

**DEMANDE DE RENSEIGNEMENTS N^o 1 DE L'AQCIE-CIFQ À HYDRO-QUÉBEC
RELATIVE À LA DEMANDE D'ÉTABLISSEMENT D'UN MÉCANISME DE RÉGLEMENTATION
INCITATIVE ASSURANT LA RÉALISATION DE GAINS D'EFFICIENCE PAR LE
DISTRIBUTEUR D'ÉLECTRICITÉ ET LE TRANSPORTEUR D'ÉLECTRICITÉ**

1. Références :

- (i) Piece HQTD-2, Document 1.1, Curriculum Vitae de M. James M. Coyne
- (ii) Piece HQTD-2, Document 1.2, Curriculum Vitae de M. Robert Yardley

Préambule :

These documents are not very specific concerning the PBR experience of the two witnesses.

Demande :

- 1.1. Please detail all projects undertaken by each witness on PBR and provide copies (or a link to copies) of all papers, reports, testimony, and presentations on PBR that are in the public domain. Please make sure to identify any projects in which either witness specifically addressed PBR for power transmission or distribution, or undertook studies of the productivity trends of power transmission or distribution utilities.

2. Référence :

Piece HQTD-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 1

Préambule :

“Many jurisdictions pursue Performance-Based Regulation (“PBR”) in stages in order to proceed in a measured way and reflect the experiences gained in successive programs.”

Demandes :

- 2.1. Please confirm that early adopters of PBR such as the Ontario Energy Board have naturally had several opportunities to refine their methodologies, and were more likely to need refinements due to the avant garde nature of their early experiments.
- 2.2. Please acknowledge that the Régie de l'Energie can learn from the experience of these and other regulators in fashioning plans for Hydro-Québec. This reduces the need to "start simple."
- 2.3. Please identify commissions that adopted multiyear rate plans "in stages." For example, what commissions started with three year rate plans, or exempted a large portion of the cost of base rate inputs from the plan? Is it not in fact common for commissions to start with plans of four years or longer, and to have initial plans apply to most costs of base rate inputs?
- 2.4. Do most regulators that adopt multiyear rate plans start with a remarkably simple plans or is it more accurate to say that the initial adoption of multiyear rate plans involves fairly sweeping change and the mechanisms grow even more complex over time?

3. Référence :

Piece HQT-D-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 4.

Préambule :

"As the Régie considers a transition to an MRI, it is important to note that the current regime already incorporates elements that promote efficiency gains. In fact, the existing parametric formula explicitly applies a productivity factor to OPEX: $OPEX_t = [(OPEX_{t-1} - \text{Specifically Tracked Items}_{t-1}) + \text{Inflation} - \text{Efficiency} + \text{Growth}] + (\text{Specifically Tracked Items})_t$."

Demande :

- 3.1. Please provide the pertinent citations and further explanation concerning the use of these formulas by HQT and HQD.

4. Référence :

Piece HQT-2, *Témoignage de MM. James M. Coyne et Robert C. Yardley*, p. 5

Préambule :

"The fact that HQD and HQT are Crown Corporations warrants special consideration as these organizations are typically accountable to a broader mandate in addition to their core utility responsibilities than their investor-owned counterparts."

Demandes :

- 4.1. Please confirm that numerous publicly-owned utilities around the world operate under MRIs. Examples in Canada include EPCOR and Toronto Hydro-Electric.
- 4.2. Please cite any examples you are aware of where utilities have received special treatment from regulators in MRI design (other than a lower cost of capital) because of their public ownership.

5. Référence :

Piece HQT-2, *Témoignage de MM. James M. Coyne et Robert C. Yardley*, p. 6

Préambule :

"The question of which of the various types of MRIs are appropriate for HQD and HQT requires an assessment of the particular facts and circumstances of each division. This evidence includes an analysis of the major revenue, cost, and service drivers of each division to determine the degree to which they are within the control of the division, and the factors that might cause them to be higher or lower in the future. For example, HQT's CAPEX are driven to a large degree by (1) a need to respond to requests from its customers either to connect to the network or for new transmission service, and (2) a need to replace aging infrastructure in a manner that optimizes maintenance expenses and infrastructure replacement."

Demande :

- 5.1. Please confirm that HQT has a great deal of control over the timing of its replacement CAPEX and the cost of replacements when undertaken. Please confirm that a variety of

different strategies may potentially "optimize maintenance expenses and infrastructure replacement."

6. Référence :

Piece HQTD-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 7

Préambule :

"Any MRI program tied to an output measure (e.g., sales or customer growth) should be tied to customer growth, with annual adjustments to accommodate for weather and any other factors that contribute to sales volatility."

Demandes :

- 6.1. Please discuss further the importance of customer growth as a driver of a power distributor cost and its suitability for use in a revenue cap index. Isn't peak load also an important distribution cost driver? If so, why should it not also be a revenue driver?
- 6.2. Why have the authors proposed a *revenue* cap index for HQD rather than a *price* cap index?
- 6.3. Is it, additionally, reasonable to add a revenue decoupling mechanism to the regulatory system? Please explain why or why not.

7. Référence :

Piece HQTD-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 8

Préambule :

"Electricity and transmission purchases are the two largest components of HQD's revenue requirements and are not controllable by management. Electricity purchases are recovered through the pass-through mechanism and do not influence earnings. Similarly, HQD maintains a deferral account to track any differences between projected and actual transmission costs. These expenses, together with fuel costs that are also not controllable by management, comprise more than three-quarters of the HQD's revenue requirement at 77.1%."

Demandes :

- 7.1. Please confirm that HQD can use rate designs, as well as conservation and demand management programs, to reduce its power purchase and fuel expenses and use of the transmission system. Additionally, HQD has some control over the cost of power supplies that are supplemental to the heritage block.
- 7.2. Please also confirm that HQD's pass-through mechanism for power purchase expenses and its deferral account for transmission costs weaken its incentives to control these costs.

8. Référence :

Piece HQT-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 13.

Préambule :

“Under the proposed plan, the “I” and “X” factors would have to be set according to the process adopted by the Régie. An expanded definition of operating costs under management’s control would be included under the formula, and include amortization, taxes and corporate expenses, even though not directly controllable by HQD.”

Demandes :

- 8.1. Why does it make sense to address amortization and taxes using indexing, but not use indexing to address the return on rate base?
- 8.2. Please identify other jurisdictions where this ratemaking treatment of the return on rate base has been used.
- 8.3. Why is the return on rate base treated as a controllable cost in the proposed MRI for HQT?
- 8.4. Was this exclusion first proposed by the authors, or by Hydro-Québec's attorneys and/or management?

9. Référence :

Piece HQT-D-2, *Témoignage de MM. James M. Coyne et Robert C. Yardley*, pp. 6.

Préambule :

"HQT's business is significantly more capital-intensive than HQD's, and its capital budget is comprised of larger multi-year projects."

Demande :

- 9.1. Please explain why a "larger multi-year project" necessarily complicates the design of a revenue cap escalator, provided that costs of these projects are spread fairly evenly over the years of the project. Isn't it true that an appreciable share of the assets of these projects often become used and useful in each year of the project?

10. Référence :

Piece HQT-D-2, *Témoignage de MM. James M. Coyne et Robert C. Yardley*, p. 17.

Préambule :

"Thus, the HQT depreciation and amortization expense (the recovery of capital invested), its return on rate base (the return on capital invested) and applicable taxes comprise 78.9% of the company's revenue requirements. This represents a challenge for an MRI program because capital is typically the most difficult expense to accommodate under these programs. CAPEX are often "lumpy", and influenced by large projects over many years and are often dictated by system requirements beyond management's direct control, such as the integration of new generation. These challenges are documented in the Elenchus report, and are present for distribution utilities as well, but even more so for transmission companies, such as HQT, where capital represents the vast majority of its revenue requirements."

Demandes :

- 10.1. Please confirm that the allowed revenue of HQT can in principle be indexed to the generation capacity of its service territory.
- 10.2. Please confirm that capital cost trackers are used in many jurisdictions to address certain costs that are hard to address using indexes.

- 10.3. Please confirm that, due to the large size of HQT's system, capex volatility doesn't necessarily translate into volatile amortization expenses, return on rate base, capital cost, or total cost.
- 10.4. Please provide any and all evidence that the amortization, rate base, or capital cost of HQT have been unusually volatile in the past or are likely to be unusually volatile during the term of a first generation MRI.

11. Référence :

Piece HQT-D-2, Témoignage de MM. James M. Coyne et Robert C. Yardley, p. 23-24

Préambule :

"Based on the goals of Article 48.1 and HQT's unique characteristics, Concentric recommends a "building block" MRI approach, which is a comprehensive "bottom-up" approach that sets a future revenue path based on a detailed forecast and review of capital and operating expenses. This approach recognizes the non-parametric nature of HQT's CAPEX and OPEX that does not readily accommodate an I-X program as well as the obligation for HQT to maintain the long-term reliability of the system. The efficiency incentives sought under Article 48.1 could still be achieved by developing a multi-year rate plan that determines a future revenue cap."

Demandes :

- 11.1. Please explain how a building block approach can be made consistent with the requirements of Article 48.1 that the MRI foster 1) continuous improvement in performance, 2) cost reduction that is beneficial to both consumers and HQT, and 3) a streamlined regulatory process. For example, how would the Régie ensure that cost forecasts embody continuous improvements in performance?
- 11.2. Please confirm that numerous power distributors have been subject to index-based rate and revenue caps over the years despite an obligation to maintain the long-term reliability of their systems. Why is this obligation mentioned in the context of HQT but not HQD?

12. Référence :

Piece HQT-2, *Témoignage de MM. James M. Coyne et Robert C. Yardley*, p. 23

Préambule :

"There are alternative ways to derive "X" that range from the application of judgment applied to past observed productivity gains to industry benchmarking studies to complex productivity studies. Both benchmarking studies and productivity analyses rely on large data sets comprised of data for utilities that are deemed to be sufficiently "comparable." For a Canadian utility, this usually requires expanding the data set to include utilities from the United States in order to arrive at an acceptable sample size. A desire for a larger sample size in order to improve statistical validity and the desire for comparability tend to work against each other. This contributes to the controversy associated with productivity studies, particularly in Canada. In addition, these studies tend to add complexity and delays to the process, which goes against the streamlining goal of Article 48.1."

Demandes :

- 12.1. Is it generally beneficial to have productivity studies that include the latest available data when setting X factors?
- 12.2. Does the commissioning of a custom productivity study in any sense preclude the additional consideration of the results of *other* studies in the public domain?
- 12.3. If it is hard to find appropriate peers for Hydro-Québec, why is this an argument for basing X on a survey of the results of other productivity studies that are even *less* attentive to the Company's special operating conditions than a custom study?
- 12.4. The authors propose an unusual kind of MRI for HQD in which the return on rate base is not addressed by the revenue cap index. Doesn't this limit the relevance of existing multifactor productivity studies for setting the X factor in the proposed plan, and make a custom study more necessary?
- 12.5. Publicly available studies of power transmission productivity are rare. Isn't this an argument for a custom transmission productivity study in this proceeding?

- 12.6. Do the authors believe that a rate or revenue cap escalator based on industry productivity research involves *more* regulatory complexity, cost, and controversy than the building-block approach that they propose for HQT? If so, please provide the evidence that supports this view.
- 12.7. Please confirm that the building block approach to establishing rate escalators has proven complex, costly, and controversial in Australia and Britain.
- 12.8. Please confirm that regulators in Australia and Britain have made extensive use of statistical benchmarking and independent engineering studies when reviewing the cost forecasts of utilities subject to building block regulation.
- 12.9. Please confirm that the Ontario Energy Board uses statistical benchmarking studies to review cost forecasts of energy distributors proposing "custom IR" plans.
- 12.10. Please confirm that econometric methods are available that use large and varied samples but can produce tailored cost benchmarks and productivity growth targets.

13. Référence :

Piece HQTD-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 1

Préambule :

"Tous les régimes réglementaires comportent des incitatifs, souvent implicites."

Demande :

- 13.1. In light of this comment, please discuss the incentives that HQT and HQD have had to contain their capital costs under a system of virtually annual rate cases.

14. Référence :

Piece HQTD-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, pp. 7 and 30

Préambule :

"Les MRI sont majoritairement appliqués chez des distributeurs. Dans leur recherche d'entreprises comparables, ERA a répertorié seulement trois juridictions où des MRI ont été conçus spécifiquement pour les transporteurs d'électricité, soit le Royaume-Uni, l'Australie et la Norvège. Il n'a identifié aucun transporteur soumis à un MRI au Canada." (p. 7)

"Etant donné le faible nombre de transporteurs d'électricité assujettis à un MRI à travers le monde et leur absence au Canada et en Amérique du Nord, force est de constater que le Transporteur joue un rôle de précurseur en matière de MRI pour le secteur du transport d'électricité sur ce continent. Dans ce contexte, il est de mise pour le Transporteur, la Régie et les intervenants de procéder de façon ordonnée et prudente dans l'élaboration de ce premier MRI, ce que la proposition équilibrée du Transporteur permet d'accomplir." (p. 30)

Demandes :

- 14.1. Please confirm that the ERA paper involved an assortment of case studies and not a survey of power transmission MRIs.
- 14.2. Please list the countries with advanced economies OUTSIDE of North America that, to the best of your knowledge, do and do not use MRIs to regulate large transmission utilities. Is it fair to say that MRIs are more the rule than the exception for such utilities in these countries?

15. Référence :

Piece HQT-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 10

Préambule :

"Les coûts liés aux achats d'électricité, au service de transport et aux achats de combustible, représentent à eux seuls environ 77 % des revenus requis du Distributeur. Ces coûts ne sont pas sous le contrôle direct du Distributeur."

Demandes :

- 15.1. Please confirm that HQD can use rate and service offerings, as well as conservation and demand management programs to control its power purchase expenses and the use of the transmission system. Additionally, please confirm that HQD has some control over the cost of power supplies that are supplemental to the heritage block.
- 15.2. Please also confirm that HQD's pass-through mechanism for power purchase expenses and its deferral account for transmission costs weaken its incentives to control these costs.

16. Référence :

Piece HQTD-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 14

Préambule :

"La formule proposée englobe davantage d'éléments que la formule paramétrique actuelle. En effet, en plus de l'ajout des taxes et des frais corporatifs, elle couvre également les coûts liés aux investissements par le biais de l'amortissement des actifs mis en service."

Demandes :

- 16.1. Why does it make sense to address HQD's amortization and taxes using indexing but to exclude the return on rate base?
- 16.2. Was this unusual exclusion first proposed by Coyne and Yardley, or by Hydro-Québec's attorneys and/or management?

17. Référence :

Piece HQTD-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 15

Préambule :

"Considérant que le meilleur inducteur de coûts est le nombre d'abonnements pour le Distributeur, le facteur de croissance des activités proposé doit être établi en fonction de l'évolution du nombre d'abonnements."

Demandes :

- 17.1. Please discuss further the importance of the number of customers served as a driver of a power distributor's cost, and its suitability for use in a revenue cap index. Aren't other scale-related variables, such as peak demand, also pertinent?
- 17.2. Why has HQD proposed a *revenue* cap index for HQD rather than a *price* cap index?
- 17.3. Is it, additionally, reasonable to add revenue decoupling to HQD's regulatory system?

18. Référence :

Piece HQTd-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 20 and 25

Préambule :

"Le réseau de transport du Transporteur est l'un des plus vaste et complexe en Amérique du Nord." (p. 20)

"La structure de coûts du Transporteur est fortement axée sur les investissements." (p. 20)

"Ces caractéristiques tiennent notamment compte du contexte d'un réseau vieillissant et fortement sollicité dans lequel évolue le Transporteur, ainsi que de la mise en place du MGA, tous deux affectant le niveau des coûts aux charges et aux investissements. Un tel contexte requiert une connaissance intrinsèque du réseau et de son état, de même que des impératifs de gestion qui en découlent, pour prévoir, sur un horizon de trois ans, les besoins anticipés. De plus, la prépondérance des coûts liés aux investissements dans la structure de coûts du Transporteur et leurs variations dans le temps, ainsi que la nécessité de maintenir l'évolution du risque de défaillance partielle des équipements sous contrôle, sont autant d'éléments qui militent en faveur de l'établissement des revenus requis selon une évaluation des besoins budgétaires envisagés sur la période du MRI résultant de l'application du MGA. Le MRI retenu doit donc permettre l'exercice d'un jugement informé pour l'établissement de projections

intégrant ces besoins. Dans ce contexte, le Transporteur estime ne pas pouvoir recourir à une formule prédéfinie pour l'établissement de ses revenus requis." (p. 25)

Demandes :

- 18.1. Please explain how a building block approach can be made consistent with the requirements of Article 48.1 that the MRI foster 1) continuous improvement in performance, 2) reduced costs for customers, and 3) a streamlined regulatory process.
- 18.2. Please confirm that costs of the base rate inputs of power distributors, local telephone exchange carriers, and oil pipelines are also quite capital intensive, but that these utilities have often operated under index-based multiyear rate plans.
- 18.3. Please explain why capital intensiveness itself makes a utility less suitable for an index-based escalator.
- 18.4. Please provide evidence to support the notion that the amortization, return on rate base, and total capital cost of HQT have been unusually volatile in the recent past or will be so during the term of a first generation plan.
- 18.5. Please confirm that the enormous size of HQT's current rate base reduces the impact of capital expenditure volatility on the capital *cost* volatility that matters for the design of a revenue cap escalator.

19. Référence :

Piece HQTD-3, Document 1, *Caractéristiques des MRI du Distributeur et du Transporteur*, p. 27

Préambule :

« Le témoignage d'un représentant d'ERA, lors de 2 l'audience du 27 mai 2015 dans le cadre du présent dossier, corrobore la recommandation 3 de CEA et la proposition du Transporteur :

« Could we see a multi-year cost of service as being a transitional phase towards a more sophisticated PBR?

Yes, I think that that is a development path that you see in other jurisdictions as well, sometimes going, even if it's a gradual extension of the term so perhaps, starting with a three year cost of service and then lengthening the term and also starting to delink the rate changes from cost changes so therefore try to build in this concept of having an

automatic change which is based on inflation and productivity rather than just cost plus.
»

Demande :

19.1. Please substantiate the notion that it common for the initial generation of multiyear rate plans to have three-year terms. Is it not indeed more accurate to say that this approach is, in fact, less common than longer plan terms?

20. Référence : None

Préambule :

An important decision for the Régie in this proceeding is whether index-based attrition relief mechanisms merit further consideration for Hydro-Québec and, if so, what kind of productivity research should be commissioned in a possible Phase 2 of this proceeding. Relatedly, does a “building block” approach to ARM design merit further consideration, and if so, should the Régie commission statistical benchmarking studies like the commissions in Australia, Britain, and Ontario? A study could consider only the productivity trends of other (e.g., US) utilities or also consider the productivity trends and/or recent cost efficiency level of Hydro-Québec. Studies of Hydro-Québec's performance depend in part on the data available from Hydro-Québec.

Demandes :

- 20.1. Do documents exist that provide detailed, annual, standardized financial and operating data for Hydro-Québec’s transmission and distribution divisions? The principle financial data that are needed for productivity research are for operation and maintenance expenditures, plant additions, and the net value of plant. The requisite operating data include the number of customer accounts, the kWh delivered, the kW of peak demand, and the kWh generated. If the relevant documents exist, for how long have such documents been prepared?
- 20.2. The 2001-2002 period saw a change in the organization of the company. Are consistent, itemized operating data available for earlier years? If not, please explain the main

consistency problems. Please discuss any other salient data problems that complicate construction of consistent time series on key cost and output variables.

- 20.3. The attached Data Table is contained in an Excel spreadsheet which lists specific data items that might be used in productivity and benchmarking studies for HQD and HQT. For each item please modify the spreadsheet to indicate the years for which it is possible to produce a consistent series of data and provide any comments you may have regarding this potential future data request.
- 20.4. It might be important to the analysis to request a limited amount of data for years prior to 2003. The information requested would likely be limited to additions to transmission and distribution plant, gross plant in service, and accumulated depreciation on plant. Should the relevant documents and databases be available, how long might it take (weeks, months) for the company to be able to provide such information? Would it be possible to produce the source documents such that a consultant could undertake the relevant calculations to produce the data series?

21. Références :

- (i) Piece Hydro-Québec Distribution rapport annuel 2013 (Historique des ventes, des produits des ventes, des abonnements et de la consommation, HQD-10, Doc. 2, pg. 6)
- (ii) Piece Hydro-Québec Distribution rapport annuel 2014 (Historique des ventes, des produits des ventes, des abonnements et de la consommation, HQD-10, Doc. 2, pg. 6)
- (iii) Piece R-3933-2015 (Réponses d'Hydro-Québec Distribution à la demande de renseignements No 1 de la Régie, HQD-16, Doc. 1, pg. 10)

Préambule :

A key issue in this proceeding is whether rate or revenue cap indexes merit sufficient consideration in MRIs for HQD and HQT to warrant the commissioning of a Phase 2 productivity study.

The following general formula for revenue cap indexes might apply to these divisions:

$$\text{growth Revenue Requirement} = \text{Inflation} - X + \text{growth Scale} + Y + Z. \quad [1]$$

The third term on the right-hand side of this formula is the growth in an index of operating scale.¹ It could be calculated as a weighted average of the growth of multiple scale variables.

Using data on inflation and the revenue requirements and operating scales of HQD and HQT, one can get a notion of the range of X factors that could make a revenue cap index compensatory for each division. For example, we can calculate the value of X in the equation

$$X = (\text{Inflation} + \text{growth Scale}) - \text{growth Revenue Requirement}. \quad [2]$$

An exercise of this kind can be conducted using Hydro-Quebec's historical and/or forecasted data. It is also interesting to know how closely revenue cap indexes track revenue requirements from year to year. Calculations of both kinds are valuable to consumers in assessing the desirability and feasibility of indexing.

Peak native load, the number of customers served, and the km of line are important drivers of distribution cost. Peak transmission system demand and the km of line are important drivers of transmission cost. To develop revenue cap indexes that encourage efficient use of the T&D systems, however, it may be desirable to not base the scale indexes on measures of peak demand. Other scale variables are correlated with peak demand. For HQD these include the number of customer accounts. For HQT these include generation capacity and the number of retail customers.

PEG Research LLC has gathered data from Hydro-Québec documents on several key scale variables. The data are presented in tables that identify their sources. We seek some clarification about the data we have assembled and ask for the latest forecasts of scale variables that are available.

¹ The index doesn't have to be multidimensional. For example, the Régie de l'énergie has directed Gaz Métro to develop an MRI featuring a revenue per customer index.

The number of native-load customer accounts is one item in which we are interested. However, we have only been able to locate company forecasts through 2016. These data are shown in Table 1.

Demandes :

- 21.1. Please provide the company's latest forecasts of total native-load customer accounts for the years 2016-2022, or for as many years as are available.
- 21.2. Please also provide updates to the historical data, if available.
- 21.3. Please comment on the difference between the number of accounts data in the two series shown under "total customers" in the table.

22. Références :

- (i) Piece R-3933-2015 (*Efficienc e et performance*, HQD-2, Doc. 1, pg. 21)
- (ii) Piece Hydro-Québec Annual Report 2014 (pg. 2)
- (iii) Piece Hydro-Québec Annual Report 2013 (pg. 2)
- (iv) Piece Hydro-Québec Annual Report 2010 (pg. 3)
- (v) Piece Hydro-Québec Annual Report 2008 (pg. 3)
- (vi) Piece Hydro-Québec Rapport Annuel 2004 (pg. 110)

Préambule :

We have only been able to locate forecast data for km of distribution lines through 2016. These data are shown in Table 1.

Demandes :

- 22.1. Please provide the company's latest forecasts of distribution line km for 2016-2022, or for as many years as are available. Please decompose these data into overhead and underground distances if available.
- 22.2. Please also provide updates, if available, to the 2000-2015 data.

22.3. Are these data stated in structure km? If not, please provide analogous structure km data if available.

23. Références :

- (i) Piece R-3934-2015 (*Planification du réseau de transport*, HQT-9, Doc. 1, pg. 11)
- (ii) Piece R-3934-2015 (*Charges nettes d'exploitation*, HQT-6, Doc. 2, pg. 29)
- (iii) Piece R-3777-2011 (*Charges nettes d'exploitation*, HQT-6, Doc. 2, pg. 32)
- (iv) Piece *Hydro-Québec Rapport Annuel 2004* (pg. 110)
- (v) Piece R-3934-2015 (*Indicateurs de performance et objectifs corporatifs*, HQT-3, Doc. 2, pg. 27)
- (vi) Piece R-3777-2011 (*Indicateurs de performance et objectifs corporatifs*, HQT-3, Doc. 2, pg. 35)

Préambule :

Two different data series appear to reflect the number of circuit kilometers of transmission line. The first is drawn from a series of documents, and excludes transmission lines operated by Hydro-Québec Distribution. The second series is drawn from the documents titled "*Indicateurs de performance et objectifs corporatifs*." The first series includes forecasts through 2016, while the second series only includes historical data through 2014.

Demandes :

- 23.1. Please explain why the numbers in these two data series are different. Also, please indicate whether they are both measures of circuit kilometers (as opposed to structure km).
- 23.2. Please provide the company's latest forecasts of transmission circuit kilometers through 2022, or for as many years as are available. Please also indicate to which of the two data series these forecasts are comparable.

23.3. Please also provide historical and forecasted data for transmission km kilometers from 2001-2022, or for as many years as are available. This measure should reflect the total length of all spans of transmission line, rather than the total length of all circuits within the line.

24. Références :

- (i) Piece R-3934-2015 (Indicateurs de performance et objectifs corporatifs, HQT-3, Doc. 2, pg. 27)
- (ii) Piece R-3934-2015 (Indicateurs de performance et objectifs corporatifs, HQT-3, Doc. 2, pg. 10)
- (iii) Piece R-3777-2011 (Indicateurs de performance et objectifs corporatifs, HQT-3, Doc. 2, pg. 35)

Préambule :

We have only been able to locate forecast data for transmission network capacity through 2016. These data are shown in Table 2.

Demandes :

24.1. Please provide the company's latest forecasts of transmission network capacity for 2016-2022, or for as many years as are available.

24.2. Please also provide updates to the 2001-2015 data, if available.

25. Références :

- (i) Piece R-3934-2015 (*Charges nettes d'exploitation*, HQT-6, Doc. 2, pg. 29)
- (ii) Piece R-3777-2011 (*Charges nettes d'exploitation*, HQT-6, Doc. 2, pg. 32)
- (iii) Piece R-3934-2015 (*Planification du réseau de transport*, HQT-9, Doc. 1, pg. 32)

Préambule :

Two non-overlapping data series appear to reflect the transmission capacity needed to serve both native load and point-to-point load. The first (historical) series is displayed under the heading "besoins totaux" in the document titled "*Charges nettes d'exploitation.*" The second (forecast) series is displayed under the heading "besoins de transport" in the documents titled "*Planification du réseau de transport.*" These data are also reported in Table 2.

Demandes :

- 25.1. Please explain how "besoins totaux" and "besoins de transport" are defined.
- 25.2. Are they equivalent, such that the historical "besoins totaux" data may be combined with the forecasted "besoins de transport" data to form continuous series?
- 25.3. If the historical and forecast series are not equivalent, please provide the necessary data to form continuous series from 2001-2022, if available.
- 25.4. Please provide updates to the forecast data for both native and point-to-point loads, if available.

26. Référence :

Piece *Hydro-Québec TransÉnergie's information and discussion meeting on the transmission system planning process: Main transmission system: Montréal, October 10, 2014* (pg. 30)

Préambule :

We are interested in data on historical and future generation capacity served by HQT. We have cobbled together itemized data on generation capacity from diverse documents. In a 2014 presentation, HQT shows what appear to be forecasts of "connection requests" for 2013, 2018 and 2023. No data are present for the intervening years. These data are provided in Table 3.

Demandes :

- 26.1. Please explain what is meant by a "connection request." Please also confirm that the connection request values are forecasts.

- 26.2. How do these data differ from the historical data provided in the other columns of Table 3?
- 26.3. Please provide updated data on the historical and expected future generation capacity served by HQT over the 2000-2023 period, itemized by generation resource, where such data are available.

27. Références :

- (i) Piece R-3897-2014, HQT-3, Document 1 Temoignage de Messrs. Coyne et Yardley. *Caracteristiques des MRI du Distributeur et du Transporteur d'electricite.*
- (ii) Piece R-3897-2014 Temoignage de Mark Newton Lowry, *Incentive Regulation for the Transmission and Distribution Services of Hydro-Québec.*

Préambule :

Data on the historical and forecasted cost trends of HQD and HQT are pertinent for assessing alternative approaches to the design of rate or revenue cap escalators for these divisions.

Hydro-Québec witnesses Coyne and Yardley present data on the capital cost trends of HQD and HQT in their testimony. The sample periods for these data are dissimilar. They only present capital cost data on capital expenditures, plant additions, and amortization. These variables tend to be more volatile than the capital cost and total cost to which a rate or revenue cap index would actually apply. In particular, capex and plant additions can be quite volatile and nonetheless have a modest impact on the cost of capital because these costs are amortized and the amortized costs are small relative to the cost of older plant.

It would be useful for consumers and the commission to have historical and forecasted data on the pro forma capital cost and total cost of service of HQ. The capital cost would have a formula such as

$$\text{Capital Cost} = \text{Target Rate of Return} \times \text{Rate Base} + \text{Depreciation \& Amortization} + \text{Taxes.}$$

Lacking such information, Dr. Lowry provided data in Tables 1b and 1c of his testimony on the base rate revenues requis of Hydro-Québec's T&D services. Data in the tables are itemized with respect to the base de tarification and amortissement et declassement.

Demandes :

- 27.1. Please report the depreciation and amortization, capex, and PP&E data for each company for the full period of historical and future years for which data and forecasts are available.
- 27.2. Please report, additionally, the value of rate base and the target rate of return for these companies for the same years.
- 27.3. Please report, if available, the company's estimated full pro forma cost of service for all years for which this is available.
- 27.4. Please comment on the suitability of Dr. Lowry's revenue requi data as proxies for the trends in each division's pro forma cost of service. Can you suggest possible improvements to his methodology?
- 27.5. Please present better revenue requi data for historical and forecasted years if available for the two divisions.