~~September 25, 2013~~ October 3, 2013

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
P.O. Box 2319, 27th Floor
2300 Yonge Street
Toronto, ON M4P 1E4

Re: Empirical Work in Support of Incentive Rate Setting in Ontario for Electricity Distributors
AMPCO's Comments on Draft Board Report
Board File No. EB-2010-0379

Dear Ms. Walli:

The Board released its Report entitled "Renewed Regulatory Framework for Electricity Distributors: A Performance Based Approach" (the "RRF Report") on October 18, 2012 resulting in three alternative rate-setting methodologies that will be available to distributors in 2014. Upon release of the report, the Board began consultation with stakeholders on the development of total cost benchmarking, an Ontario Total Factor Productivity (TFP) study and input price trend research.

The Board's consultations were informed by the advice of several expert consultants: Dr. Lawrence Kaufmann of Pacific Economics Group Research, LLC ("PEG"), staff's consultant; Prof. Adonis Yatchew of the University of Toronto, consultant to the Electricity Distributors Association; Dr. Francis Cronin, consultant to the Power Workers' Union; and Mr. Steve Fenrick of Power System Engineering, Inc., consultant to 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.).

On September 6, 2013 the Board issued a Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors for further consultation to have input from stakeholders before finalizing the methodology for incentive regulation for the period 2014 to 2018. In particular, the Board is seeking input on its proposed rate adjustment parameters: inflation factor, productivity factor and stretch factors, as well as its proposed policy for benchmarking of electricity distributor cost performance. On September 11, 2013, a Stakeholder Conference was held to discuss the Board's determination of values with respect to certain rate-setting parameters. The experts Dr. Cronin, Prof. Yatchew and Mr. Fenrick and Jay Shepherd from School Energy Coalition made presentations.

The Board determined it will continue with a price cap formula. Distribution rates will be set on a forward test-year cost of service basis and then indexed by the price cap index formula as follows which reflects expected growth in the distributors' input prices (the inflation factor) less an allowance for rates of productivity and efficiency gains (the X-factor).

Allowable Rate Increase = Inflation Factor - Productivity Factor- Stretch Factor

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Below AMPCO provides the parameters used in 3GIRM, the Board's proposed changes to the parameters, a tabular summary of the Consultant's views and AMPCO's comments on the Board's Draft Report regarding its proposed inflation factor, productivity factor and stretch factor components for the IR rate adjustment formula.

1. Inflation Factor

(3GIRM)

- 3GIRM used the year-over-year change in the Canada Gross Domestic Product Implicit Price Index for final domestic demand (GDP IPI FDD) to calculate price escalation.

- The annual percentage change in the GDP-IPI will be calculated separately for rates effective January 1st and May 1st.

Board's Proposal in Draft Report

The Board intends to use the 2-factor input price index (the "2-factor IPI"), as the inflation factor.

- 2-factor IPI to be constructed and annually updated (year over year change) using data from the Statistics Canada publication for the previous year

- 2-factor IPI be comprised of: [1]
    - The labour sub-index comprised of the average weekly earnings (AWE) for workers in Ontario (30% weighting); and
    - A non-labour sub-index comprised of the Canada GDP-IPI (FDD) (70% weighting).

- Excludes a specific capital sub-index to mitigate volatility

- In 2012, the estimated annual growth for this inflation factor is 1.6%. Staff estimates that the annual growth in 2013 and 2014 may be 1.6% and 1.9%, respectively.[2]

Board's Rationale

- more Ontario-specific inflation factor than 3GIRM
- more reasonable & less volatile than PEG's 3-factor IPI (that included a triangularized capital sub-index & used a three-year averaging)
- more readily understood by average consumer

Consultant Views

Dr. Cronin	• Sees structural flaws & wrong incentives in IR process to date • Sees similar structural & incentive problems in 4GIRM; 3 years on IR, 1 off term an

[1] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Pages 6-10

[2] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 11

	issue, creates rate step • Distortion between OM&A and capital decisions • Believes past IR encouraged labour/overhead capitalization; reduced equipment share in capital additions; penalized some efficient LDCs, rewarded some inefficient LDCs; increased line losses • Believes line losses and reliability should be included in TFP analysis • Inclusion of losses can materially impact TFP growth • Need more comprehensive indicator to include line losses and reliability – indicator would be consistent • Supports Board's uses of total costs • Considers Board's 2-factor IPI to be inconsistent with IR principles if capital costs not properly specified • Supports IPI with capital component (capital is 50% of costs) so 3-factor IPI, believes IPI can be estimated with more muted volatility
Prof Yatchew (EDA)	• Supports broader measures of inflation: less volatile, better understood and accepted by consumers
S. Fenrick (CLD)	• 2-factor IPI an improvement over PEG's 3-factor IPI; far less volatile; better tracking of actual distributor cost pressures; no need for 3 year smoothing • But missing capital asset inflation (approx. 50% of cost pressures) • Recommend adding weighted average of EUCPI to track capital asset inflation to achieve 3-factor IPI; same volatility as GDP-IPI; no material discussion needed to set weighting when capital costs are 50% of LDC costs • Recommend updating IPI more than once per year, when data available such as quarterly GDP-IPI to be more applicable to rate year

AMPCO's Comments

AMPCO supports the Board's proposed 2-factor IPI for the reasons provided by the Board above noting that that the primary source of the volatility in PEG's 3-factor IPI is the capital sub-index which the Board has excluded in the 2-factor IPI.[3]

Dr. Cronin (PWU) considers the Board's 2-factor IPI to be inconsistent with IR principles if capital costs are not properly specified. Dr. Cronin (PWU) believes an IPI with a capital sub-index can be calculated with less volatility[4], however no further analysis was provided. Professor Yatchew supports the Board's broader measures of inflation on the basis that it is less volatile and better understood and accepted by consumers. Mr. Fenrick (CLD) sees it as an improvement over PEG's proposed 3-factor IPI but has put forward an enhancement of the Board's 2-factor IPI that includes a capital sub-index, the weighted average of EUCPI, which he claims has the same volatility as the GDP-IPI. As part of the Stakeholder Conference on September 11, 2013[5] it was suggested that Mr. Fenrick consider including a comparison of the volatility of PSE's 3-factor IPI

[3] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 8
[4] Transcript V3 September 11, 2013 Page 34
[5] Transcript V3 September 11, 2013 Page 82

proposal compared to the Board's recommended 2-factor IPI. AMPCO submits that in the absence of further analysis on the volatility, complexity and benefit of this approach, the Board's 2-factor IPI is preferred.

The Board determined it will calculate the rate setting parameters once per year and the same inflation factor will be used to adjust rates for both January 1st & May 1st effective dates. Mr. Fenrick suggested the Board consider updating the IPI with available indexes more than once per year to make the inflation factor more-up-to date and applicable to the rate year. AMPCO supports an inflation factor that applies to both January 1st and May 1st rate applications. In AMPCO's view an annual update in the 2-factor IPI makes the most sense as it is not apparent the additional level of complexity to update it more frequently is warranted.

2. Productivity Factor

3GIRM

- Productivity Factor = 0.72
- Based on U.S. electricity distributor data and is the average annual productivity growth over 19-year period (1988-2006)

Board's Proposal in Draft Report

The Board has determined that where the estimate of achieved long-run Industry TFP is negative, the productivity factor (Industry TFP) for Price Cap IR should be set to zero[6].

- TFP trends computed using an index-based approach on Ontario data informed by PEG's analysis
- Based on 10-years (2002-2012) of Ontario electricity distributor data; whereas the 0.72% was based on U.S. electricity distributor data and was the average annual productivity growth over 19-year period (1988-2006)
- PEG's analysis concluded on average, industry TFP declined by 0.33% per annum over the 2002-2012 sample period compared to an average growth of industry TFP of 0.19% per annum over the 2002-2011 period, with some or all of this impact due to 2012 data anomalies[7]
- Board agrees with PEG that as long as Toronto Hydro & Hydro One remain outliers, these distributors should be excluded from the Industry TFP data set[8]

Board's Rationale

- Productivity factor = 0 reflects a reasonable balance of the estimated productivity achieved in the sector over the last 10 years , absent the identified one -time and unusual events that occurred during the study period, and a value that can be reasonably projected into the future as an on -going external industry benchmark which all distributors should be expected to achieve[9]

Consultant Views

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[6] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 20

[7] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 19

[8] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 17

[9] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 28

Dr. Cronin (PWU)	• Line loss & reliability performance should be in TFP analysis • Put forward price-dual analysis as alternative methodology to TFP • Need to answer question of why TFP growth was negative for most of the decade before IR policy decided • Concerned about factor that doesn't reflect need for more capital
Prof Yatchew (EDA)	• Agrees productivity trend is negative (factors include one time events) • In earlier report estimated TPF using 2 methodologies: index-based & cost based • Sees econometric approach superior to pure index based approach • Concerns about excluding outlier data (Hydro One& Toronto Hydro)
S. Fenrick (CLD)	• Agree TFP in industry is negative & declining • If productivity = 0, implicit stretch factor in productivity; should be recognized by a reduction in stretch factor

AMPCO's Comments

All three experts agree based on their analysis that the industry TFP trend is consistently negative. Dr. Cronin questions whether negative growth over the 2002-2011 period is due to flaws he sees in the Board's IR design, the recession, incentives to overcapitalize labour and overhead, reduced equipment investment, aging infrastructure or other factors. He made the point that the Board should not be making policy without first doing research and finding out the causes of negative growth and the differences among distributors. Dr. Cronin estimated this analysis would take approximately six months.[10] Dr. Cronin was concerned the X factor would not reflect the fact that Distributors need more capital than normal.[11] The Board's Draft Report acknowledges achieved Industry TFP may be negative due to unforeseen events and/or situations in which costs may be incurred with no corresponding increase in output. To deal with these circumstances moving forward the Board sees the rate setting tools that currently exist in the Board's Price Cap IR framework as adequate (i.e., cost of service rebasing at start of term; and Off-ramp; Z-factor, LRAM, deferral and variance to deal with Government policy directives, and the ability to apply for an Incremental Capital Module during term). Mr. Shepherd noted in his presentation that the impact on rates under the current ICM is a 2.6% annual rate increase (average).[12]

AMPCO understands the Board's determination of a productivity factor of zero is to reflect the balance of the estimated productivity achieved in the sector over the last 10 years and a value that can be reasonably projected into the future as an on-going external industry benchmark which all distributors should be expected to achieve. PEG recommended that the productivity factor be no lower than zero.[13]

AMPCO agrees with the Board that a negative productivity factor is inappropriate and contrary to the RRFE framework, however in AMPCO's view a productivity factor of zero is also inappropriate. The Board indicates the productivity factor is an offset to inflation and setting a productivity benchmark for the industry that does not encourage productivity gains is counter to the Board's policy direction and doing so would be counter to

[10] Transcript V3 September 11, 2013, Page 52
[11] Transcript V3 September 11, 2013, Page 49
[12] SEC Presentation, Interaction of Inflation, TFP, Stretch & ICM, Slide 2
[13] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 19

facilitating a culture of continuous improvement.[14] AMPCO acknowledges the findings of a negative TFP trend over the last decade due in part to one-time events but submits that the optics of a zero productivity factor are poor and not aligned with consumer interests or the Board's mandate to provide efficient, reliable and low cost electricity supply.

AMPCO believes incentive regulation works best when utilities have stronger incentives to minimize costs and innovate to improve operating efficiency and provide greater value. A zero productivity factor for five years does not promote efficient behaviour and does not incent further cost reduction. Even the most efficient LDCs should have improvement in productivity as an expectation.

At the Stakeholder Conference it was noted that in other proceedings in British Columbia for the gas and electric industries, similar analyses demonstrated negative productivity and for both gas and electricity the companies involved are themselves proposing a productivity factor of 0.5.15 It was later clarified that in this proposal there is no stretch factor and Fortis is actually asking for a number of costs to be treated as a pass-through, although the 0.5 productivity factor could be seen as akin to the Board's proposal of zero productivity plus the stretch factors.[16]

In considering the above, AMPCO submits that a productivity factor greater than zero is a more appropriate to be an on-going external industry benchmark which all distributors should be expected to achieve.

The Board determined that all distributors will be subject to the same productivity factor in 2014 and the productivity factor will remain in effect until a distributor's next rebasing. The productivity factor will be updated every five years (next in 2019) to provide for benchmark stability.[17] AMPCO has no concerns with this approach.

3. Stretch Factors & Benchmarking

3GIRM

3GIRM used the results of two OM&A benchmarking evaluations (PEG econometric model & unit cost evaluations using peer groups) to divide the Ontario industry into three efficiency cohorts: 0.2%, 0.4% and 0.6%.

Distributors that ranked superior in both evaluations were assigned to Group 1 (0.2%); those that ranked inferior in both were assigned to Group 3 (0.6%) and all others, including those that rank superior or inferior in only one of the evaluations, were included in Group 2 (0.4%).

Board's Proposal in Draft Report

The Board has determined that distributors will be assigned to one of five tranches with stretch factors based on their efficiency as determined solely through PEG's econometric total cost benchmarking model. The

[14] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 19

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[17] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Pages 15-16

appropriate stretch factor values range from 0.0% to 0.6%[18] as follows:

Table 6: Stretch Factor Values

Tranche	Relative Cost Performance	Stretch Factor
One	Actual costs are at least 20% below predicted costs	0.00%
Two	Actual costs are between 15% and 20% below predicted costs	0.15%
Three	Actual costs are between 0 and 15% below predicted costs	0.30%
Four	Actual costs are between 0 and 15% above predicted costs	0.45%
Five	Actual costs are more than 15% above predicted costs	0.60%

- The Board indicates it is setting the lower-bound stretch factor value to zero to strengthen the efficiency incentives inherent in the price cap formula and in doing so reward the top performers. Based on stakeholder consultation, the Board does not believe it appropriate to increase the upper-bound stretch factor value of 0.6% at this time.[19]

- Peer group analysis will not be used.

- Distributors that apply for specific treatment regarding stretch factor assignments with compelling reasons may be assigned the middle stretch factor (i.e. 30%)[20]

- Stretch factor assignments will be revised annually to reflect changes in efficiencies and thus provides an additional incentive for distributors to improve performance year after year

- All Distributors will be included in the total cost benchmarking analyses unless other wise determined by the Board

Board's Rationale[21]

- Although PEG developed two benchmarking models (one econometric, one unit cost using peer groups), the Board decided to rely solely on the econometric model to assign stretch factors based on the lack of support for the use of peer groups in benchmarking. Stakeholders persuasively argued that there are too

[18] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 28
[19] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 28
[20] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 29
[21] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Pages 26-28

many variables that can affect distributor costs to be confident in peer group allocations.[22]

- The use of one benchmarking model to produce a single efficiency ranking will be more transparent and understandable for distributors and stakeholders than using two models and the use of peer groups, and it should be easier for a distributor to identify its relative cost efficiency, act to improve it, and be rewarded through annual tranche assignments.[23]

Consultant Views

Dr. Cronin	• Warns against stretch factors & benchmarking • To address benchmarking data issues Board should consider nonparametric approach such as DEA • PEG's efficiency estimates vary significantly from DEA estimates & 40 years of capital data; will lead to penalizing more efficient LDCs & rewarding inefficient LDCs
Prof Yatchew (EDA)	• Supports setting aside Peer Group Analysis (too contentious) • Estimation of relative efficiency is difficult and subject to misclassification; minor model variations can lead to migration of distributors between cohorts; cost model provides better indicator of relative efficiency • Support Board's decision to assign LDCs to 5 groups as determined by benchmarking model • May be worth considering how dividing lines are set between groups; perhaps at a higher point? Comments to be provided

S. Fenrick (CLD)	• Ok with five cohorts
	• Views stretch factor as extremely demanding
	• Implicit stretch factor included if productivity factor = 0
	• Recommends reducing top stretch factor from 0.6% to 0.5%
	• Highly supportive of eliminating peer groups, less complex
	• Recommends PSE Model instead of PEG's Econometric Model:
	  • Better measure for benchmarking cost efficiency of LDCs; more intuitive model
	  • revised model to be logarithmic; log-log relationship vs. linear relationship
	  • constant returns to scale assumption; correcting for differences between distributors
	  • includes more statistically significant business conditions (10 vs. 6 in PEG model); accounts for more service-territory conditions
	  • No insignificant business conditions in PSE Model; PEG model has 2 insignificant business conditions (% service are & % lines underground)
	• Recommends dividing industry into quintiles based on ranking; divide utility rankings by 5; tranche one top quintile; simpler; equal distribution that does not change over time

L. Kaufmann	• Responded to PEG model assumptions by others • PEG model doesn't make any scale economy assumptions on any LDC; findings come out of industry data; need to look at 3 outputs in PEG model (customer, peak demand, kilowatt hours) to look at relationship between changes in output & cost, not one in isolation

AMPCO's Comments

[22] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 27

[23] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 28

AMPCO supports the increase in stretch factor cohorts from three to five for the reasons noted: to facilitate the movement of distributors into higher tranches and reward those that have improved their relative cost efficiency with more timely reductions in their stretch factors. AMPCO notes Professor Yatchew & Mr. Fenrick both support the Board's proposal to increase the number of cohorts from three to five. Dr. Cronin warned against the whole issue of stretch factors and benchmarking given this issues around determining efficiency in an environment where the data may not be up to doing that.[24]

AMPCO agrees with the Board's position that negative stretch factors are contrary to Board policy. AMPCO understands that a stretch factor of zero guarantees escalation in rates at the rate of inflation for top performers. However, AMPCO has concerns with the optics of lowering the lower- limit stretch factor from 0.2% to zero on the basis that it does not send the right signal to the more efficient Distributors at this time to strive for continuous improvement.

The Board noted in its Draft Report that stretch factors are consumer benefits and that stretch factors promote, recognize and reward distributors for efficiency improvements relative to the expected sector productivity trend.[25] AMPCO agrees stretch factors are likely to motivate distributors to change or maintain their status. However, in AMPCO's view the lower-limit stretch factor should still be > 0. AMPCO notes the Board, in its 3GIRM Report stated the following "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."[26] AMPCO acknowledges that the Board determined as part of 3GIRM that non-negative (i.e. >0 or =0) stretch factors will be included in the X-factor.[27] However, AMPCO believes that at this time it is not appropriate to set the lower limit = 0.

AMPCO notes stretch factors only have value if they are sufficient to motivate and influence behaviour. AMPCO agrees with an approach that strengthens efficiency incentives and rewards top performers but submits a lower-limit stretch factor less than 0.2% but greater than zero provides a reward when compared to 3GIRM stretch factors. AMPCO submits that even the most efficient Distributors should expect and be incented to achieve incremental efficiency gains over the IR term and this premise needs to be reflected in the stretch factor. AMPCO submits there is no reason to suggest that top performing Distributors cannot continue to achieve additional gains. In considering the above, AMPCO recommends that the Board consider adjusting the lower-limit stretch factor to be a value greater than zero while maintaining the five cohorts (to allow a middle tranche of "average" performers) and maintaining an upper-limit stretch factor of 0.6%.

AMPCO supports the Board's approach to keep the upper-limit stretch factor value at 0.6%. Mr. Fenrick recommends that the upper stretch factor be reduced from 0.6% to 0.5% to recognize that over time stretch factors should be reduced with experience under IR. [28] AMPCO does not agree the upper limit should be adjusted lower for reasons similar to those noted above, i.e. efficiency gains have not been maxed out.

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[24] Transcript V3 September 11, 2013, Page 53

[25] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Pages 27-28

[26] EB-2007-0673 Supplemental Report of the Board, September 17, 2008, Pages 23-25

[27] EB-2007-0673 Report of the Board, July 14, 2008, Page 20

[28] EB-2010-0379 Draft Report of the Board on Empirical Research to Support Incentive Rate-setting for Ontario's Electricity Distributors, Page 30

In terms of benchmarking Distributor cost performance, AMPCO supports the Board's determination to use PEG's econometric model to inform annual stretch factor assignments. The model is used to predict each distributor's total costs, and compare the distributor's actual costs to the econometric prediction. Mr. Fenrick proposes that the stretch factor calibration could be improved by using rank rather than score by basing the tranches simply on the quintile rankings that come out of the econometric model. Mr. Fenrick's rationale is that it is simpler, reflects equal distribution that does not change over time and is not vulnerable to model changes. AMPCO prefers the Board's approach as it assigns Distributors to one of five groups based on statistical significance and quintile alignment between the two rankings which is more informative.

AMPCO supports the Board's approach to run the total cost benchmarking model annually to determine efficiency rankings for the purpose of setting stretch factors. AMPCO also supports the Board's approach to review the models every five years (next in 2019 for 2020 rates) to review business conditions and explore alternative approaches to benchmarking and estimating TFP.

As part of the discussion around understanding why TFP has been negative for most of the decade, it was suggested that any follow-up analysis should not be limited to TFP but should look at whole regulatory framework with respect to the incentives that were created, the implications for customers, the ICM, how it operated, the unintentional incentives, the impact on reliability and perhaps customer preferences should be included. [29] AMPCO suggests the Board may wish to do a further assessment of the IR plan in advance of setting new parameters in 2019 for 2020 rates.

Please do not hesitate to contact me if you have any questions or require further information.

Sincerely yours,

Adam White
President
Association of Major Power Consumers in Ontario

[29] Transcript V3 September 11, 2013, Pages 122-123