

## **Earnings Sharing Mechanisms**

**Prepared Direct Testimony of**

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**On behalf of the Fédération canadienne  
de l'entreprise indépendante**

**Presented to the  
Régie de l'énergie**

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**I. Introduction and Qualifications**

**Q. Please state your name and business address.**

A. I am Paul Centolella and my business address is Analysis Group, 111 Huntington Avenue, Tenth Floor, Boston, MA 02199.

**Q. Would you please summarize your professional experience?**

A. I am a Vice President at Analysis Group, an economic, strategy, and financial consulting firm with approximately six-hundred employees and offices in Montreal, the United States, and China. I joined the firm's energy practice in July 2012. My practice focuses on issues related to utility regulation; electricity, other energy, and environmental markets; and technological, regulatory, and business model changes affecting the electric power industry. I served as a Commissioner on the Public Utilities Commission of Ohio from April 2007 to April 2012. The Ohio Commission regulates electric, gas, telephone, water, wastewater, trucking, rail, and ferry companies, including setting rates and service quality standards for electric utilities. While on the Commission, I testified regarding the constitutionality and participated in the implementation of Ohio's 2008 electricity legislation which made significant changes to the framework for regulating the state's electric companies.

As a Commissioner, I served as a member of the National Association of Regulatory Utility Commissioners (NARUC) Energy Resources and Environment Committee; the NARUC Smart Grid Working Group; the NARUC Climate Change Task Force; the NARUC – Federal Energy Regulatory Commission Smart Response, Smart Grid, and Demand Response Collaboratives; the Board of the Organization of PJM States, which represents state utility regulators on rate and other matters affecting the PJM Regional Transmission Organization; and the U.S. delegations to the 2009 and 2012 World Forums on Energy Regulation in Athens and Quebec respectively.

Prior to being appointed to the Commission, I was a Senior Economist in the Energy Solutions Group of Science Applications International Corporation (SAIC), a Fortune 500 services and

technology company. At SAIC from 1992 to 2007, I managed major projects related to utility regulation, the analysis and design of energy and environmental markets, power system operations, energy policy, and management practices. This included supporting the development and regulatory approval of energy and ancillary services markets for the Midwest Independent Transmission System Operator, which has subsequently changed its name to the Midcontinent Independent Transmission System Operator and operates transmission systems and wholesale power markets in Manitoba and much of the central United States.

From 1982 to 1992, I was a Senior Utility Attorney and the Senior Energy Policy Advisor in the Office of the Ohio Consumers' Counsel, the state's residential utility consumer advocate. In that capacity I both appeared in numerous utility regulatory proceedings and analyzed and addressed broader issues of utility regulatory policy.

I also have practiced law in California and Washington State.

I have served on a number of boards and advisory committees including: the United States Secretary of Energy's Electricity Advisory Committee, the U. S. National Academy of Sciences Committee studying the Determinants of Market Adoption of Advanced Energy Efficiency and Clean Energy Technologies, an Advisory Committee for the Bipartisan Policy Center's initiative on Cyber Security Governance in the Electric Sector, the Board of Directors and Governing Board for the Smart Grid Interoperability Panel – an international organization created by the U.S. National Institute of Standards and Technology to accelerate the development and harmonization of standards for the power system, the Electric Power Research Institute Advisory Council, the U.S. Delegation to the 2011 Asia-Pacific Economic Cooperation Senior Officials Meeting, and the Technical Advisory Committee for the Ohio Coal Development Office.

My CV is attached as Exhibit PC-1

## **II. Summary of the Testimony**

### **Q. What is the purpose of your testimony?**

A. I have been retained by the Fédération Canadienne de l'Entreprise Indépendante to provide an independent evaluation of the Earnings Sharing Mechanisms (ESMs) proposed by Hydro Quebec Transmission (HQT) and Hydro Quebec Distribution (HQD) in this proceeding. The purpose of my testimony is to support the adoption of ESMs for HQT and HQD, discuss the factors which the Régie de l'énergie (the Régie) should consider when adopting ESMs, address the ESMs proposed by HQT and HQD and the supporting testimony by Mr. Yardley, and recommend an alternative to the HQT and HQD proposals. I also briefly discuss the role of performance thresholds and incentives and steps which should be taken to facilitate their consideration.

### **Q. Can you please summarize your principal findings?**

A. In the context of this case, an ESM is a mechanism for sharing with the utility's customers, through an adjustment to future rates, a portion of earned returns in excess of return on equity authorized by the regulator.<sup>1</sup> ESMs for HQT and HQD would serve two primary purposes: addressing the information asymmetry between the utilities and the regulator, which can manifest itself in conservative forecasts of revenue requirements and sales, and responding to a pattern of HQT and HQD earnings in excess of the returns authorized by the Régie. The appropriate structure of an ESM depends on the circumstances present and the framework for setting rates. In this case, the relevant circumstances and regulatory framework include:

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<sup>1</sup> In the context of other approaches to setting rates and multi-year rate plans, a different symmetrical form of ESM may be used. In a symmetrical ESM, customers may contribute to reducing utility under earnings below the utility's authorized return on equity in addition to sharing a portion of any earnings in excess of authorized returns. The facts of this case do not support the use of a symmetrical ESM.

- A history of earnings in excess of authorized returns, which I will refer to as “excess earnings”<sup>2</sup>;
- The use of annual rate cases in which rates are adjusted based on the companies’ forecasted costs of service; this permits the companies to mitigate their downside risks and weakens their incentive to reduce costs and pursue efficiency improvements; and
- The lack of performance incentives in rates which provides management additional flexibility to achieve desired levels of earnings.

Taken together, these factors support the use of asymmetric ESMs that return to customers a significant portion of earnings in excess of authorized levels. After considering the results of comparable cases, I recommend ESMs for HQT and HQD that:

- Are asymmetric in that they return to customers a portion of each company’s actual earnings that are in excess of its reasonable authorized return on equity;
- Requires each company to absorb any under earnings below its authorized return on equity;
- Do not include a deadband;
- For the first 50 basis points above the utility’s reasonable authorized return on equity, share excess earnings equally (50% and 50%) between the company and its customers; and
- For any earnings in excess of 50 basis points above a reasonable authorized return on equity, share these additional excess earnings at a ratio of 75% being returned to customers and 25% being retained by the utility.

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<sup>2</sup> For purposes of my Testimony, “excess earnings” means earned returns in excess of the return on equity authorized by the Régie. I have assumed the returns authorized by the Régie to be reasonable and have not conducted an independent review of these authorized returns.

This approach strikes a reasonable balance between protecting customers and continuing to provide a marginal incentive for the utility to pursue cost savings and efficiency improvements. I recommend the use of the same alternative ESM structure for both HQT and HQD. This is consistent with the historical pattern of HQT expenses deviating from forecasted levels by amounts exceeding the expense for HQD.

### **III. The Role of ESMs**

**Q. What are the primary purposes for including ESMs in the rates of HQT and HQD?**

A. The primary purpose for an ESM and therefore the appropriate structure for such a mechanism are dependent on the framework for setting rates and the circumstances present. My conclusions in this case are based on the framework and circumstances presented here.

HQT and HQD proposed ESMs for consideration in this case at the request of the Régie. An asymmetric ESM, such as those proposed by HQT and HQD, returns to customers a portion of a utility's actual earnings that are in excess of its authorized return on equity.

In this case, an ESM would serve two primary purposes. First, it addresses an information asymmetry between the utilities and the regulator. The regulator does not have equivalent access to important information that is known by or available to the utility. The regulator is not directly involved in the utilities' day-to-day management and operations and therefore inherently has less information than the utilities about opportunities which they could pursue to reduce costs and improve efficiency, their future revenue requirements, and factors which may affect future sales. Rates for HQT and HQD currently are being set in annual cases that review the companies' costs of providing service based on forecasts of their revenue requirements and sales. By conservatively forecasting high revenue requirements and/or low sales, the utility may create an opportunity to earn returns that exceed its authorized return on equity, when its actual expenses

are lower and/or its sales are higher than the forecasts used in setting its rates. An ESM would provide a reasonable limit on the potential for HQT and HQD to increase earnings by using unduly conservative forecasts of revenue requirements and sales.

Second, an ESM represents a reasonable response to the pattern of HQT and HQD excess earnings. ESMs would limit the utilities' ability to earn economic profits in excess of their approved costs of capital and return a portion of excess earnings to customers in the form of a subsequent reduction in rates. Implementing ESMs at this time would help achieve a result comparable to what might be expected given effective competition, were such competition feasible. In effectively competitive markets, a firm may temporarily earn an economic profit as a result of an innovative cost reduction or the delivery of new or enhanced value. However, where there is effective competition, a firm that on a year-over-year basis earns profits in excess of its cost of capital will tend to attract competitors that match its cost structure or value proposition. As a result, the firm's earnings will tend to return to more normal levels. Following a period of earnings in excess of authorized levels of five years for HQT and at least six years for HQD, placing the limitation provided by an ESM is consistent with the role of regulation in promoting outcomes comparable to what might be expected from effective competition.

The ESMs that I support in this case complement the setting of HQT and HQD rates for 2014 on a cost of service basis. The use of ESMs for 2014 will provide the Régie a period of time in which to consider a transition from its cost of service model to a model of performance based regulation that may deliver improved results in terms of efficiency and cost savings and ongoing improvements in performance and service quality.

**Q. Please describe the pattern of HQT and HQD earnings in excess of authorized rates of return?**

A. HQT had a positive earnings deviation of \$31.7 million in 2008, \$83.6 million in 2009, \$87.9 million in 2010, \$66.9 million in 2011, and \$152 in 2012 or a total of more than \$422 million



over five years. HQD had positive earnings deviations of \$26.6 million in 2008, \$105.7 million in 2009, \$171.4 million in 2010, \$101.2 million in 2011, and \$111.4 million in 2012 for a total of more than \$516 million in five years.<sup>3</sup>

**Q. What other factors in the framework for setting rates and the general circumstances present here are important to determining whether ESMs should be implemented and the structure of ESMs for HQT and HQD?**

A. There are three other major factors to consider. First, it is my understanding that HQT and HQD have filed annual rate cases on a cost of service basis. An annual rate case cycle reduces the regulatory incentives to reduce costs and achieve operating efficiencies. A primary means by which regulation historically promoted cost savings and encouraged utilities to reveal potential efficiency improvements has been as a result of there typically being a period of time between rate cases. When there are a number of years between cases, the utility has an opportunity to benefit from cost reductions. However, this incentive is greatly diminished when a utility is filing annual rate proceedings.

When HQT and HQD file a rate case, my understanding is that they file actual cost data for the last completed year, partly actual and partly projected costs for the year during which the rate case is under review, and forecasted costs for the year in which rates will be in effect.<sup>4</sup> Parties to the case and the regulator have this information on recent actual spending when evaluating revenue requirements for the coming year. When there is a period of several years between rates being reviewed, this timing provides an incentive for the utility to reduce costs, as a cost reduction can improve its earned returns until rates are reset in the next rate proceeding. In an annual rate case cycle, expenditures in the immediately preceding and a portion of the current year can be assumed to impact allowed revenue in the next. As a result, the regulatory incentive

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<sup>3</sup> HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) In relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response 13.1.

<sup>4</sup> A detailed rate case timeline and description can be found in Antoine Gosselin's Direct Testimony.

for the utility to reduce its costs and achieve efficiencies is relatively weak in the context of annual rate cases.

Second, the HQT and HQD rate requests for 2014 are based on forecast revenue requirements and sales. While parties to their rate cases and the Régie have an opportunity to review the companies' forecasts, their ability to evaluate the extent to which the forecasts may be conservative is limited. A regulator may be able to identify some forecasted costs that appear excessive or the recovery of which would be inconsistent with cost of service principles.

However, cost savings and efficiency improvements can be achieved by exploring a wide range of potential opportunities. It is difficult for a regulator to know what cost saving opportunities have or have not yet been pursued or included in or omitted from a specific forecast. Similarly, sales forecasts may be more or less conservative based on judgments regarding the forecasting model and data used in developing the forecast. To the extent such judgments may not be transparent to the regulator, an ESM will tend to reduce the potential for customers to be unduly impacted by conservative forecasting.

Additionally, by both adjusting their rates on an annual basis and using forecasts for setting rates, the companies have the ability to reflect changing circumstances and anticipated costs in rates so as to mitigate downside risks to their earnings.

Third, HQT and HQD have not proposed performance based regulation that would include incentives to achieve ongoing improvements in reliability, service quality, or other areas of performance. In the absence of performance based incentives, the companies have additional degrees of management flexibility to reach their earnings targets. If the utilities' performance in a given area has not come to the regulator's attention or it remains within a range that the regulator

considers to be reasonable, regulators are unlikely to second guess management's spending decisions. In competitive markets, such management flexibility is limited by the fact that deferring expenditures that deliver value to customers may risk losing sales and customers to competitors.

The Direct Testimony of Antoine Gosselin presents additional evidence regarding the regulatory framework and process used in setting rates for HQT and HQD.

**Q. How do these factors affect the choice and structure of ESMs in this case?**

A. The choice and structure of ESMs in this case involves balancing competing factors.

The combination of a history of several years of earnings in excess of authorized levels, the asymmetry of information for evaluating the forecasts used in setting rates, the availability of annual rate cases based on forecasted requirements as a means to manage downside risks to utility earnings, and the additional ability of management to achieve earnings as a result of the lack of specific performance based incentives, all else being equal, supports the use of an asymmetric ESM which returns to customers a significant portion of earnings in excess of authorized levels.

The regulator should seek to retain a regulatory incentive for the utility to reduce costs and operate efficiently. However, the annual rate case cycle significantly weakens this incentive because the utility has a limited time in which to benefit from any cost savings and must consider the potential effect of cost reductions on future allowed revenues. Given that this regulatory incentive is limited, the marginal incentive value associated with the use of an ESM deadband or equal sharing percentages also will be small.

A comparison of these factors supports ESMs that are more heavily weighted towards sharing excess earnings with customers than the ESMs used in the vast majority of cases in which such mechanisms are found.

**Q. How is this case different from the typical case in which an ESM is used?**

A. The most common use of an ESM is as a component in a multi-year rate plan which sets rates (or establishes a formula for setting rates) for a three or more year period. In many cases, such multi-year plans will be accompanied by reliability standards and incentives.

In these cases, the ESM has a different function from its role in this proceeding. First, a multi-year rate plan can provide a strong incentive for the utility to reduce costs and improve efficiency. An ESM provides a means for a portion of the resulting cost savings to be shared with customers. HQT's and HQD's incentives to pursue cost savings are muted by their use of annual cost of service rate adjustments.

Second, in a plan that extends of several years, regulators must address the issue of uncertainty or potential events for which the probability of occurrence is unknown. To the extent potential events are known, a multi-year plan may include a provision that uses the occurrence of the event as a trigger for a contingency provision or reopening the rate plan. For other potential events where the multi-year plan does not permit reopening, an ESM offers a means of mitigating uncertainty for both the utility and customers. HQT and HQD have an ability to mitigate the impact of changed circumstances through the use of annual rate cases and forecast revenue requirements.

In a multi-year rate plan that provides incentives for cost reduction and efficiency and particularly where the plan also includes performance based incentives reliability and other aspects of service quality, it could be appropriate to give greater weight to efficiency considerations in structuring

an ESM. However, that would be a different regulatory framework and set of circumstances than what is present in this case.

**Q. Are there cases in which an ESM has been used without a commitment to a multi-year rate plan?**

A. Yes, I am aware of two precedents where this has occurred. The first is a Massachusetts case involving Massachusetts Electric Company and Nantucket Electric Company – subsidiaries of National Grid, Massachusetts Department of Public Utilities Case No. 09-39. In that case, the utilities proposed an ESM to provide further assurance that their revenue decoupling plan would not result in excessive earnings. Acting on the utilities’ proposal, the Massachusetts Commission adopted an asymmetrical ESM in which half of any actual earnings that exceeded the utilities’ authorized return on equity would flow back to customers. The ESM did not include a deadband and did not permit the utility to recover from customers any under earnings when its actual earnings were below its authorized return on equity.<sup>5</sup>

The second instance is the July 15, 2013 decision of the Régie regarding Gaz Métro in Case No. R-3809-2012 Phase 2. In this case, the Régie considered that, “... the risk associated with regulation based on service costs is generally less than that associated with regulation by incentive. This context allows the distributor to present conservative budgets. Asymmetrical information must also be taken into account when establishing a sharing mechanism for overpayments and shortfalls.” Taking into account “the asymmetry of information” and opportunity for “presentation of conservative forecasts,” the Régie determined that revenue

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<sup>5</sup> *Petition of Massachusetts Electric Company and Nantucket Electric Company, pursuant to G. L. c. 164, § 94, and 220 C.M.R. § 5.00 et seq., for a General Increase in Electric Rates and Approval of a Revenue Decoupling Mechanism*, Massachusetts Department of Public Utilities Commission Case No. 09-39, Opinion and Order (November 30, 2009) at 91 - 92.

shortfalls would be assumed by Gaz Métro shareholders and that overpayments will be shared as follows:

- First 50 basis points: 50% to Gaz Métro, 50% to customers;
- After the first 50 basis points: 100% to customers.

The Régie rejected use of the deadband proposed by Gaz Métro and adopted sharing percentages which favored customers.

#### **IV. The Proposed HQT and HQD ESMs**

##### **Q. What is your understanding of the HQT and HQD Earnings Sharing proposals?**

A. The companies have proposed ESMs with the following characteristics:

- Each ESM would include a deadband above the utility's authorized return on equity within which the company would retain any earnings in excess of its authorized return. Their proposal includes a deadband of 50 basis points above the authorized return on equity for HQT and 100 basis points above the authorized return on equity for HQD. The companies' application maintains that the deadband is needed to maintain a sufficient incentive to achieve efficiency gains.
- If a company's actual earnings exceed its authorized return on equity by an amount greater than the company's deadband, the excess earnings would be shared equally (50% and 50%) between the utility and customers. The companies' application argues that this sharing achieves fairness, maintains efficiency incentives, and simplifies ESM application.
- The calculation of excess earnings would be based on the Annual Report filed with the Régie by HQT and HQD. There would be no other proceeding in which interveners could challenge whether reported costs conform to the Régie's principles and standards governing which costs may be recovered from customers.

- HQT and HQD would absorb any earnings deviations below their authorized returns on equity.
- With the exception of implementing these ESMs, HQT and HQD are proposing that the current process of reviewing their respective costs of service be maintained.

Additionally, it is my understanding that HQT and HQD have taken the position that the inclusion of these ESMs into existing annual reviews of their costs of service will meet the requirements for the establishment of “performance-based regulation” of Section 48.1 of Chapter 16 of the Act of June 14, 2013.<sup>6</sup> The companies have offered the testimony of Robert Yardley to support this proposal.

**Q. Can you please comment on the purposes that Mr. Yardley identifies for the HQT and HQD ESM proposals?**

- A. Mr. Yardley indicates that the primary purpose of an ESM is to “share earnings with customers that deviate in a meaningful way (positive and negative) from the level of earnings associated with the authorized ROE.” And, he goes on to indicate that one purpose is to “provide some protection against earnings variability to both customers (through an opportunity to share in earnings that exceed the authorized ROE) and the utility (to the extent that customers share in any earnings shortfall that is below the authorized ROE),” providing “protection ... against unanticipated earnings levels” and “a hedge against earnings variability.”

These may be effects of a symmetrical ESM. However, the companies have not proposed a symmetrical ESM in this proceeding. Moreover, Mr. Yardley never indicates why shifting the

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<sup>6</sup> Bill 25, An Act respecting mainly the implementation of certain provisions of the Budget Speech of 20 November 2012, 1st session, 40th Legislature, Québec, 2013 (assented to on June 14, 2013), S.Q., 2013, c. 16. In HQT-D-5, Document 4.3, Response 5.1, the companies state, “The Petitioners propose adding a mechanism for handling performance variances as part of the current regulatory framework, which would allow the objectives of section 48.1 of the *Act respecting the Régie de l’énergie* to be met.” The term “performance-based regulation,” which is used in the Act, is a term of art for utility regulation. The addition of the proposed ESMs to what I understand to be the current regulatory framework would not result in “performance-based regulation” as that term is generally used in the field of utility regulation.

risk of unanticipated costs and having customers absorb a share of negative earnings would be appropriate in this case. Regulation is designed to provide utilities the opportunity to earn a reasonable return commensurate with the risks that they assume. Utilities are compensated for accepting these risks through their allowed return on equity. Regulation in most instances does not provide for a guaranteed return.

Mr. Yardley acknowledges that ESMs “are more commonly associated with rates that are expected to be in place for two or more years,” and are “a common element of incentive regulation plans.” And, he accepts that, “Annual rate filings based on cost-of-service principles will reduce the incentive to pursue efficiency gains.”<sup>7</sup> However, Mr. Yardley does not provide an analysis of how factors present in this case should be taken into account when resolving the conflict that he identifies between constraining excess earnings and providing an incentive for the utility to pursue operating efficiencies.

**Q. Are the deadbands and equal sharing percentages in the companies’ proposal needed to maintain an incentive for the utilities to pursue efficiency improvements?**

A. No. The deadbands are not essential in this case. And, an equal sharing of excess earnings is not needed to maintain an incentive for the companies to pursue efficiency improvements.

First, the companies have as much an incentive to pursue cost savings and efficiency improvements as they would have in the absence of an ESM, if their actual earnings are falling below authorized levels.

Second, if the companies are retaining some percentage of earnings in excess of their authorized returns, they will continue to have an incentive to pursue cost savings and efficiency improvements. The retention of a modest sharing percentage may have some practical value and

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<sup>7</sup> HQDT-5, Document 5.2, Response 3.8. See also: HQTD-5, Document 7, Response 3.1.



will send a message that cost savings are valued. Given my ESM recommendations, the question related to incentives is how a marginal change in incentives should be balanced against other important objectives of the case. The cost savings incentive that might otherwise result from the time interval between rate cases already has been reduced by the use of annual rate cases. The effect on the marginal incentive for efficiency of the differences between my ESM recommendations and the companies' proposal, in my view, is not sufficient to outweigh the other important objectives of this case.

Third, there are other reasons the companies may pursue efficiency improvements. The fact that the Régie will be reviewing the utilities' costs is an incentive to avoid wasteful and unreasonable expenditures. Moreover, as crown corporations, HQT and HQD have public service missions different from those of utilities owned by private investors.

It may be preferable to have a regulatory framework that includes strong efficiency and performance incentives. However, that is not the framework in which these ESM proposals have been made. In this case, other factors deserve greater weight.

**Q. Are the companies' proposed sharing of excess earnings necessarily fair?**

A. No. Subjective fairness will be a matter of judgment and perspective. However, it is possible to take a somewhat more objective perspective by evaluating an ESM structure in comparison to the objective of utility regulation. Broadly speaking the objective of regulation is to produce results comparable to those that would result from effective competition, were such competition feasible. In a competitive market, economic profits – returns in excess of a risk commensurate cost of capital – will attract competition. The larger the excess returns, all else being equal, the more likely it will be that competition will materialize and drive available returns back to the cost of capital. A tiered sharing mechanism, in which the percentage of earnings returned to customers

increases with the level of excess earnings, may provide a better match with the expected results of effective competition. For purposes of considering relative sharing percentages, it is important to remember that cost of service utility regulation differs from competitive markets in that the rate setting process reduces the utility's business risks. In competitive markets firms fail. The opportunity to pursue rate cases minimizes downside risks for utilities. This can be reflected within the regulatory framework by sharing with customers in a portion of any economic profits in excess of the utility's cost of capital.

**Q. Is an equal sharing of earnings above the companies' proposed deadbands necessary for administrative simplicity?**

A. No. The companies have proposed a two-tier sharing mechanism. In the first tier or deadband, 100% of earnings go to the utilities. In the second tier or above the deadband, earnings are shared equally. Any other two-tier ESM could be equally simple to administer. And, the addition of another tier would simply lead to the addition of one more arithmetic calculation. Moreover, the companies have proposed different deadbands for HQT and HQD. The difference in deadbands could create opportunities for Hydro Quebec to protect earnings by changing the allocation of or company incurring certain costs.

**Q. Mr. Yardley proposed a deadband of 50 basis points for HQT and 100 basis points for HQD. Can you comment on the suggested basis for difference in his proposed deadbands?**

A. I am not recommending the use of a deadband in this case. However, if the Régie were to consider deadbands, Mr. Yardley's analysis does not provide a reasonable basis for using a higher deadband in the HQD ESM than in the HQT ESM.

Mr. Yardley recommended a higher deadband for HQD to reflect a greater sensitivity in HQD's earnings to changes in costs. In response to a Régie information request, Mr. Yardley indicates that, "Using the most recent year for which data is available, the Distributor had operating expenses of \$1,270.9 million (excluding electricity purchases and transmission services) and a

rate base of \$9,895.7 million. This contrasts with the Transmission Provider that had operating expenses that were nearly half as large (\$633.2 million) and a rate base that was approximately 70% higher (\$16,894.1).” And, he goes on to suggest that a 2.5% increase in the operating expenses (excluding specific elements) for each company would reduce HQD’s return on equity by a larger number of basis points than it would reduce HQT’s return on equity. He does not describe his basis for selecting a 2.5% increase for both companies, given that this change in expenses expressed in dollars is significantly greater for HQD than for HQT.

The apparent implication of his example is that if both HQD and HQT had excess earnings and both experienced an unanticipated 2.5% increase in operating expenses HQD might retain a smaller amount of excess earnings than HQT. However, Mr. Yardley does not directly relate his example to the operation of his proposed ESMs. Rather, Mr. Yardley argues for a larger HQD deadband because HQD generally experiences greater earnings variability.

If one accepts his premise that HQD’s earnings are more variable, this does not imply that HQD should be treated more favorably in this case and allowed to retain a larger portion of excess earnings. HQD has demonstrated a remarkable ability to maintain actual earnings in excess of its authorized returns on equity for at least the last six years. The company’s management has flexibility, more flexibility than if it was in a competitive market or subject to performance based regulation, to maintain earnings in the face of changing costs and sales. And, the use of annual rate cases based on fully forecasted revenue requirements mitigates the firm’s downside risks. Moreover, much of the variability in HQD earnings is associated with larger HQD revenue deviations. To the extent such revenue variability raises policy concerns, there are approaches other than greater retention excess earnings that are widely used and are designed to directly address such concerns, including changes in distribution rate design and decoupling the recovery of fixed costs from sales.

**Q. Are there other factors to consider in evaluating the structure of the ESMs for HQD and HQT?**

A. In an asymmetrical ESM designed to return excess earnings to customers, such as those proposed under the companies' current ratemaking model, the primary reason for the utilities to retain a share of their excess earnings is to maintain an incentive for the utilities to reduce costs and pursue efficiency improvements. Given this objective, the recent performance of the two utilities in being able to reduce their expenditures below forecast levels is a factor to be considered.

An expense deviation in which actual expenditures are lower than forecasted levels is not the same as a cost saving or an efficiency improvement. Such a deviation may result from a conservative forecast or simply deferring a needed expenditure which would have benefited customers. However, the difference in expense deviations between HQT and HQD reflects differences in the ability of management in two companies to achieve expense levels that are below their respective forecasts. This may provide one of the better available indicators, albeit at best only relative, indirect, and approximate, comparing the possible recent pursuit of cost savings in the two companies.<sup>8</sup>

HQT has lower operating expenditures than HQD. However, during the recent period in which the two companies' earnings have exceeded authorized levels, HQT achieved significantly greater reductions from forecasted levels than HQD in both total operating expenses and total expenses. The companies' total operating expense and total expense deviations from their forecast for the period 2008 through 2012 are presented in attached Exhibit PC-2. The average Total Operating Expense deviation for HQD over the five year period was \$23.68 million or only 55% of HQT's average Total Operating Expense deviation of \$43.34 million. Similarly, the average deviation of

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<sup>8</sup> Mr. Yardley cites, "the fact that HQD and HQT have each been able to reduce Operating Expenses over the past few years as evidence of the fact that management has been able to achieve efficiencies that have contributed to these results." HQDT-5, Document 5.2, Response 3.2.

HQD's Total Expense from forecasted levels for the same period was \$65.92 million compared to \$84.44 million for HQT. The five year average HQD Total Expense deviation was 78% of that for HQT. While it is not possible for the regulator to observe all the opportunities available to the companies to prudently reduce their costs and achieve operating efficiencies, historical performance provides one indicator of their potential to reduce costs relative to forecast levels.

If the two companies reductions in expenditures below forecast levels maintain the same average ratio to one another that they have had in the recent past, their reductions in expenditures, all else being equal, would have comparable impacts on their earned returns. Attached Exhibits PC-3 and PC-4 illustrate the impact of a 2.5% reduction in HQT Operating Expenses and comparable reductions in HQD Operating Expenses, based on HQD reducing its expenses in the same relative ratio to HQT expense reductions as occurred for the period 2008 through 2012. Both exhibits are based on 2012 data and presented in a format comparable to that used in Mr. Yardley's sensitivity analysis (Response to information request R15.3, Table R-15.3A). A 2.5% reduction in 2012 HQT Operating Expenses would be a reduction from forecast levels of \$15.8 million. Exhibit PC-3 illustrates the impacts of HQT making this reduction and HQD reducing its Operating Expenses by 55% of that amount, \$8.6 million, consistent with the ratio of average HQD to HQT Total Operating Expense deviations for the period 2008 through 2012. In this example, the expense reduction improves HQT's earned return on equity (ROE) by 31 basis points, and HQD's earned ROE increases by 25 basis points. Exhibit PC-4 illustrates the impacts of HQT reducing Expenses by the same \$15.8 million and HQD reducing its Expenses by 78% of that amount, \$12.3 million, based on the ratio of average HQD to HQT Total Expense deviations during the period 2008 through 2012. In this second example, HQT's earned return on equity (ROE) once again improves by 31 basis points, and HQD's earned ROE increases by 35 basis points. These examples illustrate that if the two companies' expenditure reductions were to continue in the same average proportions as occurred in the recent past, the consequences for their earned returns

would tend to be roughly comparable. This analysis indicates that the companies' proposal to implement different ESMs for HQT and HQD is simply not supported by recent experience.

**Q. The companies have proposed that the calculation of excess earnings be based on their Annual Report as filed and accepted by the Régie. Is this a sufficient procedure?**

A. No. HQT and HQD rates are based on cost-of-service ratemaking principles and standards. The same principles and standards that the Régie uses to set cost of service rates should apply to calculating excess earnings in a cost of service framework. Consistency suggests the application of the same principles and standards in both circumstances. With the incentives for cost savings muted by the use of annual rate cases and forecasted revenue requirements, the application of cost of service principles and standards is the primary means for the Régie to ensure that rates are reasonable. If the same principles and rate making standards are not applied, a company could record actual costs in its Annual Report that would not be recoverable under the standards the Régie uses in deciding whether costs should be included in rates. Costs that otherwise would not be recognized for ratemaking purposes could be used to offset excess earnings.

The Régie should initially conduct an administrative review as to whether the reported costs generally conform to the regulatory principles and standards that it would use in setting rates. I understand that the Régie reviews and accepts the companies' Annual Report. I do not know whether that review currently extends beyond the completeness and accuracy of the Report to determine whether reported costs conform to the Régie's ratemaking principles and standards. Additionally, my understanding is that the review of the Annual Report does not include a process allowing intervening parties to be heard regarding the content of the report. This is understandable given that the data in the Annual Report previously have not been used as a direct input into the calculation of customer rates.

**Q. Are you suggesting that the Régie create a new proceeding allowing parties to contest data in the Annual Report?**

A. No, first, I am making a distinction between standards and process and, second, suggesting only that the Régie should not make a decision in this proceeding that would preclude or limit its future consideration of the conformance of reported data to accepted principles and standards. The Régie cannot know now what issues might arise when the Annual Report becomes a direct input to calculating rates. Making a decision in this case to use Annual Report data without the possibility of further review unnecessarily constrains the Régie's options and would preemptively deny other parties an opportunity to be heard.

My understanding of the current process is that:

- The Régie's consideration of the Annual Report overlaps with the companies' rate cases;
- In their rate cases, HQT and HQD file historical cost data for the year covered by the same Annual Report that is under contemporaneous consideration by the Régie; and
- Intervenors in the HQT and HQD rate proceedings can submit information requests to HQT and HQD in the rate cases regarding this historical data.

Additional information on the procedural schedules for the current rate cases and the review of the 2012 Annual Report is provided in the Direct Testimony of Antoine Gosselin. With some coordination between the schedules of the rate cases and its review of the Annual Report, the Régie could provide intervenors the opportunity, if there were to be a material issue of conformance, to petition for that issue to be heard as part of the pending rate case prior to the application of Annual Report data in calculating the earnings sharing rate adjustment in the subsequent calendar year.

In the event that the Régie were to approve a multi-year rate plan starting in 2015, it could nonetheless permit intervening parties to make information requests to the companies regarding

the Annual Report covering 2014 and defer its decision regarding whether further proceedings might be appropriate until such time as it may be presented with petitions for further review.

**Q. How would such conformance review be different from a retroactive review of the utilities rates?**

A. It would not review the rates that were in effect. This is a review of the data from Annual Report that will be used in calculating the ESM. It does not involve any change to rates that were previously in effect. The only application of the findings of such a review would be limited to calculation of the ESM rate adjustment scheduled be implemented in the next subsequent rate year.

## **V. ESM Recommendations**

**Q. What are your recommendations regarding ESMs for HQT and HQD?**

A. I recommend that the Régie adopt ESMs for both HQT and HQD. The Régie will need to ensure that these ESMs are consistent with its decisions in the companies' pending rate cases. The combination of each ESM and the companion rate case should set reasonable rates for customers and provide each utility the opportunity to recover its reasonable costs and earn a reasonable return on its investments.

My recommendation is tailored to the specific regulatory framework and circumstances of this case. As I indicated earlier, ESMs are appropriate in this case given the information asymmetries between the regulator and the utilities and a pattern of excess earnings. Moreover, the balance of circumstances supports asymmetric ESMs that return significant portions of excess earnings to customers.



I previously identified two precedents that are comparable to this case in that they involved the adoption of an ESM without a commitment to a multi-year rate plan. In the Massachusetts case, the utilities proposed and the Commission adopted an asymmetrical ESM with no deadband in which half of actual earnings above the utilities' authorized returns on equity would flow back to customers. In its recent Gaz Métro decision, the Régie also adopted an asymmetric ESM and rejected the use of a deadband. The Régie held that for the first 50 basis points over the utility's authorized return, overpayments would be shared equally between Gaz Métro and its customers and that thereafter additional over earnings would be returned to customers. Assuming the pending rate cases will provide HQT and HQD the opportunity to recover their reasonable costs and earn a reasonable return on their investments, holding all else equal, my recommendation is to split the difference between the two ESM structures adopted in the similar Massachusetts and Gaz Métro cases. This would result in ESMs for HQT and HQD that:

- Are asymmetric in that they return to customers a portion of each company's actual earnings that are in excess of its reasonable authorized return on equity;
- Requires each company to absorb any under earnings below its authorized return on equity;
- Do not include a deadband;
- For the first 50 basis points above the utility's reasonable authorized return on equity, share excess earnings equally (50% and 50%) between the company and its customers; and
- For any earnings in excess of 50 basis points above a reasonable authorized return on equity, share these additional excess earnings at a ratio of 75% being returned to customers and 25% being retained by the utility.

I am recommending the same ESM structure for both HQT and HQD. This approach strikes a reasonable balance between protecting customers and providing a marginal incentive for the utility to pursue cost savings and efficiency improvements.

Additionally, I recommend that variances between authorized and actual earnings be calculated following an initial administrative review to ensure that costs filed in the Annual Report generally conform to the rate setting principles and standards used by the Régie for setting rates. The Régie should permit interested parties to obtain from HQT and HQD responses to information requests regarding Annual Report either in contemporaneous rate cases or during the Régie's review of the Annual Report. The Régie should not make a decision in this case regarding whether there should be additional proceedings – including either paper or in person hearings – regarding the conformance of costs in the Annual Report to its rate setting principles and standards. If future intervener petitions present evidence of a material non-conformance with generally accepted ratemaking principles and standards, the Régie should retain the option to address such petitions at that time. If the companies file costs that conform to accepted rate setting principles and standards, no basis for such petitions will arise and no additional proceedings will be required. However, if the companies were to include costs that otherwise would not be recoverable, the Régie will have reserved its right to address that issue.

**Q. Have you compared your recommendation to other ESM proposals?**

A. Yes, how different ESM mechanisms would have performed during the recent period of HQT and HQD excess earnings. Exhibit PC-5 presents what would have been the sharing of excess earnings between HQT and its customers for each year from 2007 – 2012 for each of the following ESM mechanisms:

- The companies' ESM proposal supported by Mr. Yardley;

- The ESM adopted by the Massachusetts Commission in Department of Public Utilities Case No. 09-39 which evenly shares between the utility and customers all earnings in excess of the utility's authorized return;
- My recommendation for a two tier ESM that equally shares the first 50 basis points of actual earnings in excess of the utility's authorized rate of return and allocates 75% of remaining excess earnings over 50 basis points to customers and 25% to the utility; and
- The ESM adopted by the Régie for Gaz Métro in Case No. R-3809-2012 Phase 2, which shares the first 50 basis points of excess earnings equally between the utility and its customers and returns all earnings in excess of 50 basis points about the authorized return to customers.

Exhibit PC-6 presents the comparable comparison of the performance of my recommendation and other ESM proposals to the companies' proposed HQD ESM.

## **VI. Performance Thresholds and Incentives**

**Q. Should HQT's and HQD's retention of a share of excess earnings be conditioned on their meeting reliability or other performance thresholds?**

A. I am not proposing that in this case. Minimum standards can play a valuable role in regulation. However, this is not a simple issue and reliance on thresholds alone can lead to acceptable performance, rather than the pursuit of excellence. Instead of focusing performance thresholds, the Régie should seek to establish a framework of performance based regulation which:

- Supports investments that deliver value to customers;
- Provides greater incentives for cost savings and efficiency improvements than the current cost of service framework;
- Includes meaningful incentives for reliability – based on the value of uninterrupted service to customers – for other components of service quality; and

- Encourages innovation and supports research, development, and demonstration programs that may contribute to dynamic efficiency improvements.

Performance based regulation uses incentives to optimize utility performance with respect to both cost savings and a range of desired service attributes. This would change from the current framework for setting HQT and HQD rates. A common feature of performance-based regulation is that utility revenues are decoupled from utility costs for at least some period of time, enhancing management incentives to improve cost efficiency.<sup>9</sup> In order to avoid cost reductions being made at the expense of service quality, a performance base approach also commonly includes service quality standards or incentives.

ESMs enable customers to share in excess earnings and, in the absence of other changes to the regulatory framework, move regulation away from the performance based model by reducing the utility's (already weakened) incentive to pursue cost savings. An ESM, even an ESM with performance thresholds, is insufficient to meet the regulatory objectives of promoting efficiency, delivering greater value to customers, and enhancing innovation to meet current challenges.

**Q. Are there steps which the Régie should take to facilitate performance based regulation?**

A. Yes. Service reliability incentives are an important element in a comprehensive system of performance-based regulation. HQD does not have a breakdown of minutes of service interruption by type of customer (including between residential, small commercial and industrial, and large commercial and industrial customers) and does not conduct studies of the costs to customers associated with service interruptions.<sup>10</sup> Outage costs can vary significantly between and within customer classes. The Régie should direct HQD to conduct a study of the value of uninterrupted service to its customers, segmenting customers based on relevant characteristics. It should direct the companies to maintain a breakdown of outage statistics for relevant groups of

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<sup>9</sup> CAMPUT, *Literature Review of Alternative Approaches to Regulation* (December 14, 2012). Available at: [http://www.camput.org/wp-content/uploads/2013/03/2012-12-14\\_KPMG\\_ALT\\_REG\\_APPROACHES\\_FINAL.pdf](http://www.camput.org/wp-content/uploads/2013/03/2012-12-14_KPMG_ALT_REG_APPROACHES_FINAL.pdf)

<sup>10</sup> HQT-5, Document 5.2, Responses 9.4 and 9.5.

customers. Such data could support the development of performance incentives that appropriately balance reliability and cost savings. Understanding the cost of outages to customers can help provide the basis for and prioritize investments that may be needed to replace aging infrastructure, mitigate the impacts of severe weather, enhance grid resilience, and reduce the risk of service disruptions.

**VII. Conclusion**

**Q. Does this conclude your direct testimony?**

A. Yes, it does.

**PAUL A. CENTOLELLA**  
**Vice President**

Mr. Centolella is an expert on energy economics, law, and regulation. Prior to joining Analysis Group, he was a Commissioner on the Public Utilities Commission of Ohio (PUCO). He has more than 30 years of experience as a regulator, an economic and energy consultant, and an attorney practicing public utility and environmental law. He brings to engagements a combination of expertise in energy and environmental market design and analysis, experience in complex regulatory proceedings and all aspects of utility regulation, and a background of working with standards development and emerging technologies. Mr. Centolella has contributed to the design and performed economic assessments of energy markets for power system operators and has analyzed policies and practices related to energy pricing, investments, operations, and system reliability. Mr. Centolella has served on a range of energy-related expert committees and task forces, including the Secretary of Energy's Electricity Advisory Committee, the Electric Power Research Institute's Advisory Council, and the Governing Board and Board of Directors for the Smart Grid Interoperability Panel (SGIP).

**Education**

1977	J.D., University of Michigan Law School
1973	B.A., Economics, Oberlin College, with honors

**Professional Experience**

2012-present Vice President, Analysis Group, Boston, MA

Mr. Centolella advises electric utilities, technology companies, environmental and consumer groups on strategy issues and on utility regulatory economics and policy including the development of alternative and incentive based ratemaking mechanisms and business models for addressing current challenges facing the electric power industry.

2007-2012 Commissioner, Public Utilities Commission of Ohio (PUCO), Columbus, OH

As a PUCO Commissioner, Mr. Centolella oversaw a broad range of utility services, including electric, natural gas, telephone, water, pipeline safety, and transportation, ensuring consumers access to reliable utility services at reasonable and competitive prices.

Key accomplishments while a Commissioner, included:

- Implementation of Ohio's 2008 electricity legislation that created a glide path to market pricing; included energy efficiency, peak demand reduction, advanced and renewable energy standards; required the establishment of distribution reliability standards; and led to the development of multi-year rate plans.

## Exhibit PC-1

- Aligning Commission positions on wholesale power market issues with competition policy and securing capabilities for the PUCO to become the only commission in the region able to model power markets and forecast electricity prices.
- Development of the PJM Interconnection's Price Responsive Demand (PRD) tariff that integrates dynamic retail pricing into PJM's markets and operations, based on a foundational paper co-authored with PJM's Senior Vice President for Markets.
- Advancing Commission policies on grid modernization through workshops and proceedings on distribution reliability, advanced metering, customer access to energy usage data, privacy, cyber-security, distribution voltage optimization, and dynamic retail pricing and on-bill financing.
- Creating Ohio's Smart Grid Cluster that connected research and workforce development activities at major universities and research centers with electric utilities and technology companies.
- Helping guide the development of SGIP, a public-private partnership that has accelerated standards development by as much as 80% and created an authoritative catalog of smart grid standards.

1992-2007      Senior Economist, Science Applications International Corporation (SAIC),  
McLean, VA

Managed major projects and cases in the energy practice and advised clients in the areas of:

- Energy and environmental market design, modeling, and market analysis for electric power, gas, coal, and environmental markets;
- Economic analysis related to utility regulation, electric restructuring, and energy policy; and
- Power system operations including grid modernization and deployment of real-time information systems.

Key client relationships and related accomplishments include:

- *Adoption of Midwest Independent Transmission System Operator (MISO) Energy and Ancillary Service Markets (2003-2007)*: Led the economic analysis and litigation support team for MISO to secure FERC and state commission approval of its energy markets, including modeling and market analysis of MISO and interconnected systems. Advised MISO senior management and advisory committees regarding energy and ancillary service market development.
- *Development and management of TVA's Power System Optimization Project (PSOP) (2002-2003)*: Led the economic analysis for a strategic initiative to enhance operating systems and provide enterprise wide access to real time data, resulting in more than \$400 million in operational benefits.
- *Development of the U.S. Department of Energy's policies supporting electric industry restructuring (1994-1998)*: Was principal economic consultant advising the Department's Policy Office and led one of the first major studies demonstrating that Locational Marginal Pricing (LMP), as subsequently implemented in the organized markets, is associated with significantly lower production costs and prices.

## **Exhibit PC-1**

1982-1992 Senior Energy Policy Advisor and Senior Utility Attorney, Office of the Ohio Consumers' Counsel (OCC), Columbus, OH

Appeared on behalf of Ohio residential consumers in more than seventy regulatory proceedings. Represented Ohio on issues related to the 1990 Clean Air Act Amendments and was among the initial proponents of using a cap and trade approach for sulfur dioxide control.

1977-1981 Lawyer, practiced law in Washington State and California

## **Honors & Awards**

GridWeek Leadership Award for advancing policies for modernizing the electric power system, 2011

Smart Grid Leadership Award, Demand Response Coordinating Council, 2010

Gridwise Applied Award, Gridwise Architecture Council, for development of regulations and policies advancing the principles of technology interoperability, 2010

SGIP Appreciation Award, Smart Grid Interoperability Panel, for ensuring access to information about smart grid standards, 2010

## **Recent Testimony and Technical Conference Comments**

*Direct Testimony of Paul Centolella, Vice President of Analysis Group on behalf of Environmental Defense Fund, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service, Docket No. 13-E-0030 (May 2013).*

*Comments of Commissioner Paul A. Centolella Supplementing his Technical Conference Remarks, Demand Response Compensation in Organized Wholesale Energy Markets, Docket No. RM10-17-000 (October 2010).*

*Remarks of Commissioner Paul A. Centolella, FERC Technical Conference on Demand Response Compensation in Organized Wholesale Energy Markets, Docket No. RM10-17-000 (September 2010).*

*Testimony of the Honorable Paul A. Centolella, Commissioner Public Utilities Commission of Ohio on Energy Efficiency Resource Standards, U.S. Senate Energy and Natural Resources Committee (April 2009).*

*Prepared Remarks of Commissioner Paul A. Centolella, FERC Technical Conference on Capacity Market Design (May 2008).*

*Testimony of Commissioner Paul A. Centolella on SB 221, Ohio House of Representatives, Public Utilities Committee (March 2008).*



## Exhibit PC-1

### Selected Publications

“Understanding the Value of Uninterrupted Service,” (with M. McGranaghan) *Proceedings of the CIGRE & EPRI: Grid of the Future Symposium & Data Analytics Workshop* (October 2013).

“Reexamining Rate Regulation: 1-2-3,” *Utility Horizons Quarterly* (April 2013).

“Smarter demand response in RTO markets: The evolution toward price responsive demand in PJM,” (with S. Bressler, S. Covino, and P. Sotkiewicz) *Energy Efficiency: Towards the End of Electricity Demand Growth*, Fereidoon P. Sioshansi, Editor (February 2013).

“Incentive Regulation for Grid Reliability,” *Electroindustry Magazine*, National Electrical Manufacturers Association (November 2012).

“A Pricing Strategy for a Lean and Agile Electric Power Industry,” *Electricity Policy* (September, 2012)

“The Smart Grid Needs Smart Prices to Succeed,” *Harvard Business Review Blog* (October 14, 2010).

“The integration of Price Responsive Demand into Regional Transmission Organization (RTO) wholesale power markets and system operations” *Energy*, Vol. 35, No. 4 (April 2010).

Integration of Price Responsive Demand into PJM Wholesale Power Markets and System Operations, (with A. Ott) (March 2009).

“The Future of Demand Response in RTO Energy Markets: Midwest ISO Studies on Resource Adequacy,” (with R. McNamara) *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, American Council for an Energy Efficient Economy (August 2006).

Estimates of the Value of Uninterrupted Service for the Midwest Independent System Operator, Midwest Independent Transmission System Operator (April 2006).

“Energy Services in the Information Age: The Convergence of Energy, Communications, and Information Technologies,” *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, American Council for an Energy Efficient Economy (August 1998).

The Structure of Competitive Power Markets, U.S. Department of Energy, Electricity Policy Office (January 1997).

“Making Performance-Based Ratemaking Consistent with Market Transformation,” *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, American Council for an Energy Efficient Economy (August 1996).

The Organization of Competitive Wholesale Power Markets and Spot Price Pools (The Electric Industry Restructuring Series), National Council on Competition and the Electric Industry (1996).

“Safeguarding the Environment amid a Competitive Power Market” (with B. Hobbs), *IEEE Spectrum*, 32(3), 1995, pp. 8.

## **Exhibit PC-1**

“Environmental Policies and Their Effects on Utility Planning and Operations,” Proceedings of the ACEEE Summer Study on *Energy Efficiency in Buildings*, American Council for an Energy Efficient Economy (August 1994).

“Applying Cost Allocation Principles to Demand-Side Resources: A Case Study of Industrial Opt-Out Proposals,” *Proceedings of the ACEEE Summer Study on Energy Efficiency in Buildings*, American Council for an Energy Efficient Economy (August 1994).

*Public Utility Commission Treatment of Environmental Externalities* (with K. Rose and B. Hobbs), National Regulatory Research Institute, Columbus, OH, 1994.

*Cost Allocation for Electric Utility Conservation and Load Management Programs*, principal author, National Association of Regulatory Utility Commissioners (November 1992).

*Energy Efficiency and the Environment: Forging the Link* (with E. Vine and D. Crawley), American Council for an Energy-Efficient Economy in cooperation with University-wide Energy Research Group, University of California, 1991.

## **Committees, Boards, & Delegations**

Member, National Academy of Sciences Committee, Determinants of Market Adoption of Advanced Energy Efficiency and Clean Energy Technologies (2013-present)

Member, Advisory Group to Bipartisan Policy Center, Cyber Security Governance across Multiple Agencies: The Electric Power Sector (2013-present)

Member, Secretary of Energy’s Electricity Advisory Committee (2012-present), Smart Grid Subcommittee and Transmission Subcommittee

Member, Board of Directors, Smart Grid Interoperability Panel 2.0 (2012-2013), Board Executive Committee and Board Technical Committee

Member, Governing Board, Smart Grid Interoperability Panel (2009-2012); Home Area Network Task Force; System and Device Integration Working Group; Communications, Marketing and Education Working Group

Member, Advisory Council, Electric Power Research Institute (2009-2012); Advisory Council Executive Committee (2010-2012)

Member, Board of the Organization of PJM States, Inc. (OPSI) (2007-2012); Vice President (2010-2011); Secretary (2009-2010)

Co-convenor of 2012 APEC Workshop on Regulatory Approaches to Smart Grid Investment and Deployment

U.S. delegation to 2011 Asia-Pacific Economic Cooperation (APEC) Senior Officials Meeting

U.S. delegation to 2012 World Forum on Energy Regulation, Quebec City, Canada

## **Exhibit PC-1**

U.S. delegation to 2009 World Forum on Energy Regulation, Athens, Greece

Member, Energy Resources and Environment Committee, National Association of Regulatory Utility Commissioners (NARUC) (2007-2012)

Member, FERC / NARUC Smart Grid Collaborative and Demand Response Collaborative (later known as the Smart Response Collaborative) (2007-2012)

Member, NARUC Smart Grid Working Group (2010-2012)

Member, NARUC Climate Change Task Force (2007-2010)

Member, Technical Advisory Committee, Ohio Coal Development Office (2007-2012)

## **Memberships**

International Association for Energy Economics (2005-present)

American Economics Association (2001-present)

Ohio State Bar Association (1982-present)

California State Bar Association (1979-present)

Washington State Bar Association (1978-present)

**Exhibit PC-2**  
**HQD and HQT Operating and Total Expense Deviations 2008 - 2012**

Year	Distributor Expense (Million \$)		Transmission Provider Expense (Million \$)	
	Operating Deviations	Total Deviations	Operating Deviations	Total Deviations
2008	-3.6	-13.7	-21.5	-31.7
2009	-38.9	-79.3	-40	-83.6
2010	-26.7	-79.3	-58.1	-87.9
2011	-22.8	-71.9	-50.5	-66.9
2012	-26.4	-85.4	-46.6	-152.1
<b>5 Year Average</b>	<b>-23.7</b>	<b>-65.9</b>	<b>-43.3</b>	<b>-84.4</b>

Average Distributor Deviation as a Percent of Average Transmission Provider Deviation:	Operating	Total
	<b>55%</b>	<b>78%</b>

**Source:**

HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) In relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response 13.1, Tables 13.1 & 13.2.

**Exhibit PC-3**  
**Illustrative Impact of Reductions in HQD and HQT Operating Expenses on ROE**  
**At the Ratio of Total Operating Expense Deviations (HQD to HQT) for the Period 2008 - 2012**

Inputs to Analysis							
Average ratio of HQD to HQT OpEx reductions 2008 - 2012		55%	Assumed HQT OpEx Reduction Excluding Specific Elements (%)	2.5%			
Analysis of ROE Impacts							
Revenues	Change	Differential	Revenues	Change	Differential		
Electricity sales	10,366.8	10,366.8	Transmission Revenues	2,991.5	2,991.5		
Other revenues	173.9	173.9					
	10,540.7	10,540.7					
Expenses			Expenses				
Supply			Transmission Operating Expenses				
Electricity Purchases	4,895.9	4,895.9	Other OpEx - Excluding Specific Elements	633.2	(15.8)		
Transmission Services	2,583.9	2,583.9	OpEx - Specific Elements	-	-		
Subtotal Supply	7,479.8	7,479.8	Subtotal OpEx	633.2	617.4		
Distribution Operating Expenses			Other Transmission Charges	1,072.9	1,072.9		
OpEx - Excluding Specific Elements	1,101.9	(8.6)	1,093.3				
OpEx - Specific Elements	169.0	169.0					
	1,270.9	1,262.3					
Other Distribution Charges	1,016.6	1,016.6	Subtotal Transmission OpEx	1,706.1	1,690.3		
Subtotal Distribution OpEx	2,287.5	2,278.9					
Total Expenses	9,767.3	9,758.7					
Financing Costs	437.9	437.9	Financing Costs	802.0	802.0		
Total Expenses with Financing	10,205.2	10,196.6	Total Expenses with Financing	2,508.1	2,492.3		
Total Returns	335.5	344.1	8.6	Total Returns	483.4	499.2	15.8
Earned Return on Rate Base	773.4	782.0		Earned Return on Rate Base	1,285.4	1,301.2	
Rate Base (13-months average)	9,895.7	9,895.7		Rate Base (13-months average)	16,894.1	16,894.1	
Earned Return on Rate Base - % [1]	7.82%	7.90%		Earned Return on Rate Base - %	7.61%	7.70%	
Earned ROE	9.69%	9.94%	0.25%	Earned ROE	9.54%	9.85%	0.31%
<u>Based On:</u>				<u>Based On:</u>			
Capital Structure				Capital Structure			
Debt	65%	65%		Debt	70%	70%	
Equity	35%	35%		Equity	30%	30%	
Cost of Debt	6.78%	6.78%		Cost of Debt	6.779%	6.779%	

**Note:**

[1] Table R15.3A contains an anomaly in that it presents "Earned Return on Rate Base - %" to be 7.80%, although that Table's stated "Earned Return on Rate Base" of \$773.4M divided by "Rate Base (13-months average)" equals 7.82%. Use of the calculated percentage does not materially impact the conclusion that historical performance suggests that expense deviations will tend to have comparable impacts on the Earned ROEs of the Distributor and Transmission Provider.

**Source:**

HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) in relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response Request R15.3, Table R15.3A.

**Exhibit PC-4**  
**Illustrative Impact of Reductions in HQD and HQT Operating Expenses on ROE**  
**At the Ratio of Total Expense Deviations (HQD to HQT) for the Period 2008 - 2012**

Inputs to Analysis					
Average ratio of HQD to HQT Total Expense reductions 2008 - 2012		78%	Assumed HQT OpEx Reduction Excluding Specific Elements (%)		2.5%
Analysis of ROE Impacts					
HQD			HQT		
	Change	Differential		Change	Differential
<b>Revenues</b>					
Electricity sales	10,366.8	10,366.8	Transmission Revenues	2,991.5	2,991.5
Other revenues	173.9	173.9			
	10,540.7	10,540.7			
<b>Expenses</b>					
<b>Supply</b>					
Electricity Purchases	4,895.9	4,895.9	Transmission Operating Expenses		
Transmission Services	2,583.9	2,583.9	Other OpEx - Excluding Specific Elements	633.2	(15.8)
Subtotal Supply	7,479.8	7,479.8	OpEx - Specific Elements	-	-
<b>Distribution Operating Expenses</b>					
OpEx - Excluding Specific Elements	1,101.9	(12.3)	1,089.6	Other Transmission Charges	1,072.9
OpEx - Specific Elements	169.0	169.0			
	1,270.9	1,258.6			
Other Distribution Charges	1,016.6	1,016.6			
Subtotal Distribution OpEx	2,287.5	2,275.2	Subtotal Transmission OpEx	1,706.1	1,690.3
<b>Total Expenses</b>					
	9,767.3	9,755.0			
<b>Financing Costs</b>					
	437.9	437.9		802.0	802.0
<b>Total Expenses with Financing</b>					
	10,205.2	10,192.9		2,508.1	2,492.3
<b>Total Returns</b>					
	335.5	347.8	12.3	483.4	499.2
<b>Earned Return on Rate Base</b>					
	773.4	785.7		1,285.4	1,301.2
<b>Rate Base (13-months average)</b>					
	9,895.7	9,895.7		16,894.1	16,894.1
<b>Earned Return on Rate Base - % [1]</b>					
	7.82%	7.94%		7.61%	7.70%
<b>Earned ROE</b>					
	9.69%	10.04%	0.35%	9.54%	9.85%
<b>Based On:</b>					
<b>Capital Structure</b>			<b>Capital Structure</b>		
Debt	65%	65%	Debt	70%	70%
Equity	35%	35%	Equity	30%	30%
<b>Cost of Debt</b>					
	6.78%	6.78%		6.779%	6.779%

**Note:**

[1] Table R15.3A contains an anomaly in that it presents "Earned Return on Rate Base - %" to be 7.80%, although that Table's stated "Earned Return on Rate Base" of \$773.4M divided by "Rate Base (13-months average)" equals 7.82%. Use of the calculated percentage does not materially impact the conclusion that historical performance suggests that expense deviations will tend to have comparable impacts on the Earned ROEs of the Distributor and Transmission Provider.

**Source:**

HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) In relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response Request R15.3, Table R15.3A.

**Exhibit PC-5**  
**Comparison of the Allocation of HQT Earnings for 2007 - 2012 Under Alternative ESMs**

<b>Inputs</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
HQT Earnings Deviations (Million \$)	-57.4	39.8	85.2	84.4	72.9	159.5
Realized Earnings (Million \$)	279.7	408.8	452.5	463.7	434.2	483.4
Realized Earnings (%)	6.22%	8.69%	9.40%	9.28%	8.58%	9.54%
50 Basis Points (Million \$)	22.5	23.5	24.1	25	25.3	25.3
<b>Allocation of HQT Under &amp; Excess Earnings (Million \$)</b>						
<b>HQT Proposed ESM</b>						
Underearnings (Allocated to HQT)	-57.4	0	0	0	0	0
Excess Earnings ≤ 50 Basis Points (100% Utility)	0	23.5	24.1	25.0	25.3	25.3
Excess Earnings > 50 Basis Points (50% Utility / 50% Customer)	0	16.3	61.1	59.4	47.6	134.2
HQT Share of Excess Earnings (Million \$)	0	31.7	54.7	54.7	49.1	92.4
Customer Share of Excess Earnings (Million \$)	0	8.2	30.6	29.7	23.8	67.1
<b>Massachusetts ESM</b>						
Underearnings (Allocated to HQT)	-57.4	0	0	0	0	0
Excess Earnings (50% Utility / 50% Customer)	0	39.8	85.2	84.4	72.9	159.5
HQT Share of Excess Earnings (Million \$)	0	19.9	42.6	42.2	36.5	79.8
Customer Share of Excess Earnings (Million \$)	0	19.9	42.6	42.2	36.5	79.8
<b>Recommended ESM</b>						
Underearnings (Allocated to HQT)	-57.4	0	0	0	0	0
Earnings ≤ 50 Basis Points (50% Utility / 50% Customer)	0	23.5	24.1	25.0	25.3	25.3
Earnings > 50 Basis Points (25% Utility / 75% Customer)	0	16.3	61.1	59.4	47.6	134.2
HQT Share of Excess Earnings (Million \$)	0	15.9	27.4	27.4	24.6	46.3
Customer Share of Excess Earnings (Million \$)	0	24.0	57.9	57.1	48.4	113.4
<b>Gaz Métro ESM</b>						
Underearnings (Allocated to HQT)	-57.4	0	0	0	0	0
Earnings ≤ 50 Basis Points (50% Utility / 50% Customer)	0	23.5	24.1	25.0	25.3	25.3
Earnings > 50 Basis Points (100% Customer)	0	16.3	61.1	59.4	47.6	134.2
HQT Share of Excess Earnings (Million \$)	0	11.8	12.1	12.5	12.7	12.7
Customer Share of Excess Earnings (Million \$)	0	28.1	73.2	71.9	60.3	146.9

**Source:**

HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) In relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response 17.1, Table R-17.1A and Response 17.2 Table R-17.2A.

**Exhibit PC-6**  
**Comparison of the Allocation of HQD Earnings for 2007 - 2012 Under Alternative ESMs**

<b>Inputs</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
HQD Earnings Deviations (Million \$)	10.1	31.1	107.7	172.8	103.3	114.9
Realized Earnings (Million \$)	259.7	298.2	345.9	447.3	367.3	335.5
Realized Earnings (%)	7.88%	8.64%	10.15%	12.79%	10.18%	9.69%
50 Basis Points (Million \$)	16.5	17.3	17.0	17.5	18.0	17.3
100 Basis Points (Million \$)	33.0	34.5	34.1	35.0	36.1	34.6
<b>Allocation of HQD Under &amp; Excess Earnings (Million \$)</b>						
<b>HQD Proposed ESM</b>						
Underearnings (Allocated to HQD)	0	0	0	0	0	0
Excess Earnings ≤ 100 Basis Points (100% Utility)	10.1	31.1	34.1	35.0	36.1	34.6
Excess Earnings > 100 Basis Points (50% Utility / 50% Customer)	0	0	73.6	137.8	67.2	80.3
HQD Share of Excess Earnings (Million \$)	10.1	31.1	70.9	103.9	69.7	74.8
Customer Share of Excess Earnings (Million \$)	0	0	36.8	68.9	33.6	40.2
<b>Massachusetts ESM</b>						
Underearnings (Allocated to HQD)	0	0	0	0	0	0
Excess Earnings (50% Utility / 50% Customer)	10.1	31.1	107.7	172.8	103.3	114.9
HQD Share of Excess Earnings (Million \$)	5.1	15.6	53.9	86.4	51.7	57.5
Customer Share of Excess Earnings (Million \$)	5.1	15.6	53.9	86.4	51.7	57.5
<b>Recommended ESM</b>						
Underearnings (Allocated to HQD)	0	0	0	0	0	0
Earnings ≤ 50 Basis Points (50% Utility / 50% Customer)	10.1	17.3	17.0	17.5	18.0	17.3
Earnings > 50 Basis Points (25% Utility / 75% Customer)	0	13.8	90.7	155.3	85.3	97.6
HQD Share of Excess Earnings (Million \$)	5.1	12.2	31.2	47.6	30.3	33.1
Customer Share of Excess Earnings (Million \$)	5.1	19.1	76.5	125.3	73.0	81.9
<b>Gaz Métro ESM</b>						
Underearnings (Allocated to HQD)	0	0	0	0	0	0
Earnings ≤ 50 Basis Points (50% Utility / 50% Customer)	10.1	17.3	17.0	17.5	18.0	17.3
Earnings > 50 Basis Points (100% Customer)	0	13.8	90.7	155.3	85.3	97.6
HQD Share of Excess Earnings (Million \$)	5.1	8.7	8.5	8.8	9.0	8.7
Customer Share of Excess Earnings (Million \$)	5.1	22.5	99.2	164.1	94.3	106.3

**Source:**

HQT and HQD Response to Request for additional evidence from the Régie de l'énergie (the Régie) In relation to the Application seeking authorization of A Return on Equity and an Equity Sharing Mechanism at Response 17.1, Table R-17.1B and Response 17.2 Table R-17.2B.