R-4011-2017 : HQD – DEMANDE TARIFAIRE 2018-2019

DEMANDE DE RENSEIGNEMENT N° 1 DU REGROUPEMENT NATIONAL DES CONSEILS RÉGIONAUX DE L'ENVIRONNEMENT DU QUÉBEC (« RNCREQ ») À PEG

1. Référence : C-AQCIE-CIFQ-0032, pages 19-21

Preamble :
The report discusses three approaches to calculating capital cost (COS, geometric decay, one hoss shay).

Demandes :

1.1 Based on your reading of the evidence submitted by HQD, please explain, to the extent possible, your understanding as to which of these approaches underlies HQD's proposal.

1.2 Do you agree with the approach taken by HQD? If not, why not?

Réponse de AQCIE-CIFQ / PEG :

1.1 Three of the five studies featured in Concentric's January 5 narrative use a one hoss shay approach to measuring capital cost which was developed by Dr. Jeffrey Makholm of National Economic Research Associates. All three of these studies produced *negative* productivity trends during the truncated sample periods that Concentric featured but *positive* productivity trends during the longer sample periods that Dr. Makholm uses.

1.2 Dr. Lowry uses the alternative geometric decay approach in most of his PMF research and discussed several advantages of geometric decay in his own January 5 report. Dr. Lowry is particularly concerned about the specific one hoss shay approach that was developed by Dr. Makholm and used in the Brattle and Christensen Associates studies that Concentric highlights. The problems include an unrealistically low average service life assumption and an incorrect benchmark year adjustment.

Dr. Lowry believes that, in an X factor calibration exercise, it is reasonable to consider the results of PMF studies that use one hoss shay along with studies that use other capital cost specifications. However, the sensitivity of one hoss shay to the average service life assumption must be remembered and it is

desirable to consider one hoss shay results using *alternative* service life assumptions. Dr. Lowry did this in his reply evidence in a recent Alberta MRI proceeding and attached this evidence to his January 5 report. He showed that, with a higher and more reasonable average service life, the one hoss shay approach produced positive productivity growth even in the truncated sample period that utility witnesses favored.

2. Référence : C-AQCIE-CIFQ-0032, pages 24-25

Preamble :
The report presents the Kahn X factor, and uses that approach to derive an X factor value of 0.67%, based on data from 2005 through 2018 (inclusive).

Demandes :

2.1 **Do you consider the Kahn X factor to be a valuable approach for setting the X factor for HQD?**

   2.1.1 If so, why? If not, why not?

2.2 **Why did you choose to use values specifically starting in 2005?**

   2.2.1 What would be the value of the X factor if you used values going back to 2000?

   2.2.2 What would be the value of the X factor if you used only the last five (5) years? The last ten (10) years?

   2.2.3 Please describe the methodological issues that determine the appropriate period to use in calculating a Kahn X factor.

Réponse de AQCIE-CIFQ / PEG :

2.1 Yes.

   2.1.1
   Dr. Lowry believes that the Kahn X factor methodology is a useful complement to other methods for calibrating X factors. Its main advantage is as a point of comparison to formal PMF studies because it reflects the traditional approach to measuring capital cost which is used in rate cases. Stylized cost of service treatments of capital cost have been developed for use in PMF studies but the algebra is complicated. The

Kahn X factor approach also has the advantage of being intuitively appealing.

2.2 Table 3 of Dr. Lowry's January 5 report, as corrected, presents the growth rates for the Kahn methodology. Data for 2004 formed the base year for this research. While data for inflation and retail customers were available prior to 2004, HQD operated under a multiyear rate freeze.

2.2.1
Please see the response to question 2.2.

2.2.2
Attachment RNCREQ-PEG-2.2.2 provides a revised version of Table 3 from Dr. Lowry's January 5 report which answers this question. The calculations were undertaken using both 2015 and 2016 as end dates.

2.2.3
The main methodological issue in a Kahn X factor study is how to use available data to calculate the cost of service. The method Dr. Kahn used is only one of many possible approaches. This is less of an issue in Québec, since HQD routinely reports its *revenus requis*.

There are no clear rules for choosing a time period for such a study. A longer sample period is more likely to reflect long-term input price and productivity trends but could in some cases produce results that are less pertinent for application in the near future (e.g., 2019-2021).

3. Référence : C-AQCIE-CIFQ-0032, page 27

Demandes :

3.1 **Please explain how the externality criterion, the sample size criterion and the "no windfalls" criterion are used in choosing a base productivity growth target.**

Réponse de AQCIE-CIFQ / PEG :

3.1 The externality criterion is satisfied by basing X chiefly or entirely on the productivity trends of other utilities. The sample size criterion is satisfied by basing X on the average productivity trends of a large sample of

utilities. The no windfalls criterion is satisfied by choosing an X that reflects special external business conditions that affect the productivity growth of the subject utility. As a productivity witness in two recent Alberta MRI proceedings Dr. Lowry has, for example, advocated basing X factors on the productivity trends of rapidly growing utilities and also presented evidence on the productivity growth of western U.S. distributors.

4. **Référence : C-AQCIE-CIFQ-0032, page 29**

   Citation :
   The complications of basing X on the productivity trends of other utilities have occasionally prompted regulators to base X factors on a utility's *own* recent historical productivity trend.

Demandes :

   4.1 **Please identify regulators that have based X factors on a utility's own recent historical productivity trend.**

   4.2 **In each of the cases cited in your response to the previous question, please:**

   4.2.1 **describe the types of information used to establish the utility's own recent historical productivity trend, and**

   4.2.2 **indicate whether it was the utility itself that prepared the analysis, a consultant engaged by the utility, or a third party. If the latter, please indicate how that third was chosen, and by whom it was engaged.**

Réponse de AQCIE-CIFQ / PEG :

   4.1 and 4.2

Here are the examples that PEG is aware of where regulators based X factors on a utility's own historical productivity trend.

- The California Public Utilities Commission in 1993 approved an X factor for PacifiCorp based on the company's productivity trend. The study incorporated a productivity trend that included actual and forecasted costs. The source of the study is unknown.

- The California PUC approved an X factor for Southern California Edison in 1996 which was based on its recent productivity trend. This study was presented by Edison and vetted by Commission Staff. PEG believes that this study was conducted by the utility with the help of an outside consultant.

- In 2006, the Régie approved an X factor for Gazifère based on the Company's five-year average productivity trend. The study was conducted for Gazifère by an outside consultant. This method was used again in Gazifère's 2010 MRI proposal, which was approved by the Régie. In this case, it appears that Gazifère updated the prior consultant's study without hiring them.

- The Ontario Energy Board in 2001 adopted an X factor for Union Gas based in part on the Company's productivity performance over the 1986-1996 period. The study was conducted by a consultant to the company.

- The Maine Public Utilities Commission approved an X factor for Bangor Hydro Electric in 1998 which was based on the recent productivity performance of the company. The productivity study was undertaken by Commission staff as part of a rate case proceeding.

5. **Référence : C-AQCIE-CIFQ-0032, page 52**

   Citation :
   The preponderance of evidence assembled suggests that an X factor of +**0.30%** is just and reasonable for the first-generation MRI of HQD.

Demandes :

   5.1 **Please explain in detail how you arrived at the precise figure of +0.30%, including any worksheets used.**

Réponse de AQCIE-CIFQ / PEG :

   5.1 Dr. Lowry arrived at this recommendation using his judgement after reviewing results of recent power distribution productivity and X factor studies, utility X factor proposals, and commission X factor decisions. He feels that the most pertinent recent study is his own 2017 study for Lawrence Berkel**e**y National Laboratory. He reported there a +**0.39%** average annual PMF growth rate for the full national sample over the 1996-2014 period. He is not aware of special business conditions facing HQD that make the national PMF growth trend inapplicable.

Other considerations suggest that the X factor should be higher or lower than +0.30%. For example, Dr. Lowry's Kahn X factor study of HQD produced a **+0.67%** value. The productivity target in HQD's current cap on revenue for *charges d'exploitation* is well above 1% but does not apply to all costs. Dr. Lowry is also concerned about the extent to which the Regie will grant supplemental revenue to HQD for capital expenditures through the Z factor. The Massachusetts commission substantially raised the X factor for Eversource Energy in its recent MRI decision when it decided to fund certain grid modernization capex through a capital cost tracker.

Several Canadian utilities have in recent years proposed base productivity trends in MRI proceedings of 0% or higher. The Ontario Energy Board has twice approved 0% base productivity trends, and the Alberta Utilities Commission recently approved an X factor of 0.3%. The British Columbia commission acknowledged a base productivity trend for 0.93% for power distribution as recently as 2013.

Recent power distributor PMF growth in Ontario may have been below 0.3% but Ontario data are problematic and the methodology that the OEB has used to measure productivity is not entirely appropriate to calibrate the X factor of a revenue cap index for HQD. Dr. Lowry has begun an examination of the Fenrick PMF study and Ontario's recent operating data for the Ontario Energy Board.

Dr. Lowry does not believe that results of the recent NERA, Brattle and Concentric PMF studies are pertinent because of serious flaws in their methodologies. Utility X factor proposals that are based on these studies and the Massachusetts DPU decision in the Eversource case were disregarded for the same reason.

6. Référence : C-AQCIE-CIFQ-0032, page 56

Citation :
For years HQD has participated in benchmarking studies of its customer services and distribution costs.54 The company reports simple unit cost metrics and its general position related to the other participants in a benchmarking study but does not generally provide further details, nor describe the characteristics of the firms

to which its scores are compared.55 Controls for external business conditions in these studies are crude. The company refused to provide details of a recent benchmarking study in response to an information request from PEG. Thus, it is difficult to interpret the benchmarking results or know what weight to assign to them. On the basis of available evidence, it is reasonable to assume that the Company is an average cost performer.

Demandes :

    6.1   **Please describe benchmarking practices used by other utilities, and indicate which of these practices, if any, you recommend be adopted by HQD.**

Réponse de AQCIE-CIFQ / PEG :

6.1   Many utilities do not undertake their own benchmarking, instead outsourcing this task to consulting firms (e.g., First Quartile) or trade associations (e.g., the Canadian Electricity Association or the American Gas Association). This is typically due to difficulties in gathering standardized data for other utilities, especially in situations where the utility is located outside of the United States or where the utility is looking to benchmark specific cost categories not reported in the US Federal Energy Regulatory Commission (FERC) Form 1 (e.g., tree trimming expenses).

Utilities initiate benchmarking studies for several reasons, including a genuine desire to gauge their performance, to learn about best practices, and/or to support the utility's regulatory initiatives (e.g., by showing that they are efficient). Studies used for internal assessments typically use simple unit cost metrics and rely on confidential datasets from voluntary peer groups assembled by consultants to review specific costs (e.g., tree trimming expenses). The usefulness of these studies in the regulatory arena is limited since the reports tend to be heavily redacted and difficult, if not impossible, for third parties to review. Benchmarking studies that are designed for use in the regulatory arena therefore often rely on data from publicly available sources to allow other parties an opportunity to review them.

Utilities have sometimes also sponsored benchmarking studies to support their rate case applications. Some of these have featured unit cost metrics,

such as the studies Concentric has undertaken for Florida Power & Light over the years. Other studies have featured a mixture of unit cost and econometric benchmarking methods, including studies prepared by PEG Research for Oklahoma Gas & Electric, Public Service of Colorado, Portland General Electric, and San Diego Gas & Electric. A few companies have filed benchmarking studies featuring multilateral productivity indexes as the method for comparing utility cost performance, including Green Mountain Power.

Regulatory benchmarking is not always initiated by utilities. For example, in Ontario the Ontario Energy Board has taken the lead on regulatory benchmarking. In 2006, the Board retained PEG to undertake econometric and unit cost benchmarking of the Ontario distributors' *charges d'exploitation*. As part of the OEB's third generation MRI, the distributors' stretch factors were updated annually based on the distributors' performance in those benchmarking studies. For the fourth generation MRI, the OEB has relied on an econometric benchmarking model of distributors' total cost which PEG developed to set annually updated stretch factors.

The OEB has also allowed distributors to request custom MRIs provided that they are adequately supported by benchmarking evidence. To date, Toronto Hydro Electric, Hydro Ottawa, Oshawa PUC Networks, and Hydro One Networks have sponsored econometric benchmarking studies to support their applications. Kingston Hydro and Horizon Utilities (now part of Alectra Utilities) received approval of custom IR plans without filing a separate benchmarking study based on their strong performance in the OEB's own study.

In addition, the OEB's rate handbook was recently modified to include an expectation that distributors filing rate cases to be effective in 2017 or later to benchmark their forecasted cost in the future test year. Nine distributors have filed this evidence in support of new rates for 2017 and five have filed it to support new rates for 2018. Attachment RNCREQ-PEG-6 shows the benchmarking template that was filled out by Centre Wellington Hydro in their current rate rebasing.

Alberta's Utility Consumer Advocate recently retained PEG to undertake a power distribution cost benchmarking study which used productivity and econometric methods along with rate comparisons. The sample included a mix of US and Ontario distributors as well as the four large Alberta distributors.

7. Référence : B-0178, HQD-20, Doc. 2, page 24

Citation :
As illustrated in Concentric's research, the current range in Canada prior to the Massachusetts Decision is 0.3% (Alberta) to 0 to 0.6% (Ontario), inclusive of stretch factors.

Concentric recommends the Régie place weight on the studies presented by experts in the Alberta, Massachusetts, and Ontario proceedings. These studies incorporate data for relatively large groups of U.S. (the Alberta and Massachusetts studies) and Canadian utilities (the Ontario study). 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 conditional on GDP-I greater than 2.0%, sets an appropriate lower bound. 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. Based on this evidence, Concentric recommends the Régie adopt a productivity factor of -0.75% for this first-generation MRI for HQD.

Demandes :

7.1 **Please comment on Concentric's proposal to set the productivity factor for HQD at -0.75%.**

Réponse de AQCIE-CIFQ / PEG :

7.1 Please see our response to question 2 of the Régie's latest DDR to AQCIE/CIFQ.