EB-2010-0379

Ontario Energy Board

CONSULTATION

DEFINING AND MEASURING PERFORMANCE OF ELECTRICITY DISTRIBUTORS

COMMENTS OF
ENERGY PROBE RESEARCH FOUNDATION
("ENERGY PROBE")

June 27, 2013

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Comments of Energy Probe Research Foundation

Background

In its letter of May 30, 2013 ("Letter"), the Ontario Energy Board (the "Board") made provision for stakeholders to review the expert reports filed by other stakeholders and to file their own written comments.

Energy Probe Research Foundation ("Energy Probe") has participated in all aspects of the Renewed Regulatory Framework for Electricity and, in particular, attended the Stakeholder Conference for EB-2010-0379 on May 27-28 2013.

In Appendix B to its Letter, the Board provided a non-exhaustive list of questions for written comment. In its submissions below, Energy Probe responds to those questions.

The Inflation Factor

1. **Comments on each expert's recommended approach**
    a. Is the proposed approach appropriate? Does it meet the Board's policy direction noted above?
    b. Are the recommended sub-indicies appropriate?

In its main report entitled "Empirical Research in Support of Incentive Rate Setting in Ontario" dated May 2013, PEG suggests a 3-factor, 3-year moving average for the inflation factor.

It appears to Energy Probe that PEG's industry-specific inflation factor meets the broad requirements of the Board's policy direction: (a) the desired inflation factor is based on readily-available public information (b) the non-labour price inflation is industry-specific and (c) the labour price inflation component is generic. While Energy Probe recognizes that the EUCPI is not specific to Ontario, PEG's adoption of it together with the costs of capital for Ontario distributors reduce the concern.

The report of Professor Yatchew (on behalf of the EDA) generally accepts the PEG data, indicies and analysis; his principal concern is with volatility. The PSE report (on behalf of the CLD), while critical of the PEG recommendations in certain respects, also appears to follow the Board's policy direction regarding the industry-specific inflation factor.

In Energy Probe's view, it is less clear that the report of Dr. Cronin (on behalf of PWU) is consistent with the Board's policy direction regarding the favoured industry-specific inflation factor. Indeed, his report does not deal specifically with this subject at all and gives no indication that he has been guided by the policy direction.

c. Should the Board be concerned with volatility in the inflation factor?

Two expert reports address PEG's inflation factor. Professor Yatchew's (EDA) main concern is that the PEG approach is inherently volatile, in the sense of sensitivity to interest rates. He advocates that the Board take the differential between the industry-specific inflation rate and a broad measure of inflation into account. When the former is below the latter, a portion of the differential would be included in the allowed rate but the balance would be "banked" against those years in which the opposite situation occurred.

Energy Probe feels that Professor Yatchew's suggestion is not sufficiently well-defined. For example, he does not indicate how many successive years' differentials would be "banked".

The PSE (CLD) paper proposes a non-smoothed index that, unlike PEG, omits explicit changes in the cost of capital. On the basis of a 7-year time series (2006-2012), PSE' inflation index is less volatile than PEG's 3-year moving average as measured by the standard deviations of the two indexes over time.

Energy Probe is uncertain whether PSE's inflation index would be significantly less volatile than PEG's if a longer time-period were used for the comparison. Indeed, the accuracy of a volatility estimate based on 7 annual observations on a time series is highly doubtful.

It is a complicated matter to determine whether inflation in some form may be represented in the sub-indexes used and hence double-counted in PEG's approach. However, Energy Probe notes that neither PEG's (1.47%) nor PSE's preferred index (2.58%) tracks industry unit cost growth (3.7%) particularly well. (Table 7, PSE report)

The Board should certainly be concerned about volatility in the inflation factor, firstly for the impact on consumers of unpredictable fluctuations in allowed rates. Secondly, the Board needs to take into consideration the impact of volatile (i.e. unpredictable) changes in inflation on the investment decisions of regulated distributors.

2. What is your preferred approach and why?

Energy Probe prefers the approach taken in PEG's recommendations regarding the inflation factor, albeit without the smoothing component. In this regard, it favours the use of the most up-to-date indicator of inflation as suggested by PSE rather than a smoothed average of recent years' inflation rates. Energy Probe is concerned that smoothing the inflation factor in the incentive-rate formula may restrain allowed rates in such a way as to deter timely investment by the affected distributors. The expert reports document the differences between electricity industry price inflation and broader measures such as the Consumer Price Index.

Thus, while it may be desirable to smooth the inflation factor for the benefit of consumers during periods of variable inflation, periods such as the present do not give rise to concerns about such volatility. Accordingly, Energy Probe recommends that the Board not adopt a smoothing procedure. However, the IRM formula should be reviewed in its entirety after a suitable period of experience to determine how it has affected consumers and distributors.

The Productivity Factor

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?

PEG's approach is appropriate, and follows the Board's policy direction regarding an external benchmark and its use of an index-based approach. The RRFE Report states that "Productivity factors are typically measured using estimates of the long-run trend in TFP growth for the regulated industry" (p.17); all distributors will be subject to this same productivity factor. PEG's report indicates that it has made intensive use of the enhanced dataset for the industry as well as externally-provided statistics in this regard.

The output quantity in the PEG index-based approach is a weighted average of the growth in customer numbers, total kWh deliveries and system capacity peak demand. The weighting scheme could, of course, be handled differently, but PEG's approach is reasonable.

PEG's input prices and quantities are based on two subindexes, capital and OM&A inputs. Although the measurement of capital is highly technical, Energy Probe agrees with PEG's focus on cumulative additions to the capital stock rather than the benchmark capital value (PEG report, p.31-32). Data availability issues are a concern because PEG's procedure is premised on a remote capital benchmark for which the data are not available.

As indicated in the RRFE Report, the TFP growth factor is to be based on the entire industry. PEG's preferred statistical analysis excludes Toronto Hydro and Hydro One on the basis that inclusion over-weights these two distributors and thereby fails to provide an "industry-wide" trend. The proper treatment of outliers in statistical analysis is a matter for professional opinion. Energy Probe does not criticize PEG's approach as it is intended to comply with the Board's policy direction. Moreover, it seems improper to apply a "full sample" productivity factor to all Ontario distributors when that factor is overly influenced by two outliers.

Energy Probe believes that PEG has identified and resolved the various data issues in a reasonable way, and feels that its capital (as well as OM&A) inputs are appropriate. As the appropriate data is collected over time, it is likely that the estimates of capital will improve and can be incorporated in future IRM formulas.

Energy Probe is less clear on Professor Yatchew's approach because he finds the index approach less suitable than the cost-based approach and much of his report concerns the cost model. It is not clear how he has measured capital, a principal concern in the PEG report, nor whether he agrees or disagrees with PEG's approach thereto.

Energy Probe notes that the PSE report describes PEG's indexing approach as "generally correct" and "should be accepted as they are" (p.19). Their main criticism is PEG's exclusion of Toronto Hydro and Ontario Hydro from the sample. They also criticize PEG for omitting the OM&A input price in its secondary econometric TFP projections (p.21-22). Their preferred approach is to use the full sample and a productivity factor of -1.10%.

Dr. Cronin's productivity analysis attempts to assess the reasonableness of the index-based TFP analysis using the price-dual approach, in large measure because of his concerns about data availability. He states, for example, that the data on capital would be needed for decades (s.3.1) in a proper index-based study and he may well be correct in this regard. His most important conclusion is that over the period 2006-2011, industry productivity growth was negative (s.4).

Dr. Cronin's calculations for multiple time periods and sub-periods make it difficult to compare his results with those of PEG. His study may have value as a check on the other estimates, but his methodology is not consistent with the Board's policy direction emphasizing the index-based approach, and his choice of inputs and outputs are not appropriate in light of that approach.

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

Energy Probe recommends that the Board accept PEG's productivity factor of 0.10%. The fact that PEG uses a statistical sample that excludes Toronto Hydro and Hydro One is a professional judgment that it is entitled to make. The fundamental point in the Board's policy direction is that the productivity factor be based on an industry-wide trend, and this direction could be obscured by statistical outliers that have an undue weight on the resulting productivity estimate.

Energy Probe finds it strange that the industry-wide productivity trend could be negative, and is inclined to accept Professor Yatchew's conclusion that the negative productivity estimates are the result of measurement error. Moreover, the whole point of incentive regulation is to reward distributors for becoming more efficient, i.e. over those costs and decisions that are under the control of the distributor.

To the extent that regulation and/or public policy may require distributors to undertake expenditures that are not associated with revenue increases, measured distributor productivity must decline. However, this negative finding does not preclude that distributors are being run more efficiently yet the greater efficiency is obscured by effects of regulatory and public policy.

But for the dispute over the statistical sample, there is general agreement that PEG's productivity factor is correct and Energy Probe recommends accordingly.

Total Cost Benchmarking

5. **For each expert's recommended approach (including PEG's):**
    a. What do you perceive to be the strengths and weaknesses of the various consultants' approaches?
    b. Are the outputs and recommended business condition variables appropriate?

Dr. Cronin report (for PWU) does not undertake total cost benchmarking or analyze PEG's methodologies or findings. Accordingly, his approach offers no strengths or weaknesses to consider.

If there is a weakness in PEG's approach, it is that its recommended 6 peer groups arise from applying various criteria in an arbitrary fashion. Recognizing that benchmarking is a relative comparison process, it is highly likely that if the same criteria were applied, but in different order, the groups would be significantly different. For example, the number of groups is reduced from 12 to 6, but one wonders whether this outcome would prevail if the same criteria had been applied differently. The "winnowing process" referred to on p.84 is an arbitrary one.

Energy Probe thus has the same concerns as Dr. Yatchew (for EDA). His approach relies solely on the econometric cost model, and this is not inconsistent with the Board's policy direction.

The PSE report (for CLD) claims a number of improvements on the PEG analysis. Energy Probe feels that its critique of PEG's use of the translog function may be quite important. Energy Probe agrees that scale economies should be part of the rankings rather than precluded therefrom.

6. **What is your preferred approach and why?**

Energy Probe prefers an approach that requires as little subjectivity as possible in ranking distributors on the basis of efficiency. For this reason, it favours the econometric approach of Dr. Yatchew and PSE over PEG's peer group approach.

Energy Probe notes that PSE finds it appropriate to use a "custom" sample for its rankings whereas it insists on a full-Ontario sample for its productivity analysis. Both PEG and PSE consider that Algoma, Toronto Hydro and Hydro One require special treatment; Energy Probe agrees.

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?

As indicated above, Energy Probe feels that the appropriateness of the peer groups recommended by PEG could well depend on the sequence in which the various criteria are applied. However, Energy Probe agrees that the comparison with the median unit cost is appropriate.

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

Energy Probe notes that in its Supplementary Empirical Analysis following the consultation, PEG re-estimated the econometric model used to benchmark distributors' cost performance using a measure of total cost that excluded the LV charges that embedded distributors pay to host distributors. It found that the results were quite similar to those presented in its May 31 report.

On this basis, Energy Probe feels that PEG's approach to dealing with differences in HV & LV services is appropriate.

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. 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 service charges should be included in total cost benchmarking? If you recommend *excluding* a charge, please explain.

Energy Probe makes no comment on this issue.

    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?

Energy Probe has consistently maintained that cost allocation methodologies are highly problematic and should be avoided wherever possible in decision-making. It favours the "avoidable cost" cost approach in which allowed revenues are established in relation to total costs that could be avoided upon a hypothetical shutdown of the service in question.

Efficiency Cohorts/Rankings & Stretch Factors

10. **For each expert's recommended approach:**
    a. Is the proposed approach appropriate? Does it meet the Board's policy direction noted above?

PEG, PSE and Professor Yatchew discuss efficiency cohorts/rankings. It appears to Energy Probe that PSE's detailed Unit Cost Econometric Benchmarking Model may have some advantages, but it does not appear to follow the policy direction of assigning distributors annually to efficiency cohorts. Similarly, Professor Yatchew uses the same cost model to compare the relative efficiencies of distributors that he

relies upon to calibrate the output index in the index modelling approach. He appears critical of assigning distributors to efficiency cohorts that the policy direction requires.

Much of PSE's critique of PEG's approach is statistical in nature. There may be value in these criticisms (e.g. that PEG uses certain variables in its formula that it found to be statistically insignificant), but for the current discussion they are of second order concern.

b. What is your preferred approach and why?

If, as the Board's policy direction indicates, the efficiency cohorts approach will continue to be used, then only PEG's approach can be endorsed. However, Energy Probe believes that the various criticisms of establishing cohorts have merit and should be the subject of greater study.

11. What are appropriate stretch factors? Why?

Both Professor Yatchew and PSE suggest that a symmetric stretch factor that ranges from a negative value to a positive value would be sensible if the main focus is on incenting distributors to increase cost efficiency. Professor Yatchew suggests a range of -0.3% to +0.3%, while PSE suggests a range from -0.5% to +0.5%.

Energy Probe has always supported the view that consumers should pay, and understand, the full cost of electricity. Thus, it agrees that the main emphasis of incentive regulation should be on cost efficiency and that stretch factors should be assigned accordingly.

Energy Probe does not understand how including negative stretch factors would promote cost savings by individual distributors. Accordingly, it believes that allowed stretch factors should follow PEG's recommended range (0:0% to 0.6).

Implementation Considerations

12. What indicators should the Board consider 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)?

Energy Probe makes no comment on this issue.

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?

In Energy Probe's understanding, the problem does not arise if all distributors are on the same 5-year plan. However, as indicated in the RRFE Report (p.68), distributors would commence 4th Generation IRM when next scheduled to rebase under cost of service. Accordingly, their new IR terms will not coincide.

Energy Probe feels that distributor planning would be enhanced if the new productivity factor were to be applied to a distributor at the end of its current term rather than within the current term. This will mean that different distributors are using different productivity factors at the same time, but as investment and other plans will be based on the prevailing applicable formula, it seems more appropriate to refrain from changing that formula during the term.

General

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?

Energy Probe makes no comment on this issue.

ALL OF WHICH IS RESPECTFULLY SUBMITTED

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