1. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, p. 63**

   *"PEG believes that $15 million thresholds are reasonable for a Company of HQD's size. These should apply on a per event basis to Z factors. The first $15 million of variances between Y factored costs and the corresponding revenue requirements should be non-recoverable each year. The thresholds should be escalated annually by the revenue cap index."*

   a. **Veuillez confirmer que le seuil proposé s'appliquant à la variance des coûts spécifiés dans ce paragraphe s'applique bien aux facteurs Y et non aux facteurs Z.**

   b. **Le cas échéant, le Distributeur comprend que la mécanique proposée en ce qui a trait à la variance des facteurs Y ne consiste pas en un seuil permettant la création ou le maintien d'un élément de coûts à titre de facteur Y. Elle consiste plutôt en un seuil s'appliquant à la récupération de coûts de facteurs Y préalablement définis. Est-ce le cas? Si non, expliquer.**
      - **Si oui, ce seuil de 15 M$ s'appliquerait-il pour chacun des facteurs Y ou pour ceux-ci considérés dans leur ensemble?**
      - **Toujours dans l'affirmative, ce seuil de récupération de coûts s'applique-t-il aux variances négatives et positives?**

1. **Réponse de AQCIE-CIFQ / PEG :**

   a. Not confirmed. PEG recommends materiality thresholds and deadzones for Y factors as well as Z factors.

   b. Yes. A Y factor is a revenue (or rate) adjustment for a cost that is scheduled in advance for separate ratemaking treatment outside of indexing. Ratemaking treatment of such costs sometimes involves materiality thresholds and deadzones.

   Dr. Lowry proposes that the 15 M$ threshold apply to most costs subject to Y factor treatment. Costs of energy, transmission, and conservation and demand management programs would be excluded from this requirement. The threshold would apply to positive as well as negative variances.

**Questions de Concentric**

2. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 9, tableau 1**

   a. **Please provide Table 1 in spreadsheet form with formulas.**

2. **Réponse de AQCIE-CIFQ / PEG :**

   a. Table 1 in spreadsheet form is Attachment HQD-PEG-2.

3. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 14**

   *"A sizable adjustment to the X factor is thus warranted in a U.S.* formule d'indexation *when the GDPPI is used as the inflation measure. […]*

   *The input price differential is the difference between the input price trends of the economy and the industry. X will be larger (smaller) to the extent that the input price trend of the economy is more (less) rapid than that of the industry.[18] In American MRI proceedings, regulators have typically ruled that the input price differential is small (e.g., twenty basis points) or zero."*

   a. **Please calculate the calibration impact on X based on the economy-wide productivity trend differential between the US and Canadian economies shown in Table 2 for 2001-2015.**

3. **Réponse de AQCIE-CIFQ / PEG :**

   a. PEG does not believe that any adjustment is warranted for the differential between the productivity trends of the U.S. and Canadian economies. The premise for the input price and productivity differentials that are sometimes used to set X factors in U.S. MRI proceedings is that the chosen revenue (or price) cap index inflation measure is a biased measure of utility input price growth. That is not a major concern in the development of an X factor for HQD. The Company's revenue cap index is not likely to rely solely on a macroeconomic inflation measure. Additionally, macroeconomic inflation measures in Canada are not typically slowed by rapid growth in the productivity of the economy as they have been in the U.S.

4. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 26, tableau 3**

   a. **PEG derived a "Kahn X Factor for HQD" in Table 3. Please provide the table in spreadsheet form with formulas.**
   b. **Please indicate whether any North American regulator has used a "Kahn X Factor" in any recently adopted MRIs (past 10 years), with citations.**

4. **Réponse de AQCIE-CIFQ / PEG :**

   a. Table 3 in spreadsheet form is Attachment HQD-PEG-4a.

   b. The U.S. Federal Energy Regulatory Commission ("FERC") adopted the Kahn method to calibrate the X factor of an index-based attrition relief mechanism for oil pipelines in FERC Order 561 in 1993. Indexing using the Kahn method to assess industry cost trends is the default method by which oil pipeline rates are set. The FERC uses the Producer Price Index for Finished Goods as the inflation measure, with the value for X updated every five years. Updates of the index occurred in 2000, 2005, 2010, and 2015. FERC Order 561 is included as Attachment HQD-PEG-4b.

5. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 33, tableau 4**

   *"The following results in Table 4 are especially pertinent to the Régie's jugement process."*

   a. **Please provide Table 4 in spreadsheet form, including the calculations of the averages.**

5. **Réponse de AQCIE-CIFQ / PEG :**

   a. **Table 4 in spreadsheet form is Attachment HQD-PEG-5.**

6. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, pages 43-44**

*"Hydro One Networks filed evidence in 2017 in support of a custom MRI for its power distributor services. The company retained Steve Fenrick of Power Systems Engineering to prepare supportive productivity and benchmarking evidence. Mr. Fenrick had prepared a few previous energy distributor productivity studies. He updated PEG's Ontario power distributor productivity study to 2015, reporting a -0.90% annual PMF growth trend for the full sample period, and proposed a 0.45% stretch factor based on the result of his total cost benchmarking study. Hydro One proposed a base productivity trend of zero and a 0.45% stretch factor. PEG has been retained by Board Staff to review Mr. Fenrick's submission. However, the project has been delayed and no review has yet been undertaken."*

    **a. Please confirm that Mr. Fenrick was an employee of Pacific Economics Group from 2001-2009 as a Senior Economist.**

    **b. Please confirm that Mr. Fenrick lists 39 research projects on his resume, almost all relating to utility benchmarking and productivity studies.**

**6. Réponse de AQCIE-CIFQ / PEG :**

    a. Not confirmed. The CV filed with Mr. Fenrick's recent testimony for Hydro One Networks is Attachment HQD-PEG-6a. This document does convey the impression that he was a Senior Economist at PEG for eight years. Mr. Fenrick did work at PEG during the 2001-2009 period. However, he was neither continuously employed nor a Senior Economist throughout this period.

    As shown in his March 2009 CV while still an employee at PEG (included as Attachment HQD-PEG-6b), Mr. Fenrick advanced during his time at PEG, serving as an Economist I, II, and III prior to his promotion to Senior Economist in his last year of employment (2009). Late in his tenure, he pursued a Master's Degree in Applied Economics, which reduced his ability to help on projects. Steve participated in several productivity research projects at PEG. However, he never served as an expert witness. His role in many projects consisted of organizing the collection and processing of US utility data and performing miscellaneous other tasks for the project manager. In his later years he did some coding on projects. Only after leaving PEG did Mr. Fenrick routinely serve as a principal investigator and expert witness.

    b. Not confirmed. Attachment HQD-PEG-6a indicates that Mr. Fenrick had participated in 87 research projects. Of these projects, 35 occurred while he worked for PEG. Fourteen of these 35 projects to PEG's recollection involved utility productivity studies.

Since departing PEG, Mr. Fenrick reports undertaking 52 projects, only 3 of which seem to have addressed utility industry productivity trends (Ontario IRM4, Enbridge, and Hydro One Networks). Approximately 10 projects clearly included utility cost benchmarking. The remaining projects seem to have involved various tasks that are largely unrelated to utility productivity research.

7. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 44**

   *"Union Gas and Enbridge recently proposed a merger and an MRI for their consolidating Ontario gas utility operations. The so-called "Amalco" companies retained Dr. Makholm of NERA to update his power distributor PMF study. He reports a 0.54% PMF trend for his full 1973-2016 sample period, but the negative PMF trend in recent years has continued. Notwithstanding his support for basing X factors on results for the full sample period when he was a commission witness, Makholm recommends a 0% base productivity factor for the combined company and a 0% stretch factor. The Amalco made the same recommendations. Dr. Lowry has been retained by Board staff to respond to Makholm's new study. The project is just beginning, however, and Makholm's evidence has not yet been reviewed or challenged."*

   a. **Please confirm that Dr. Makholm recommends an X factor of 0% because of the shift in the trend from positive X factors to negative X factors since 2009, and "any split in the data would produce a negative TFP growth figure". If not, please explain.**

7. **Réponse de AQCIE-CIFQ / PEG :**

   a. Dr. Makholm did recommend a 0% X factor, but this was based on a shift in the *PMF* growth of U.S. power distributors in his study from positive to negative using his methodology. Please note, as well, that Dr. Makholm has never advocated basing an X factor solely on results using his PMF methodology for a truncated sample period, as Brattle and Christensen Associates have.

8. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, pages 48-49**

   *"Table 6 shows trends in six macroeconomic price indexes that are sensible candidates for use in Québec. We also include the average weekly earnings of Canadian and Québec industrial workers."*

   a. **Please provide Table 6 in spreadsheet form with formulas.**

8. **Réponse de AQCIE-CIFQ / PEG :**

   a. Table 6 in spreadsheet form is Attachment HQD-PEG-8.

9. **Préambule :**
   **C-AQCIE-CIFQ-0024**
   **Rapport d'expert, page 52**

   *"With regard to productivity studies (rather than commission decisions), Dr. Lowry's method for measuring the PMF trend of power distributors has been shown to be the most appropriate one for setting an X factor for HQD, for several reasons."*

   a. **Please provide all citations from a regulator who has determined that Dr. Lowry's method for measuring the PMF trend of power distributors is the <u>most appropriate</u>.**

9. **Réponse de AQCIE-CIFQ / PEG :**

   a. As discussed on page 38 of Dr. Lowry's January 5 report (as corrected), the British Columbia Utilities Commission in its September 2014 decisions on Projects 3698719 and 3698715 explicitly selected Dr. Lowry's estimates of the PMF trends of power distributors and gas utilities as the most appropriate. The California Public Utilities Commission explicitly adopted the results of Dr. Lowry's gas and electric PMF studies for San Diego Gas & Electric in Decision 99-05-030. The California PUC also adopted the results of Dr. Lowry's gas utility PMF study for Southern California Gas in designing an MRI in Decision 97-07-054.[1] The Vermont Public Service Board (now the

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[1] SoCalGas is the largest U.S. gas distributor.

Vermont Public Utilities Commission) adopted results from Dr. Lowry's power distributor PMF study for alternative rate plans for Central Vermont Public Service which featured an indexed cap on revenue for non-power costs in Docket 7336. A subsequent plan for Green Mountain Power also used Dr. Lowry's PMF results for a similar purpose in Vermont PSB Docket 7585. The Vermont Public Service Board continued the use results of the PMF study in Dockets 7770 and 8191 for the combined Green Mountain Power/Central Vermont Public Service. The Massachusetts DPU adopted results of Dr. Lowry's 1996 gas utility PMF study for Boston Gas to calibrate X factors of price cap indexes for Boston Gas in DPU 96-50 and for Berkshire Gas in DPU 01-56.

There is also at least one instance in which settling parties relied on Dr. Lowry's PMF studies to calibrate the X factor of a cap on O&M revenue. The settlement was approved by the regulator. This occurred in Hawaiian PUC Docket 2008-0274 for Hawaiian Electric, Hawaii Electric Light, and Maui Electric.

On several other occasions, the base productivity trends or X factors chosen for MRIs have been based on Dr. Lowry's PMF evidence but the linkage to his work has been less clear.

10. **Préambule :**
    **C-AQCIE-CIFQ-0024**
    **Rapport d'expert, page 54**

*"Dr. Meitzen lacks the expertise to credibly argue that a one hoss shay approach is somehow relevant to power distribution but not to telecommunications."*

   a. **Please provide the basis for this statement regarding Dr. Meitzen's credibility?**
   b. **Please confirm that the Massachusetts DPU endorsed Dr. Meitzen's methodology, and fully accepted his recommended X factor without any changes?**

10. **Réponse de AQCIE-CIFQ / PEG :**

   a. Prior to his testimony for EPCOR in the second Alberta MRI proceeding, Dr. Meitzen had never done an energy utility productivity study. The occasional PMF studies that Christensen Associates apparently performed for energy

utilities after Dr. Lowry left the firm were undertaken by other personnel. All of these studies used the geometric decay approach to capital cost and quantity measurement. Dr. Meitzen has prepared several *telecom* utility productivity studies over the years and in these studies routinely used the geometric decay approach and discussed its merits in public documents. Considering the technologies involved, it is not at all clear why one hoss shay makes sense for power distributors but not for telecommunication carriers.

Meitzen's inexperience with the one hoss shay approach may help to explain his embrace of Dr. Makholm's peculiar application of the approach. As Dr. Lowry discussed in his January 5 report, the assumed 33-year average life is unrealistically low, and this greatly affects results. To calculate the capital quantity in the initial (benchmark) year (1964) Makholm deflated net plant value using an average of construction cost index values for *twenty* years prior. Additionally, Makholm's benchmark year adjustment applies to *net* plant value, not *gross* plant value, even though the one hoss shay method measures the quantity of gross plant. Mr. Coyne notes in a PMF study prepared for an Ontario MRI proceeding that, "the One Hoss Shay Capital quantity is measured by gross plant; total gross plant is determined by summing plant additions by vintage."[2]

b. The Massachusetts DPU effectively embraced Dr. Meitzen's estimate of the industry PMF trend. However, in Massachusetts the X factor incorporates the stretch factor and other adjustments to the productivity trend. Dr. Meitzen's testimony for Eversource supported an X factor of -2.64%. However, the Massachusetts DPU objected to the inclusion of grid modernization capex in the plan, adjusting the X factor to -1.56% (not including a stretch factor).[3]

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[2] Ontario Energy Board, EB-2012-0459, Exhibit A2, Tab 9, Schedule 1, Filed 2013-06-28, p. B-9.
[3] See Massachusetts DPU Order in Docket 17-05, November 30, 2017, p. 392.