changes in historical levels of cross-subsidization. How that cross-subsidization should be measured was a matter of some debate over several rate proceedings.

Nevertheless, in the 2006 HQD proceeding (R-3610-2006), the Régie approved a methodology proposed by HQD which measures the increase in allocated per-kWh cost from proceeding to proceeding, based on a consistent cost allocation methodology. That is, HQD simulates its cost allocation methodology for the prior test year and for the proposed test year with the same cost allocation methodology. The difference in the per-kWh allocated costs between those two simulations is deemed, under this methodology, to be the necessary difference in rates that would result in *no change in cross-subsidies*.

Thus, in Docket R-3610-2006, the Régie implicitly adopted a new base level of cross-subsidies.

[1] This section of my testimony updates my quantitative analysis of the history of cross-subsidization among rate classes that I presented in HQD last base rates case. I have borrowed some of the text from that testimony as well.

However, in the last four proceedings, the Régie has not applied its cross-subsidy approach for revenue allocation.[2] Instead, it approved "across-the-board" rate increases for all rate classes in all four cases.

In the current proceeding, HQD has again prepared its cross-subsidization analysis, which implies differential rate increases are necessary to prevent cross-subsidies from changing. However, HQD has again proposed to apply an across-the-board approach in this proceeding, albeit at a zero increase.

WHAT ARE THE IMPLICATIONS FOR CROSS-SUBSIDIES AMONG THE RATE CLASSES FROM HQD'S PROPOSAL?

Exhibit IEc-2 attached to this evidence updates my analysis of the cross-subsidy implications of HQD's proposal. In this case, an across-the-board approach *reduces* the cross-subsidy *to* the residential class, relative to the previous year. For the classes that provide the cross-subsidy, HQD's proposed approach will result in an increase in cross-subsidies from the medium commercial class, with reductions in cross-subsidies from the small commercial and large industrial classes. I note that this is the first year in which the cross-subsidy from the large industrial class has been reduced on a single-year basis. Of course, relative to the 2007 test year, the large industrial cross-subsidy has increased substantially, as a result of subsidy growth in the intervening years.

Relative to the base year proceeding in 2006, the time at which the Régie established the base conditions for cross-subsidies, the cumulative subsidies to the residential class continue to grow, as do the cross-subsidies from the medium commercial and large industrial rate classes.

Cumulative cross-subsidy increases to the residential class over the four-year period are now over $500 million. A summary of the cumulative class-specific effects is shown in Table IEc-1 below.

Last year, some confusion arose in respect of the cumulating calculations shown in Exhibit IEc-2.3 The logic in that exhibit is as follows. First, each year is evaluated based on the information provided by HQD for that specific year. That is, I compare the rate increase necessary to keep cross-subsidies constant with the actual rate increase applied in that year. The difference represents the single-year effect.

However, there are two cumulative effects over time. The first relates to the effect on an individual year. For example, in the 2007 initial year, the Rate L increase in cross-subsidies was $18.7 million. In the second year, 2008, the standalone effect was $35.5

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[2] I use the term "revenue allocation" to apply to how much of the overall increase in HQD's revenue requirement is applied to each rate class. I use the term "rate design" to apply to how rates are structured to recover the revenue requirement assigned to each class in the revenue allocation process.

[3] I discussed this method informally with HQD during last year's proceedings, and I believe that they have no conceptual disagreement with this approach.

million. However, had the Régie imposed a lower increase on Rate L in both 2007 and 2008, the Rate L revenues would be some $54.7 million lower in 2008. That is the cumulative effect of allowing cross-subsidies to change in 2008.

The second cumulative effect involves measuring the impact of changing cross subsidies over the whole period. To do so it is necessary to add the impacts from each individual year. In so doing, I exclude interest, which would otherwise serve to increase the cross-subsidies from the non-residential rate classes. In my example, the increase of $18.7 million in cross-subsidies from Rate L in 2007 occurs in every year, because that increase is implicitly in the starting rates in every year since then.

TABLE IEC-1
HISTORICAL CHANGE IN CROSS-SUBSIDIES BY RATE CLASS
$MILLIONS

	2011: Single-Year	2011: Cumulative	2007-2011: Cumulative
Rate D	18.7	(104.6)	(514.4)
Rate G	(35.7)	(36.5)	12.9
Rate M	32.4	84.1	218.7
Rate L	(15.4)	58.7	278.3
Total HQD	*0.0*	*16.1*	*23.4*

Notes:
A negative value for the residential class implies that the cross-subsidy is increasing. A negative value for the non-residential classes implies that the cross-subsidy is decreasing.
The non-zero sum for the cumulative columns reflects rounding issues in the HQD data, as well as multiplicative effects that result from this approach.
Source: Exhibit IEc-2

DO YOU HAVE SPECIFIC RECOMMENDATIONS REGARDING REVENUE ALLOCATION IN THIS PROCEEDING?

No. Such a proposal goes beyond my assignment in this proceeding. AQCIE/CIFQ requested only that update my analysis of cross-subsidies, in order that this information remain available to the Régie should it ever determine that differentiated rate increases are appropriate.

2. THE RATE M/ RATE L TARIFF INTERFACE

WHAT ISSUES ARE YOU ADDRESSING WITH RESPECT TO THE RATE M/RATE L TARIFF INTERFACE?

AQCIE/CIFQ asked me to consider, at a conceptual level, two rate issues that are arising for some of their members who take service under Rate M. First, the larger, high-load factor Rate M customers have experienced rate increases that are disproportionate to those of other Rate M customers. Second, it is becoming increasingly attractive for larger Rate M customers to consider increasing their contract demands and switching to Rate L. In effect, HQD's tariff design can allow a particular type of customer to *increase* its peak demand and thereby actually *reduce* its rates.

ARE THESE LEGITIMATE CONCERNS?

I believe that they are. As part of my assignment in this proceeding, I compared the basic service tariff rates in effect as of April 2004 with those currently in place. This analysis confirms the observations of my clients.

With respect to intra-class Rate M increases, a 1,000 kW Rate M customer with a 40 percent load factor will have seen a rate increase of 12.3 percent since April 2004. In contrast, a 4,000 kW Rate M customer with a 90 percent load factor will have experienced an 18.3 percent increase, nearly half again as high.

In respect of the incentive to switch to Rate L, in April 2004, a 4,000 kW Rate M customer with 90 percent load factor would have paid 3.5 percent more if it chose to increase its contract demand to the Rate L minimum (5,000 kW) and switch to Rate L. Under the rates in this proceeding, that same customer would now see a 0.6 percent *reduction* in its bill. That is, the customer can increase its contract demand by 25 percent and get a rate decrease.

WHAT FACTORS ARE CAUSING THESE ISSUES?

These issues result from a number of at least partially inter-related policy decisions.

With respect to the disproportionate increase for larger Rate M customers, the direct causative factors are (a) disproportionate increases to energy charges relative to demand charges, and (b) disproportionate increases to the tail block energy charge relative to the first block energy charge. Compared to 2004, the Rate M demand charge has increased by 7.7 percent, while the first block energy charge increased by 15.9 percent and the tail block energy charge increased by 26.1 percent.

This policy may be motivated by two factors. First, it could result from a shift in the classification of costs from demand-related to energy-related costs within the cost allocation study. Thus, the Régie's decision to modify the classification of transmission costs (as they relate only to distribution cost allocation) may be contributing to this trend. However, this explanation applies only if the Régie is using the cost allocation classification analysis for the purposes of rate design. My experience with Rate L indicates that this is likely not the case.[4]

Second, the Régie may be pursuing a rate design policy of shifting cost recovery more onto energy charges and away from demand charges, in an effort to encourage energy conservation. Such an approach will, of course, discourage efficient use of capacity, and will discourage customers from trying to maintain higher load factors. It is my understanding that HQD, with the Régie's approval, has adopted just such a policy,

[4] At this writing, I have not developed an analysis of the Rate M classification of costs into demand, energy and customer components. While such analysis is possible, I cannot compare these costs to the average energy-related revenues for Rate M, because HQD, unlike other regulated utilities, is not obligated to provide a "proof of revenue" analysis for its rate design.

and is deliberately imposing disproportionate increases on energy charges, and plans to phase out the rate differential between energy blocks over the next three years.[5]

As to the incentives to "trade up" to Rate L, the causative factors are as follows.

First, Rate M customers are responsible for a higher cross-subsidy requirement. The revenue-cost ratio for Rate M will be 132 percent, compared to the Rate L revenue-cost ratio of 115 percent. All other factors being equal, a Rate M customer can reduce its cross-subsidy obligation by trading up. If dollar value cross-subsidies were held constant over time, this issue would be gradually declining in importance. However, as shown in Exhibit IEc-2, because cross-subsidies from Rate M have increased more than cross-subsidies from Rate L, the problem is worse than it otherwise would be. Note further that one justification for a lower tail block energy charge for Rate M would be to mitigate this problem, by implicitly requiring a somewhat lower cross-subsidy from larger Rate M customers, in order to smooth the rate transition between the two rate classes.

Second, HQD has also been imposing disproportionate increases to the Rate L energy charge, relative to the demand charges. Compared to 2004, the energy charge increase has been 18.2 percent, compared to a demand charge increase of 6.8 percent. My experience is that this policy is also motivated by energy conservation concerns, and I have demonstrated on a number of occasions that this policy is not consistent with HQD's cost allocation study. By limiting the increase in Rate L demand charges, this policy reduces the "penalty" imposed on a Rate M customer who trades up to Rate L and absorbs higher contract demand charges.

WHAT ARE THE IMPLICATIONS OF THESE ISSUES?

The most obvious implication of HQD's Rate M policy is that some Rate M customers, who are already providing very substantial cross-subsidies to residential customers, are facing rate increases that are well in excess of system average. Unless there is clear evidence from the cost allocation study or other cost analysis that the costs for these larger, high load factor Rate M customers are increasing faster than the costs for the other Rate M customers, this trend in inequitable. As I am not aware of such intra-class cost evidence, it is difficult to explain to these customers why such an approach is reasonable.

Second, the disproportionate rate increases applied to large Rate M customers are presumably justified by HQD on the basis of better aligning marginal energy charges with marginal energy costs. However, this policy comes with the parallel disadvantage that the proposal discourages efficient use of system capacity, by reducing the incentive for customers to maintain high load factors. This disadvantage becomes greater when customers have the option to trade up to the next rate class, which further reduces the incentive for efficient use of capacity.

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[5] Decision D-2009-106, page 92. I recognize that, in light of the zero rate increase this year and the changes actually implemented in the past two years, this time frame may be expanded.

For example, it is possible that allowing large Rate M customers to trade up to Rate L will lower the overall load factor of the Rate L class. It is my understanding that HQD has informally reported that the customers who may have an incentive to trade up are high load factor customers, and there would be no negative impact on the Rate L class as a whole from such a shift. While this is a plausible argument, it must be recognized that it is based on static, rather than dynamic, assumptions. That is, it assumes that customer behavior will not change as a result of the class transition. In practice, however, this assumption is likely not justified. Consider a 4,000 kW customer who shifts to Rate L and is paying a demand charge based on 5,000 kW. That customer essentially has 1,000 kW of free capacity. That customer will have no incentive not to increase demand up to that amount whenever it wants, with no economic penalty. As such, there is a very real possibility that Rate M customers who shift to Rate L will (a) use the system less efficiently than they currently do, and (b) they will inequitably attract more costs to the Rate L class in HQD's cost allocation study as a result of their lower average load factors.

DO YOU HAVE ANY RATE DESIGN RECOMMENDATIONS REGARDING THESE ISSUES?

Because HQD has proposed no increases in this proceeding, I have no specific tariff recommendations at this time. However, based on my evaluation of these issues, I encourage both HQD and the Régie to consider the following questions before continuing to follow the existing policies over the longer term:

- Will arresting the increase in cross-subsidies from Rates M and L, and possibly rolling back the increases in cross-subsidies that have accrued over the past five years, reduce the inefficient incentives for Rate M customers to trade up to Rate L?
- Should HQD consider retaining differentiated energy block charges in Rate M in order to keep a smoother transition between Rate M and Rate L, to reflect the different cross-subsidy requirements?
- Should HQD re-examine the disproportionate Rate M energy charge increases, particularly to the tail block, or at least reconsider the magnitude of the changes?
- Should HQD consider establishing differentiated energy block charges for Rate L, in order to smooth the transition between rate classes. Or, in the alternative, should HQD's policy of applying disproportionate increases to Rate L energy charges be reduced or eliminated?

3. PENSION COSTS

BEFORE PRESENTING YOUR ANALYSIS OF HQD'S PENSION COST CLAIM, DO YOU HAVE ANY CAVEATS REGARDING THIS EVIDENCE?

I have two. First, I am neither an accountant nor an actuary, and I do not have specialized expertise with respect to pension cost accounting. This evidence is therefore based upon my experience with utility rate regulation, in balancing the interests of ratepayers and utility shareholders, rather than on any technical pension cost expertise. Second, my review is not complete, as certain information request

responses are not yet available. To the extent my review of those responses results in modifications to the conclusions and recommendations in this evidence, I will provide an update promptly.

WHAT EVENTS PRECIPITATED THIS EVIDENCE?

In preparing its test year cost claim, HQD develops a forecast of its expected pension expense, generally in the spring of the preceding year. This forecast is then used in the development of rates, as authorized by the Régie. As I understand it, this estimate is then updated approximately one year later, to derive a "base year" expense. At the end of the year, HQD updates and finalizes its pension costs based on an actuarial review.

Over the past few years, AQCIE/CIFQ has observed that both the base year and the actual expense have fallen well short of the authorized expense that is included in rates. AQCIE/CIFQ has also expressed concern that the forecast pension cost for 2011 is well above the amount authorized for 2010, which itself appears to be considerably higher than HQD's current expectations for 2010 pension costs.

AQCIE/CIFQ also informed me that, in the past, it has proposed that a reconciliation mechanism be adopted to true-up differences between actual and forecast pension costs, but that this proposal has been rejected by the Régie.

IS AQCIE/CIFQ CORRECT THAT HQD'S ACTUAL PENSION EXPENSES HAVE FALLEN WELL SHORT OF FORECAST EXPENSES IN THE PAST FEW YEARS?

Yes. Table IEc-2 below summarizes my understanding of authorized, base year and actual pension expense.

TABLE IEC-2
HISTORICAL FORECAST AND ACTUAL HQD PENSION EXPENSE
$MILLIONS

	Authorized	Base Year	Actual	Base - Authorized	Actual - Authorized
2004	(18.2)	0.0	0.0	18.2	18.2
2005	18.2	48.7	47.8	30.5	29.6
2006	70.5	96.8	87.9	26.3	17.4
2007	96.8	90.5	98.3	-6.3	1.5
2008	78.2	62.8	50.4	-15.4	-27.8
2009	57.2	25.4	25.7	-31.8	-31.5
2010	55.6	17.8	NA	-37.8	NA
04-09 Total	*302.7*	*324.2*	*310.1*	*21.5*	*7.4*
08-09 Total	*135,4*	*88.2*	*76.1*	*-47.2*	*-59.3*
04-10 Total	*358.3*	*342.0*	*NA*	*-16.3*	*NA*
08-10 Total	*191.0*	*106.0*	*NA*	*-85.0*	*NA*

Source: Exhibit HQD-13, Document 1, Table R-26.5

Table IEc-2 demonstrates a number of features regarding HQD's pension costs. First, the actual pension costs vary considerably from year to year. It is unlikely that these variations result from employment or compensation changes, and more likely result from changes in actuarial assumptions and other factors beyond the control of HQD.

Second, the variances between actual and the authorized costs are considerable. As AQCIE/CIFQ notes, the actual costs in the past three years have been well below authorized costs. However, in the middle of the decade, the reverse was true. The only consistency is that the variances are quite large relative to actual costs.

Third, the variances between the base year and the actual are relatively modest. It is therefore not unreasonable to expect that the variance between the 2010 base and authorized years is reasonably representative of the actual variance that HQD will experience in 2010 when the actuarial analysis is completed.

Finally, I note that HQD forecasts 2011 pension costs at $67.3 million, more than 20 percent above the authorized amount for 2010 ($55.6 million), and almost four times that of the 2010 "base year" cost ($17.8 million).

CONCEPTUALLY, WHAT SHOULD REGULATORS CONSIDER IN EVALUATING HOW PENSION COSTS SHOULD BE REFLECTED IN UTILITY RATES?

Pension cost accounting is an extraordinarily complex matter (at least to a layman like me). However, at its most fundamental level, a defined benefit pension plan is a promise by a company to provide its employees with regular payments from retirement until death. To provide these benefits, the company contributes cash to a pension fund. That fund is usually invested in marketable securities. Therefore, the cash contributions to the fund, plus the earnings on the fund, must be sufficient to meet the promised benefits.

Because each employee earns these benefits over his or her working life, basic accounting principles generally require that the expense associated with each employee's benefits be recorded on the company's books over that employee's tenure with the company. Over the long-term, the expense incurred by the company matches the cash contributions made to the pension fund. The objective of pension accounting is to determine that expense.

The concept is straightforward, but the details are complicated. First, the company needs to forecast the future benefits of each employee. Because benefits in defined pension plans are typically developed based on service duration and ending salaries, this forecast requires that the company make assumptions regarding how long employees will remain with the company, when the employees will retire, what the growth rate for salary will be, how long the employee (and often surviving spouse) is expected to live, etc. Second, the company needs to make assumptions regarding the return on investments in the pension fund.

In practice, even relatively small variations in many of these assumptions can have a significant impact on the annual expense associated with the pension plan.

Further, in determining pension expense, the general practice is to split the costs into a normal cost and a past service cost. The normal cost represents some measure of a regular contribution that the company should make to a pension fund for each employee over his or her tenure in order to reasonably meet that employee's benefit requirements at retirement. The past service cost generally represents an amortization of the difference between the actual pension fund balance and what the pension fund balance should have been under normal funding and return assumptions. It is therefore highly susceptible to changes in the market value of the assets in the fund, as well as to changes in all other assumptions regarding pension benefits and returns.

WHAT DOES THIS BACKGROUND IMPLY FOR REGULATORS?

Pension (and other post-employment benefit) costs can pose problems for regulators, particularly where a future test year ratemaking model is used. The future test year regulatory model is intended to create incentives for utility efficiency. In this approach, the regulator's objective is to establish the utility's revenue requirement based on a reasonable forecast of the costs the utility is expected to incur in the future test year. To the extent that the costs are under the utility's control, the utility will then have an incentive to minimize those costs, in order to increase the return to its shareholders. Over the longer term, this incentive for efficiency should benefit ratepayers.

However, for pension costs, this model may not work properly without additional safeguards. To some extent, the test year model does create the correct incentives. For example, pension costs are based on overall employment and compensation levels. Therefore, maintaining an efficient staffing level with reasonable pay rates can serve to minimize pension costs. Moreover, the test year method may provide some small discouragement to the utility to expand pension benefits.

Unfortunately, however, the test year model can create perverse incentives. While pension costs are related to employment costs, they are more subject to the myriad assumptions that underpin the cost calculations, including in particular assumptions regarding the return on plan assets (and the "discount rate" used for employee benefits). This sensitivity of pension costs to actuarial assumptions creates the potential for mischief. For example, a utility could set its rates based on pension cost forecasts that rely on relatively conservative actuarial assumptions, but then reduce its actual expense by modifying those assumptions to be more optimistic than those used for setting rates. Unless there is some underlying change in the benefits that are being offered, changing these assumptions does not reduce the long-run costs associated with the pension plan. This strategy does, however, provide a boost to utility income at the expense of ratepayers, with no longer term efficiency benefit.

Moreover, even without this kind of mischief, there is significant variability in pension costs associated with parameters that are beyond the control of the utility. Changes in these factors can result in significant differences between the pension costs built into rates and the pension costs incurred by the utility.

I therefore conclude that utility regulators have an interest in ensuring that, at least over the longer term, pension expenses that are built into rates should match pension expenses incurred by the utility. Moreover, because expenses incurred by the utility must at least eventually match up with cash contributions to the pension fund, regulators have an interest in ensuring that the cash contributions to the pension fund are at least as large as the amounts recovered in rates. To the extent that historical cash contributions have lagged amounts recovered in rates, the cash contributions should exceed amounts charged in rates.

WHAT APPROACHES CAN REGULATORS USE TO ADDRESS THESE CONCERNS?

Regulators can consider either establishing reconciliation mechanisms, in which variances between actual and forecast pension costs are trued up after the fact. In addition, regulators can consider establishing minimum cash contribution requirements for pension plans based at least in part on the pension expenses included in rates.[6]

HOW DO HQD'S CASH CONTRIBUTIONS TO THE PENSION PLAN COMPARE WITH AUTHORIZED COSTS?

I requested that information from HQD. However, the response to the information request appears to provide the cash contribution made by HQ, in total. I infer that HQ operates a single pension plan, and that costs are allocated among the various operating divisions. Table IEc-3 below summarizes the information that I have regarding authorized expense and cash contributions.

TABLE IEC-3
HQD PENSION COSTS AND HQ CASH CONTRIBUTIONS
$MILLIONS

	Authorized HQD Cost	HQ Cash Contribution	Ratio
2004	(18.2)	25	-73%
2005	18.2	341	5%
2006	70.5	381	19%
2007	96.8	5	1936%
2008	78.2	440	18%
2009	57.2	665	9%
2010	55.6	560	10%

Source: Table IEc-2, HQD-13, Document 4.1, Table R-1D

Table IEc-3 demonstrates that HQ's cash contributions also can vary enormously from year to year. The table also implies that there is no correlation between HQ cash contributions to the plan and the authorized pension expense in HQD's rates.

[6] For some utilities, the maximum pension contributions may be limited by income tax deductibility considerations. I do not believe this is a concern for HQD.

DO YOU HAVE ANY RECOMMENDATIONS FOR THE RÉGIE REGARDING HQD'S PENSION COST CLAIM?

As a general matter, I conclude that the variability in pension costs associated with both actuarial assumptions and other parameters beyond the control of the utility is much greater than the variability in pension costs that are under a utility's control. Moreover, I conclude that, under test year regulation, utilities have sufficient incentive to maintain efficient employment and compensation levels, without including pension and other post-employment benefit costs into consideration.

HQD's historical experience confirms these issues. Its pension costs vary considerably from year to year, and the differences between authorized and actual costs represent a significant percentage of the actual costs. Moreover, cash contributions are also very erratic from year to year, and bear no obvious correlation to the costs included in rates.

I therefore conclude that it would be reasonable for the Régie to reconsider its rejection of a reconciliation mechanism, particularly in light of the substantial over-recovery of actual costs experienced in each of the past three years (2008 - 2010). In the alternative, the Régie should direct HQD to investigate whether there would be any value in establishing a minimum cash contribution mechanism, designed to ensure that the costs borne by ratepayers are being fully contributed to the pension fund. I recognize that developing such a mechanism may be difficult if HQ operates only a single combined pension plan. However, without some regulatory protection, ratepayers may continue to pay for pension costs that are not yet incurred by HQD, but which they may need to pay for again in the future.

DOES THIS CONCLUDE YOUR EVIDENCE?

Yes it does, unless additional information gained in the discovery process results in a need to modify my conclusions.

EXHIBIT IEc-1

CURRICULUM VITAE AND

EXPERT TESTIMONY SCHEDULE

OF

ROBERT D. KNECHT

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INDUSTRIAL ECONOMICS, INCORPORATED

ROBERT D. KNECHT

Robert D. Knecht specializes in the practical application of economics, finance and management theory to issues facing public and private sector clients. Mr. Knecht has more than thirty years of consulting experience, focusing primarily on the energy, metals, and mining industries. He has consulted to industry, law firms, and government clients, both in the U.S. and internationally. He has participated in strategic and business planning studies, project evaluations, litigation and regulatory proceedings and policy analyses. His practice currently focuses primarily on utility regulation, and he has provided analysis and expert testimony in numerous U.S. and Canadian jurisdictions. In addition, as Treasurer of IEc since 1995, Mr. Knecht is responsible for the firm's accounting, finance and tax planning, as well as administration of the firm's retirement plans. Mr. Knecht's consulting assignments include the following projects:

- For the Pennsylvania Office of Small Business Advocate, Mr. Knecht provides analysis and expert testimony in industry restructuring, base rates and purchased energy cost proceedings involving electric, steam and natural gas distribution utilities. Mr. Knecht has analyzed the economics and financial issues of electric industry restructuring, stranded cost determination, fair rate of return, claimed utility expenses, cost allocation methods and rate design issues.
- For independent power producers and industrial customers in Alberta, Mr. Knecht has provided analysis and expert testimony in a variety of electric industry proceedings, including industry restructuring, cost unbundling, stranded cost recovery, transmission rate design, cost allocation and rate design.
- For industrial customers in Québec, Mr. Knecht has prepared economic analysis and expert testimony in regulatory proceedings regarding cost allocation, compliance with legislative requirements for cross-subsidization, and rate design.
- As a participant on various international teams of experts, Mr. Knecht has prepared the economic and financial analysis for industry restructuring studies involving the steel and iron ore industries in Venezuela, Poland, and Nigeria.
- For the U.S. Department of Justice and for several private sector clients, Mr. Knecht has prepared analyses of economic damages in a variety of litigation matters, including ERISA discrimination, breach of contract, fraudulent conveyance, natural resource damages and anti-trust cases.
- Mr. Knecht participates in numerous projects with colleagues at IEc preparing economic and environmental analyses associated with energy and utility industries for the U.S. Environmental Protection Agency.

Mr. Knecht holds a M.S. in Management from the Sloan School of Management at M.I.T., with concentrations in applied economics and finance. He also holds a B.S. in Economics from M.I.T. Prior to joining Industrial Economics as a principal in 1989, Mr. Knecht worked for seven years as an economic and management consultant at Marshall Bartlett, Incorporated. He also worked for two years as an economist in the Energy Group of Data Resources, Incorporated.

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-2010-2167797	Pennsylvania Public Utility Commission	T.W. Phillips Gas & Oil Company	July 2010	Pennsylvania Office of Small Business Advocate	Cost allocation, rate design, purchase of receivables, rate of return
R-2010-2172933, R-2010-2172922, R-2010-2172928	Pennsylvania Public Utility Commission	UGI Utilities (Gas Division), UGI Central Penn Gas UGI Penn Natural Gas	July 2010	Pennsylvania Office of Small Business Advocate	Purchased gas costs, unaccounted-for gas, retainage
NBEUB 2010-002	New Brunswick Energy & Utilities Board	Enbridge Gas New Brunswick	June 2010	New Brunswick Public Intervenor	Cost allocation, rate design, deferral costs
R-2010-2161694	Pennsylvania Public Utility Commission	PPL Electric Utilities	June 2010	Pennsylvania Office of Small Business Advocate	Cost allocation, rate design, purchase of receivables
R-2010-2161920	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	June 2010	Pennsylvania Office of Small Business Advocate	Purchased gas costs, retainage rates, gas price forecasting
R-2009-2149262	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2010	Pennsylvania Office of Small Business Advocate	Cost allocation, rate design, rate of return
P-2009-2145498	Pennsylvania Public Utility Commission	UGI Utilities (Gas Division)	April 2010	Pennsylvania Office of Small Business Advocate	Merchant function charge, purchase of receivables
R-2010-2157062	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2010	Pennsylvania Office of Small Business Advocate	Purchased gas costs
NBEUB 2009-017	New Brunswick Energy & Utilities Board	Enbridge Gas New Brunswick	March 2010	New Brunswick Public Intervenor	Cost allocation, deferral costs
R-2009-2139884	Pennsylvania Public Utility Commission	Philadelphia Gas Works	March 2010	Pennsylvania Office of Small Business Advocate	Revenue requirement, cost allocation, rate design, DSM program
R-2010-2150861	Pennsylvania Public Utility Commission	National Fuel Gas Distribution	March 2010	Pennsylvania Office of Small Business Advocate	Purchased gas costs

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-2009-2145441	Pennsylvania Public Utility Commission	T.W. Phillips Gas & Oil Company	March 2010	Pennsylvania Office of Small Business Advocate	Purchased gas costs, unaccounted-for gas, retainage
P-2010-2099333	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	February 2010	Pennsylvania Office of Small Business Advocate	Purchase of receivables
R-3708-2009	Régie de l'Énergie, Québec	Hydro Québec Distribution	November 2009	AQCIE/CIFQ	Post-patrimonial generation cost allocation, revenue allocation
M-2009-2123944, 2123948, 2123950, 2123951	Pennsylvania Public Utility Commission	PECO, Duquesne Light, Metropolitan Edison, Pennsylvania Electric, Penn Power, West Penn Power	October, November 2009	Pennsylvania Office of Small Business Advocate	Smart Meter Cost Allocation and Rate Design
NBEUB 2009-006	New Brunswick Energy & Utilities Board	Enbridge Gas New Brunswick	September 2009	New Brunswick Public Intervenor	Development Period Criteria
M-2009-2092222, 2121952, 2112956, 2093218, 2093217, 2093215	Pennsylvania Public Utility Commission	Metropolitan Edison, Pennsylvania Electric, Penn Power, West Penn Power, Duquesne Light, PPL Electric	August 2009	Pennsylvania Office of Small Business Advocate	Energy efficiency and conservation programs, cost allocation, rate design
1604944; ID# 184	Alberta Utilities Commission	ATCO Gas	July 2009	Rate 13 Group	Cost allocation, rate design
R-2009-2105904, 909, 911	Pennsylvania Public Utility Commission	UGI Penn Natural Gas, UGI Central Penn Gas, UGI Utilities Inc. Gas Division	July 2009	Pennsylvania Office of Small Business Advocate	Gas supply procurement hedging, unaccounted-for gas, revenue sharing mechanisms
R-2009-2093219	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2009	Pennsylvania Office of Small Business Advocate	Revenue sharing mechanisms, retainage rate, gas procurement
R-2008-2079660	Pennsylvania Public Utility Commission	UGI Penn Natural Gas	May 2009	Pennsylvania Office of Small Business Advocate	Equity cost of capital, cost allocation, rate design

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-2008-2079675	Pennsylvania Public Utility Commission	UGI Central Penn Gas	May 2009	Pennsylvania Office of Small Business Advocate	Equity cost of capital, cost allocation, rate design
R-2008-2075250	Pennsylvania Public Utility Commission	T.W. Phillips Gas & Oil	April 2009	Pennsylvania Office of Small Business Advocate	Retainage rates
R-2009-2088076	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2009	Pennsylvania Office of Small Business Advocate	Gas procurement
R-2009-2083181	Pennsylvania Public Utility Commission	National Fuel Gas Distribution	March 2009	Pennsylvania Office of Small Business Advocate	Retainage rates, gas procurement
P-2008-2060309	Pennsylvania Public Utility Commission	PPL Electric Utilities	December 2008	Pennsylvania Office of Small Business Advocate	Default electric supply procurement
R-2008-2073938	Pennsylvania Public Utility Commission	Philadelphia Gas Works	December 2008	Pennsylvania Office of Small Business Advocate	Revenue requirement, financial cash flows, cost allocation, rate design.
P-2008-2044561	Pennsylvania Public Utility Commission	Pike County Light & Power	October 2008	Pennsylvania Office of Small Business Advocate	Electric default service procurement
R-3673-2008	Régie de l'Énergie, Québec	Hydro Québec Distribution	August 2008	AQCIE/CIFQ	Electric supply contract modifications.
1550487	Alberta Utilities Commission	ENMAX Power Corporation	July 2008	D410 Group	Formula-based (performance-based) ratemaking; ratepayer-supplied equity contributions.
R-2008-2039417 et al.	Pennsylvania Public Utility Commission	UGI Utilities (Gas Division)	July 2008	Pennsylvania Office of Small Business Advocate	Design day demand forecast.
R-2008-2039284	Pennsylvania Public Utility Commission	UGI Penn Natural Gas	July 2008	Pennsylvania Office of Small Business Advocate	Revenue sharing, gas supply costs.
R-2008-2039634	Pennsylvania Public Utility Commission	PPL Gas Utilities	July 2008	Pennsylvania Office of Small Business Advocate	Lost and unaccounted-for gas, gas supply costs.

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
A-2008-2034045	Pennsylvania Public Utility Commission	UGI Utilities, PPL Gas Utilities	June 2008	Pennsylvania Office of Small Business Advocate	Public benefits of proposed sale.
R-2008-2011621	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2008	Pennsylvania Office of Small Business Advocate	Cost allocation, revenue allocation, rate design.
R-2008-2028039	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2008	Pennsylvania Office of Small Business Advocate	Gas supply cost functionalization; cost reconciliation method, sharing mechanisms.
R-3648-2007	Régie de l'Énergie, Québec	Hydro Québec Distribution	April 2008	AQCIE/CIFQ	Electric supply contract modifications.
R-2008-2021348	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2008	Pennsylvania Office of Small Business Advocate	Sharing mechanisms, gas supply contracts.
R-2008-2012502	Pennsylvania Public Utility Commission	National Fuel Gas Distribution Company	March 2008	Pennsylvania Office of Small Business Advocate	Transportation and sales customer rate design, design day forecasts.
R-2008-2013026	Pennsylvania Public Utility Commission	T.W. Phillips Gas and Oil Company	March 2008	Pennsylvania Office of Small Business Advocate	Rate design treatment of capacity release revenues.
P-00072342	Pennsylvania Public Utility Commission	West Penn Power d/b/a Allegheny Power	February 2008	Pennsylvania Office of Small Business Advocate	Default service electricity procurement, rate design, reconciliation.
2007-004	New Brunswick Board of Commissioners of Public Utilities	New Brunswick Power Distribution and Customer Service Corporation	November 2007	New Brunswick Public Intervenor	Cost allocation, revenue allocation, rate design.
R-3644-2007	Régie de l'Énergie, Québec	Hydro Québec Distribution	October 2007	AQCIE/CIFQ	Cost allocation, revenue allocation, rate design.
P-00072305	Pennsylvania Public Utility Commission	Pennsylvania Power Corporation	July 2007	Pennsylvania Office of Small Business Advocate	Default electric service procurement.

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-00072334	Pennsylvania Public Utility Commission	UGI Penn Natural Gas, Inc.	July 2007	Pennsylvania Office of Small Business Advocate	Asset management arrangement, gas procurement.
R-00072333	Pennsylvania Public Utility Commission	PPL Gas Utilities Corporation	July 2007	Pennsylvania Office of Small Business Advocate	Design day forecasting, gas procurement.
R-00072155	Pennsylvania Public Utility Commission	PPL Electric Utilities Corporation	July 2007	Pennsylvania Office of Small Business Advocate	Cost allocation, revenue allocation, rate design, energy efficiency.
R-00049255 (Remand)	Pennsylvania Public Utility Commission	PPL Electric Utilities Corporation	May 2007	Pennsylvania Office of Small Business Advocate	Revenue allocation.
R-00072175	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania, Inc.	May 2007	Pennsylvania Office of Small Business Advocate	Gas procurement.
R-00072110	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2007	Pennsylvania Office of Small Business Advocate	Gas procurement, margin sharing mechanisms.
R-00061931	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2007	Pennsylvania Office of Small Business Advocate	Cost allocation, revenue allocation, retail gas competition.
P-00072245	Pennsylvania Public Utility Commission	Pike County Light & Power Company	March 2007	Pennsylvania Office of Small Business Advocate	Default service procurement, rate design.
R-00072043	Pennsylvania Public Utility Commission	National Fuel Gas Distribution Company	March 2007	Pennsylvania Office of Small Business Advocate	Design day requirements.
C-20065942	Pennsylvania Public Utility Commission	Pike County Light & Power Company	November 2006	Pennsylvania Office of Small Business Advocate	Wholesale power procurement by provider of last resort.
R-3610-2006	Régie de l'Énergie, Québec	Hydro Québec Distribution	November 2006	AQCIE/CIFQ	Post-patrimonial generation cost allocation; cross-subsidization; rate design.
P-00052188	Pennsylvania Public Utility Commission	Pennsylvania Power Company	September 2006	Pennsylvania Office of Small Business Advocate	Affidavit: POLR rates, wholesale to retail.
R-00061493	Pennsylvania Public Utility Commission	National Fuel Gas Distribution Corporation	September 2006	Pennsylvania Office of Small Business Advocate	Rate of return, load forecasting, cost allocation, revenue allocation, rate design, revenue decoupling.

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-00061398	Pennsylvania Public Utility Commission	PPL Gas Utilities Corporation	August 2006	Pennsylvania Office of Small Business Advocate	Cost allocation, revenue allocation, rate design.
R-00061365	Pennsylvania Public Utility Commission	PG Energy/Southern Union Company	July 2006	Pennsylvania Office of Small Business Advocate	Merger savings, cost allocation, revenue allocation, rate design.
R-00061519	Pennsylvania Public Utility Commission	PPL Gas Utilities Corporation	July 2006	Pennsylvania Office of Small Business Advocate	Design day weather and throughput forecasts; gas supply hedging.
R-00061518	Pennsylvania Public Utility Commission	PG Energy/Southern Union Company	July 2006	Pennsylvania Office of Small Business Advocate	Design day weather and throughput forecasts; gas supply hedging.
A-125146	Pennsylvania Public Utility Commission	UGI Utilities, Inc., Southern Union Company	June 2006	Pennsylvania Office of Small Business Advocate	Public benefits of proposed sale of PG Energy to UGI; asset management agreement.
R-00061355	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2006	Pennsylvania Office of Small Business Advocate	Gas supply and hedging plan; procedural issues
R-00061296	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2006	Pennsylvania Office of Small Business Advocate	Gas procurement and procedural issues.
R-00061246	Pennsylvania Public Utility Commission	National Fuel Gas Distribution	March 2006	Pennsylvania Office of Small Business Advocate	Gas procurement; unaccounted for gas retention rates.
2005-002 Refiling	New Brunswick Board of Commissioners of Public Utilities	New Brunswick Power Distribution and Customer Service Company	February 2006	New Brunswick Public Intervenor	Cost allocation, rate design.
P-00052188	Pennsylvania Public Utility Commission	Pennsylvania Power Company	December 2005	Pennsylvania Office of Small Business Advocate	Cost allocation and rate design for POLR supplies.
R-3579-2005	Régie de l'Énergie, Québec	Hydro Québec Distribution	November 2005	AQCIE/CIFQ	Generation cost allocation; cross-subsidization; revenue allocation.
2005-002	New Brunswick Board of Commissioners of Public Utilities	New Brunswick Power Distribution and Customer Service Company	August 2005	New Brunswick Public Intervenor	Cost allocation, rate design.
R-00050538	Pennsylvania Public Utility Commission	PG Energy	July 2005	Pennsylvania Office of Small Business Advocate	Gas procurement diversification.

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EXPERT TESTIMONY SUBMITTED IN REGULATORY PROCEEDINGS: 2005 TO 2010

DOCKET #	REGULATOR	UTILITY	DATE	CLIENT	TOPICS
R-00050540	Pennsylvania Public Utility Commission	PPL Gas Utilities Corporation	July 2005	Pennsylvania Office of Small Business Advocate	Gas procurement, hedging, retention rates, sharing mechanism.
R-00050340	Pennsylvania Public Utility Commission	Columbia Gas of Pennsylvania	May 2005	Pennsylvania Office of Small Business Advocate	Gas procurement, hedging and diversification.
R-3563-2005	Régie de l'Énergie, Québec	Hydro Québec Distribution	April 2005	AQCIE/CIFQ	Generation cost allocation; industrial demand response.
R-00050264	Pennsylvania Public Utility Commission	Philadelphia Gas Works	April 2005	Pennsylvania Office of Small Business Advocate	Gas procurement, risk hedging, financing costs in the gas cost rate.
R-00050216	Pennsylvania Public Utility Commission	National Fuel Gas Distribution	March 2005	Pennsylvania Office of Small Business Advocate	Gas supply procurement and forward pricing policies.
EB-2004-0542	Ontario Energy Board	Union Gas Limited	March 2005	Tribute Resources Inc.	Cost allocation and rate design for service to embedded storage pools.
R-00049884	Pennsylvania Public Utility Commission	Pike County Light and Power (Gas Service)	January 2005	Pennsylvania Office of Small Business Advocate	Fair rate of return, cost allocation, class revenue assignment.

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EXHIBIT IEc-2

ANALYSIS OF CUMULATIVE CHANGES IN CROSS-SUBSIDIES AMONG RATE CLASSES

EXHIBIT IEc-2a

ANALYSIS OF CUMULATIVE CHANGES IN CROSS-SUBSIDIES

	Increase with No Change in Cross-Subsidy	Approved/ Proposed Increase	Change in Cross-Subsidy (Percent)	Base Revenues ($mm)	Change in Cross-Subsidy ($mm)	Cumulative Change with No Change in Cross-Subsidy	Cumulative Approved/ Proposed Increase	Single Year Cumulative Increase in Subsidy
2007 Test Year								
Domestique	2.83%	1.92%	-0.91%	4,050	(36.7)	2.83%	1.92%	(36.67)
Petite Puissance	1.73%	1.92%	0.19%	1,275	2.5	1.73%	1.92%	2.45
Moyenne Puissance	1.03%	1.92%	0.89%	1,830	16.2	1.03%	1.92%	16.23
Grande Puissance	0.97%	1.92%	0.95%	1,971	18.7	0.97%	1.92%	18.71
Total	**1.92%**	**1.92%**	**0.00%**	**9,126**	**0.7**	**1.92%**	**1.92%**	**0.72**
2008 Test Year								
Domestique	4.31%	2.91%	-1.40%	4,165	(58.5)	7.26%	4.88%	(98.93)
Petite Puissance	1.32%	2.94%	1.61%	1,294	20.9	3.07%	4.91%	23.80
Moyenne Puissance	2.75%	2.87%	0.12%	1,879	2.3	3.81%	4.85%	19.44
Grande Puissance	1.06%	2.90%	1.84%	1,929	35.5	2.04%	4.88%	54.72
Total	**2.90%**	**2.90%**	**0.00%**	**9,267**	**0.2**	**4.88%**	**4.88%**	**(0.95)**
2009 Test Year								
Domestique	2.31%	1.22%	-1.09%	4,317	(47.1)	9.74%	6.16%	(154.35)
Petite Puissance	1.50%	1.22%	-0.28%	1,362	(3.9)	4.62%	6.19%	21.39
Moyenne Puissance	-0.48%	1.22%	1.70%	1,905	32.3	3.32%	6.13%	53.52
Grande Puissance	0.20%	1.22%	1.02%	1,820	18.5	2.25%	6.16%	71.19
Total	**1.22%**	**1.22%**	**0.00%**	**9,404**	**(0.1)**	**6.16%**	**6.16%**	**(8.26)**
2010 Test Year								
Domestique	-0.44%	0.36%	0.81%	4,432	35.7	9.25%	6.54%	(119.85)
Petite Puissance	1.72%	0.33%	-1.39%	1,388	(19.2)	6.42%	6.54%	1.73
Moyenne Puissance	0.74%	0.37%	-0.36%	1,858	(6.8)	4.08%	6.52%	45.39
Grande Puissance	0.06%	0.36%	0.30%	1,771	5.3	2.31%	6.54%	74.96
Total	**0.20%**	**0.36%**	**0.16%**	**9,449**	**15.0**	**6.37%**	**6.54%**	**15.74**
2011 Test Year Proposed								
Domestique	-0.40%	0.00%	0.40%	4,623	18.7	8.81%	6.54%	(104.61)
Petite Puissance	2.88%	0.00%	-2.88%	1,241	(35.7)	9.48%	6.54%	(36.48)
Moyenne Puissance	-1.57%	0.00%	1.57%	2,060	32.4	2.44%	6.52%	84.08
Grande Puissance	0.87%	0.00%	-0.87%	1,759	(15.4)	3.20%	6.54%	58.70
Total	**0.00%**	**0.00%**	**0.00%**	**9,683**	**-**	**6.37%**	**6.54%**	**16.13**
Cumulative Four-Year Cross-Subsidy (excluding interest)								
Domestique								(514.41)
Petite Puissance								12.90
Moyenne Puissance								218.66
Grande Puissance								278.28
Total								**23.37**

Exhibit IEc-2b

Supporting Workpapers for Historical Cross-Subsidy Calculations

R-3740-2010 Filing

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2010	Unit Revenue Req'mt 2011	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2010	2011	2010	2011	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2008-09		$mm					
Domestic	5,326.0	5,552.8	61,346	63,809	4,623	4,623	0.00%	8.68	8.70	0.02	12.96	(13.77)	(17.88)	(18.69)	7.25	7.25	7.22	-0.40%	(18.7)
Small General	1,132.0	1,041.5	15,040	13,253	1,241	1,241	0.00%	7.53	7.86	0.33	44.00	(3.46)	(4.80)	35.74	9.37	9.37	9.64	2.88%	35.7
Medium General	1,421.0	1,531.0	25,897	28,266	2,060	2,060	0.00%	5.49	5.42	(0.07)	(19.99)	(4.48)	(7.97)	(32.44)	7.29	7.29	7.17	-1.57%	(32.4)
Large Industrial	1,523.0	1,536.3	38,324	37,996	1,759	1,759	0.00%	3.97	4.04	0.07	26.33	(4.15)	(6.80)	15.38	4.63	4.63	4.67	0.87%	15.4
Total	**9,402.0**	**9,661.6**	**140,607**	**143,324**	**9,683**	**9,683**	**0.00%**	**6.69**	**6.74**	**0.05**	**63.31**	**(25.86)**	**(37.45)**	**-**	**6.76**	**6.76**	**6.76**	**0.00%**	**(0.0)**
Sources:	HQD-10, Document 3, Table 8B				HQD-13, D1, p 176			HQD-13, D1, p 173							Calculations				

R-3708-2009 Compliance

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2009	Unit Revenue Req'mt 2010	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2009	2010	2009	2010	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2008-09		$mm					
Domestic	5,256.2	5,326.0	60,440	61,346	4,432	4,448	0.36%	8.70	8.68	(0.01)	(8.99)	(23.90)	13.18	(19.70)	7.22	7.25	7.19	-0.44%	(35.7)
Small General	1,095.6	1,132.0	14,896	15,040	1,388	1,393	0.33%	7.35	7.53	0.17	25.83	(6.11)	4.13	23.85	9.23	9.26	9.39	1.72%	19.2
Medium General	1,453.4	1,421.0	26,811	25,897	1,858	1,865	0.37%	5.42	5.49	0.07	17.13	(8.98)	5.53	13.68	7.17	7.20	7.23	0.74%	6.8
Large Industrial	1,582.7	1,523.0	39,948	38,324	1,771	1,777	0.36%	3.96	3.97	0.01	4.63	(8.82)	5.27	1.08	4.62	4.64	4.62	0.06%	(5.3)
Total	**9,387.9**	**9,402.0**	**142,095**	**140,607**	**9,449**	**9,483**	**0.36%**	**6.61**	**6.69**	**0.08**	**38.60**	**(47.81)**	**28.11**	**18.90**	**6.72**	**6.74**	**6.73**	**0.20%**	**(15.0)**
Sources:	HQD-15 Doc. 1 pages 13-14				HQD-15, D1, page 13			HQD-13, Document 1, Table R-78.2-B							Calculations				

R-3708-2009 Filing

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2009	Unit Revenue Req'mt 2010	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2009	2010	2009	2010	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2008-09		$mm					
Domestic	5,256.2	5,317.2	60,440	61,346	4,432	4,441	0.20%	8.70	8.67	(0.03)	(17.79)	(23.90)	19.61	(22.08)	7.22	7.24	7.19	-0.50%	(31.1)
Small General	1,095.6	1,129.9	14,896	15,040	1,388	1,391	0.22%	7.35	7.51	0.16	23.73	(6.11)	6.14	23.76	9.23	9.25	9.39	1.71%	20.8
Medium General	1,453.4	1,418.5	26,811	25,897	1,858	1,862	0.22%	5.42	5.48	0.06	14.63	(8.98)	8.22	13.87	7.17	7.19	7.23	0.75%	9.9
Large Industrial	1,582.7	1,522.7	39,948	38,324	1,771	1,775	0.23%	3.96	3.97	0.01	4.33	(8.82)	7.84	3.35	4.62	4.63	4.63	0.19%	(0.7)
Total	**9,387.9**	**9,388.3**	**142,095**	**140,607**	**9,449**	**9,469**	**0.21%**	**6.61**	**6.68**	**0.07**	**24.90**	**(47.81)**	**41.81**	**18.90**	**6.72**	**6.73**	**6.73**	**0.20%**	**(1.1)**
Sources:	HQD-10, Document 4, Table 1				HQD-12, Doc. 2, page 8			HQD-13, Document 1, Table R-78.2-B							Calculations				

Decision 2009-016

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2008	Unit Revenue Req'mt 2009	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2008	2009	2008	2009	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2007-08		$mm					
Domestic	5,133.4	5,256.2	59,760	60,440	4,317	4,370	1.22%	8.59	8.70	0.11	64.40	16.10	19.31	99.81	7.14	7.23	7.31	2.31%	47.1
Small General	1,063.5	1,095.6	14,600	14,896	1,362	1,379	1.22%	7.28	7.35	0.07	10.55	3.83	6.09	20.47	9.14	9.25	9.28	1.50%	3.9
Medium General	1,505.2	1,453.4	27,331	26,811	1,905	1,928	1.22%	5.51	5.42	(0.09)	(23.15)	5.54	8.52	(9.09)	7.11	7.19	7.07	-0.48%	(32.3)
Large Industrial	1,736.3	1,582.7	43,569	39,948	1,820	1,842	1.22%	3.99	3.96	(0.02)	(9.27)	4.79	8.14	3.66	4.56	4.61	4.57	0.20%	(18.5)
Total	**9,438.4**	**9,387.9**	**145,261**	**142,095**	**9,404**	**9,519**	**1.22%**	**6.50**	**6.61**	**0.11**	**42.53**	**30.26**	**42.06**	**114.85**	**6.62**	**6.70**	**6.70**	**1.22%**	**0.1**
Sources:	Calculated				Calculated			HQD-13, Document 4, Table R-9.b											

Decision 2008-024 (Compliance for R-3644-2007)

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2007	Unit Revenue Req'mt 2008	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2007	2008	2007	2008	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2006-07		$mm					
Domestic	4,845.8	5,133.4	59,232	59,760	4,165	4,286	2.91%	8.18	8.59	0.41	244.39	(43.87)	(21.06)	179.46	6.97	7.17	7.27	4.31%	58.5
Small General	1,030.1	1,063.5	14,620	14,600	1,294	1,332	2.94%	7.05	7.28	0.24	34.78	(11.12)	(6.54)	17.12	8.86	9.12	8.98	1.32%	(20.9)
Medium General	1,418.8	1,505.2	27,129	27,331	1,879	1,933	2.87%	5.23	5.51	0.28	75.84	(14.62)	(9.50)	51.72	6.87	7.07	7.06	2.75%	(2.3)
Large Industrial	1,767.1	1,736.3	45,567	43,569	1,929	1,985	2.90%	3.88	3.99	0.11	46.67	(16.45)	(9.75)	20.46	4.43	4.56	4.47	1.06%	(35.5)
Total	**9,061.8**	**9,438.4**	**146,548**	**145,261**	**9,267**	**9,536**	**2.90%**	**6.18**	**6.50**	**0.31**	**401.68**	**(86.06)**	**(46.85)**	**268.77**	**6.38**	**6.56**	**6.56**	**2.90%**	**(0.2)**
Sources:	Filing; HQD-11, Doc 1 Table 2, R-3677-2008				Filing			Filing											

D-2007-12 (Compliance R-3610-2006)

	Cost of Service		Sales Volume		Revenues Before	Revenues After		Unit Revenue Req'mt 2006	Unit Revenue Req'mt 2007	Change	Cost Growth	Regul. Provision	Adj.	Total	Change in Cross Subsidies: Unit Revenues Before	Unit Revenues Proposed	Unit Revenues Cost-Based	Percent	Subsidy Ch $mm
	2006	2007	2006	2007	$mm	$mm	%	cts/kWh	cts/kWh		$mm	2006-07		$mm					
Domestic				59,232	4,050	4,128	1.92%		8.40	0.06	37.00	71.00	6.43	114.43	6.84	6.97	7.03	2.83%	36.7
Small General				14,620	1,275	1,299	1.92%		7.00	0.01	2.00	18.00	2.03	22.03	8.72	8.89	8.87	1.73%	(2.5)
Medium General				27,129	1,830	1,865	1.92%		5.10	(0.03)	(8.00)	24.00	2.91	18.91	6.75	6.88	6.82	1.03%	(16.2)
Large Industrial				45,567	1,971	2,009	1.92%		3.80	(0.02)	(10.00)	26.00	3.13	19.13	4.33	4.41	4.37	0.97%	(18.7)
Total	**-**	**-**	**-**	**146,548**	**9,126**	**9,301**	**1.92%**		**6.20**	**0.01**	**21.00**	**139.00**	**14.50**	**175.50**	**6.23**	**6.35**	**6.35**	**1.92%**	**(0.7)**
Sources:					HQD-12, Document 1, Table 28.			HQD-15, Document 4, Table R-22(d), R-3644-2007											

Shaded cells represent input values