DEMANDE DE RENSEIGNEMENTS N° 1 DE L'AQCIE-CIFQ 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 : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on p. 3 of his testimony that "Concentric has been asked by HQD to provide an assessment and recommendation for the X factor."

Demandes :

a) Please detail all empirical studies of the multifactor productivity ("PMF") trend of power distributors which Mr. Coyne has previously undertaken.
b) Please detail all proceedings on *mechanismes de reglementation incitatifs* ("MRI") for power distributors which Mr. Coyne has previously participated in.

2. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on p. 4 of his testimony that

> **There are alternative ways to derive "X" that range from past observed productivity gains for the specific company to industry benchmarking studies and industry productivity studies. No one method is determinative and ultimately the X factor must be set using informed judgment by the regulator.**

Demandes :

a) Are you saying that commissions like the Regie should not rule on the preferred methods for X factor calibration? Should HQD's consultant be free to use any method and eschew any method in the upcoming PMF methodology?
b) Haven't commissions like the Massachusetts Department of Public Utilities in fact done this on several occasions?
c) Is the problem that commissions should not rule on best practices or instead that no one study presented to a commission may use all of the best practices that a commission might prefer?
d) Is it generally desirable for a commission to be presented with several PMF methodologies, and tests of the sensitivity of methods to assumptions?

3. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on pp. 4-5 of his testimony that

> **Utility productivity studies are not routinely submitted in North American jurisdictions as these studies are costly and time consuming, and relatively few jurisdictions adhere to an I-X form of utility regulation. As cited by Concentric in its June 30, 2017 Report, there have been recent studies submitted in Alberta and Ontario. Since that time, a more recent study was decided on in Massachusetts. The results of those studies are summarized here. *Concentric is not aware of any other productivity studies that have been submitted since that time.* [italics added]**

Demandes :

a) How recent does a study have to be if the number of customers is used as the output metric? For example, is the 2013-2014 research and testimony of Dr. Lowry in British Columbia too dated to be informative to the Regie?

b) Concentric's report is dated 5 January 2018. Was it not aware of PEG's study of U.S. power distributor productivity trends for Lawrence Berkeley National Laboratory (a unit of the U.S. Department of Energy) released in August 2017, or of the power distributor PMF study filed by Dr. Jeffrey Makholm of National Economic Research Associates ("NERA") on behalf of Enbridge Gas Distribution and Union Gas in Ontario in November 2017?

4. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 5 of his testimony that

> **The current PBR plans for Alberta's electric and gas distributors expire on December 31, 2017. The Commission initiated a proceeding to establish the "next generation of PBR plans" to be implemented for the 2018-2022 period in May 2015. Several experts provided productivity related evidence and studies, including: The Brattle Group ("Brattle"), Christensen Associates ("Christensen"), Pacific Economics Group ("PEG"), PCMG Associates ("PCMG").**

Mr. Coyne states on p. 4 of his testimony that

> **The AUC discussed the value of, and the differences in, transparency, objectivity, and consistency of the studies. It considered the considerable differences between the utility studies and the study performed by PEG, but ultimately chose to *give all studies the same weight.* [italics added]**

Demandes :

a) Please confirm the following: Brattle and Christensen used substantially the same PMF methodology as that which Dr. Makholm of NERA used in a study commissioned by the AUC in the prior generic MRI proceeding. The main difference in the methodologies is that Dr. Makholm used a much longer sample period. Since the Commission embraced a longer sample period in the first proceeding, Brattle and

Christensen both reported results for a longer sample period in the second generic proceeding that included the early years of the NERA sample, but recommended basing X on results for a truncated sample period in which productivity growth was negative.

b) Mr. Coyne on p. 9 quotes the AUC as saying that the range of reasonable values for the base PMF trend was -0.79 and +0.75%. Where did the +0.75 value come from? Please confirm that it was the value from Brattle's updated study for the full (non-truncated) sample period, including the earlier years used by NERA. In other words, the +0.75 upper bound is based on work by Brattle for a longer sample period which CEA did not share with the Regie.

c) Please substantiate your claim that the AUC gave all studies the same weight. Didn't the AUC in fact give the Christensen study zero weight? Which results were assigned equal weight to produce an X factor of 0.3%?

5. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 5 of his testimony that

> **All of the [recent Alberta] the studies show an industry trend in productivity converging at or below zero over this two-decade period, indicating negative productivity growth... A contributing factor has been the decline in electric demand growth without offsetting declines in labor, capital and other operational costs required to maintain and upgrade these utility systems.**

Demandes :

a) Please confirm that PEG's Alberta study does not display a marked slowdown in PMF growth or a negative productivity trend.

b) Why is the slowdown in volume growth which the volumetric indexes in the Brattle and Christensen studies reflect pertinent in the design of an X factor for a revenue cap index with a customer growth escalator?

6. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on p. 8 of his testimony that "the AUC noted it was unwilling to state a preference for the *set of assumptions* used by any one TFP study over another." [italics added]

Demande :

Was the AUC unwilling to rule on any methodological issue or was it unwilling to embrace the full methodological package contained in any single study?

7. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on p. 8 of his testimony that

> **the AUC acknowledged that with the prevalence of both fixed and variable revenue components for distribution utilities, the number of customers (the output measure used by PEG) is a relevant output measure along with volume (the output measure used by Brattle and Christensen), where the relative weights assigned to these two output measures would ideally reflect the proportion of revenues generated through fixed versus variable (volumetric) charges.**

Demandes :

a) Is this not an instance of the AUC exhibiting a preference for a specific PMF method?

b) Please confirm that power distributors in Alberta operate under *price* caps rather than a *revenue* cap with a customer growth escalator, such as the Regie has chosen for HQD. Wasn't this a reason why the Commission made this comment?

c) Do you believe that a revenue-weighted index of billing determinants like that with the AUC discusses is appropriate in a PMF study intended to calibrate the X factor for a revenue cap index that has a customer growth escalator? If so, why?

8. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne states on p. 11 of his testimony that

> **Hydro One, [Ontario's] largest electric distributor, has submitted a proposal for a five-year rate plan, covering the 2018-2022 rate period. The company's proposal is supported by a productivity study conducted by Power System Engineering ("PSE"). The study incorporates… an estimate based on updates to a study previously performed by PEG, the Board's consultant, for the entire Ontario electric industry.**
>
> **He states on p. 14 that**
>
> **The Hydro One rate filing remains under review. According to the OEB's procedural schedule, OEB staff and any intervenors permitted to file expert evidence will file evidence with the OEB on December 14, 2017**

Demandes :

a) Please confirm that the Hydro One proceeding has been delayed and that neither OEB staff and its consultant nor other stakeholders have as yet filed evidence.

b) When choosing an X factor for HQD, should the Regie consider productivity studies like the cited Fenrick study which have been submitted in MRI proceedings but have not been vetted or challenged by other parties to the proceeding? If so, why should the Regie not also consider the productivity research

discussed in Dr. Lowry's reply evidence submitted in the second Alberta MRI proceeding that you discuss?

9. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 13 of his testimony that the revenue cap index proposed by Hydro One includes a Custom Capital factor "determined to recover the incremental revenue in each test year necessary to support Hydro One's proposed Distribution System Plan, beyond the amount of revenue recovered in rates."

Elsewhere on p. 13 he notes that

> **The projected impact of the capital factor is seen below, where the impact ranges from 1.64% to 2.86% above the revenue requirement that would otherwise be set by I-X. In effect, the nominal X factor of 0.6% is negative, ranging from -1.04 to -2.26% when the capital factor is considered.**

Demande :

Please confirm that the proposed revenue cap index does not include a growth factor, and that this *raises* the implicit X factor.

10. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 14 of his testimony in Massachusetts a witness for Eversource Energy filed a study of U.S. power distributor TFP in which "the data covered the 2001-2015 period, and relied on the number of customers as the measure of output, and standard measures of labor, materials, and capital measures of inputs."

He notes on p. 16 of his testimony that the Massachusetts DPU "found the use of customers as the sole output measure to be appropriate, and better reflected changes in the industry's distribution system investment requirements."

Demandes :

a) Please confirm that this study, by Dr. Meitzen of Christensen Associates, uses a more up to date sample period than his Alberta study and an output metric that is more appropriate for a revenue cap index with a customer growth escalator than the entirely volumetric index he and the Brattle Group used in their recent Alberta studies.

b) Please confirm that Dr. Meitzen, like Brattle and Dr. Makholm, used a "one hoss shay" approach to measuring capital cost that is very different from the geometric decay approach that Dr. Lowry and Mr.

Fenrick used and that Mr. Coyne used in gas utility productivity research and Ontario testimony for Enbridge Gas Distribution.

c) Please acknowledge that the Massachusetts DPU explicitly ruled on preferred output metrics and several other PMF methodological issues in the recent Eversource proceeding.

11. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

On pp. 14-15 of his testimony Mr. Coyne notes that "Eversource's expert calculated a productivity offset (X factor) of -2.56% for the national sample and -2.47% for the Northeast sample. The company also proposed the use of a national measure of inflation, the Gross Domestic Product Price Index (GDP-PI)."

He notes on p. 24 of his testimony that

> **Considering the resulting X factor determined by the AUC of 0.3%, including a stretch factor, this would be an upper-end target for HQD in its first-generation MRI. The Mass DPU's adopted -1.31%, with a 0.25% stretch factor**

Demandes :

a) Please confirm that the -1.31% chosen by the DPU reflected a productivity *differential* and an input price *differential*. Both are sensitive to the use of a macroeconomic inflation measure.

b) Please confirm that, since the inflation measure for HQD is likely to be industry-specific, and HQD is based in Canada, where the multifactor productivity trend of the economy has been slower than in the U.S., it is inappropriate to compare the 0.3% chosen by the AUC to the -1.31% X factor chosen by the DPU. This would be an "apples to oranges" comparison.

12. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne's X factor recommendation reflects the -0.87% average PMF growth rate from recent studies by Brattle, PEG, and PSE as well as two by Christensen Associates.

Demandes :

a) Please confirm that four of these five studies were funded by utilities seeking low X factors in MRI proceedings.

b) Why were *two* Christensen studies and the Brattle study included in this average when the second Meitzen study is more up to date and used a more pertinent output measure and the input quantity treatments in the Brattle and Christensen studies are quite similar?

c) Why were the Brattle and Christensen results for the full sample period not considered in this average?

d) Why are productivity studies from recent MRI proceedings more pertinent than the studies sponsored by government agencies, Commission rulings in these proceedings, or the base productivity trends proposed by utilities themselves?

e) Why did you include the productivity study by Dr. Meitzen for Eversource Energy and not the counterstudy prepared in the same proceeding for the Office of the Attorney General by Dr. David Dismukes, a PhD energy economics professor at Louisiana State University?

13. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 22 of his testimony that

> **Statistics Canada estimates a utility productivity trend of -1.1% over the 2000-2015 period, and -2.1% over the more recent 2011-2015 period.**

Demandes :

a) What utility operations in addition to power distribution are covered by this Statistics Canada index?

b) What output measure is used in the computation of this index?

c) Please confirm that this is a "value-added" index that excludes the trend in the quantities of materials and services that utilities use.

d) Were the burgeoning conservation and demand management expenses of many Canadian utilities excluded from this calculation?

14. Références : Témoignage de M. James Coyne sur le Facteur X (HQD-20, document 2)

Préambule :

Mr. Coyne notes on p. 24 of his testimony that

> **The DPU explicitly ruled that grid modernization investments proposed by the company would be considered outside of PBR, indicating the potential for significant investments outside the I-X revenue cap. The AUC's PBR also includes significant adjustments for capital investments outside of the formula, for which the Régie formula does not. Hydro One's proposal includes capital additions outside I-X that would place its effective X in the -1.04 to -2.26% range. A separate proceeding will be used in Massachusetts to determine how incremental grid modernization investment will be handled. For HQD, all capital investments, other than those excluded for a Z factor, are included in the formula. This creates a greater challenge in that regard than the Alberta utilities, Eversource or Hydro One face under their PBR plans.**

Demandes :

a) Please confirm that dozens of power distributors in Ontario operate under MRIs with price cap indexes without requesting supplemental capital revenue.

b) Please confirm that, in Alberta and Ontario regulation, no reduction is made for the X factor to reflect the opportunity utilities have for supplemental capital revenue.

c) Do you believe the Massachusetts model should be followed and the X factor should be reduced if HQD obtains significant supplemental revenue for capex through the Z factor?

15. Références : James M. Coyne, James D. Simpson, and Melissa Bartos, *Incentive Ratemaking Report prepared for Enbridge Gas Distribution*, 28 June 2013, 2013-06-28, EB-2012-0459, Exhibit A2, Table 2

Préambule :

Mr. Coyne discusses alternative approaches to measuring capital cost and quantities in PMF research and his preference for the geometric decay approach in 2013 testimony for Enbridge Gas Distribution. Here are pertinent remarks from pp. B-8 to B-13.

D. Capital

1. Capital Approach

Measuring Capital quantity is less straightforward than measuring Labour or Materials quantity. In recent utility TFP analyses, three approaches to quantifying capital have been used, referred to as "Geometric Decay", "Cost of Service" and "One Hoss Shay".

Geometric Decay: In the geometric decay model, capital quantity reflects the concept that the plant additions of each vintage become less productive, or efficient, over time, and that the pattern of the decline in productivity is geometric. The geometric decay capital price, which is also called the user cost or service price, represents the price of employing a unit of net capital for one year. The capital price is based on the relationship between the price of new capital and the present value of future services of current capital; the Geometric Decay capital price incorporates financial costs and economic depreciation. The economic depreciation component in the price calculation measures the decline in the price of the capital asset as it ages. Capital cost is calculated by multiplying the Geometric Decay capital quantity and capital price. The geometric decay approach has been promoted extensively in academic literature.

Cost of Service: The cost of service approach to calculating capital cost reflects the way capital cost is determined in utility regulation. Cost of Service capital quantity is determined based on the assumption that the efficiency of each vintage of plant additions declines in accordance with a straight line pattern. The Cost of Service capital price is determined by a weighted average of current and past construction or asset prices. As a result, the Cost of Service capital price is an implicit price determined by the deflated sum of financial costs and accounting depreciation. The financial costs and accounting depreciation are both based on the historic (book) value of the plant.

One Hoss Shay: The One Hoss Shay approach to determining capital cost assumes that an asset retains full efficiency until the end of its service life. The One Hoss Shay Capital quantity is measured by gross plant; total gross plant is determined by summing plant additions by vintage. The One Hoss Shay Capital price is computed by incorporating financial costs and economic depreciation; economic depreciation must be estimated using several factors, including the real rate of interest (discount factor).

The simplicity of the geometric model provides several advantages over the cost of service and One Hoss Shay models, including: economic depreciation equals efficiency decline, no system of vintage accounting needs to be maintained because of the constant rate of depreciation, and depreciation is independent of the real rate of interest. The geometric decay model is the only model where the economic depreciation equals the efficiency decay. This simplifies the calculation because it avoids

the tedious task of estimating the economic depreciation. In addition, if the two are not equal, the depreciation function can take on several forms due to its sensitivity to factors such as the real interest rate. For example, in the case of One Hoss Shay, if the interest rate is zero, we can conclude that the depreciation will exhibit a straight line pattern; however, if the real interest rate is positive, the depreciation function will exhibit a concave pattern. The geometric decay model eliminates the necessity of a depreciation calculation. Furthermore, the geometric decay model does not require a system of vintage accounting due to the constant rate of depreciation. The capital price does not depend on the historical pattern of past asset prices; it only depends on the current price of used assets, which can be expressed in terms of a new asset's price. This greatly reduces the data demands associated with the geometric decay model.

The geometric decay model has been applied empirically on numerous occasions. One highly cited empirical study was developed by Hulten and Wykoff (1981). Hulten and Wykoff estimated the capital price index (age/price profile) by using prices of used capital assets. The study examined three common models: One Hoss Shay, straight line and geometric decay. Hulten and Wykoff concluded that geometric decay was the most appropriate method for estimating the age/price profile. Due to the dual property discussed above (economic depreciation equals efficiency decay), we can also assume that geometric decay would be the most accurate efficiency profile. Other studies using alternative approaches to estimating efficiency schedules have also been conducted. For example, Doms (1992) estimated efficiency schedules within production functions which resulted in relative efficiencies that declined geometrically.

The cost of service model, while trying to more accurately reflect the way capital cost is determined in utility regulation, has not been extensively studied in scholarly literature; therefore, there is no independent evaluation of the approach. In addition, to our knowledge, the model has only been used empirically by Pacific Economics Group. These factors make the cost of service approach difficult to evaluate. In addition, the model contains theoretical inconsistencies. Hulten (1990) showed that economic depreciation and efficiency decay are not independent concepts. One cannot select an efficiency pattern independent of the depreciation pattern and one cannot select a depreciation pattern independent of an efficiency pattern. Hulten used the example of straight line efficiency decay and showed that if one selects straight line efficiency decay then one has committed to using a non-straight line pattern of depreciation. The cost of service model uses straight line efficiency decay and depreciation, which is in direct violation of the theoretical framework developed by Hulten. In addition, accounting depreciation is being incorrectly used a proxy for economic depreciation.

The One Hoss Shay method assumes that assets retain full efficiency until the asset reaches the end of its service life. However, OECD (2001) states that there are relatively few assets that will actually maintain full efficiency throughout their useful lives. As noted above, Hulten (1990) showed that economic depreciation and efficiency decay are not independent concepts and therefore, cannot be chosen independently of one another. In the case of One Hoss Shay efficiency decline, the depreciation function often takes on a concave pattern. However, a concave depreciation function is often at odds with empirical research. As Hulten and Wykoff (1981) show, depreciation generally exhibits a convex or geometric pattern. Furthermore, if a One Hoss Shay pattern of efficiency for an aggregation of capital assets is used, it is assumed that the useful life of all those assets are the same and that the efficiency decay of each asset is One Hoss Shay. Both assumptions are implausible.

Therefore, Concentric used the geometric decay approach to estimate capital cost and capital price, based on the following considerations:

(a) The geometric decay approach has been studied extensively in the literature and applied empirically in academic studies, including studies of utility regulation.

(b) The geometric approach is (relatively) straightforward.

(c) The Geometric Decay approach is consistent with the theoretical framework for determining capital cost. In capital theory, the price of an asset in a competitive market must be equal to the present discounted value of the expected annual rental rates of that asset over its entire service life with each expected rental rate being weighted by the corresponding annual productive efficiency.

2. Capital Quantity

Capital Quantity is a measure of a utility's distribution capital stock in any year. Capital Quantity reflects the value of the plant that is available to be used in a year, accounting for the value of plant additions in each earlier year and the remaining useful portion of that vintage of plant additions and plant retirements. Ideally Capital Quantity would be measured by compiling the annual additions and retirements, measured in real dollars, starting at a company's inception. However, because published plant data of this nature is not available for the companies in the Industry Study Group, Concentric estimated the Capital Quantity for a "baseline" year. For the industry study group analysis, the baseline year was 1995; 112 the baseline Capital Quantity was estimated by dividing (1) 1995 book Net Utility Plant, excluding production plant by (2) a composite plant deflator that Concentric developed to reflect the vintages of plant that were in service in 1995. The composite plant deflator is based on the regional Handy-Whitman Index of Cost Trends of Gas Utility Construction ("Handy-Whitman Index"). The formula for calculating the 1995 capital quantity is shown below:

$$K1995 = Net\ Plant1995 / \sum i \sum j\ 30\ j=1 * HandyWhitmanIndex1965+i-\ 30\ i=1\ \ldots$$

A similar methodology was used for the EGD capital quantity, except that: 1) the baseline year was 2000, and 2) the composite plant deflator was based on the implicit price index for natural gas distribution investments in Canada obtained from StatsCan.

For each company, the Capital Quantity for each year after the baseline year was calculated by summing, for each year, (a) real plant additions; (b) minus real plant retirements; and (c) Capital Quantity in the prior year. Plant additions were obtained from the Company for the EGD analysis, and from the Annual LDC Filings for each utility in the industry study group analysis. Plant additions were converted to real dollar terms using the appropriate utility plant deflator in that year. Because annual retirement data was not readily available, annual retirements for each company were calculated by applying a common depreciation rate to the Capital Quantity in the prior year for consistency. Enbridge's depreciation rate of 4.14% was used for all companies. The formula for calculating capital quantities after the start year is shown below:

$$Kt = Kt{-}1 + Plant\ Additionst / UtilityPlantDeflatort - [Depreciation\ Rate * Kt{-}1]$$

The earliest year for which plant data was available for the U.S. natural gas utilities was 1995.

3. Capital Price

As discussed previously, the geometric decay capital price represents the price of employing a unit of capital for one year and is based on the relationship between the price of new capital and the present value of future services of current capital. The price of capital is based on the cost of capital, depreciation, and capital gains. The cost of debt for EGD is the cost of debt reflected in EGD's base rates, and the cost of debt for the industry study group is taken from the Moody's A Utility Bond Index for each applicable year, representing year-toyear fluctuations in utility debt costs. The annual cost of equity for EGD is the Board approved ROE, and the cost of equity for the industry study group is determined from the average allowed return for all US natural gas utilities in each year, as reported by SNL Financial. In order to determine the annual weighted cost of capital, EGD's equity weighting is set at the Board-authorized average equity share for each year and the equity weighting for the industry study group is the average equity weighting for all US natural gas utilities in each year, obtained from SNL Financial. Annual construction costs for EGD are based on a Canadian implicit price index for natural gas distribution investments, and the HandyWhitman index for the US industry study group. Capital price for all companies is also adjusted for depreciation, based on Enbridge's depreciation rate of 4.14%. The summation of the cost of capital and depreciation applied to the applicable annual construction cost, and reductions for applicable capital gains determine the capital price for each year. Resulting capital prices are smoothed by calculating a four-year rolling average to reduce volatility, prior to application in the capital cost calculation.

4. Capital Cost

Annual capital cost is calculated as annual capital quantity multiplied by capital price for both EGD and the industry study group

Demandes :

a) In view of your extensive and persuasive arguments in favor of the geometric decay approach, would you agree that results should be presented using a geometric decay approach to measuring capital cost (even if other methods are also considered) in the upcoming PMF study for HQD?

b) To calculate an initial value of the capital quantity index you state above that you took the ratio of *net* plant value to a weighted average of past values of an asset price index. In other words, you deflated net plant value. In your discussion of the alternative one hoss shay approach to measuring capital cost and quantity, you explain that "the One Hoss Shay Capital quantity is measured by gross plant".

In two Alberta proceedings, Dr. Lowry has criticized the one hoss shay approach used by Makholm and mimicked by Brattle and Christensen on the grounds that they calculated the initial value of the capital quantity index by deflating *net* plant value rather than *gross* plant value. Based on the quoted commentary above, would you agree that this is a legitimate methodological concern and that the initial capital quantity in the Brattle, Christensen, and NERA studies may be understated? Would you also agree that, if one hoss shay were used in some calculations in the PMF study for HQD, that results should be presented using deflated *gross* plant value?

16. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 11 of its *Preuve Complémentaire* that

Le Distributeur propose d'utiliser la variation de l'indice implicite des investissements des entreprises pour représenter l'évolution des coûts liés aux actifs.

Cet indice est disponible dans les publications de l'Institut de la statistique du Québec, organisme public officiel. En effet, celui-ci publie régulièrement les comptes économiques trimestriels du Québec sur son site internet, sous forme de publication et de tableurs électroniques. L'information sur l'investissement des entreprises y est disponible aux tableaux 2 et 3.

Demandes :

a) Please confirm that the proposed price index is equal to the ratio of the values described on table 2 to those on table 3.

b) Please also confirm that the proposed index is equivalent to that presented on line 10 of the Implicit Price Indexes for Gross Domestic Product found here: http://www.stat.gouv.qc.ca/statistiques/economie/comptes-economiques/comptes-revenus-depenses/cea2_5.htm

c) If not confirmed, please provide the data and any calculations associated with the proposed index.

d) HQD reports an average service life of more than thirty years. Doesn't the capital cost of HQD reflect construction and equipment costs incurred over the full service life?

e) What assurance is there that a three year moving average of inflation in this index is sufficient to smooth it? Can you report the outcome of smoothing this variable over the full sample period for which data are available?

f) A construction cost index was used in the inflation measure of an MRI for ENMAX. What were the consequences?

17. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 12 of its Preuve Complémentaire that

> **Pour estimer l'évolution des coûts des autres biens et services, le Distributeur juge approprié d'utiliser les variations annuelles de l'IPC services du Québec, conformément à la recommandation de la Régie. En effet, les services représentant plus de la moitié du panier de biens et services de l'IPC (soit, 55 % en 2015), cet indice couvre un éventail de services suffisamment large pour bien représenter l'évolution des coûts de services au Québec.**

Demandes :

a) Why is HQD proposing an index of (consumer) services to address "autres biens et services" **when these costs also include many materials and other goods?** Approximately what proportion of HQD's total non-labor O&M expenses is purchases of physical goods?

b) What evidence can be provided that other goods (e.g., wrenches, carpets, and lubricating oils) that utilities use are inconsequential or have price trends similar to those of consumer services?

c) Wouldn't consumer services tend to have more rapid price trends than materials due to their labor-intensive character?

d) By proposing to narrow the scope of the CPI to just services, the importance of each service in the CPI is magnified. Please provide the weights for each of the major service groups in the proposed index. For example, what is the weight for food and beverage services? Please also identify the major categories of services purchased by HQD.

e) What are the precedents for using a consumer services price index in approved MRIs?

18. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 16 of its *Preuve Complémentaire* that :

> **Le Distributeur propose que le taux d'indexation combiné soit appliqué au prorata de chacune des trois catégories de dépenses incluses dans la Formule d'indexation, soit la rémunération excluant la portion capitalisable, les coûts liés aux actifs et les coûts des autres biens et services.**
>
> **Le Distributeur propose de fixer pour la durée du MRI les poids relatifs des trois catégories de**

dépenses. Ces poids relatifs seront établis formellement en fonction des coûts reconnus pour l'an du MRI, excluant les éléments traités en Facteur Y et en Facteur Z une fois ceux-ci déterminés. À titre illustratif, le tableau 4 présente pour l'année témoin 2018 le calcul des poids relatifs de la rémunération, des coûts liés aux actifs et les coûts des autres biens et services, soit 16,6 %, 56,8 % et 26,6 % respectivement.

Demandes :

a) In Table 5, does the *masse salariale* include labor expenses associated with vegetation management?

b) Please make the same computations assuming that the following costs will be addressed by HQD's revenue cap index.

   1) Pensions, vegetation management, combustibles, bad debts
   2) Pensions, vegetation management, bad debts
   3) Pensions, vegetation management, bad debts
   4) Vegetation management, combustibles, bad debts
   5) Vegetation management, bad debts

c) What is the share of combustibles in the revenue requirement under scenarios 1) and 4)?

19. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 18 of its *Preuve Complémentaire* that

> **À la demande de la Régie, le Distributeur devra réaliser une étude de productivité multifactorielle d'ici la fin de la troisième année d'application du MRI. Cette étude aura pour but de valider la valeur du Facteur X retenue en phase 3 et, au besoin, de l'ajuster pour la dernière année du MRI ou autrement de l'utiliser pour le MRI de deuxième génération du Distributeur.**

Demandes :

a) What schedule is contemplated for the PMF study? For example, when would it begin and when would the final report be issued?

b) How will a consultant for the study be chosen, using what criteria? What would be the minimum number of power distributor productivity studies that the consultant must have completed?

c) What PMF methodologies will be considered in the study?

20. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 19 of its *Preuve Complémentaire* that

> **l'analyse de Concentric à la pièce HQD-20, document 2 permet de constater que les facteurs de productivité pour les distributeurs d'électricité et de gaz en Amérique du Nord sont généralement à la baisse, passant même au négatif, selon les nouvelles études menées en Alberta, en Ontario et au Massachusetts**

Demandes :

Does the Concentric analysis convincingly document a declining productivity trend for North American *gas* utilities? If so, please recapitulate this evidence and note the output measure employed.

21. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 20-1 of its Preuve Complémentaire that

> **Le positionnement quant au Facteur X de -0.5 % est dépendant du Facteur I proposé à la section 2. Ainsi, toute efficience additionnelle qui serait exigée du Distributeur par le biais d'un Facteur I plus contraignant que celui qu'il propose, aurait un impact à la baisse sur le Facteur X autrement proposé.**
>
> **Pour établir le Facteur I, la Régie privilégie l'utilisation de données externes qui reflètent l'environnement économique dans lequel le Distributeur évolue. Conséquemment, en ce qui a trait au taux de croissance des dépenses liées à la masse salariale, elle considère que l'utilisation d'un indice externe au Distributeur le responsabilisera davantage dans la gestion de sa masse salariale. Le Distributeur est d'avis que l'utilisation d'un tel indice comporte implicitement un facteur de productivité additionnel.**

Demandes :

a) Please provide any and all evidence that the trend in the IPC^{Quebec} is slower than the trend in either utility capital prices or prices of utility materials and services.
b) Please confirm that addressing utility salaries and wages via an external inflation index is a conventional part of MRI design. Is there any precedent for lowering X simply because an external inflation index is used?

22. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD states on p. 20-21 of its *Preuve Complémentaire* that

> **le taux de productivité moyen de 1,51 % auquel la Régie fait référence dans sa décision D-2017-043 ne reflète pas le context économique des dernières années dans lequel les entreprises d'électricité évoluent. À cet égard, le Distributeur note que le taux moyen de productivité selon les études récentes de productivité est plutôt de -0,52 %**

Demandes :

a) Why is the *multifactor* productivity growth trend of utilities a standard for judging the *O&M* productivity growth target of a utility that was initially inefficient and embarking on the installation of automated metering infrastructure? Does the Concentric report provide any sound basis for establishing an O&M productivity trend?

b) Please confirm that -0.52% is the average of a set of productivity studies handpicked by your hired consultant, most studies being commissioned by utilities, and is not the average of all recent reputable studies of power distributor PMF growth. It does not even include full-sample results for Brattle and Christensen's Alberta studies.

23. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD discusses on p. 20-25 of its *Preuve Complémentaire* a Y factor for changes in the allowed rate of return on capital.

Demandes :

Why should HQD be entitled to 100% of the variance in the *weighted average cost of capital* (cout moyen pondere du capital) when changes in capital cost also influence price inflation?

24. Références : HQD, Preuve Complémentaire relative à d'autres caractéristiques du MRI du Distributeur (HQD-20, document 1)

Préambule :

HQD discusses a method for calculating indexes in Annexe A of its *Preuve Complémentaire*.

Demandes :

What is the formula for calculating each individual growth rate?

25. Références : Réponses D'Hydro Quebec Distribution à la Demande de Renseignements No. 5 de la Régie (HQD-15, document 1.5)

Préambule :

Concentric Energy Advisors responded to an information request by the Regie to survey Y and Z factors in US and Canadian MRIs. CEA presented a survey of 6 North American jurisdictions: Alberta, British Columbia, Ontario, Massachusetts, Vermont, and Maine.

Demandes :

a) For each instance where a Y or Z factor has a materiality threshold, please explain if the company gets recovery for Y and Z factor costs *below* the materiality threshold once the materiality threshold has been exceeded.
b) Why are bad debts worthy of Y factor treatment in Quebec when they weren't Y factored in any of the jurisdictions Concentric surveyed?

26. Références : Réponses D'Hydro Quebec Distribution à la Demande de Renseignements No. 5 de la Régie (HQD-15, document 1.5)

Préambule :

On page 7 Concentric states that

"The AUC identified the types of items that had been proposed as Y factors by the companies, but which should be tested as Z factors because of their unforeseen and infrequent nature through Z applications.
The following accounts fall into this category:

1. **Self-insurance/reserve for injuries and damages;**
2. **Depreciation rate changes;**
3. **International Financial Reporting Standards (IFRS)/accounting changes;**
4. **Acquisitions;**
5. **Pension plans;**
6. **Insurance proceeds."**

Demandes :

a) To the best of Concentric's knowledge, how often have Alberta utilities applied for Z factor treatment of pension costs?
b) Please confirm that Z factor filings are related only to "special payments" made to the defined benefit pension plans. If the answer is yes, please confirm that these special payments are not the entirety of a distributor's pension costs.

27. Références : Réponses D'Hydro Quebec Distribution à la Demande de Renseignements No. 5 de la Régie (HQD-15, document 1.5)

Préambule :

On pages 8-13 of their response, Concentric discussed the precedents for Y and Z factors in MRIs approved in the province of Ontario. This included a discussion of Y factors in 4th Generation IR and in the custom IR plans of Toronto Hydro and Horizon Utilities.

Demandes :

a) Please confirm that there have been numerous custom IR plans for Ontario power distributors. How did CEA decide which plans to include in the report?
b) Please explain the rationale behind the Rural or Remote Electricity Rate Protection Tariff. Do Toronto Hydro or Horizon Utilities serve remote areas?

28. Références : Réponses D'Hydro Quebec Distribution à la Demande de Renseignements No. 5 de la Régie (HQD-15, document 1.5)

Préambule :

On pages 13-14 of their response, Concentric discussed the Y factors for FortisBC. Their discussion included the following:

"Pass-through items for FBC include:

1. **Power purchases;**
2. **Interest Expense;**
3. **Return on Equity;**
4. **Taxes;**
5. **Pension and OPEB;**
6. **Electricity Sales Revenue;**
7. **Insurance (premiums only);**
8. **Depreciation and Amortization; and**
9. **Rate Base other than Plant in Service (i.e. working capital, deferred charges)."**

Demande :

Please confirm that in British Columbia, ALL costs of *older* plant (which shrinks due to depreciation) are Y factored, whereas several kinds of *capex* are addressed by indexes.