PUBLIC INTEREST ADVOCACY CENTRE
LE CENTRE POUR LA DEFENSE DE L'INTERET PUBLIC
ONE Nicholas Street, Suite 1204, Ottawa, Ontario, Canada K1N 7B7
Tel: (613) 562-4002 ext 26 Fax: (613) 562-0007. e-mail: mjanigan@piac.ca. http://www.piac.ca

June 27, 2013

VIA EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319
26th Floor
2300 Yonge Street
Toronto, ON
M4P 1E4

Dear Ms. Walli:

Re: Renewed Regulatory Framework for Electricity
Defining and Measuring Performance for Electricity Distributor (EB-2010-0379)
Vulnerable Energy Consumers Coalition's Written Comments

As Counsel to the Vulnerable Energy Consumers Coalition (VECC), I am writing per the Board's Letters of May 3rd and May 30th, 2013 seeking comments from stakeholders regarding the report prepared by the Board staff's expert ("the PEG Report") and reports submitted by three other experts on benchmarking and rate adjustment parameters. VECC's comments follow below and are organized according to the questions set out in the May 30th letter.

A. INFLATION

Question #1: For each expert's recommended approach (including PEG's):
a. Is the proposed approach appropriate? Does it meet the Board's policy direction noted above?
b. Are the recommended sub-indices appropriate?
c. Should the Board be concerned with volatility in the inflation factor?

Question #2: What is your preferred approach and why?

Board Policy Direction[1]

In the RRFE Report, the Board determined that it is now appropriate to adopt a more industry-specific inflation factor [p. 16] and provided the following policy direction:
• The inflation factor must be constructed and updated using data that is readily available from public and objective sources (e.g. Stats Canada);

[1] Per the Board's letter of May 30, 2013

• To the extent practicable, the component of the inflation factor designed to adjust for non-labor price inflation should be indexed by Ontario distribution industry-specific indices; and
• The component of the inflation factor that adjusts for labor prices will be indexed by an appropriate generic and off-the-shelf labor price index.

The Board also indicated in the RRFE Report that volatility will be mitigated by the methodology adopted by Board.

Background

PEG has recommended that the inflation factor be constructed as a weighted average of three three separate indices: 1) a capital service price constructed from publicly available information (Electric Utility Construction Price Index {EUCPI} and the Board approved weighted average cost of capital {WACC)}); 2) the average weekly earnings for Ontario workers as published by Statistics Canada (AWE); and 3) the GDP-IPI also published by Statistics Canada. These three indices are meant to reflect inflation for the three broad classes of inputs used by Ontario electricity distributors and would be weighted by relative contribution of each cost category to total distributor costs as developed for the TFP analysis[1].

The capital service price index is constructed so as to reflect both the "return of capital" and the "return on capital". The former corresponds to depreciation which for purposes of inflation factor determination PEG has used a rate of 4.59% reflecting the contribution of the different types of assets used by Ontario distributors to their overall plant costs[2]. For the "return on capital" PEG has used the weighted average cost of capital (WACC) as approved annually by the Board[3]. In both cases, these factors were combined with the annual Electric Utility Construction Price index to form the overall capital service price index.

In order to mitigate volatility in the year over year value of the index, PEG is recommending the use of a three year moving average of its three-factor inflation index[4].

In his report made on behalf of the EDA, Professor Yatchew noted that more industry specific inflation measures had been explored in the development of the Board's earlier IRM frameworks but that broader measures of inflation had been adopted on the basis that they were easy to obtain, displayed less variability and were better understood. However, his report also noted the fact that distributors' costs evolved differently from those of general consumer or even producer price indexes[5].

Professor Yatchew expressed concerns about the potential future volatility of the PEG proposed index, particularly noting the potential impact of future changes in interest

[1] Updated PEG Report, May 2013, pages 15-22
[2] Updated PEG Report, May 2013, pages 35-36
[3] Updated PEG Report, May 2013, page 18
[4] Updated PEG Report, May 2013, page 29
[5] Professor Yatchew's Report, June 2013, page 20

rates. While he did not make any recommendations regarding an alternative inflation index he did recommend that the Board explore additional options for rate-smoothing, particularly mechanisms that mitigated "the rate impacts of the differential between the industry specific inflation factor and a broader inflation measure"[1].

Mr. Steve Fenrick, in his report for the CLD, agreed with PEG's three factor approach and with making the inflation factor more industry specific. He also agreed with PEG's approach for the two OM&A input price components (labour and non-labour)[2]. However, for the capital component he recommended using just the Electric Utility Construction Price Index. Furthermore, rather than simply using the most recently observed increase in the EUCPI, Mr. Fenrick proposes that each year's index value be based on a weighted average of EUCPI values over the past forty years in order to recognize that a distributor's rate base is made up of the remaining value for assets purchased over the last forty years[3].

The historical volatility of Mr. Fenrick's proposed index is rough equivalent to that of the GDP-IPI index and is less that of even the three-year moving average of the PEG index[4]. Based on these results, Mr. Fenrick recommends that there is no need to "smooth" his proposed index and that the most current value can be used[5].

In his report prepared for the PWU, Dr. Cronin does not address the inflation factor.

VECC's Comments

None of the other experts took exception with (and indeed Mr. Fenrick explicitly agreed with) PEG's proposed approach to use a three factor inflation index and to base the Labour and non-Labour components for OM&A on the Average Weekly Earnings for Ontario Workers and GDP-IPI respectively. VECC also agrees that these aspects should be incorporated into any industry specific inflation index for 4GIRM.

VECC agrees with the rationale as presented by PEG as to why a three-factor index is more appropriate and representative of inflation for distributors than a simpler two factor index[6]. VECC notes that both (OM&A-related) components of the index will be based on Statistics Canada published indices and therefore meet the Board's requirements that:

- The inflation factor must be constructed and updated using data that is readily available from public and objective sources (e.g. Stats Canada); and
- The component of the inflation factor that adjusts for labor prices will be indexed by an appropriate generic and off-the-shelf labor price index.

VECC acknowledges that a the use of GDP-IPI for non-Labour inflation does not appear to meet the Board's requirement that "to the extent practicable, the component of the inflation factor designed to adjust for non-labor price inflation should be indexed by Ontario distribution industry-specific indices". However, given the wide range of goods

[1] Professor Yatchew's Report, June 2013, page 20
[2] Mr. Fenrick's Report, June 2013, page 5
[3] Mr. Fenrick's Report, June 2013, pages 16-18
[4] Mr. Fenrick's Report, June 2013, page 14
[5] Mr. Fenrick's Report, June 2013, page 17
[6] Updated PEG Report, May 2013, pages 22 and 29

and services reflected in this component of a distributor's costs, VECC submits that the proposed index is appropriate.

In the case of the capital-related component of the index, VECC has concerns regarding PEG's proposed approach. By using just the most recent year's EUCPI value and WACC, the approach effectively assumes that, in each year, the value of all capital employed is escalated by the most recent increase in the EUCPI and that all capital is effectively refinanced at the new WACC. However, this is not the case. Rate base is made up of investments made over the past 40 years (or more) at prices for goods that existed at those times. Furthermore, while conceptually the ROE and short-term debt components of the WACC change each year, utilities typically use long-term debt to finance a major portion of their asset base, as indicated by the 56% weighting currently given to the cost of long term debt in the calculation of the WACC.

While some distributors have their cost of debt adjusted at each rebasing to reflect the Board's approved rate, others do not. Distributors falling into the first category are typically those with affiliated debt that has a variable rate (linked to the Board approved rate) or debt that is callable within one year. Those falling into the latter category tend to be distributors with long-term debt that has a fixed rate and is not callable on demand[1]. Utilities in the latter category will only refinance such debt when it comes due or when the terms of the debt agreement allow and it is financially advantageous to do so. Furthermore, when utilities do refinance the change in the effective interest rate is not from what existed a year ago, but rather from what existed when the current debt was issued – likely more than 10 years ago. As such for utilities with fixed rate debt, the PEG index will not likely represent their "change" in cost of debt or overall WACC. Therefore the PEG approach does not reflect reality in all cases and, indeed, incorporates more change in the annual capital service cost index than really occurs across all distributors.

In contrast, Mr. Fenrick's approach, in using a weighted historical value for the EUCPI, recognizes that the rate base is made up of asset purchases made over an historical period[2]. However, by using <u>just</u> the weighted value for EUCPI, his approach does not incorporate any changes in the annual cost of capital due to changes in either the approved ROE or interest rates[3].

In VECC's view, Mr. Kauffman's approach could be made more reflective of distributors' actual circumstances by also incorporating Mr. Fenrick's weighted historical value for the EUCPI. However, due to the issues discussed above regarding the WACC component, the result would still overstate year to year capital service price changes for some distributors.

With respect to question #1 c), VECC submits that the Board should be concerned about the potential for volatility in the inflation index. Stability and predictability of future rate changes are important to both distributors and rate payers. Too much volatility in year over year rate changes could also undermine public acceptance of the Board's overall use of IRM for purposes of setting rates[4].

The main source of volatility in the PEG index over the 2002-2011 period appears to be the capital service price index followed by the labour price index. The contribution of the capital service price to volatility is compounded by the fact that the capital price index receives the greatest weight in the overall calculation of PEG's inflation measure[5]. To address volatility, PEG proposed the use of a three rolling average value for the inflation index. Both Professor Yatchew and Mr. Fenrick have questioned whether this approach will satisfactorily mitigate the volatility in PEG's proposed inflation index.

At the May 27th Stakeholder Conference Mr. Kaufmann provided an update which indicated that the change in the index for 2012 was -1.62% which dropped the three year rolling average value to 0.51% (almost a full percentage

[1] The Board's EB-2009-0084 Cost of Report (pages 53-54) specifies that for debt that has a variable rate or is callable on demand, the Board's deemed rate will be a ceiling on the rate allowed.
[2] May 28, 2013 Transcript, page 83
[3] May 28, 2013 Transcript, page 82
[4] May 28, 2013 Transcript, pages 87-88
[5] Updated PEG Report, May 2013, Table 4

point less than the 2011 three year rolling average value)[1]. This update also materially increased the historical volatility of both his proposed index and the three-year rolling average[2] and further heightened concerns about the volatility of annual rate adjustments under his proposal.
However, there is no documentation on record that indicates/explains why the 2012 resulted in a negative value and whether the capital service price was the main contributor here as well.

Professor Yatchew's suggested approach to volatility is somewhat novel. However, VECC is concerned that there has been little opportunity to flesh out exactly how it would work, particularly in circumstances where the industry-specific index increased at a rate less than (or greater) than inflation for a number of consecutive years. As a result, VECC is not, at this time, in a position to endorse Professor Yatchew's suggestion.

Mr. Fenrick appears to have excluded the cost of capital from his index specifically in order to address the volatility issue[3] and asserts that his proposal is no more volatile that the GDP-IPI index currently used[4]. Historically this appears to be the case. However, his index does incorporate new aspects (i.e. EUCPI and AWE) that historically have been more volatile[5] than GPI-IPI. As a result, it is not clear to VECC that this relatively low degree of volatility will continue to be experienced in the future.

In principle VECC supports the Board's objective of moving to a more industry-specific inflation rate. However, it is evident that doing so inherently gives rise to considerable rate volatility which is unacceptable from both a customer and distributor perspective and VECC cannot support in practice. Furthermore, the solutions for addressing the issue all involve adjusting the industry-specific inflation index (either through averaging or leaving out key components) such that the result really no longer reflects the specific inflation experienced by the industry. If this is the only way to satisfactorily address volatility concerns then the Board (and the sector overall) may be better off to utilize a generic inflation factor such as GDP-IPI.

B. PRODUCTIVITY FACTOR

Question #3: For each expert's recommended approach (including PEG's):
a. Is the proposed approach appropriate? Does it meet the Board's policy direction noted above?
b. Are the recommended inputs and outputs appropriate?

Question #4: What is the appropriate value for an Ontario electricity distribution Total Factor Productivity trend? Why?

Board Policy Direction[6]

With respect to the productivity factor, the Board provided the following policy direction in the RRFE Report [p. 17]:
• It is intended to be the external benchmark which all distributors are expected to achieve;
• It will be based on Ontario Total Factor Productivity (TFP) trends; and

[1] May 27th Presentation, Slide 11
[2] This can be seen by comparing the standard deviations for these indices as reported in Table 4 of the PEG Report (using data to 2011) and in Table 6 of Mr. Fenrick's report (using data to 2012).
[3] May 28th Transcript, page 18
[4] Mr. Fenrick's Report, June 2013, page 14
[5] Updated PEG Report, May 2013, Tables 1 and 4
[6] Per the Board's letter of May 30, 2013

• It will continue to use an index-based approach for the derivation of an industry productivity trend to form the basis for the productivity factor.

Background

In its report PEG calculates the productivity factor using an index approach that compares aggregate input and output growth for Ontario's distributors over the period 2002-2011. In this regards the proposed PEG approach is consistent with the Board's policy direction that the 4GIRM productivity value be based on Ontario total productivity trends and that an indexed based approach is used.

PEG has based its productivity (TFP) recommendations on its results for the Ontario industry excluding Toronto Hydro and Hydro One[1]. The reason for excluding these two distributors was that inclusion of the data for these two distributors significantly impacts the results[2] and that the objective of the productivity factor is to be "external" to the distributor being regulated. Based on PEG's analysis, excluding these two utilities, the historical TFP trend was 0.1%[3].

While PEG used the results of its cost model analysis to help support its TFP recommendations[4], Mr. Kaufmann cautioned against placing any weight on the TFP trends calculated from econometric cost models using time trend variables and was not in favour of using the econometric approach[5].

During the Stakeholder Conference PEG undertook to re-estimate the TFP trend using the simple average of the TFP trends for each of the individual distributors over the same 2002-2011 period. Such a calculation effectively gives all distributors the same weight in the calculation and, thereby, diminishes the impact that large distributors such as Toronto Hydro and Hydro One have on the TFP trend calculated using aggregate data. The results were a TFP trend of -0.26%[6]. In the same supplementary report PEG re-iterated its view that the aggregate measures of TFP were preferred over average in conceptual terms and re-confirmed its 0.1% TFP recommendation[7].

PEG also notes that, in recent years, much of the decline in productivity is attributable to the severe recession of 2008-09 which was a one-time event and that it does not favour treating sub-periods within a sample differently but favours the use of a nine-year trend[8].

A final note with regards to PEG's approach to TFP analysis is that the cost data used by PEG included HV assets (where such assets were owned by the distributor), made no adjustments for contributed capital and excluded LV costs paid by embedded distributors to their hosts[9].

Professor Yatchew also used both index and econometric approaches to estimate the historical TFP value. The results were -0.7% and -0.75% respectively[10]. Based on these results, Professor Yatchew recommends a productivity factor of -0.75%.[11]

Mr. Fenrick recommends using an industry wide TFP indexing measure as the basis for the productivity factor. He notes that the PEG analysis (including Toronto Hydro and Hydro One) resulted in a TFP trend value of -1.1% and this is his recommended value[12]. He further notes that if the Board desires an "external" TFP measure the

[1] Updated PEG Report, May 2013, Table 4
[2] May 28th Transcript, page 65
[3] Updated PEG Report, May 2013, Table 18
[4] Updated PEG Report, May 2013, page 69
[5] PEG's Supplementary Empirical Analysis, page 4
[6] PEG's Supplementary Empirical Analysis, page 2
[7] PEG's Supplementary Empirical Analysis, page 3
[8] Updated PEG Report, May 2013, page 73
[9] Updated PEG Report, May 2013, Table 7
[10] Professor Yatchew's Report, June 2013, page 15
[11] Professor Yatchew's Report, June 2013, page 22
[12] Mr. Fenrick's Report, June 2013, page 7

appropriate range of TFP values to consider would be -0.56% to -1.18%, based on aggregate TFP analyses if each of the distributors were, one by one, individually excluded from the calculation.

Mr. Fenrick also suggests that the -1.1% TFP value is supported by the results of PEG's econometric cost model where the time trend variable suggests costs are increasing by 1.2% per annum and, when combined with estimates of scale economies, yields a TFP value of -0.8%[1]. Mr. Fenrick also presented a number of other tests, most of which are also based on PEG's econometric cost analysis or similar analysis undertaken by Mr. Fenrick, to support his recommended -1.1% TFP value.

Dr. Cronin presents two different indexed based methodologies for estimating TFP – one based on quantities (similar to PEG's) and another based on prices (the price-dual method). Using a quantity based approach and the same period as PEG (2002-2011) Dr. Cronin derives a TFP value of -1.46% (based on all distributors) as compared to PEG's calculation of -1.1%[2]. One factor likely accounting for the difference is that Dr. Cronin used a different data set for capital additions and retirements[3] and questions the validity of the data set used by PEG.

Dr. Cronin only estimated the TFP value using the price-dual method over the period 2006-2011 and found the results to be -2.4%[4]. Over the same period his quantity-based index also yields a value of -2.4%[5] and (he calculates) calculates) PEG's TFP estimate would be -2.14%[6].

Like PEG, Dr. Cronin notes that the TFP trends for post versus pre-2006 are materially different. However, Dr. Cronin then proceeds to look at the impact of applying differing weights to the two periods, with greater weight given to the more recent years.

Finally, Dr. Cronin's report discusses the development of TFP factors that incorporate line losses and service reliability. Overall, while Dr. Cronin's report presents the results of his analyses, it does not make any specific recommendations as to what the appropriate TFP factor should be for 4GIRM.

VECC's Comments

Approach To Be Used

Professor Yatchew suggests that the econometric cost model approach to estimating TFP is superior to the indexed-based approach and used the analogy of an MRI as compared to an X-ray[7]. VECC disagrees. The cost model approach incorporates a specific set of cost drives in the equation and then, through the trend variable, Professor Yatchew ascribes any remaining changes in costs to productivity changes over time. This would be more akin to a diagnostic machine that screens for a specific set of diseases and then attributes any remaining abnormalities to another specific disease (i.e. if the abnormality isn't a broken bone, a blocked artery or lung failure then is must cancer).

During the Stakeholder Conference[8] Mr. Kauffman explained why his and PEG's approach has always been to use indexing except in unique circumstances, none of which exist in Ontario and why, overall, he was not in favour of using the econometric approach[9]. He further expanded on his rationale for not using the econometric model results to estimate TFP in the Supplementary Empirical Analysis report[10].

[1] Mr. Fenrick's Report, June 2013, page 25
[2] Dr. Cronin's Report, June 2013, Exhibits 4.2 and 4.11
[3] Dr. Cronin's Report, June 2013, page 18
[4] Professor Yatchew's Report, June 2013, Exhibit 3.2
[5] Professor Yatchew's Report, June 2013, Exhibit 3.2
[6] Professor Yatchew's Report, June 2013, Exhibit 4.1
[7] Professor Yatchew's Report, June 2013, pages 10-11
[8] May 27, 2013 Transcript, pages 129-131
[9] May 28, 2013 Transcript, page 115
[10] Page 4

Mr. Fenrick indicated that he "put more stock" in the TFP indexing approach[1].

The problems with using the econometric cost model are compounded by the fact that the cost drivers identified as being significant and included in the model can change with either the model's form/specification (as seen in the different drivers identified in PEG's, Yatchew's and Fenrick's models) or with the inclusion of new data (as seen when PEG's model was updated for revised LV data).

In VECC's view an index approach, as directed by the Board in its RRFE report, is the preferred approach to use.

VECC notes that the price-dual based index presented by Dr. Cronin yielded very similar results to the quantity based index results developed by Dr. Cronin for the same time period (2006-2011). As a result, VECC does not see any need to further explore the price-dual approach at this time and submits that the TFP value should be derived using a quantity-based index approach like that used by PEG.

However, VECC notes that using the average quantity index approach PEG and Professor Yatchew come up with values of -0.26% and -0.7% respectively. There is no explanation provided by Professor Yatchew as to why his results differ from PEG's when both supposedly used the same method on the same data set. Furthermore, no real opportunities were provided for other parties in the proceeding to fully review Professor Yatchew's calculation or question his results. In contrast, Mr. Kaufmann's data and analysis were made available early in the proceeding and there were two opportunities[2] provided for parties to question his analysis and results. As a result, VECC submits that greater weight should be place on the index-based TFP values produced by PEG.

As noted in the background discussion above, PEG has expressed a preference for calculating the TFP index using an aggregate approach and excluding those specific distributors whose individual data have a material impact on the results. In contrast, Professor Yatchew has expressed a support for using the average of the TFP values calculated for all distributors. While Dr. Cronin appears to have used an aggregate index approach similar to PEG there is no discussion in his report on the merits of average vs. aggregate. Similarly, Mr. Fenrick's report uses the PEG results and, while insisting the all utilities should be included, does not address the question of aggregate vs. average.

In VECC's view the average index-based approach should be used and applied to all distributors. With over 70 distributors, no one distributor can overly affect the average and therefore the results can be viewed as generally external to all distributors. At the same time, it avoids the issue of arbitrarily deciding who to exclude and, also, potential arguments by those distributors who were excluded that they are unique and the defined TFP value is not representative of their circumstances. Furthermore, despite his apparent preference for the aggregate method, Mr. Kaufmann did acknowledge that PEG has used the average method in some places and that it is a well-established approach[3].

Recommended Value

Based strictly on the indexed based analysis of the historical data the "calculated" productivity factor would be -0.26% reflecting the PEG's calculation of the average results from applying the quantity based index method to all distributors using the period 2002-2011. However, VECC submits that the productivity factor adopted by the Board for 4GIRM must also consider the reasonableness of applying these historical based results in setting future rates for distributors and also recognize the overall regulatory framework within which the annual PCI rate adjustment will be applied.

PEG notes in its Updated Report[4], that the decline in productivity since 2007 is primarily attributable to a reduction in outputs as opposed to an increase in inputs and attributes much of this to the severe recession in 2008-2009 which was "a one-time event that is not anticipated to recur during the 4th Gen IR". Dr. Cronin's Report finds significant differences in the productivity trends observed in the 2002-2006 and 2006-2011 periods. For example, while PEG's

[1] May 28, 2013 Transcript, page 119
[2] The May 16, 2013 Q&A session and the May 27-28th Stakeholder Conference
[3] May 28th Transcript, pages 35-36
[4] Pages 68-69 and 73. Also, May 28th Transcript, page 31

aggregate analysis using all distributors yields a productivity trend of -1.1%[1] over the entire period, the values for the two sub-intervals are +0.2% and -2.14% respectively[2]. The same differences can expect to exist if one were to calculate the average index-based value over the two sub-periods. Given the significant impact the recession appears to have had on the historical TFP value and the unlikelihood that it will be repeated in the next 5 years raises questions about the appropriateness of applying using the associated -0.26% historical productivity factor in 4GIRM.

The experts to this proceeding have also noted that during the period analyzed industry trends and government policy changes have led to not only increased costs (with no commensurate increase in output) but also reduced output. Specific factors cited by Dr. Yatchew include infrastructure refurbishment, new smart grid requirements, CDM (which adversely affects both cost and output), smart meters and renewable & distributed generation[3]. In its Supplemental Report[4], PEG agreed with Dr. Yatchew and characterized this issue of one of "unmeasured outputs".

However, there are other elements of the Board's regulatory framework that are available to deal with and directly address the impacts of many of these "unmeasured outputs" such that their (negative) impact on TFP should not be incorporated into the rate setting formula used in 4GIRM. These elements/mechanisms include:

- The separate LRAM rate riders that hold distributors whole from the impact of CDM on load,
- The separate rate riders that have been approved for Green Energy spending,
- The separate rate riders that have allowed distributors recover the costs of the government mandated smart meter program incurred during the period analyzed, and
- The ICM rate riders that have allow distributors to address significant requirements for asset renewal[5].

Taking these factors into account, VECC recommends that the Board adopt a productivity factor in the range of 0.1% to 0.2% (i.e. slightly greater than zero). VECC notes that while the recommendation represents a nominal increase from the calculated value of -0.26% it represents a greater reduction from the 0.72% value currently used.

Other considerations underlying VECC's recommendation are the fact that none of the IRM plans used elsewhere employ negative productivity factors[6] and it is questionable whether the OEB should be signaling to the industry that negative performance is considered acceptable – particularly under an incentive-based rate setting framework.

C. TOTAL COST BENCHMARKING

Question #5: For each expert's recommended approach (including PEG's):

a. What do you perceive to be the strengths and weakness of the various consultants' approaches?

b. Are the outputs and recommended business condition variables appropriate?

Question #6: What is your preferred approach and why?

Board Policy Direction

The Board states in the RRFE Report that benchmarking models will continue to be used to inform rate setting, and that the Board will continue to build on its approach to benchmarking with further empirical work on the electricity

[1] PEG's Supplementary Report, page 2
[2] Dr. Cronin's June 2013 Report, page 31
[3] Professor Yatchew's Report, June 2013, page 7
[4] Pages 5-6
[5] For example Toronto Hydro
[6] Updated PEG Report, May 2013, page 74

distribution sector in relation to the distributor customer service and cost performance outcomes, including total cost benchmarking [p. 60].

Background

In its Report PEG uses two different approaches to cost benchmarking: a) total cost benchmarking based on an econometric total cost model (i.e., capital plus OM&A) and b) a unit cost approach based on peer grouping utilities[1].

PEG's total cost econometric model relates a distributor's total costs to its outputs, input prices and business conditions. In developing its model PEG consulted both the PBR working group and the industry general to identify business condition variables that should be tested[2]. While all business conditions variables were tested only those that proved to be statistically significant were retained in final model used[3]. PEG's unit cost approach is discussed under Question #7.

In the model estimated for PEG's initial report (May 24th) four business conditions (km^2 service area, average line length, % of lines underground and % of customers in last 10 years) proved to be significant along with the time trend variable[4]. In the Updated Report (May 31st) only two of the business conditions (line length plus % of customers added in the last 10 years) plus the time trend variable proved to be significant.

Other key elements of the PEG model included:

- The fact it used a translog functional form which is very flexible function and the one most frequently used in econometric cost research[5].
- The costs for each distributor were adjusted so as to exclude, in those instances where distributors owned them, the costs associated with HV facilities and to include, in the case of embedded distributors, relevant LV costs[6]. This was done done in order to make the costs across distributors more comparable[7].

Professor Yatchew also used a translog functional form for his model[8]. However, unlike PEG, he did not adjust the cost data set to account for differences in HV facility ownership and the use of host utilities' LV facilities. Rather he included in the cost model business condition variables that would reflect differences between distributors in these areas. His resulting cost model identified three significant business conditions (line length, % of Capital Costs in Aid of Construction, % of Net LV-HV Charges) along with the time trend variable.

Mr. Fenrick's cost econometric cost model used unit costs (based on number of customers) as the explanatory variable. Mr. Fenrick's model uses a log-log format and does not include any quadratic variables[9]. Mr. Fenrick explains that one of the objectives in his choice of model specification was to ensure the model was "neutral to distributor size" and therefore did not include any recognition of economies of scale[10]. Mr. Fenrick's cost model includes 10 statistically significant business conditions (including the time trend variable)[11].

Dr. Cronin did not develop a total cost econometric model.

VECC's Comments

[1] Updated PEG Report, May 2013, page 43
[2] Updated PEG Report, May 2013, page 45
[3] Updated PEG Report, May 2013, pages 46-50
[4] PEG Report, May 2013, Table 10
[5] Updated PEG Report, May 2013, page 105
[6] Updated PEG Report, May 2013, Table 7
[7] Updated PEG Report, May 2013, pages 38-39
[8] Professor Yatchew's Report, June 2013, Appendix B, page 1
[9] Mr. Fenrick's Report, June 2013, pages 33 & 36
[10] Mr. Fenrick's Report, June 2013, pages 36-38
[11] Mr. Fenrick's Report, June 2013, page 34

Each of the three consultant's cost models were developed using generally the same approach: 1) specify the form of the cost function model to be used; 2) assemble a data set of costs, input prices and business conditions; 3) test which business conditions are statistically significant and include those in the proposed cost model equation.

The differences between the three consultants lie in:

i. The form of the cost model used (i.e. trans-log versus log-log)
ii. The cost data set used (i.e. adjust or do not adjust actual distributors costs for to account for owned HV facilities and the use of host distributors' LV facilities)
iii. The business conditions tested and found significant.

Mr. Fenrick argues that his functional form is superior primarily on the grounds that it is easier to understand, avoids penalizing distributors for realizing economies of scale and includes more statistically significant business conditions[1]. VECC disagrees.

The functional form used by Mr. Fenrick is inferior, less generally accepted and less flexible than the translog form employed by PEG and Professor Yatchew[2]. Mr. Fenrick has acknowledged this point[3]. However, even more problematic, is the fact that Mr. Fenrick's choice of this form and his decision not to include quadratic terms (e.g. customers-squared) are both explicitly aimed at eliminating the potential impact of economies of scale from the cost equation. In VECC's view the purpose of the cost equation is to explain (to the best extent possible) the cost levels observed for each distributor. If economies of scale have an impact on distributors' cost then they should be recognized in the cost equation. Choosing a model that explicitly excludes economies of scale[4] as a potential cost driver is fundamentally the wrong approach[5].

Mr. Fenrick argues that if two distributors decide to merge and are able to lower total costs those cost savings should be reflected in the bench score and ranking of the new utility. In VECC's view, if economies of scale exist then merging utilities should be expected to find savings and those savings should be reflected in lower costs. The cost equation will provide some insight into the "average" savings expected. To the extent merging utilities find more then that should go to their benefit and ranking. However, they should not be rewarded for simply finding the types of savings that are actually available from merging.

VECC acknowledges that finding and achieving such savings may take time. However, this issue can be addressed in other ways such as allowing a grace period (e.g. one to two years) before the ranking is adjusted to reflect the larger size of the utility and the corresponding expectation regarding economies of scale). VECC submits that the alternative, which is to totally ignore the potential impacts of economies of scale in total cost benchmarking is unacceptable.

The second area of difference is the data set used. The fact that Professor Yatchew's analysis found HV-LV cost contributions to be a statistically significant is evidence that this is a material issue for cost benchmarking. VECC views PEG's and Professor Yatchew's approaches as two possible ways of dealing with the issue. PEG's approach is to attempt to make the costs that are being explained comparable across distributors while Professor Yatchew's approach is to include in the cost equation business condition variables that will reflect the differences between distributors in these areas.

It is VECC's view that in a perfect world, where the appropriate HV and LV costs could be clearly identified, PEG's approach would be preferable. However, this is not the case – as evidenced by the issues raised in Board Question #9. Alternatively, VECC views Professor Yatchew's approach as being more applicable if it is impractical to even reasonably disentangle the appropriate HV and LV costs. At this stage, it is not clear to VECC that one approach is superior to the other.

---

[1] Mr. Fenrick's Report, June 2013, pages 36-37
[2] Updated PEG Report, May 2013, page 105 and May 28, 2013 Transcript, pages 77-78
[3] May 27, 2013 Transcript, pages 82-83
[4] May 27, 2013 Transcript, pages 83-84
[5] May 28, 2013 Transcript, pages 69-70

Each consultant has generally use the same output parameters (number of customers, system peak and retail deliveries[1]). In each case, the business conditions included were those that proved to be statistically significant based on the model form and data set used. The fact that the set of resulting business conditions varied across the three models is not surprising. However, it does highlight the fact that choice of model and data set is important. It also raises questions about the robustness of attempting to determined peer groups based on the business conditions identified via the econometric cost benchmarking model. In each case the selected outputs and business conditions are appropriate to the model (and data set) used. Tthe more important question is which is the most appropriate model form and data set.

Mr. Fenrick argues that his model is superior because it results in more business conditions being identified as statistically significant[2]. VECC does not accept this argument. VECC submits that the Board should reject this as a criterion for accepting one econometric cost model as being superior to another. As discussed earlier, the model form used by PEG and Professor Yatchew is superior, particularly in that it does not prejudge what business conditions should be excluded from consideration (e.g. distributor size).

To summarize, VECC considers the functional approach (translog) used by PEG and Professor Yatchew to be preferable for the reasons outlined above. In terms of which of the two models (PEG's or Professor Yatchew's) should be used, VECC is not in a position to express a preference at this time. Finally VECC notes that there continue to be concerns regarding the robustness and validity of the historical data used[3]. Also, the experts have acknowledged that minor changes in the technical specification of the models can impact the efficiency rankings of individual distributors[4]. This suggests to VECC that the neither model is perfect and too much precision should not be implied when applying the results.

Question #7: In PEG's unit cost/peer group model:

a. Are the recommended peer groups appropriate?
b. If not, what peer groups would you recommend and why?
c. Should each distributor's unit cost be compared to the average unit cost for the peer group or to the median unit cost for the peer group?

Background

PEG used the information from its econometric cost model to identify the "cost drivers" to be used for determining each distributor's peers. These cost drivers were output (as represented by combination of number of customers, system capability, retail deliveries and line kilometers); total service territory area; % of lines underground and customer growth[5]. Distributors were then grouped depending upon whether they were above or below the overall average/median for the various parameters. This yielded a total of 11 groups as some of the possible combinations did not include any distributors. In order to ensure that each peer group had a material number of distributors those groups with only a few distributors were re-assigned – resulting in a total of 6 peer groups. In the end, all of the large output distributors (11) have been combined into the same peer group regardless of their other business conditions. The remaining five peer groups are made of the smaller output distributors further distinguished by area size, undergrounding and customer growth.

Professor Yatchew states that the use of peer group analysis to inform the process of cohort classification is problematic, largely due to the difficulty in determining appropriate peer groups[6].

Mr. Fenrick calls for the elimination of peer grouping and reliance on the econometric benchmarking results for

[1] Mr. Fenrick's unit cost model did not include retail deliveries but did include percentage of large and general service loads.
[2] Mr. Fenrick's Report, June 2013, page 36
[3] May 28, 2013 Transcript, pages 112-113
[4] May 27, 2013 Transcript, pages 29-31
[5] Updated PEG Report, May 2013, page 76
[6] Professor Yatchew's Report, June 2013, page 17

4GIRM[1].

VECC's Comments

VECC generally agrees with the comments of Professor Yatchew that there are too many business conditions to effectively be able to assign distributors to a limited number of peer groups as is required if one is to be able to compare performance across member of the same "group". Compounding this problem is the fact that the relevant business factors change depending upon the model used.

Furthermore, as evidenced by PEG's work the relevant business conditions can also change due to date refinements. In this regard, it is noted that even though the business conditions deemed to be significant changed in the May 31st update to PEG's work, the recommended peer groups continued to rely on the business conditions deemed to be significant in the earlier work[2].

Overall VECC does not support the peer groupings proposed by PEG. Furthermore, based on the information at hand VECC does not believe it is practical to develop a relevant set of peer groups for purposes of comparing unit costs.

With respect to Question #7 c), if the Board decides to continue with the use of peer groups it is VECC's view that the median and not the average should be used to establish superior performance. The average unit cost for a group can be overly affected by the assignment of one or two utilities. Given that the assignment to peer groups is somewhat arbitrary (due to the number of business conditions and the need to reduce the overall number of groups) the median is a more appropriate benchmark for performance.

Question #8: In general, is the approach to dealing with differences in HV & LV services modelled by PEG appropriate?

VECC's Comments

This issue has been addressed in VECC's comments regarding Question #6.

Question #9: Specific to LV services, on December 6, 2012 Board staff posted on the Board's website a set of data that was provided by Hydro One to support the empirical analysis on payments to Hydro One for LV service for each distribution company for the period 2002-2011 (Summary of Hydro One Low Voltage Charges to Distributors 2002–2011). During the Stakeholder Conference the issue of appropriate LV costs to be included in the benchmarking models was raised.

a. Which of the following LV-related charges should be included in total cost benchmarking? If you recommend *excluding* a charge, please explain.

- Common ST Lines
- HVDS-HIGH
- HVDS-LOW
- LVDS
- Meter Charge
- Monthly Service Charge
- Shared LV Line
- Shared LVDS
- Specific Distribution Line
- Specific LV Line
- Specific Primary Lines

[1] Mr. Fenrick's Report, June 2013, page 45
[2] Updated PEG Report, May 2013, page 76 and May 28th Transcript, pages 138-139

• Specific St Lines

b. The Performance and Benchmarking Working Group raised concern that in circumstances where a shared LV line spans sparsely populated areas of Hydro One's service area, the inclusion of 100% of the "Shared LV Line" costs in the embedded distributor's benchmarking costs may unfairly overstate the LV costs for that distributor. How might the Board identify these circumstances and only allocate "Shared LV Line" costs in proportion to the "Shared LV Line" that is in the embedded distributor's service territory?

VECC Comments

In 2008 Hydro One changed the way it classified and charged distribution customers, including embedded distributors. Details can be found in its EB-2007-0681 Application, Exhibits G1 and G2. The following table summarizes VECC's understanding of the relationships between the before and after 2008 charges.

Post-May 1, 2008 Charges	**Equivalent Pre-May 1, 2008 Charges**	**Comments**
HVDS – High (secondary >/= 13.8 kV)	Same but secondary > 24.9 kV	These are distribution stations with a primary >50 kV.
HVDS – Low (secondary < 13.8 kV)	Same but secondary < 24.9 kV	
LVDS	Shared LVDS	These are distribution stations with primary <50 kV
Meter Charge	N/A	For embedded distributors that do not own their own meter
Monthly Service Charge	N/A	Prior to 2008 all LV charges were variable
Specific ST Lines (Voltages 13.8 -> 44 kV)	Specific LV Lines	These are lines that are located within the embedded distributor's service area and used only by that distributor
Specific Primary Lines (Voltages 4.16 -> 12.5)	Specific Distribution Lines	
Common ST Lines	Shared LV Line	These are lines with voltages of <50 kV that are used by more than one HON customer. For embedded distributors the lines can be inside or outside the distributor's service area

In considering whether or not each of these charges should be included in an embedded distributor's cost for purpose of benchmarking VECC has sought to include those charges that would make an embedded distributor's costs comparable to those of a transmission connected distributor taking service from one of the transmission system's transformation stations (i.e., the distributor does not own any HV facilities). Based on this approach, VECC submits that the following is the appropriate treatment for each charge:

a) HVDS-High – These stations perform a function similar to a Transformation Station and for which a transmission connected distributor pays RTSR charges to the IESO and therefore the associated costs should not be included.

b) LVDS and Shared LVDS – These stations step power down from voltages <50 kV (e.g. 44 kV) to the lower distribution voltage used by the distributor. Similar stations would be owned by transmission connected/served distributors. As a result these charges should be included for benchmarking purposes.

c) HVDS –Low – These stations perform a dual role in that they perform the function of a Transformation Station stepping power from above to below 50 kV but then they also perform the function of a typical distributor's substation in that they transform

the power down to a primary distribution voltage. VECC notes that in 2006 this charge was $3.78/kW versus a $2.11/kW charge for a HVDS-High and $1.67 for an LVDS. In 2013, the comparable charges are $3.579 for HVDS-Low; $1.965 for HVDS-High NS $1.614 for a LVDS. Using these values it would appear reasonable to include 45% of the HVDS-Low charges in the embedded distributor's costs for cost benchmarking purposes.

d) Meter Charge – Typically distributors are expected to own their meters and therefore this charge should be included for cost benchmarking purposes.

e) Monthly Service Charge – It is not immediately clear to VECC how this particular charge should be treated as it is not associated with any particular facilities. VECC sees either two approaches: i) split this cost according to the percentage of facility-related LV costs that are included for benchmarking purposes or ii) arbitrarily decide to either fully include or exclude it. In general this charge should prove to be small portion of total LV charges an embedded distributor faces and therefore its treatment may not be that critical.

f) Specific ST Lines/Specific Primary Lines/Specific LV Lines/Specific Distribution Lines – All of these charges are for lines that are within the embedded distributor's service area and used only by that distributor. A comparable transmission connected/served customer would own all such lines. As a result, these charges should be included for cost benchmarking purposes.

g) Common ST Lines/Shared LV Line – These facilities include LV lines that are both inside and outside the embedded distributor's boundary that are shared with other customers of Hydro One. For shared lines that are inside an embedded distributor's boundary, they should be included in the cost benchmarking.

   For the treatment of those lines that are outside the embedded distributor's boundary, it is necessary to look at how the "comparator" (i.e. the transmission connected distributor) is served. If generally the transformation stations serving such distributors are in their service area such that there are no LV feeders that are owned by the transmission connected distributor and outside its service area then it would be reasonable to exclude the LV lines that lie outside an embedded distributor's boundary. However, if the opposite were the case and transmission-connected distributors typically owned/operated LV feeders outside of their service area in order to connect to Hydro One transformation stations then the costs should be included. In the time available VECC has made some inquiries as to the predominant practice amongst transmission connected distributors and there is no clear answer. For larger distributors it appears the transformation station tends to be located within the distributor's boundary. However, medium sized distributors frequently share a transformation station and so some distributors do own/operate feeders outside their service area.

In VECC's view more analysis, likely by Hydro One, is required to further clarify the practice and provide the necessary information to address this issue. The same applies to Board Question #9 b) in that detailed information from Hydro One is required to separate the Common/Shared LV lines as between the line kilometers that are inside vs. outside a distributor's boundary.

D. EFFICIENCY COHORTS/RANKINGS & STRETCH FACTORS

Question #10: For each expert's recommended approach:

a. Is the proposed approach appropriate? Does it meet the Board's policy direction noted above?

b. What is your preferred approach and why?

Question #11: What are appropriate stretch factor values? Why?

Board Policy Direction

The Board notes in the RRFE Report that stretch factors are intended to reflect the incremental efficiency gains that distributors are expected to achieve under incentive regulation and can vary by distributor and depend on the efficiency of a given distributor at the outset of the incentive regulation plan [p. 17]. The Board provided the following policy direction:

- The Board's approach in relation to the use and assignment of stretch factors will continue;
- Distributors will continue to be assigned annually to efficiency cohorts;
- Assignments will be made on the basis of total cost benchmarking evaluations; and
- The Board will further consider whether the current stretch factor values continue to be appropriate or whether there should be greater differentiation between the values.

Background

PEG recommends that the efficiency cohorts be established using the results from both the peer group-based unit cost benchmarking and the econometric benchmarking. PEG acknowledges that the unit cost benchmarking analysis is not as technically sophisticated but claims it is more transparent and accessible[1].

PEG also recommends[2] that the number of cohorts be expanded from three to five and that they be established in the following manner:

- Cohort 1: Would consist of distributors that are significantly superior cost performers at the 90% confidence level using the econometric cost benchmarking and that are in the top quintile of distributors on the peer group/unit cost benchmarking analysis. A stretch factor of 0% would apply to these distributors.
- Cohort 2: Would consist of distributors that are significantly superior performers at the 90% confidence level and in the second quintile of distributors on the peer group/unit cost benchmarking analysis. A stretch factor of 0.15% would apply to these distributors.
- Cohort 5: Would consist of distributors that are significantly inferior cost performers at the 90% confidence level using the econometric cost benchmarking and in the bottom quintile of distributors on the peer group/unit cost benchmarking. A stretch factor of 0.6% would apply to these distributors.

[1] Updated PEG Report, May 2013, page 89
[2] Updated PEG Report, May 2013, pages 90-91

- Cohort 4: Would consist of distributors that are significantly inferior cost performers at the 90% confidence level using the econometric cost benchmarking and are in the fourth quintile of distributors on the peer group/unit cost benchmarking. A stretch factor of 0.45% would apply to these distributors.
- Cohort 3: Would include the balance of the distributors and have a stretch factor of 0.3%. It should be noted that the majority of distributors would be assigned to this cohort.

PEG notes[1] that the range for the stretch factors has been changed from 0.2%<-> 0.4% to 0.0% <-> 0.6% and that the average (applicable to most distributors) has been reduced from 0.4% to 0.3%. This is meant to reflect the fact that, on average, incremental efficiency gains will become more difficult to achieve over time.

Mr. Fenrick proposes that the cohort assignment be based on the result of his unit cost econometric model. He further proposes that there be six cohorts where the top sixth of the distributors would be placed in Cohort 1, the second sixth in Cohort 2, etc. The applicable stretch factors would be 0%, 0.1%, 0.2%, 0.3%, 0.4% and 0.5%. His primary rationale for reducing the range for the stretch factors is similar to PEG's.

Professor Yatchew recommends[2] that the cohort assignment be based strictly on the econometric benchmarking results (i.e. cost predicted versus actual costs). He also suggests that the stretch factor range be adjusted such that it would range from -0.3% to +0.3%. What is not clear from Professor Yatchew's report is how many cohorts there would be or, indeed, whether each distributor would have its own unique stretch factor (between -0.3% and +0.3%) depending upon where its total cost benchmark results fall within the range established for all distributors.

Professor Yatchew's rationale[3] for adopting a stretch factor range centred around zero is to create a penalty/reward mix where lean distributors will use the incremental funds to sustain their preferred ranking.

VECC's Comments

The major differences between the experts' approaches to efficiency cohorts, rankings and stretch factors are:

- What benchmarking measures should be used to assign distributors to cohorts?
- Should the assignment result in an equal distribution of distributor's across cohorts or, alternatively, should the assignment to the outlying cohorts (i.e. in the case of five cohorts the outlying ones would be Cohorts 1 and 5 and to a lesser degree Cohorts 2 and 4) be reserved for those who have clearly exhibited superior/inferior performance?
- Precisely how many cohorts should there be?
- What should be the stretch factor range?

Benchmarking Measure(s) Used

As discussed in response to Question #7, VECC does not support the use of peer groups for purposes of benchmarking distributors' performance. This is primarily because of the problems associated with establishing a robust and representative set of peer groups given the wide range of business conditions that have been identified as impacting on distributors costs and the need to have limited number of peer groups overall for unit cost benchmarking purposes.

As result, VECC considers it appropriate to rely on the econometric cost benchmarking for purposes of assigning distributors to efficiency cohorts. Furthermore, consistent with the comments made in response to Questions #5 and

[1] Updated PEG Report, May 2013, page 89
[2] Professor Yatchew's Report, May 2013, pages 17-18
[3] Professor Yatchew's Report, May 2013, page 18

#6, VECC believes the econometric model used should not be Mr. Fenrick's Unit Cost model due to the deficiencies already noted.

As discussed previously, both PEG's and Professor Yatchew's specifications are reasonable ways of trying to deal with the LV/HV data issues and, currently, one approach does not appear to be superior to the other. As a result, it is VECC's that both Total Cost Econometric models should be used in benchmarking for purposes of assigning them to efficiency cohorts.

Basis for Assignment

In using the results to assign distributors to efficiency cohorts there are fundamentally two approaches that can be taken. One would be to look each distributor's performance relative to other distributors and then assign to cohorts (or assign specific stretch factors) based simply on their ranking. Using this approach would akin to following Mr. Fenrick's or Professor Yatchew's recommendations except the ranking would be based on the average of two methods instead of just the results from a single method. The problem with this approach is that distributors could be assigned to different efficiency cohorts even if their cost performance was not statistically or materially different[1].

Alternatively, one could require that the distributor have demonstrated superior performance (to some degree) under both methods prior to assigning it to a Cohort with a less than "the average" stretch factor. This is similar to the approach PEG uses when employing the results of multiple methods.

As noted in response to Question #6, neither of the Total Cost models is perfect and, as a result, each is liable to misclassify a distributor as a superior or inferior performer when they are not. Furthermore, each cost model's ranking of distributors is sensitive to the model's specification as noted by Professor Yatchew[2]. Finally, there are continuing concerns about the data used in the modeling particularly with respect to the capital additions and retirements used some distributors[3] and it is not clear that all of these issues will be identified and resolved. All of this suggests to VECC that caution must be exercised in applying the results. Therefore, before a distributor is classified as a superior or inferior performer VECC submits that it should be demonstrated as such using <u>both</u> models.

Number of Cohorts

Given these potential inaccuracies in cohort assignment VECC does not consider it appropriate to expand the number of cohorts to six as recommended by Mr. Fenrick. Indeed, even the five recommended by PEG may be too many. However, in the interest of introducing more opportunity for movement between cohorts (and as results between stretch factors) VECC recommends that the Board adopt five efficiency cohorts for purposes of assigning stretch factors for 4GIRM.

For the same reasons, VECC does not support a scheme whereby each distributor would be assigned a unique stretch factor based on where its results fall within the overall range of distributors cost benchmarking results. In VECC's view the models are not sufficiently robust and fine-tuned in terms of results to support the precision suggested by such an approach.

Stretch Factor Range

VECC supports the stretch factor range and the value for individual cohorts as recommended by PEG.

VECC notes that under Professor Yatchew's approach an "average" distributor would have a stretch factor of zero and be assigned an overall productivity factor equivalent to the industry average TFP. VECC views this as

[1] May 27th Transcript, page 86
[2] Professor Yatchew's Report, May 2013, page 17 and May 28, 2013 Transcript, pages 78-79
[3] For example, see Dr. Cronin's Report, page 19; PEG's Update Report, page 33, PEG's June 18th Response to Entegrus' follow-up question, Enwin's June 26th Comments, and May 28, 2013 Transcript, page 96.

inappropriate. The purpose of IRM (and specifically stretch factors) is to incent distributors to pursue greater productivity improvements[1]. This means that distributors with average cost performance should be trying to "better" the industry average in terms of productivity and the 4GIRM should be creating the expectation that they will do so. Indeed, the stretch factors should be encouraging all distributors to, at minimum, achieve and maintain the average productivity expected of the industry. To this end, none of the stretch factors should be less than zero. VECC notes that this (i.e. a stretch factor greater than or equal to zero) is a standard element of other IRM plans with such features[2].

Overall Recommendation

Overall VECC recommends that:

- There should be no more than five efficiency cohorts,
- With five efficiency cohorts, the stretch factors should be 0% for Cohort 1, 0.15% for Cohort 2, 0.3% for Cohort 3, 0.45% for Cohort 4 and 0.6% for Cohort 5.
- Distributors should be assigned to the cohorts using the results of both PEG's and Professor Yatchew's total cost econometric benchmarking models as follows:
    - Cohort 1: Would consist of distributors that rank in the top quintile in both models,
    - Cohort 2: Would consist of distributors (excluding those assigned to Cohort 1) that rank in the top two quintiles for both models,
    - Cohort 5: Would consist of distributors that rank in the lowest quintile in both models,
    - Cohort 4: Would consist of distributors (excluding those assigned to Cohort 5) that rank in the bottom two quintiles in both models, and
    - Cohort 3: Would consist of all remained distributors.

E. IMPLEMENTATION CONSIDERATIONS

Question #12: What indicators should the Board consider monitoring on an on-going basis to test the reasonableness of the results of its PCI formula before it is applied to adjust the distributor's rates (i.e., ex ante)?

VECC Comments

In VECC's view there are two aspects to this question. The first relates to the numerical results produced by the PCI formula while the second aspect relates to the efficiency cohort each distributor is assigned to.

In terms of the numerical results, VECC notes that the formula is constructed as follows: Inflation – Productivity – Stretch Factor. Since the last two terms will be fixed by this process, the range of possible results for a given year will be determined solely the inflation factor established for the test year. Assuming the Board has given adequate weight to rate stability considerations in the selection of the inflation factor, there is no basis on which to expect that the results of the formula would not be reasonable.

In terms of cohort assignment, the issue is whether the changes in cohort assignment as signaled by the annual update to the total cost econometric benchmarking are reasonable. In this regard the Board should look at those instances where the assignment has materially changed. Given the previous issues noted with the models the Board

[1] Report of Board on 3rd Generation Incentive Regulation for Ontario's Electricity Distributors, July 2008, page 20
[2] Updated PEG Report, May 2013, page 74

may wish to limit the degree of change in cohort ranking that can occur from one year to the next to no more than an upward or downward movement of one cohort. If material changes in performance[1] are sustained then the distributor's ranking will be adjusted appropriately overtime. If they are not, such an approach avoids creating volatility in the year over year assignment of a distributor to efficiency cohorts.

Question #13: When the Board updates the industry productivity factor every five years, should the new productivity factor be automatically applied to all distributors that are then on 4th Generation IR? Why or why not?

VECC Comments

With respect to updates to the inflation, productivity and stretch factors to be used in the "next" generation of IRM, VECC submits that the new parameters should be applied to all distributors. It is assumed that the new productivity factor would be based on a review of industry-wide productivity trends and, therefore, should be applicable to all distributors.

VECC also notes that for 2010 and 2011 rates the Board permitted the use of both 2GIRM and 3GIRM approaches, but for 2012 rates distributors were no longer allowed to file a 2GIRM application. The rationale at the time was that a uniform IRM framework would allow for greater consistency amongst distributors and that there was also efficiency to be gained by no longer having to review and maintain different filing modules[2]. In VECC view these same reasons for standardizing the approach still apply.

F. GENERAL

Question #14: With respect to your preferred approaches, as identified in your answers to prior questions, what other implementation matters, if any, need to be considered by the Board?

VECC Comments

There are a few matters implementation that VECC has noted to date. The first matter was discussed in response to Question #6 and involves how mergers should be dealt with and whether the Total Cost models should be adjusted immediately to reflect the large size of the new distributor or whether the new distributor should be given some time (say one year) to achieve the economies of scale commensurate with its new size.

The second matter relates to the lower productivity factor now being used in the 4GIRM. To some extent this lower productivity factor is the result of historical spending on "unmeasured outputs" (as discussed in response to Questions #3 and #4). This means that the 4GIRM already builds in an allowance for such activities and that the Board will need to consider whether the additional funds that may be sought through separate rate rider applications related to say the Incremental Capital Module or Smart Grid Activities isn't already provided for in the 4GIRM formula.

Finally, VECC wishes to restate its view that "earnings sharing" is an important element of the annual PCI adjustment under any IRM plan.

Thank you for the opportunity to comment on this important initiative.

[1] Such that the cohort reassignment would change up/down by more than one cohort ranking
[2] 2012 Filing Guidelines, Chapter 3, pages 1-2

Yours truly,

Michael Janigan
Counsel for VECC