Ontario Energy Board

# EB-2007-0673

# Supplemental Report of the Board

## on 3rd Generation Incentive Regulation for Ontario's Electricity Distributors

September 17, 2008

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# 1 Overview

On July 14, 2008, the Board issued its "Report of the Board on 3rd Generation Incentive Regulation for Ontario's Electricity Distributors" (the "July 14, 2008 Report")[1]. That Report sets out the Board's policies and approach to 3rd generation incentive regulation ("3rd Generation IR").

When the July 14, 2008 Report was released, the Board had not yet determined the values for the productivity factor, the stretch factor, and the capital module materiality threshold. These were identified in the July 14, 2008 Report as the three outstanding matters that would benefit from further consultation prior to the Board making a determination on the values. Two Board Members, Mr. Paul Sommerville and Mr. Paul Vlahos, presided over a stakeholder conference held on August 5 – 7, 2008, to provide a forum for further discussion of these issues. At the end of the stakeholder conference, the Board Members indicated that they would report to the Board on the stakeholder conference, following which the Board would make a determination on the outstanding issues.

The participants at the stakeholder conference were:

| **Participants** | **Representing** |
|---|---|
| Mr. Maurice Tucci<br>Prof. Adonis Yatchew of the University of Toronto | Electricity Distributors Association ("EDA") |
| Ms. Susan Frank<br>Ms. Paula Conboy,<br>Ms. Lynne Anderson Ms. Julia Frayer of London Economics International, LLC ("LEI") | Hydro One, Inc. ("Hydro One") and the Coalition of Large Distributors (Enersource Hydro Mississauga Inc., Horizon Utilities Corporation, Hydro Ottawa Limited, Powerstream Inc., Toronto Hydro-Electric System Limited And Veridian Connections Inc.) (the "CLD") |

[1] Available on the Board's website at http://www.oeb.gov.on.ca/OEB/_Documents/EB-2007-0673/Report_of_the_Board_3rd_Generation_20080715.pdf.

| Participants | Representing |
|---|---|
| Mr. Peter Thompson | The Canadian Manufacturers & Exporters (“CME”) |
| Ms. Julie Girvan | The Consumers Council Of Canada (“CCC”) |
| Mr. David Macintosh | Energy Probe Research Foundation (“Energy Probe”) |
| Mr. Randy Aiken | London Property Management Association (“LPMA”) |
| Ms. Judy Kwik | The Power Workers' Union (“PWU”) |
| Mr. Jay Shepherd | The School Energy Coalition (“SEC”) |
| Mr. Bill Harper | The Vulnerable Energy Consumer's Coalition (“VECC”) |
| Ms. Lisa Brickenden<br>Mr. Allan Fogwill<br>Ms. Marika Hare<br>Mr. Bill Cowan<br>Dr. Lawrence Kaufmann of the Pacific Economics Group, LLC (“PEG”) | Board Staff |

This Report sets out the Board’s determination of the values for the productivity factor, the stretch factor, and the capital module materiality threshold for use in 3rd Generation IR. This Report also sets out the Board’s determination on the issue of tax changes in relation to the Z-factor.

This Report is organized as follows. Each of the sections in Chapter 2 deals with an outstanding issue (i.e., the value for each of the productivity factor, the stretch factor, and the capital module materiality threshold) and is comprised of three subsections: the first briefly describes the issue, the second summarizes participants’ comments, and the third sets out the Board’s policy and rationale. Chapter 3 addresses the issue of tax changes in relation to the Z-factor. Appendix B to this Report contains an amended version of the filing guidelines that were set out in the Appendix to the July 14, 2008 Report. The amendments to the filing guidelines reflect the Board’s determinations in this Report.

# 2 Values for Certain IR Plan Parameters

## 2.1 Productivity Factor

In the July 14, 2008 Report, the Board stated that while it is clear to the Board that participants support an index based approach for the derivation of an industry productivity trend to form the basis for the productivity factor for the incentive regulation ("IR") plan, the Board would be assisted by further consultation on the interpretation of the results in order to determine the appropriate value for the productivity factor.

The question to be addressed by participants at the stakeholder conference was: what is the appropriate value for the total factor productivity ("TFP") trend?

***Issues and Options Raised in Consultations***

The table in Appendix A summarizes the recommendations and supporting assumptions of Dr. Kaufmann, Prof. Yatchew, Dr. Cronin[2], and Ms. Frayer for the appropriate value for the productivity factor in 3rd Generation IR.

PEG's report entitled "Calibrating Rate Indexing Mechanisms for Third Generation Incentive Regulation in Ontario" (the "PEG IR Report") details the productivity study carried out (the "PEG Study") to arrive at PEG's recommended 0.88 percent value for the productivity factor in 3rd Generation IR. This value is based on U.S. data. Since there is insufficient Ontario data for setting a productivity factor for 3rd Generation IR, PEG used U.S. data after carrying out a comparative analysis to demonstrate that TFP growth for U.S. distributors is a reasonable proxy for contemporaneous Ontario distributor trends. Dr. Kaufmann submitted that he believed this a reasonable measure

[2] Dr. Frank Cronin, retained by the PWU, did not attend the August stakeholder conference. He made his recommendations in written comments over the course of this consultation.

and that the methodology used to arrive at the recommended productivity factor can be easily applied to Ontario data in the future.

In relation to recent slow productivity growth evident in both the U.S. data and in the available Ontario data, Dr. Kaufmann noted that this has happened before as shown in the 1st generation performance-based regulation ("1st Generation PBR") productivity analysis (the "Cronin and King Study")[3] – slow productivity growth between 1988 and 1993 was followed by rapid productivity growth between 1993 and 1997. Given that experience, Dr. Kaufmann commented that he did not believe that he should assume that the recent slow TFP growth will necessarily continue in the future. As a consequence, PEG did not put any extra weight on the TFP growth of the last four years as did Prof. Yatchew.

The average annual productivity growth over the period 1988-2006 was 0.72 percent. The 0.88 percent value proposed by PEG is restricted to the period 1995-2006, a value that is based on a "start date analysis". Dr. Kaufmann explained that the purpose of PEG's start date analysis is to isolate the long-term trend as much as possible from systemic externalities, such as weather and the economy, so that TFP is not measured in a way that it is distorted by transitory impacts. Therefore, Dr. Kaufmann used statistical analysis to estimate the impact of heating degree days, cooling degree days, and unemployment rate on measured TFP growth. This analysis revealed that 1995 was most similar to 2006, the most recent year in the U.S. data set, and therefore was selected as the "start date" which was least likely to distort measured TFP growth due to transitory weather or economic conditions.

While Prof. Yatchew expressed a preference for the use of Ontario data to set a productivity factor for Ontario distributors, he accepted the PEG Study and the use of U.S. data and provided his advice on how to interpret the results for Ontario distributors.

[3] Cronin, F.J., M. King and E. Colleran. PHB Hagler Bailly Consulting. Productivity and Price Performance for Electric Distributors in Ontario. Prepared for Ontario Energy Board Staff, July 6, 1999. Available on the Board's web site at http://www.oeb.gov.on.ca/documents/cases/RP-1999-0034/ppp1.html

Prof. Yatchew recommended a productivity factor of 0.55 percent which incorporates long-term average productivity growth of 0.72 percent and assigns greater weight to recent (2002-2006) slower productivity growth observed in both U.S. (0.41 percent) and Ontario data (0.01 percent estimated by PEG in the PEG IR Report). Noting that the Board took both recent and long-term patterns in productivity growth into account when it determined the policies and approach to 1st Generation PBR, Prof. Yatchew assigned a ⅔ weight to the long-term average and a ⅓ weight to the recent average, resulting in a point forecast figure of 0.55 percent as summarized in Table 1.

**Table 1: Estimation of the 0.55%**

| Assigning a ⅔ weight to the long-term average and a ⅓ weight to the recent average: |
|---|
| 0.49% = ⅔ 0.72% + ⅓ 0.01% |
| 0.62% = ⅔ 0.72% + ⅓ 0.41% |
| 0.55% ~ mid point between 0.49% and 0.62% |

Prof. Yatchew commented that Dr. Kaufmann's productivity factor of 0.88 percent inappropriately restricts data to the 1995-2006 period and does not assign any additional weight to the more recent data. In his review of the PEG Study, Prof. Yatchew found no statistical evidence of systematic acceleration or deceleration in productivity growth throughout the sample period. He expressed concern with Dr. Kaufmann's "start-date analysis" in that he found no evidence of this approach in the mathematical statistics literature or in econometrics literature that would justify this kind of approach in this kind of setting. Prof. Yatchew suggested that if the Board wishes to move forward to create a predictable and evolving regulatory environment, the Board should not embed an algorithm for which he was unable to find support in academic literature. He proposed that the Board should include the entire 1988-2006 period to set the productivity factor for two reasons. First, Prof. Yatchew submitted that the "start-date analysis" fails because it searches for a single year that is most similar to the most recent year, rather than for a period that is likely to be representative of the future. Second, he noted that including the entire 1988-2006 period is based on the fundamental idea in statistics that larger samples deliver more precise estimates.

As noted in the July 14, 2008 Report, Dr. Cronin, in his written comments, recommended a productivity factor "menu" approach. Under that approach, distributors would be allowed to select from a menu of productivity factors, each with an associated allowed return on equity ("ROE"). Research during 1st Generation PBR found a ten-year mean growth rate of slightly more than 0.8 for TFP. Research subsequent to 1st Generation PBR found a mean ten-year growth rate of about 1.6 percent for TFP for most efficient firms[4]. On this basis, Dr. Cronin recommended that the "baseline" option in a menu should be a productivity factor of 0.8 percent with an associated allowed ROE of 8.5 percent. The proposed menu also included four other options, where increments of 0.2 percent in the productivity factor are associated with 100 basis point increments in the allowed ROE. The maximum productivity factor of 1.6 percent was therefore associated with a 12.5 percent allowed ROE.

Ms. Frayer submitted that the productivity factor should be measured using Ontario data for the industry and that results from other jurisdictions can be useful as checks but cannot substitute for Ontario-specific business circumstances. Specifically, Ms. Frayer commented that Ontario has many smaller distributors (the U.S. has typically much larger franchise areas in terms of geographical span and customers) and that Ontario distributors:

- with few exceptions, operate only electricity distribution businesses;
- face unique weather, have diverse customer bases, and have a distinct legacy of system configuration and network expansion because of government and municipal ownership which impacts input/output relationships and potential for productivity growth;
- have been under rate freezes, de facto price caps since the mid 1990s, while also processing corporatization changes and market restructuring; and

[4] Cronin, F. and S. Motluk, "Leaders and Laggards: Examining Regulatory Applications of the Mamquist Productivity Index to Establish Secular Growth in Productivity." (forthcoming)

- will, in some cases, soon be in a dramatic capital expenditure ("CAPEX") phase because of an aging asset base resulting from provincial mandates to electrify in the 1960s and 1970s.

Therefore, Ms. Frayer recommended using a 20-year average TFP growth measure of 0.58 based on the results of three different productivity studies: the Cronin and King Study (1988-1997), PEG's projections for the "missing years" of 1998-2002 developed to facilitate PEG's U.S.–Ontario industry trend comparisons[5] and LEI's independent analysis of data filed under the Board's Electricity Reporting and Record Keeping Requirements ("RRR") (2003-2007). The three studies employ the index method to derive TFP growth; however, they include different measures for inputs quantities or values (e.g., labour, materials, and capital) and output quantities or values (e.g., throughput, customer numbers, and peak demand). In particular, the Cronin and King Study and the PEG Study used the monetary approach to account for capital quantities. In its five-year study, LEI chose to measure capital input quantity based on the physical length of distribution lines because of physical depreciation profile effects. That is, Ms. Frayer proposed that the carrying capacity of distribution lines does not decline consistent with accounting depreciation methods. Ms. Frayer submitted that economic theory, empirical evidence, industry experience and recent regulatory precedent all support the recognition of this approach when calculating the annual capital input quantity of electricity distribution assets and that accounting depreciation adjustments under the monetary approach bias the quantity of capital input. Ms. Frayer observed that over the most recent years, on average, TFP growth for the industry has been negative and submitted that this negative trend needs to be acknowledged and included in the analysis. LEI tested various weighting schemes for output which produced similar overall trends showing negative TFP growth. The value of 0.58 percent is an average

[5] PEG developed four scenarios for TFP growth during the "missing years" between 1998 and 2002 in Ontario. PEG emphasized that they do not put forward any of these scenarios as accurate measures of TFP growth during that time. Rather, PEG is trying to bind the range of possible TFP growth rates for the Ontario industry over the entire 1988-2006 period, which will facilitate their comparisons with the U.S. industry over the same period. See PEG IR Report (p. 55).

of the percent change in the derived TFP index for each year over the 1988-2007 period and recognizes and incorporates recent negative trends in TFP growth.

Ms. Frayer explained that LEI did not include weather normalization because they wanted to present actual results subject to the actual operating conditions faced by distributors (i.e., they do not operate under weather-normalized conditions). Ms. Frayer submitted that, as a result, total factor productivity would be measured on the basis of actual figures, since that productivity will then form the productivity target which will affect actual revenues regardless of the weather in the future.

CME, in response to Prof. Yatchew's view that larger samples deliver more precise estimates, asked the consultants their views on what is the minimum period for statistical significance. In response, Ms. Frayer indicated her view to be seven to ten years, Prof. Yatchew suggested eight to ten years, and Dr. Kaufmann indicated that his view of the minimum period would be nine years.

In relation to the LEI study, most participants, as well as Dr. Cronin and Dr. Kaufmann, disagreed with the use of physical counts of capital in the calculation of TFP. Both of them recommended the customary use of monetary values. Dr. Kaufmann noted that when a utility sets its rates to recover depreciation and carrying costs associated with these capital goods, it does so with reference to the aggregated monetary values of these disparate assets net of their depreciation. He submitted that LEI's TFP study ignores this monetary valuation of assets in favour of a physical method for estimating capital stock. Since physical asset measures are not used to set rates at the outset of a plan, Dr. Kaufmann expressed concern over LEI's proposal to use a productivity factor to adjust distribution rates that, over time, bears no relationship to how those rates were originally set. Dr. Kaufmann also noted that the LEI TFP model assumes that there is no physical decay of distribution assets over time. He stated that there is no theoretical or empirical support for this assumption and cautioned that this is not an academic point but a practical one, because depreciation is a reality. CME submitted that the use of physical counts of capital is incompatible with the monetary approach that was used to

derive the TFP trends for the periods 1988-1997 and 1998-2002 on which LEI relies, and the effect appears to materially distort the LEI trend downwards.

Most participants representing ratepayer groups supported Dr. Kaufmann's recommended 0.88 percent value for the TFP trend to be used as the base productivity factor for all electricity distributors in 3rd Generation IR. LPMA and Energy Probe commented that while Dr. Kaufmann's recommendation of 0.88 percent is "in the right ballpark", it is at the lower end of the range than should be considered for three reasons. First, Dr. Kaufmann has indicated that compared to values set in other jurisdictions in recent plans (generally one percent or higher), his 0.88 recommendation is on the low side. Second, the Board has endorsed the concept of a capital module. The inclusion of this module in IR should be reflected by a higher productivity factor to account for this deviation from the norm and for the relief that it may provide to distributors. Third, the three utility multi-factor productivity indices available from Statistics Canada show average growth rates of 0.86 percent, 1.07 percent and 1.08 percent over the period for which the data is available. Mr. Aiken noted that the Statistics Canada data on productivity numbers for utilities goes as far back as 1961. The average of these three rates is 1.00 percent. CME suggested the value be no less than 0.80 percent which is the mid-point between the average annual productivity growth in the U.S. electricity distributor data of 0.72 percent and the PEG-recommended 0.88 percent based on its "start date" analysis.

VECC expressed concern with the LEI study in that there was no weather normalization undertaken for the study period. VECC observed that weather normalization may not be critical when dealing with very long periods of time as the impacts will be somewhat smoothed out. However, VECC submitted that weather normalization is critical when dealing with a short period of time. During the timeframe in question, 2002-2007, VECC noted the extreme weather conditions in 2002 and how that influenced not only the operations of distributors but subsequent government policy decisions in Ontario. Further, VECC observed that while the term of the 3rd Generation IR plan is three years, the plan will actually be in effect over three tranches of distributors over a period of five

years. Therefore, VECC disagreed that recent downward trends in productivity should be presumed to persist that long. VECC concluded that a value in the order of 0.72 to 0.88 percent may be the appropriate productivity factor. According to VECC, if the Board is concerned about the start/end date analysis, the Board could gravitate more towards the 0.72 value.

Hydro One and the CLD recommended that the value of the productivity factor be set within the range of 0.55 and 0.58 percent. The compound effect of declining load growth due to conditions such as a slowing economy and conservation and demand management activities, and rising costs due to conditions such as an aging work force, escalating fuel costs, changing accounting standards, and new environmental regulation requirements will make it a challenge to even achieve productivity within that range over the next three years.

***Board Policy and Rationale***

In the July 14, 2008 Report, the Board determined that X-factors assigned to individual distributors will consist of an empirically derived industry productivity trend (productivity factor) and stretch factor. The Board has not adopted a "menu" approach.

The Board notes that there was general consensus amongst the consultants on the following points:

- that estimating industry TFP trends is a common element in IR- based rate setting regimes;

- that the development of these trends in any given regulatory regime is highly dependent on the quantity and quality of data reflecting the experience of the utilities governed by the IR plan; and

- that the development of an Ontario-specific TFP trend for the 3rd Generation IR mechanism is hindered by a lack of data covering a sufficient period of time.

Accordingly, the proposals put forward by each of the consultants represented a compromise that was to some degree caused by this deficiency in data.

As noted above, PEG proposed a TFP value of 0.88 percent. This number was developed using U.S. utility data due to the absence of sufficient Ontario distributor data. While no detailed critique of the U.S. data set was undertaken by any of the other consultants, even PEG regretted having to resort to the use of non-Ontario data. It is also clear that some firms in the U.S. data set were vertically-integrated utilities and that their productivity profiles may be somewhat different than those of stand-alone distribution companies. While PEG's analysis controlled for this, it is noted that the results may still be somewhat skewed. In addition, PEG used a "start date analysis", described above, which was the target of some criticism by other consultants.

Ms. Frayer considered the use of U.S. data to be a significant shortcoming of the PEG proposal. In her view, the Ontario context is distinct and the use of U.S. data is unsound. Faced with the same data deficiency as the other consultants, she used a series of previous studies in combination with a unique approach to the consideration of capital as a component of the TFP trend calculation. She also argued for greater weight to be given to the more recent TFP trend to reflect the deceleration in growth in recent years in Ontario. In her view, the TFP value should be set at 0.58 percent.

Prof. Yatchew reluctantly accepted the use of U.S. data, but objected to the "start date analysis", which in his view is inappropriate and unprecedented. He also suggested, as did Ms. Frayer, that increased weight ought to be given to the most recent TFP trend. He proposed a TFP value of 0.55 percent.

In the Board's view, the data deficiencies noted by the consultants do not operate as an insurmountable obstacle to the development of an appropriate TFP value for 3rd

Generation IR. The Board accepts the use of U.S. data for the purposes of the derivation of the TFP trend for 3rd Generation IR. Use of this data set was supported by PEG and Prof. Yatchew. Ms. Frayer sought to circumvent the problem through a patchwork of studies that, in the Board's view, are not adequately demonstrated to be based on a series of consistent principles. Of greatest concern with Ms. Frayer's approach is the measurement of capital, which is inconsistent with the prior Ontario TFP studies and does not appear to have been adopted in any jurisdiction other than New Zealand. While the Board recognizes Ms. Frayer's efforts to construct an Ontario-specific TFP trend, the Board does not believe that the methodology advocated by Ms. Frayer is appropriate. The Board is optimistic that the current data deficiencies will recede as the Board accumulates data from the sector over the next several years. Within the next five years the data issue will have been resolved, and the development of an Ontario-specific TFP trend can proceed on a more solid footing.

The Board is not convinced that the "start date analysis" used by PEG, which limits the data sample to the period 1995-2006, is necessary or warranted. The Board agrees with Prof. Yatchew's statement that greater confidence can be derived from using the full data set, in this case representing U.S. data from 1988 to 2006.

Similarly, the Board is not persuaded that increased weight ought to be given to the most recent TFP trend. The merit of using the full data set is that the resultant TFP trend can be reasonably expected to reflect the ebbs and flows experienced over a relatively long period of time. To weight the most recent trend would undermine one of the virtues of using the full data set.

**Accordingly, the Board has determined that the appropriate value for the TFP trend for 3rd Generation IR is 0.72 percent**, the average annual productivity growth over the period 1988-2006 in the full set of U.S. electricity distributor data used by PEG. The Board is not convinced that the "start date analysis" is sufficiently well developed to justify limiting the sample. The Board believes that this value reflects a reasonable synthesis of the various points of view advanced in the course of the stakeholder

consultations and of the Board's views on the relative merits of the approaches put forward by the various participants.

As indicated in the Board's July 14, 2008 Report, this value will be fixed for the term of the plan.

## 2.2 Stretch Factors

In the July 14, 2008 Report, the Board determined that it will use the results of two benchmarking evaluations to divide the Ontario industry into three efficiency "cohorts". The two evaluations will be compared and those distributors that rank superior in both will be assigned to Group I. Those distributors that rank inferior in both will be assigned to Group III. All other distributors, including those that rank superior or inferior in only one of the evaluations, will be included in the broad middle cohort, Group II. At the time of the release of the July 14, 2008 Report, the Board had not yet determined the stretch factor value to be assigned to each cohort.

The question to be addressed by participants at the stakeholder conference was: what are appropriate stretch factor values for each of the three groups?

### *Issues and Options Raised in Consultations*

Table 2 summarizes participants' recommendations for the appropriate stretch factor values for each of the three groups in 3rd Generation IR.

**Table 2: Summary of Stretch Factor Recommendations**

| | Efficiency Cohort/Group | | |
|---|---|---|---|
| | I | II | III |
| | *Statistically superior and in top quartile on OM&A unit cost comparison* | *In middle two quartiles on OM&A unit cost comparison* | *Statistically inferior and in bottom quartile on OM&A unit cost comparison* |
| VECC | 0.25% | 0.50% | 0.75% |
| CCC (two recommendations) | 0.25% | 0.50% | 0.75% |
| | 0.50% | 0.50% | 0.50% |
| LPMA and Energy Probe (two recommendations) | 0.25% | 0.50% | 0.75% |
| | 0.35% | 0.50% | 0.65% |
| SEC | 0.00% | 0.50% | 1.00% |
| Ms. Frayer, LEI, on behalf of Hydro One and the CLD | 0.00% | 0.075% | 0.15% |
| Prof. Yatchew, University of Toronto, on behalf of the EDA | 0.00% | 0.10% | 0.20% |
| Dr. Kaufmann, PEG, Board staff's consultant | 0.00% | 0.25% | 0.50% |

As noted previously, Dr. Cronin recommended a productivity factor "menu" approach in his written comments. Dr. Cronin submitted that the menu would incorporate distributor diversity into the IR plan.

Dr. Kaufmann noted that determining the values of the incremental productivity gains that firms are expected to achieve under IR is a more forward-looking exercise than estimating a productivity factor which is typically derived using historical TFP trends. In practice, he advised, most stretch factor values approved in North America have been based on judgment and have varied from zero to one percent. For 3rd Generation IR, he submitted that relatively modest stretch factors may be more appropriate with the Board's early benchmarking application until the Board better understands distributors' comparative cost performance and potential for incremental productivity gains. Dr. Kaufmann noted that his recommendations acknowledge that distributors in Group I have been demonstrably superior performers and have limited potential to achieve incremental gains in excess of his recommended productivity factor. Further, he submitted, his recommendations are supported by benchmarking studies which find evidence of significant productivity differences, and thus potential for incremental

productivity gains, among distributors in Groups II and III. The specific values that Dr. Kaufmann recommended for Groups II and III are reflective of Ontario precedents to date. Most distributors will be in Group II and have a stretch factor of 0.25 percent, which is equal to the value approved for all distributors in 1st Generation PBR, and the 0.5 percent value recommended for Group III is equal to the highest stretch factor approved to date in Ontario (in the incentive regulation plan approved for Union Gas Limited in proceeding RP-1999-0017).

Prof. Yatchew stated that Ontario distributors have been under a form of price-cap regulation for a period of time and have been engaged in a form of yardstick competition[6] for many years. These two factors, he argued, weaken the case for stretch factors in an Ontario electricity distributor IR plan. Prof. Yatchew also reiterated his concerns about the potential for "misclassification" of distributors to cohorts using the OM&A benchmarking studies and concern that the threat of misclassification may focus distributors on reducing OM&A costs rather than total costs, resulting in inefficient resource allocation (e.g., over-capitalization by utilities seeking to reduce OM&A costs; under-spending on OM&A; and sub-optimal decisions with respect to own vs. lease alternatives). He identified four sources of potential misclassification: the use of OM&A rather than total cost data; mismeasurement or omission of his recommended variables; statistical error which he measured at 20 percent; and the use of U.S. rather than Ontario data. Consequently, given that the Board has determined that non-negative stretch factors will be implemented, he recommended that the stretch factors be materially lower than those recommended by Dr. Kaufmann. He noted that his recommended stretch factors of 0.0 percent, 0.1 percent, and 0.2 percent for the three groups would result in X-factors of 0.55 percent, 0.65 percent, and 0.75 percent, and noted that the 0.65 percent value is substantially higher than recently observed productivity growth rates in the U.S. and in Ontario.

[6] Prof. Yatchew described this *informal yardstick competition* as an industry-driven process during the many years that there were many distributors in this province. During that time, there was a systematic process for comparing performance amongst distributors. As distributors found better ways to do things, that information would be shared with others, because there was a relatively open public sector system for doing so.

Ms. Frayer also recommended lower stretch factor values than did Dr. Kaufmann for similar reasons to those put forward by Prof. Yatchew. She also reiterated her view that average performers should receive a zero stretch factor to represent their relatively neutral position to the projected TFP growth for the industry as a whole, and superior performers should receive a negative stretch factor to reflect their superior performance and their reduced ability to improve on that performance. Ms. Frayer took the approach that the stretch factor ought to be set in such a manner so that the maximum possible X factor (i.e., productivity factor plus stretch factor) component of the IR formula would be equal to the highest estimate for long term TFP growth (i.e., 0.73 percent) of four 20-year TFP analysis scenarios. She recommended basing the stretch factor values on implied lower and upper bounds from four 20-year TFP analysis scenarios comprised of the Cronin and King Study, the PEG Study (2-factor and 3-factor output) and the LEI study (2-factor and 3-factor output). The resultant "upper" bound, "median" and "lower" bound values (0.73 percent, 0.58 percent and 0.42 percent, respectively) form the basis for a recommended 0.15 percent maximum stretch factor. Given that the Board has determined that non-negative stretch factors will be implemented and also noting that small changes in the overall X-factor can create unreasonable financial burdens on distributors, Ms. Frayer recommended stretch factors of 0.0 percent, 0.075 percent and 0.15 percent on top of her recommended industry-wide productivity factor of 0.58 percent.

SEC observed that, in 3rd Generation IR, the stretch factor is of particular importance since there is no earnings sharing as part of the plan and rebasing to date has not demonstrated the theory that productivity gains achieved by distributors flow through to ratepayers forever thereafter. Acknowledging regulatory precedent and judgment, SEC submitted that "the right number" has to be meaningful in that it has to matter to the distributors. SEC noted that as part of the Board's determination for the Z-factor threshold for 3rd Generation IR, the Board determined that 0.5 percent of distribution revenue requirement is material. SEC reasoned that if half of one percent is what matters enough to qualify a distributor for an adjustment to its underlying revenue

requirement, then half of one percent is also what matters enough to influence a distributor's behaviour. In response to a suggestion that it might be possible to use the same stretch factor value for all three cohorts, SEC disagreed. SEC expressed concern that the Board would identify some distributors as being more efficient than others but that there would not be any consequence to it. Therefore, he recommended that the difference between the midpoint and either the bottom point or the top point should be 0.5 percent. In summary, SEC recommended stretch factors of 0.0 percent, 0.5 percent and 1.0 percent on top of Dr. Kaufmann's recommended industry-wide productivity factor of 0.88 percent.

While Dr. Kaufmann agreed with Prof. Yatchew that the theoretical rationale for stretch factors is that IR creates stronger incentives compared with cost-of-service regulation, he submitted that theory never says that stretch factors should only be implemented one time (i.e., in the first IR plan) and then be removed. Rather, he noted specific precedents in the U.S., Germany, and the U.K., as well as more general evidence from regulated industries to the effect that incremental productivity gains are sustained for more than a decade after regulatory reform (e.g., U.S. railroads, U.K. energy distribution).

All participants acknowledged that the stretch factor is based on judgment and that factors that could influence the Board's judgment include the term of the plan, the absence of an earnings sharing mechanism, and the inclusion of an incremental capital module. Participants also generally agreed that, in the long-term, when total cost benchmarking and the requisite data are available, the source of misclassification may be reduced to statistical error (which will always exist). Prof. Yatchew observed that part of the value of this process is that distributors that believe they are being treated inequitably will come forth with that information and hopefully improve the nature of the entire information set.

LPMA, Energy Probe, CCC and VECC recommended that the stretch factors be set at 0.25 percent, 0.50 percent, and 0.75 percent. LPMA and Energy Probe submitted that

without an earnings sharing mechanism, the values for the stretch factors should at least be set relative to that which is evident in comparable IR plans. The recommended value for Group II is based on what Dr. Kaufmann indicated as the average stretch factor set in North America, and on what has been historically set in a Union Gas plan here in Ontario. With regard to Group I, LPMA and Energy Probe argued that the value should be greater than zero because there is no evidence to suggest that productive distributors will not or cannot continue to achieve additional gains. Their opportunity may be less, but LPMA and Energy Probe maintained that it is still greater than zero.

VECC commented that the stretch factor is in effect addressing three issues. First, the productivity factor reflects what a normal cost-of-service type application may result in, including the type of benefit a consumer might expect to see in terms of the resulting rates under a cost-of-service regime. If one accepts that there is greater opportunity for productivity improvements by distributors under IR, then according to VECC it seems reasonable to expect something in addition to that – the stretch factor. Second, there are a number of safety valves in the 3rd Generation IR design for distributors. Depending on a distributor's circumstance, the distributor may be eligible to apply for Z-factors, off-ramps, or revenue to support incremental capital. A distributor may also apply for a full cost-of-service review. With no earnings sharing mechanism, the stretch factor is in VECC's view also a safety valve for consumers. Third, the stretch factor is meant to recognize the fact that there are differences in terms of where distributors stand right now in terms of their level of efficiency, as reflected in the Board's decision to have three groupings. VECC concluded that the stretch factor for Group I should therefore be greater than zero. VECC recommended stretch factor values of 0.25 percent, 0.5 percent and 0.75 percent for the three groups.

With respect to Prof. Yatchew's concerns that 20 percent of the distributors, on average, will be misclassified as either being statistically superior or statistically inferior, CME observed that this would mean two out of the eleven distributors assigned to Group I may not belong there, and about two out of the eleven distributors assigned to Group III may not belong there. Consequently, CME proposed that the response to the

misclassification concern should not be to reduce the stretch factor on average, but rather that it may be more appropriate to narrow the differences between the average stretch factor and the stretch factors for Group I and Group III. While CME did not recommend specific values, it recommended that the Group II stretch factor be set in the range of 0.25-0.50 percent. LPMA and Energy Probe, building on this idea, recommended that if the Board believes that some sort of mitigation against misclassification is required, then the stretch factor values could be set at 0.35 percent, 0.50 percent, and 0.65 percent for the three groups. CCC submitted that, if the Board were to accept the arguments about misclassification, CCC would support a stretch factor of 0.5 percent for all three cohorts.

Hydro One and the CLD noted that all participants seem to agree that benchmarking is in its infancy, that it needs to improve and that it will improve. These distributors acknowledged that there will likely be some misclassification, but that improvements will be made over time and therefore, they submitted, they support the Board's grouping approach. As to the values for the stretch factors, Hydro One and the CLD commented that, from their perspective, what is important is the combination of what is expected of them in terms of productivity plus a stretch factor because that is the number that needs to be achieved. Therefore, if the Board sets one high, perhaps it should set the other one low or vice versa – it is the combination that distributors are going to have to somehow manage to achieve. In summary, Hydro One and the CLD expressed a preference for the values 0.0 percent, 0.075 percent, and 0.15 percent for the three groups.

***Board Policy and Rationale***

It is important to note that stretch factors are consumer benefits. They are somewhat analogous to earnings sharing mechanisms, although stretch factors take effect immediately with the application of the formula and are not dependent on the realization of any productivity gains or excess earnings, as would be the case with an earnings

sharing mechanism. Stretch factors are an integral part of the IR formula, and are not dependent on future performance by the utility.

In the July 14, 2008 Report, the Board determined that stretch factors will be a feature of the IR mechanism, and that benchmarking will provide the architecture for their assignment to distributors. These determinations were not intended to be revisited during the August stakeholder conference. The Board acknowledges the concerns expressed regarding the current state of benchmarking in Ontario, but is not convinced that it needs to reconsider the benchmarking architecture for purposes of 3rd Generation IR.

The Board notes that all of the participants in the consultation agreed that the setting of stretch factors is a matter that calls for the exercise of judgment. As such, there are no hard and fast principles to guide the Board's determination of an appropriate value. The Board also notes that each of the participants urged the Board to take a conservative approach with respect to the stretch factor values in light of the fact that the Board's experience with benchmarking is in its early stages.

The Board is not convinced that the potential for misclassification raised by Dr. Yatchew is such that the Board needs to reduce the stretch factors so that they are of little or no materiality. As described in the July 14, 2008 Report, the three groupings have been developed using two distinct benchmarking evaluations. The two evaluations will be compared and those distributors that rank superior in both will be assigned to Group I. Those distributors that rank inferior in both will be assigned to Group III. All other distributors, including those that rank superior or inferior in only one of the evaluations, will be included in the broad middle cohort, Group II. The Board recognizes that the risk of misclassification cannot be ruled out. The Board intends to undertake further work on the model and will consult with stakeholders to identify whether it can improve the grouping approach and further reduce the potential for misclassification in the two OM&A benchmarking evaluations. It is also expected that the Board's knowledge of

and facility with benchmarking will improve over the course of the 3rd Generation IR, and that any anomalies will be addressed in due course.

The Board also believes that it is important that the stretch factors be sufficient to influence distributor behaviour over the course of the plan. While the Board accepts that this is not the time to adopt large stretch factors, it does believe that they must be of such magnitude that they are likely to motivate distributors to change or maintain their status, as the case might be. The proposals put forward by Ms. Frayer and Prof. Yatchew would not, in the Board's view, be meaningful in that regard. The Board also believes that Ms. Frayer's approach would conflate the TFP and the stretch factor, effectively eliminating the consumer benefit element normally associated with the stretch factor.

As noted above, some participants argued that the best performers, or even average performers (i.e., those falling within Group I, or Group II), ought to enjoy a zero stretch factor. In fact, in earlier comments made within this consultation some participants argued for negative stretch factors for high performing distributors. At this time, the Board is not prepared to accept the premise there are no prospects for incremental productivity gains above the expected industry trend that should be shared with ratepayers – which a stretch factor of zero or less would connote. While these options may commend themselves in future IR plans, the Board does not think it appropriate at this time, and has adopted a modest but still meaningful stretch factor for Group I, and a higher stretch factor for Group II.

With respect to Group III (the poorest performers), the Board believes that the stretch factor value should not be so demanding as to be considered punitive. In the Board's view, the stretch factor approach ought to serve as an incentive for incremental productivity improvement and not as a punitive measure.

**Accordingly, the Board has determined that the appropriate stretch factor values for each of the three groups are as follows**:

**Table 3: Stretch Factor Values**

| Group | Benchmarking Evaluations | Stretch Factor Value |
|---|---|---|
| **I** | Statistically superior and in top quartile on OM&A unit cost comparison | **0.2%** |
| **II** | In middle two quartiles on OM&A unit cost comparison | **0.4%** |
| **III** | Statistically inferior and in bottom quartile on OM&A unit cost comparison | **0.6%** |

**These values will be in effect for the term of the plan.** As indicated in the July 14, 2008 Report, each year the cohorts for the entire sector will be re-evaluated. This means that the stretch factor for a given distributor may change during the term of the IR plan if the distributor moves from one group to another.

The Board believes that the above stretch factor values reflect a reasonable synthesis of the various points of view advanced in the course of the stakeholder consultations and of the Board's views on the relative merits of the approaches put forward by the various participants.

## 2.3 Incremental Capital Module Materiality Threshold

In the July 14, 2008 Report, the Board determined that there will be an incremental capital module in 3rd Generation IR. Further, the Board determined that the eligibility of a distributor to apply for rate relief through the module will be subject to a materiality threshold. However, the Board stated that it would be assisted by further consultation on the appropriate materiality threshold.

The question to be addressed by participants at the stakeholder conference was: what is an appropriate CAPEX to depreciation threshold value to determine materiality?

***Issues and Options Raised in Consultations***

Board staff provided analysis that indicated that CAPEX to depreciation threshold values in the range of 170-190 percent may be appropriate. These threshold values are comprised of three parts:

- a 100 percent base depreciation value;
- an additional 20-40 percent for the annual 3rd Generation IR price cap index ("PCI") adjustment value (20 percent if PCI adjustment is one percent; 40 percent if PCI adjustment is two percent); and
- an additional 50 percent to adjust depreciation from historical to replacement dollars.

Board staff's 50 percent estimate for inflating depreciation expense to replacement dollars was derived as follows. An overall effect of inflation adjustment was estimated as 49.1 percent based on the published Ontario total values for depreciation expense, remaining book value of in-service plant and Statistics Canada inflation statistics. While an Ontario average was used to illustrate a single value as a threshold component for all distributors (~50 percent), staff noted that a table of depreciation escalators could be prepared for use with a variety of different average ages to reflect individual distributor age of plant.

Staff's threshold calculations did not attempt to adjust for customer or load growth. Staff noted that growth provides incremental funding for new capital and that this would be evident in a distributor's application to the Board and reviewed on a case-by-case basis.

While PEG did not make specific recommendations on the value of the threshold, Dr. Kaufmann emphasized that an implicit adjustment for CAPEX exists in the PCI because a historical level of CAPEX is built into the productivity factor. If a distributor has historically invested in more CAPEX, it will consequently have lower TFP growth, all else being equal, and that would translate into more rapid price escalation. Acknowledging that special CAPEX adjustments could be warranted if, for whatever reason, a distributor's future CAPEX differs in a significant way from what is reflected in

historical industry-based trends, Dr. Kaufmann cautioned that the Board be careful to ensure that any such CAPEX adjustment does not allow double counting.

Ms. Frayer also acknowledged that some portion of rate base growth is already remunerated through the PCI; however, she submitted that the need for an incremental capital module arises because rate base is growing faster than the rates under the price cap regime, even if annual CAPEX stays at the same level over an IR plan term. Ms. Frayer explained that the annual PCI adjustment may not be sufficient for all distributors, depending on the depreciation profile and the capital additions profile for a particular distributor. Ms. Frayer commented that growth in rate base that is "unfunded" results in potential loss of capital carrying costs and potential for deteriorating ROE, despite distributors' best efforts for cost cuts and/or delay in CAPEX. Ms. Frayer provided an illustrative analysis of incremental rate base and the need for rates – a rate adder of some sort or revenue adder – to cover that unfunded amount of incremental rate base. Based on the experiences of Hydro One and the CLD, expectations on inflation and LEI's recommended productivity and stretch factors, Ms. Frayer proposed that a 2 percent growth in rate base is sufficiently material to have a significant influence on distributor operations. Given this, Ms. Frayer provided the following analysis. In 2007 the IR PCI adjustment was 0.9 percent. Assuming that 60 percent of a distributor's revenue requirement is related to capital, she also assumed that 0.54 percent of the PCI adjustment (i.e., 60 percent of 0.9 percent) is available for capital-related costs, regardless of rate base growth. In contrast, on a rate rebasing basis, a 2 percent increase in rate base would result in about a 1.2 percent (i.e., 60 percent of 2 percent) increase in revenue requirement. Ms. Frayer noted that, in this example, the 2007 price cap would have fallen short on funding by 0.68 percent (i.e., 1.2 percent less 0.54 percent).

Ms. Frayer acknowledged the linkage between the CAPEX to depreciation ratio and rate base growth, and provided analysis to illustrate that linkage. Based on her analysis of RRR reported data for 2007, Ms. Frayer noted that there is a strong correlation between the two percent growth in asset base that she identified as material and substantial and

a 125 percent ratio of CAPEX to depreciation expense. Therefore, Ms. Frayer recommended a 125 percent CAPEX to depreciation threshold.

CME and Board staff clarified with Ms. Frayer that her proposed value of 125 percent is derived based on estimated asset base growth, not load growth. Ms. Frayer commented that funding from the PCI, load growth, or other sources would be dealt with in the distributor's application to the Board rather that factored into the threshold value.

Mr. Shepherd, representing SEC, also commented that an implicit adjustment for CAPEX exists in the PCI and reflected this in his proposed approach to deriving distributor-specific values for the materiality threshold. This distributor-specific proposal is in contrast to the proposals offered by Board staff and Ms. Frayer, both of which result in one value for the threshold.

Mr. Shepherd recommended a threshold of 200 percent plus or minus 50 percent of the distributor's average three-year growth percentage, based on the following formula:

$$\textit{CAPEX potential under IR} = \frac{P * R * (d + i + (g * 1.5))}{(d + c)}$$

Where:

- P = percent of revenue requirement that is capital driven (i.e., revenue requirement less OM&A);
- R = revenue requirement of prior year;
- d = depreciation expense as a percent of rate base (i.e., an average depreciation rate);
- i = inflation factor in IR;
- g = organic growth in revenue (i.e., change in load or customer numbers); and
- c = interest + ROE + payments in lieu of taxes (PILs) as a percent of rate base.

(Implicit in the above formula is the annual reduction of cost of existing capital – the annual reduction in rate base reduces the cost of capital associated with old assets and provides additional funds to finance capital.)

Using RRR data, Mr. Shepherd adopted the following assumptions: P = 50% (2007 actual is 48.9%); d = 4% (2007 actual is 6.57%); and c = 8.7% (6% interest on 60%, 8.5% ROE on 40%, 33% combined income tax rate). For illustrative purposes, he adopted the Bank of Canada target rate of 2% for the value of inflation (i), and assumed R=1. Using these assumptions, Mr. Shepherd estimated that IR provides a distributor a CAPEX amount of approximately 25 percent of annual revenue requirement (i.e., g=0%) plus an additional 6 percent for each one percent of organic growth (i.e., g=1%). Translating this into CAPEX to depreciation expense terms, Mr. Shepherd estimated this to amount to approximately 148 percent of depreciation expense plus 36 percent for each one percent of organic growth. Mr. Shepherd provided further analysis to test this 148 percent threshold value against the RRR reported CAPEX in 2007 of 71 distributors. He indicated that 34 percent of those distributors reported CAPEX over the 148 percent of depreciation level, plus or minus growth, and that 66 percent reported CAPEX under that level. He further indicated that if the threshold were raised to 200 percent of depreciation, 14 percent of the distributors' reported CAPEX exceeded 200 percent of depreciation and 21 percent of the distributors' reported CAPEX was 100 percent below depreciation.

Mr. Shepherd submitted that qualifying for the capital module should be an" exception", not a "standard". This view was echoed by other participants. Mr. Shepherd noted that, regardless of the threshold, some distributors may under-spend during IR and that he is much more concerned with this than with the materiality threshold.

Mr. Aiken, on behalf of LPMA and Energy Probe for the purposes of this part of the consultation, proposed a formulaic approach to calculate an individual threshold for each distributor. The formula incorporates both the impact of the price cap and organic growth:

$$\frac{CAPEX}{d} = 1 + (\frac{RB}{d}) * (g + PCI * (1 + g)) \quad (1)$$

Where:

RB = rate base included in base rates;
d = depreciation expense;
g = distribution revenue change based on load growth; and
PCI = price cap index (inflation less productivity factor less stretch factor).
(Mr. Aiken noted that the values for RB, d, and g, would be taken from the Board-approved base year rate decisions.)

Mr. Aiken arrived at this formula by first establishing a means of estimating the level of CAPEX that can be financed by increases in revenues due to the price cap formula and by load growth as follows:

$$CAPEX = d + RB * (g + PCI * (1 + g)) \quad (2)$$

The premise of the above is that the approved base year revenue requirement covers OM&A costs and rate base costs (which include depreciation, interest on debt, return on equity and the associated taxes). Mr. Aiken noted that, similar to the other proposals, his proposal recognizes that the revenue generated under a price cap plan automatically generates more revenue for capital investment. Further, the revenue generated under a price cap plan is equal to the approved revenue requirement from the last rebasing year adjusted for the price cap index, as well as load growth.

Mr. Aiken provided various scenarios to illustrate how his proposed formula would reflect distributor diversity. In brief, distributors with relatively new asset stock (suggested by low depreciation relative to rate base) and therefore likely operating earlier in the asset replacement cycle, and distributors in higher growth areas (evidenced by the reported growth rate) and therefore earning faster growing revenue will both have higher CAPEX to depreciation ratios for purposes of this threshold test. Conversely, distributors in low growth areas or with aging assets will have lower CAPEX to depreciation ratios for purposes of the threshold test.

One area where Mr. Shepherd was critical of Mr. Aiken's model is that, in deriving a CAPEX to depreciation threshold, the model does not contain a capital efficiency factor. This could be rectified, Mr. Shepherd noted, by using the gross inflation factor, not netted for the X factor.

In response to staff's proposal and Ms. Frayer's proposal, Mr. Aiken submitted that a one-threshold-fits all approach is not appropriate for the incremental capital module due to the differing demands on distributors across the Province. Most other participants also supported a formulaic approach; however, Mr. Shepherd acknowledged that it may be more efficient for the Board to have a single threshold as opposed to a separately calculated threshold for each distributor. In relation to his own proposal, Mr. Aiken noted that the formula did not include an adjustment for historic inflation in the value of the assets; however, he commented that he would not be opposed to the inclusion of this in his approach.

Board staff carried out further analysis to estimate a more variable adjustment in its proposed approach as a function of the average number of years of the life of the plant. This was in response to Mr. Aiken's approach that recognizes distributor diversity. Staff

provided a table of depreciation escalators that correlate with a variety of different average ages to reflect individual distributor age of plant. Staff calculated the cumulative Canadian CPI annual variation for the average number of years of plant. The average life of plant for each distributor was calculated by dividing the total value of the plant by annual depreciation. Using this revised inflation adjustment, the resultant threshold values ranged from 148 percent to 213 percent. Some participants observed that under staff's method, distributors with longer lived or older assets would have to exceed a higher materiality threshold than those with relatively new asset stock. However, Dr. Kaufmann observed that distributors that have older capital stock will have a lower value of reported depreciation because of the fact that the underlying assets were booked at historical cost, and submitted that if the Board does not adjust for that then those distributors will have a lower threshold. Staff noted that its proposed approach provided an empirical foundation for a threshold value which would ensure that the invoking of the capital module is an exception and not the norm.

Agreeing that invoking the module should be an exception and not a Y-factor pass through, CME submitted that to be eligible to apply and recover amounts under the capital module the CAPEX applied for must exceed the CAPEX to depreciation ratio plus a dead band, as determined by the Board. CME suggested a dead band of at least 10 percent. Mr. Shepherd noted that his proposal includes a dead band of plus or minus 50 percent of the average three-year growth percentage. Mr. Aiken suggested a dead band of 25 to 50 percent to be added directly to the threshold.

Prof. Yatchew expressed concern that if the incremental capital module does not provide adequate relief – and the threshold itself plays an important role in that – then there is a potential of incentives for distributors to front-end load their CAPEX into their test year, rather than to plan their expenditures on the basis of a more rational time distribution.

Board staff provided analysis based on RRR data that suggested that with a threshold equal to 150 percent, there would be more than 20 distributors eligible to apply and with a threshold equal to 200 percent, there would be about 10 distributors eligible. VECC observed that reviewing a capital module application may not be a simple process. It may require the review of productivity improvements inherent in capital spending and the setting of load forecasts. Therefore, VECC recommended that the Board keep this in mind when determining the threshold value. CCC observed that if in the first year the Board receives a large volume of capital module applications, then perhaps the threshold should be reconsidered.

In response to staff's 50 percent estimate for inflating depreciation expense to replacement dollars, Hydro One and the CLD estimated that adding this into the materiality threshold could translate into a decrease in ROE on an annual basis of up to 100 basis points for some distributors. Further, this impact could be cumulative over the three-year IR plan term. Therefore, Hydro One and the CLD did not support including the inflation adder to the materiality threshold, citing concerns that it would be the distributor that would have to fund this 50 percent factor that relates to capital spending. Hydro One and the CLD also observed that distributors need to reliably operate and sustain the businesses that they are licensed to conduct and submitted that if the capital module threshold, the productivity factor and the stretch factors are set too high then they may be compelled to make cost-of-service applications.

***Board Policy and Rationale***

The Board notes that there are clearly differences in perception as to the purpose of the incremental capital module. Ratepayer groups perceive the capital module as a mechanism aimed solely at addressing extraordinary or special CAPEX needs by distributors. The distributors, on the other hand, perceive the module as a special feature of the 3rd Generation IR architecture which would enable them to adjust rates on an on-going, as-needed basis to accommodate increases in rate base.

In the Board's view, the distributors' view is not aligned with the comprehensive price cap form of IR which has been espoused by the Board in its July 14, 2008 Report. The distributors' concept better fits a "targeted OM&A" or "hybrid" form of IR. This alternative IR form was discussed extensively in earlier consultations but was not adopted by the Board. The intent is not to have an IR regime under which distributors would habitually have their CAPEX reviewed to determine whether their rates are adequate to support the required funding. Rather, the capital module is intended to be reserved for unusual circumstances that are not captured as a Z-factor and where the distributor has no other options for meeting its capital requirements within the context of its financial capacities underpinned by existing rates.

A review of an application will test whether the applicant has passed the materiality threshold, and, if it does, will scrutinize the need for the requested incremental capital relief. Such scrutiny will entail reviewing the distributor's assumptions and planning and examining alternative options, and its overall CAPEX plan. If the application succeeds, in whole or in part, the Board will adjust rates to reflect a higher CAPEX as appropriate. It is important to note that the adjustment in rates will be linked solely to the costs of the incremental capital. Therefore, distributors should not perceive this activity as an opportunity to true up rate base for any other reason.

The incremental capital for which the Board may provide rate relief is the new capital sought in excess of the materiality threshold. The proceeding to consider an eligible distributor's application for rate relief would examine the reasonableness of the distributor's increased spending plan. If the application is approved, a rate rider would be established to reflect an amount sufficient to accommodate the portion of the approved incremental spending that exceeds the threshold amount. In calculating the rate relief, the Board has determined not to apply the half-year rule so as not to build in a deficiency for subsequent years in the term of the plan.

Distributors that receive rate relief through this module will be required to report to the Board annually on the actual amounts spent. At the time of rebasing, the Board will

carry out a prudence review to determine the amounts to be incorporated in rate base. The Board will also make a determination at that time regarding the treatment of differences between forecast and actual capital spending during the IR plan term. Overspending or underspending will be reviewed at the time of rebasing.

With respect to the threshold itself, the Board believes that distributors should be able to determine whether or not they are eligible to apply with relative ease. Making that determination should not be an unduly cumbersome exercise. It should be formulaic and it should be relatively easy to populate with the required data.

With rebasing at the end of 2nd Generation IR, and before commencing 3rd Generation IR, a distributor's rates include a CAPEX component. The adequacy of such CAPEX provision in rates during 3rd Generation IR depends on whether or not the need for CAPEX during 3rd Generation IR can be met through existing rates, as adjusted under the 3rd Generation IR regime and considering organic growth. There is no dispute among participants that the price adjustment and organic growth factors should be captured in the calculation of the threshold and that not doing so would amount to "double-dipping".

A constant theme in this and earlier consultations has been the notion that there is diversity among distributors in their needs for future CAPEX. The Board sees merit in an incremental capital module that considers the diversity among the distributors, as long as it can be implemented in a manner that is not unduly cumbersome. The Board has not observed any objections to this approach.

There was considerable support for the formula presented by Mr. Aiken on behalf of LPMA and Energy Probe. That formula incorporates both the impact of the price cap and of load growth on the level of CAPEX that can be funded without additional rate relief and does this on a distributor-specific basis, reflecting both distributor diversity and the differing positions of the distributors in the asset replacement cycle. The data

required to perform the calculation is easily obtainable from the distributor's most recent rebasing and IR decisions.

There was a proposal that the price adjustment factor in the formula should be the gross inflation factor, not netted for the X (productivity) factor, to incorporate the expectation for a more efficient use of capital. The Board is not persuaded of the appropriateness of this approach as it goes beyond the need to address the more immediate pressures of incremental investing.

Certain participants suggested that there should be a dead band added to the calculated materiality threshold to prevent marginal applications. The suggested levels ranged from adding 10 percent to 50 percent to the calculated percentage thresholds. The Board finds merit in the suggestion of adding a dead band. However, a high adder may be unreasonably prohibitive for distributors genuinely in need of incremental CAPEX during the term of 3rd Generation IR, as it would connote a regime that is not related to revenue requirement considerations. The Board is satisfied that a 20 percent adder is sufficient at this time.

**Accordingly, the Board has determined that the appropriate CAPEX to depreciation threshold value to establish materiality for the incremental capital module should be distributor-specific and derived using the following formula**:

$$\textbf{Threshold Value} = 1 + \left(\frac{RB}{d}\right) * (g + PCI * (1 + g)) + 20\%$$

**Where:**

**RB = rate base included in base rates ($);**
**d = depreciation expense included in base rates ($);**
**g = distribution revenue change from load growth (%); and**
**PCI = price cap index (% inflation less productivity factor less stretch factor).**

Further details regarding this formula are set out in Appendix B to this Report.

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# 3 Tax Changes in Relation to the Z-factor

Some participants in this consultation expressed concern over the issue of the treatment of tax changes under an IR plan that uses the GDP IPI FDD as the inflation factor. The Board noted in the July 14, 2008 Report that it would be informed by the Board's decision in the EB-2007-0606/615 proceeding in relation to gas distributor incentive regulation applications in which tax as a Z-factor was being considered.

The EB-2007-0606/615 decision was issued on July 31, 2008, and concluded that a 50/50 sharing of the impact of tax changes, as applied to the tax level reflected in the Board-approved base rates, is reasonable. Therefore, 50 percent of the tax reductions would be treated as a Z-factor and ratepayers would receive 50 percent of the tax benefits that will occur from 2008 through 2012.

For purposes of the 3rd Generation IR plan, the Board has not identified any reasons to adopt an approach different than that now in place for the gas distributors.

**Therefore, for 3rd Generation IR, the Board has determined that a 50/50 sharing of the impact of currently known legislated tax changes, as applied to the tax level reflected in the Board-approved base rates for a distributor, is appropriate.** An approach similar to that adopted in the gas IR plans will be used to calculate the savings for purposes of the sharing. Additional details are set out in Appendix B to this Report.

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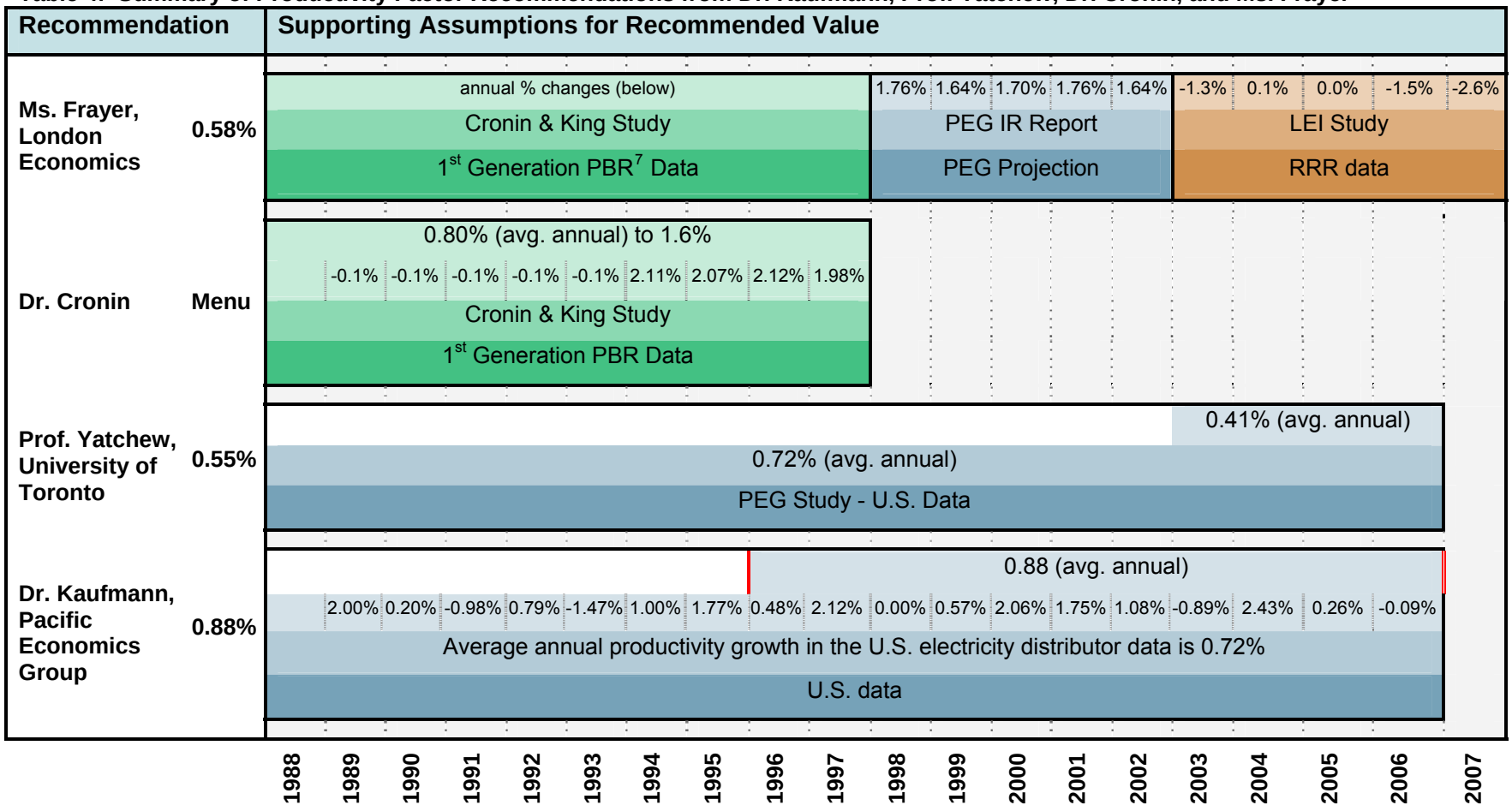
# Appendix A: Summary of Productivity Factor Recommendations

**Table 4: Summary of Productivity Factor Recommendations from Dr. Kaufmann, Prof. Yatchew, Dr. Cronin, and Ms. Frayer**




[7] The first generation electricity distribution performance-based regulation plan is detailed in the Board's January 18, 2000 RP-1999-0340 Decision with Reasons and is available on the Board's web site at http://www.oeb.gov.on.ca/OEB/Industry+Relations/OEB+Key+Initiatives/Archived+OEB+Key+Initiatives/First+Generation+Electricity+Distribution+PBR.

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# Appendix B: Amended Filing Guidelines

**These filing guidelines supersede the filing guidelines set out in the Appendix to the July 14, 2008 Report.**

**Changes are highlighted for easy identification.**

These filing guidelines set out the Board's expectations for applications by distributors for rate adjustments on the basis of the 3rd Generation IR mechanism.

## General

The implementation of the 3rd Generation IR mechanism will occur first with rate adjustments scheduled for May 1, 2009.

The price cap adjustment will be applied to the Service Charge and Distribution Volumetric Rate (including low voltage charges for embedded distributors), net of existing rate adders and rate rebalancing adjustments as determined necessary by the Board. The price cap adjustment will not be applied to Rate Riders, Retail Transmission Service Rates, Wholesale Market Service Rate, Rural Rate Protection Charge, Standard Supply Service – Administrative Charge, Specific Service Charges, Allowances[8], Retail Service Charges or Loss Factors.

The price cap adjustment will reflect inflation less the X-factor, and an adjustment for the transition to the common deemed capital structure of 60% debt and 40% equity.

[8] Transformation and primary metering allowances and any other allowances the Board may determine.

***Manager's Summary***

Each application should include a completed Model, provided by the Board, and a brief Manager's Summary explaining all rate adjustments applied for. Any deviations should be thoroughly documented. Where necessary, support for applied adjustments, such as continuation of rate riders or for Z-factors, should be provided.

## Incremental Capital Module

The incremental capital module has been incorporated into the 3rd Generation IR mechanism to address the treatment of new capital investment needs that arise during the IR plan term which are incremental to the materiality threshold defined below.

***Eligibility Criteria for Incremental Capital Module Applications***

The eligibility criteria for applications to recover amounts through rates to fund incremental capital investment needs are discussed in section 2.5 of the Board's July 14, 2008 Report, and are reproduced in Table 5 below for convenience:

**Table 5: Incremental Capital Investment Eligibility Criteria**

| Criteria | Description |
|---|---|
| Materiality | The amounts must exceed the Board-defined materiality threshold and clearly have a significant influence on the operation of the distributor; otherwise they should be dealt with at rebasing. |
| Need | Amounts should be directly related to the claimed driver, which must be clearly non-discretionary. The amounts must be clearly outside of the base upon which rates were derived. |
| Prudence | The amounts to be incurred must be prudent. This means that the distributor's decision to incur the amounts must represent the most cost-effective option (not necessarily least initial cost) for ratepayers. |

*Materiality Threshold*

The materiality threshold for applications to recover amounts through rates to fund incremental capital investment needs is discussed in section 2.3 of this Report. The Board has determined that the following formula is to be used by a distributor to calculate the materiality threshold that will apply to it:

$$\textit{Threshold Value} = 1 + \left(\frac{RB}{d}\right) * (g + PCI * (1 + g)) + 20\%$$

Where:

RB = rate base included in base rates ($);

d = depreciation expense included in base rates ($);

g = distribution revenue change from load growth (%); and

PCI = price cap index (% inflation less productivity factor less stretch factor).

The values for "RB" and "d" are the Board-approved amounts in the distributor's base year rate decision.

The value for "g" is the % difference in distribution revenues between the most current complete year and the base year. For example, for distributors that were rebased in 2008:

| If a distributor applies in | then "g" will be the % difference between |
|---|---|
| 2009 | 2007 actuals and 2008 Board-approved base |
| Jan-Mar 2010<br>Apr-Dec 2010 | 2007 actuals and 2008 Board-approved base<br>2008 Board-approved base and 2009 actuals |
| Jan-Mar 2011<br>Apr-Dec 2011 | 2008 Board-approved base and 2009 actuals<br>2008 Board-approved base and 2010 actuals |

***An Illustration:***

| | | | |
|---|---|---|---|
| Assumptions: | RB | = | $100 million; |
| | d | = | $5 million; |
| | g | = | 1.5% (0.015); and |
| | PCI | = | 0.75% (0.0075). |
| Calculation: | $1+(\frac{100,000,000}{5,000,000})*(0.015+.0075*(1+0.015))+0.20=1.65$ | | |
| Result: | The materiality threshold (CAPEX/Depreciation) is 1.65 or 165%. That is, given the assumptions in this example, the Board expects the distributor to manage a CAPEX level of up to $8.26 million ($5 million * 1.65) before being eligible to apply to recover incremental amounts. | | |

***Filing Guidelines***

The Board expects that applications requesting relief for incremental CAPEX during the IR plan term will be accompanied by comprehensive evidence to support the claimed need, and include the following:

- An analysis demonstrating that the materiality threshold test has been met and that the amounts will have a significant influence on the operation of the distributor;
- A description of the underlying causes and timing of the capital expenditures including an indication of whether expenditure levels could trigger a further application before the end of the IR term;
- An analysis of the revenue requirement associated with the capital spending (i.e., the incremental depreciation, OM&A, return on rate base and PILs associated with the incremental capital), and a specific proposal as to the amount of relief sought;
- Justification that amounts being sought are directly related to the claimed cause, which must be clearly non-discretionary and clearly outside of the base upon which current rates were derived. This includes historical plant continuity information for each year of the IR plan term since the last Board-approved Test Year;

- Justification that the amounts to be incurred will be prudent. This means that the distributor's decision to incur the amounts represents the most cost-effective option (not necessarily least initial cost) for ratepayers;
- Evidence that the incremental revenue requested will not be recovered through other means (e.g., it is not, in full or in part, included in base rates or being funded by the expansion of service to include new customers and other load growth); and
- A description of the actions the distributor will take in the event that the Board does not approve the application.

***Reporting Requirements***

Distributors that receive rate relief through this module will be required to report to the Board annually on the actual amounts spent. At the time of rebasing, the Board will carry out a prudence review to determine the amounts to be incorporated in rate base. The Board will also make a determination at that time regarding the treatment of differences between forecast and actual capital spending during the IR plan term. Overspending or underspending will be reviewed at the time of rebasing

## Z-Factors

Z-factors are events that are not within management's control. A distributor will be expected to supply the details of management's plans for addressing these events in support of the distributor's request for special cost recovery.

A distributor may record amounts which meet the eligibility criteria presented below for Z-factor events.

A distributor is expected to follow the guidelines listed below when applying to the Board to recover from ratepayers the amounts that the distributor has recorded. The Board may limit the recovery of certain amounts.

### *Eligibility Criteria for Z-factor Amounts*

The eligibility criteria for applications to recover amounts in the Z-factor are discussed in section 2.6 of the Board's July 14, 2008 Report, and are summarized in Table 6 below. In order for amounts to be considered for recovery in the Z-factor, the amounts must satisfy all three criteria set out in Table 6.

**Table 6: Z-Factor Amount Eligibility Criteria**

| Criteria | Description |
|---|---|
| Causation | Amounts should be directly related to the Z-factor event. The amount must be clearly outside of the base upon which rates were derived. |
| Materiality | The amounts must exceed the Board-defined materiality threshold and have a significant influence on the operation of the distributor; otherwise they should be expensed in the normal course and addressed through organizational productivity improvements. |
| Prudence | The amount must have been prudently incurred. This means that the distributor's decision to incur the amount must represent the most cost-effective option (not necessarily least initial cost) for ratepayers. |

*Materiality Threshold*

The Board has determined that the following materiality thresholds will apply:

- $50 thousand for distributors with a distribution revenue requirement less than or equal to $10 million;
- 0.5% of distribution revenue requirement for distributors with a revenue requirement greater than $10 million and less than or equal to $200 million; and
- $1 million for distributors with a distribution revenue requirement of more than $200 million.

As is currently the case, the threshold must be met on an individual event basis in order to be eligible for potential recovery.

***Filing Guidelines***

Distributors are expected to submit evidence that the costs/revenues which were incurred / received meet the three eligibility criteria outlined above.

Distributors are expected to report events to the Board promptly and apply to the Board for any amounts claimed under Z-factor treatment with the next rate application. This will allow the Board and any affected distributor the flexibility to address extraordinary events in a timely manner. Subsequently, the Board may review and prospectively adjust the amounts claimed under Z-factor treatment.

The Board expects that any application for a Z-factor will be accompanied by a clear demonstration that the management of the distributor could not have been able to plan and budget for the event and that the harm caused by extraordinary events is genuinely incremental to their experience or reasonable expectations.

## Other Matters in Relation to Z-Factors and Incremental Capital Module

Distributors will be expected to file a proposal, including the manner in which it intends to allocate the incremental revenue requirement to the various customer rate classes, the rationale for the selected approach and a discussion of the merits of alternative allocations considered.

Distributors will also be expected to file a detailed proposal including justifications to recover, through a rate rider, the Board-approved incremental revenue requirement. The proposal should specify whether the rate rider will apply on a fixed or variable basis, or a combination thereof, and the time period for collection. A detailed calculation of the rate rider(s) should be provided for each year of the IR plan term.

***Accounting Treatment***

Eligible **Z-factor** amounts should be included in Account 1572, "Extraordinary Event Costs", of the Board's Uniform System of Accounts (the "USoA") contained in the Accounting Procedures Handbook for electricity distributors.

Eligible **Incremental Capital Module** amounts should be recorded in Account 1508, "Other Regulatory Asset, Sub-account Incremental Capital Expenditures", of the Board's USoA contained in the Accounting Procedures Handbook for electricity distributors.

Carrying charge amounts shall be calculated using simple interest applied to the monthly opening balances in the account and recorded in a separate sub-account of this account. The rate of interest shall be the rate prescribed by the Board for the respective quarterly period for deferral and variance accounts. These prescribed rates are reviewed and updated each quarter and published on the Board's web site.

***Tax Changes in Relation to the Z-factor***

The treatment of tax changes is addressed in section 1 of this Report. The Board has determined that a 50/50 sharing of the impact of currently known legislated tax changes, as applied to the tax level reflected in the Board-approved base rates for a distributor, is appropriate. An approach similar to that adopted in the gas IR plans will be used to calculate the tax reduction for this purpose. The calculated annual tax reduction over the plan term will be allocated to customer rate classes on the basis of the Board-approved base-year distribution revenue. These amounts will be refunded to customers each year of the plan term, over a 12-month period, through a volumetric rate rider derived using annualized consumption by customer class underlying the Board-approved base rates.

The Model provided by the Board will include a schedule for distributors to complete that will calculate the amount to be shared and the resulting rate rider.