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June 26, 2007

via email – original to follow by mail

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

Dear Ms. Walli:

RE: **Comparison of Distributor Costs ("DCC")**
Consultation on Consultant's Report
Board File No.: EB-2006-0268

On April 27, 2007, the Board released for comment a report by Board staff's consultant, Pacific Economics Group ("PEG"), on a methodology for comparing electricity distributor costs (the "PEG Report"). This letter conveys the comments of the Coalition of Large Distributors ("CLD", consisting of Enersource Hydro Mississauga Inc., Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream Inc., Toronto Hydro-Electric System Limited, and Veridian Connections Inc.).

The CLD acknowledges the need to develop a fair basis of comparison of distributor cost and performance levels. Generally, the CLD supports the direction of the work that has been undertaken by the Board and its consultant PEG as a constructive step forward. While the initial results obtained are preliminary and should be used with caution, the effort has also identified limitations of the analysis that PEG has expressly acknowledged. The CLD sees this as helpful in identifying the best course of further work.

Essentially, the CLD believes that while the current results have limited value in any quantitative application, the shortcomings that have been identified in the data and the analysis can be remedied and that the effort to do so can be fruitful over the medium term. The CLD recommends that the Board undertake a consultation process with the

industry to further this effort, and in doing so that it maintain transparency with respect to both the process and the data being studied.

Comments on Specific Aspects of the PEG Report

The CLD retained a consultant to assist in the analysis of the PEG report and the CLD's detailed comments are contained in the attached document which the CLD prepared based on the consultant's input.

Summary of CLD Concerns

Data-related Concerns

The CLD is concerned that the historical basis of reporting by LDCs reflects legitimate variances in treatment that, while proper from GAAP, RRR and APH perspectives, do not support accurate inter-distributor cost comparisons. These variances in treatment have been documented in a variety of contexts prior to the current one. They include, for example, differences in cost categorization arising from differences in the location of certain functions (e.g., billing and collection) within or external to the LDC. Beyond differences in categorization with OM&A, differences will also arise based on whether or not capital related to a given function is within the LDC or is external to the LDC. In cases where the capital is held externally, the capital-related costs will be recognized as OM&A, which will thus appear to be exaggerated where the offsetting reduction in depreciation and return is excluded from the overall analysis.

The PEG report identifies that "One important problem with the OEB data is the questionable potential of available capital cost data." Consequently, the PEG benchmarking analysis was limited to OM&A data. The CLD proposes that the Board should undertake a consultation with LDCs and stakeholders to determine how the OEB data collection can be refined to provide, on a going forward basis, capital cost information that will support meaningful benchmarking.

Notwithstanding this lack of capital cost information, the CLD supports further development of the OEB benchmarking efforts. In the interests of making available OEB data useful for benchmarking comparisons, the CLD also proposes that the Board should consult with LDCs and stakeholders to determine well-defined, standard functional cost categories. In addition, the consultation could identify what, if any, adjustments might be necessary in individual cases in order to align reported OM&A data with the agreed-upon

functional cost categories. For DCC purposes, LDCs would have the opportunity to make adjustments to OM&A expenditures that are deemed necessary to create a consistent cost comparison between LDCs, for example in instances where costs from one functional category such as billing and collection had been reported in the A&G category due to outsourcing.

This process could also partially compensate for distortions in capital cost data arising from corporate structure. For example, as a result of corporate structure or lease vs. own decisions, one LDC may have within their OM&A expenditures, amounts that are commonly found within depreciation, interest or allowed returns in other LDCs. An adjustment formula for the express purpose of benchmarking would make OM&A comparisons more meaningful and beneficial.

This opportunity to make adjustments for DCC purposes would be different than the affirmation that LDCs were required to undertake prior to the 2006 EDR process.

For DCC purposes, it would also be necessary to establish a consistent basis of reporting for other non-financial measures such as reliability and service quality, and system-description measures such as circuit kilometers.

Model-related Concerns

CLD has a number of concerns related to the modeling approach adopted by PEG. These are set out below.

1. Exclusion of capital and capital-related costs, together with capital vintage.

   PEG acknowledges, and CLD concurs, that capital costs, capital vintage, and substitution between capital and other inputs are very important factors in explaining and comparing LDC costs. CLD proposes that the Board should undertake industry consultation to determine a method for their inclusion in the DCC analytical framework. Until these factors are included, comparative results are likely to be significantly distorted.

2. Exclusion of service quality and reliability as explanatory variables.

   Utility costs vary directly, in both the short and long terms, with variations in these output levels i.e., services provided to customers. It is unreasonable to exclude these factors from the analysis and their omission is likely to cause significant distortions in results.

3. Inclusion of energy delivered as an explanatory variable.

   It is widely acknowledged that LDC costs (with the possible exception of losses) do not vary with incremental or decremental energy consumption by customers. Therefore the energy consumption variable should be excluded on an *a priori* basis since it lacks a theoretical underpinning. In addition, variations in customer mix among utilities will affect energy delivered per customer and therefore distort comparisons made on this basis. The fact that this variable appears to be statistically significant is most probably a result of using panel data on utility costs and throughput that vary tremendously in levels, and the correlation over this range of variation between customer numbers and energy throughput. The inclusion of this variable in the model represents model mis-specification rather than indicating a causal relationship between the variables.

4. Use of total costs rather than cost per customer.

   The use of total costs (even in log form) in the PEG model produces misleading parameter estimates and diagnostic statistics (for example, R^2 values), and in any case is irrelevant to the fundamental item of interest, which is cost per customer.

   From a statistical perspective, it is not possible to achieve good resolution on meaningful differences in cost per customer when analyzing *total* utility costs that vary tremendously across the range of utilities, since the variation in these costs is naturally and almost completely explained by the corresponding variation in customer numbers. In cases like these, a high R^2 value would be difficult *not* to achieve and is not indicative of good model quality with respect to the variable of interest, cost per customer.

   From a customer perspective, *total* utility costs are irrelevant. It is a matter of indifference for customers how many customers their utility serves: what is relevant is quality of service and cost per customer, i.e., the amount of their bill.

   The CLD takes the view that focusing on cost per customer is the preferred approach since it is better able to detect meaningful differences in utility costs, and can support direct analysis of explanatory variables like customer density, physical system descriptors like circuit kilometers and service quality levels, and as well can support flexible functional forms able to address issues like scale economies.

In pointing out these concerns, the CLD does not wish to impede or reverse the DCC effort; rather, it hopes to suggest constructive directions for the next steps in this process. The CLD anticipates that it will actively and responsibly contribute to this effort through a meaningful collaborative process with the Board and other stakeholders.

Yours truly, on behalf of the CLD,

[original signed by Anna-Christina Crespo for]

Colin McLorg, Manager
Regulatory Affairs

Analysis of the PEG Report by the Coalition of Large Distributors

June 26, 2007

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1 Summary

The Coalition of Large Distributors ("CLD"), comprising of Enersource Hydro Mississauga Inc., Horizon Utilities Corporation, Hydro Ottawa Limited, PowerStream Inc., Toronto Hydro-Electric System Limited and Veridian Connections Inc., is submitting these comments in response to the Board's letter inviting interested parties to comment on the report, *Benchmarking the Costs of Ontario Power Distributors*, prepared by Pacific Economics Group ("PEG").

We have prepared our comments according to the filing instructions as set out in the Ontario Energy Board's ("OEB's") request dated April 27, 2007.

Overall, the CLD's findings regarding the PEG study and its potential usefulness in a rate making process fall into three main areas.

The CLD has significant concerns regarding the **quality and overall comparability of the data** that is being used in the PEG econometrics analysis. We have found some instances where the data used for the regression analysis appears to be inaccurate or where there are significant changes in data year over year, which would significantly impact overall findings regarding efficiency. A reliable variable for the measurement of capital inputs will be required to ensure a more complete econometric assessment of the relative efficiency of distribution companies. The CLD also feels that further consideration of the range of environmental factors (which we also refer to as cost drivers or explanatory factors) should be factored into the analysis.

With regard to the approach to econometrics used by PEG **we have found problems in replicating the results presented in the study**, largely as a result of being unable to create the binary variables presented by PEG. We also find that the statistical robustness of the results is affected when the regression analysis is run for each of the years 2002, 2003, 2004 and 2005 individually (for example the kWh variable becomes statistically insignificant in the 2004 regression.)

We feel the OEB should give considerable thought to the further development of the econometric analysis. We would suggest that the OEB consider allowing PEG to present their findings and take questions from interested distributors. We would then suggest that the OEB and the industry work together on issues of data quality and to determine an appropriate methodology to ensure that future versions of the econometric model address some of the issues raised in this submission. We are aware that in other jurisdictions, regulatory authorities have worked closely with regulated companies to develop regulatory reporting rules and data requirements. Once the data is refined, the OEB and LDCs can move forward on the development of appropriate methodologies for benchmarking. This approach has largely been developed through joint working groups with representation both from the industry and the regulatory authority. The CLD recommends that the OEB consider such an approach.

2 Data quality

In undertaking its analysis PEG acknowledges limitations associated with the data that has been used. In reviewing the PEG report, the CLD has also identified some significant issues arising from the data, which we believe undermine the analysis in the PEG study.

Our key areas of concern relating to the quality of data used in the PEG analysis are as follows:

- Consistency and comparability of data;
- Influence of capital costs; and
- Exclusion of relevant environmental factors and variables that capture quality of service.[1]

2.1 Consistency and comparability of data

The dataset used in the PEG analysis was not originally designed for detailed econometric benchmarking. Although the dataset used may have been audited and be accurate from the perspective of financial reporting for each local distribution company ("LDC"), legitimate differences may nevertheless arise in situations where companies have distinct differences in business models or accounting practices. These differences are likely to influence the outcome of the benchmarking analysis and could therefore unfairly distort results for any individual utility or group of utilities.

OM&A as dependent variable

It is not immediately clear to the CLD that OM&A should be considered as a single dependent variable. While the CLD understands the benefits of the OM&A variable as a high level aggregate cost, it is possible that administration costs (possibly more directly related to customer numbers) have different explanatory factors or cost drivers than O&M (related to asset age, quality, etc.). We assess the econometric impact of this in Section 3 below.

Comparability: own versus lease

A major driver behind the resulting differences between companies in the benchmarking analysis is the choice of business model. In our review of the dataset used by PEG, we have found that there are comparison issues created by using OM&A expenditure as the sole expenditure comparison for LDCs. As a result, whether or not an LDC owns or leases certain assets will impact the overall results of the benchmarking analysis.

For example, if a company chooses to lease rather than own specific capital assets the cost of these leases would be reflected as annual operating expenses in OM&A. In other LDCs where these assets are owned, the costs for these capital assets would not be reflected in OM&A but would rather be directly reflected in depreciation, interest and allowed return on equity related to those assets.

[1] Such variables could for instance be related to service quality or network-related quality.

These differences in cost treatment need to be recognized and accounted for within the benchmarking analysis if OM&A is the sole expenditure comparison for LDCs (however a more detailed analysis including a comparison of capital costs should be considered). The cost impact of this business model decision could be significant and can be illustrated in the following example. Veridian estimates that their OM&A was on average 9.1% higher between 2002 and 2005 as a result of leasing their assets from an affiliate[2]. The impact of this business model decision is not identified and adjusted for the in the PEG analysis.

The way in which this effect could be addressed is by making adjustments to the econometric analyses either simplistically by using a binary variable for companies using a leasing approach or more fully by using an appropriate measure for capital cost inputs so that trade-offs between capital expenditures and operational costs are well understood and reflected in efficiency results (see discussion on capital cost in Section 2.2).

Comparability: affiliate business cost allocations vs. in-house costs

In some situations, OM&A will, in part, include costs allocated to the electricity distribution business from a shared cost pool within a holding company or an affiliate business. It is not clear from our review of the PEG report whether consistent cost allocation approaches have been used within the dataset.

In addition, the LDCs that do not use a shared services approach to some operational expenses may incur greater fixed costs than those utilities that do.

Given this it appears that a specific corporate structure can be a key driver of cost within an LDC. The choice of corporate structure depends on many factors. We believe it is necessary to recognize in the econometric modelling that alternative corporate structures exist within the Ontario electricity distribution sector particularly as the existing affiliate companies influences capital and operating costs. This issue could be addressed by:

- A review of cost allocation techniques for LDCs using affiliates to provide services to the regulated businesses to ensure consistency; and
- Including within the model a binary variable for these companies.

Consistency over time

The PEG analysis relies on pooled data. The advantage of this approach is that data is essentially averaged over time and the effect of outliers is reduced. However, the averaging may mask underlying trends in the data or may mask large changes in the data of individual companies. We have examined the changes over time of the key variables used in the PEG analysis relating to the CLD. The results of our analysis suggest substantial changes in the data over time, which we believe impact the reliability of the PEG analysis.

[2] With resulting lower capital costs.

Figure 1: OM&A 2002-2005 (2002=100)

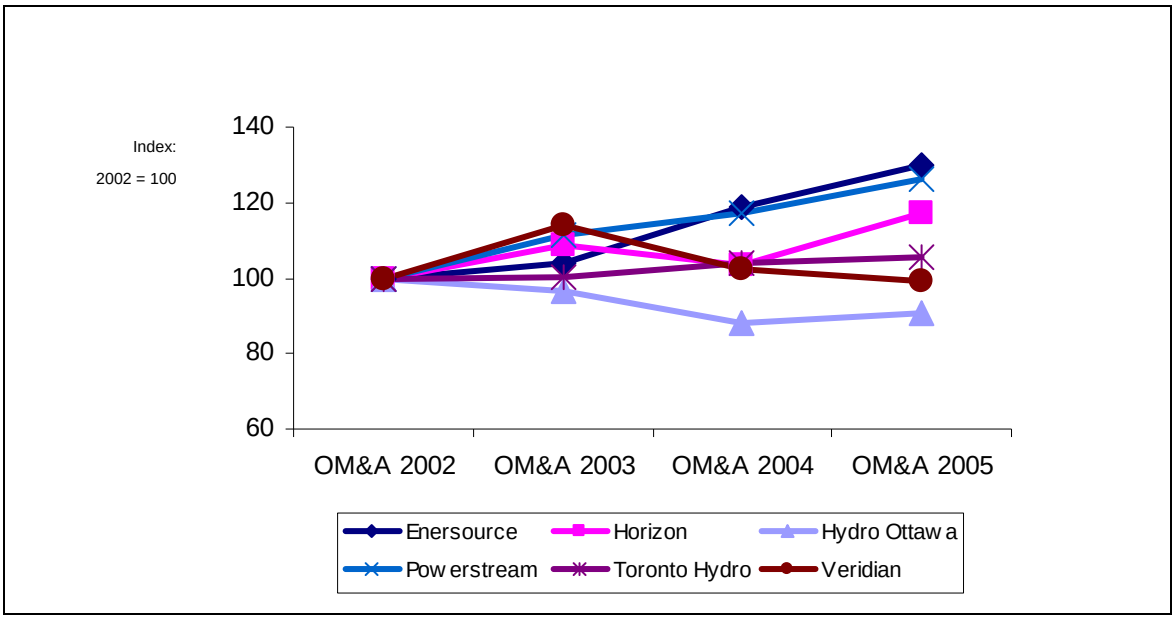


Figure 2: kWh-delivered 2002-2005 (2002=100)

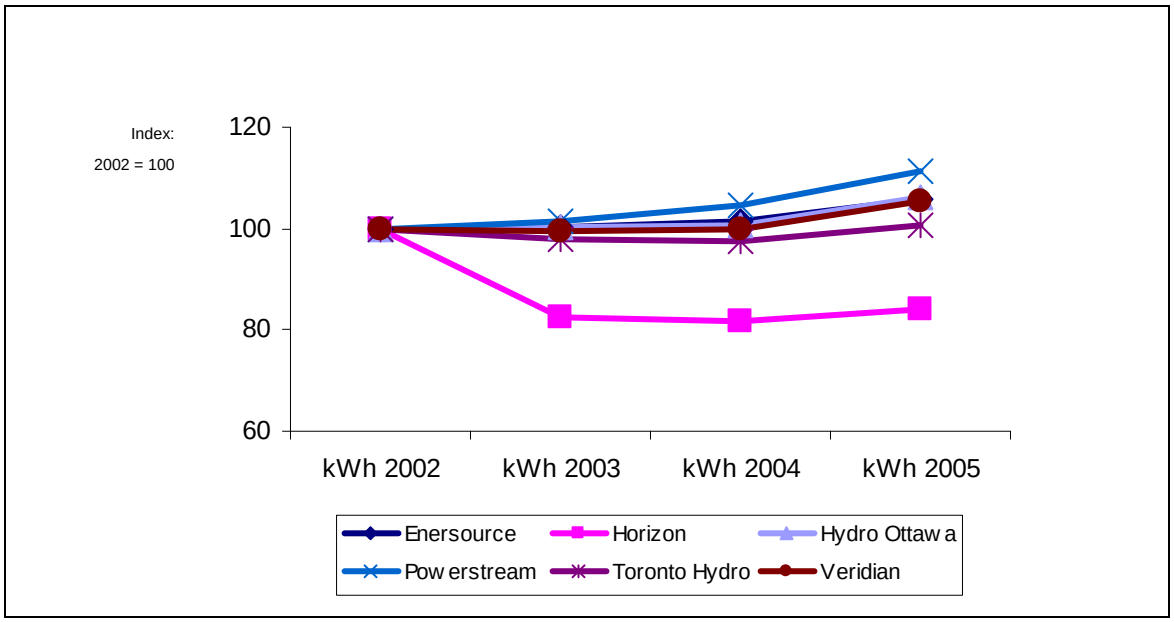


Figure 3: number of customers 2002-2005 (2002=100)

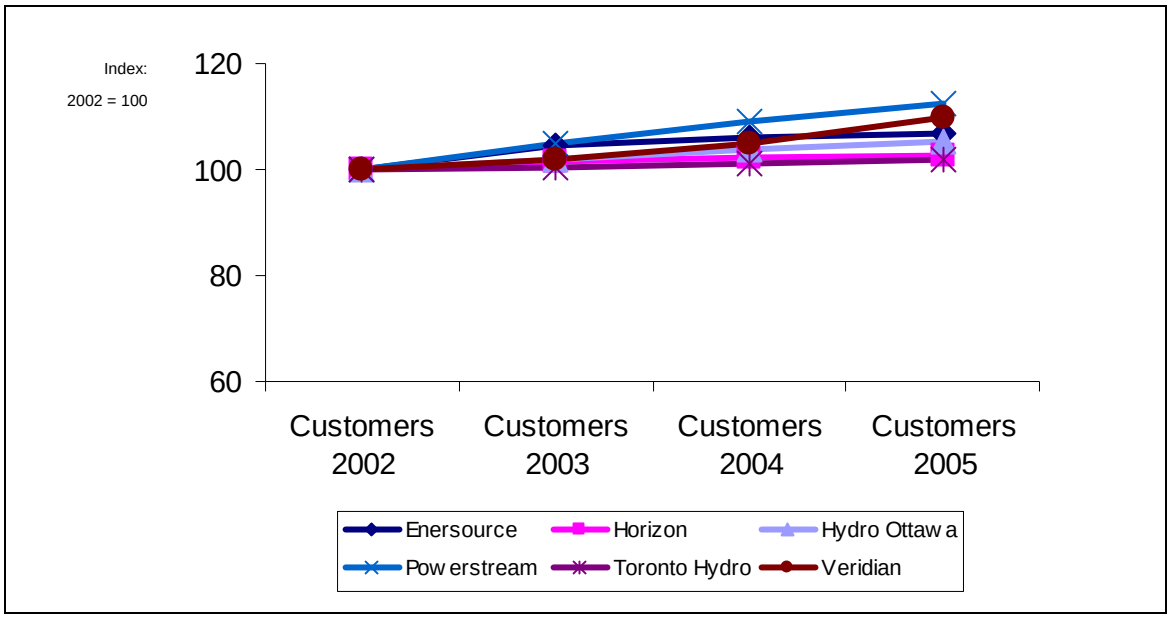
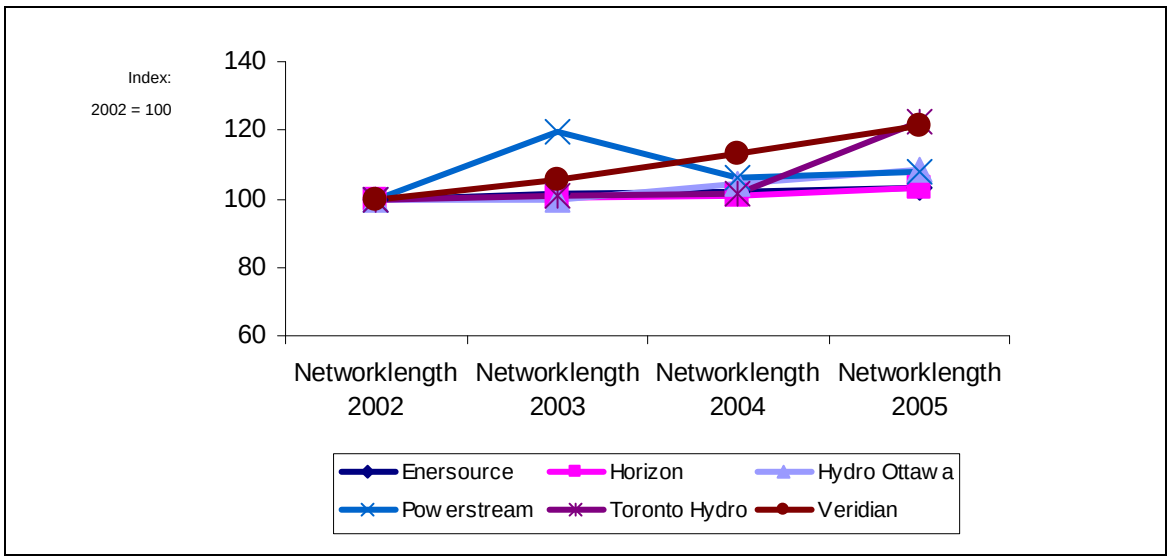


Figure 4: network length 2002-2005 (2002=100)



In addition to reviewing the data related to the CLD, we have analyzed the data relating to the other LDCs included in the dataset and found other companies that show large increases or decreases over the period from 2002-2005. For example:

- Port Colborne reports an increase in OM&A of 196% in this period, whereas West Nipissing Energy Service reports a decrease of 60%;

- Great Lakes Power has an increase of 46% kWh-delivered over this period, whereas Westario Power has a decrease of 76%;

- Halton Hills Hydro reports an increase of 77% in network length over this period, whereas Wellington North Power reports a decrease in network length of 42% in the same period.

These large changes suggest the data is not consistent over time and could adversely affect the results.

We have also examined the changes over time of the five best-performing companies according to the PEG analysis.

Figure 5: OM&A 2002-2005 (2002=100)

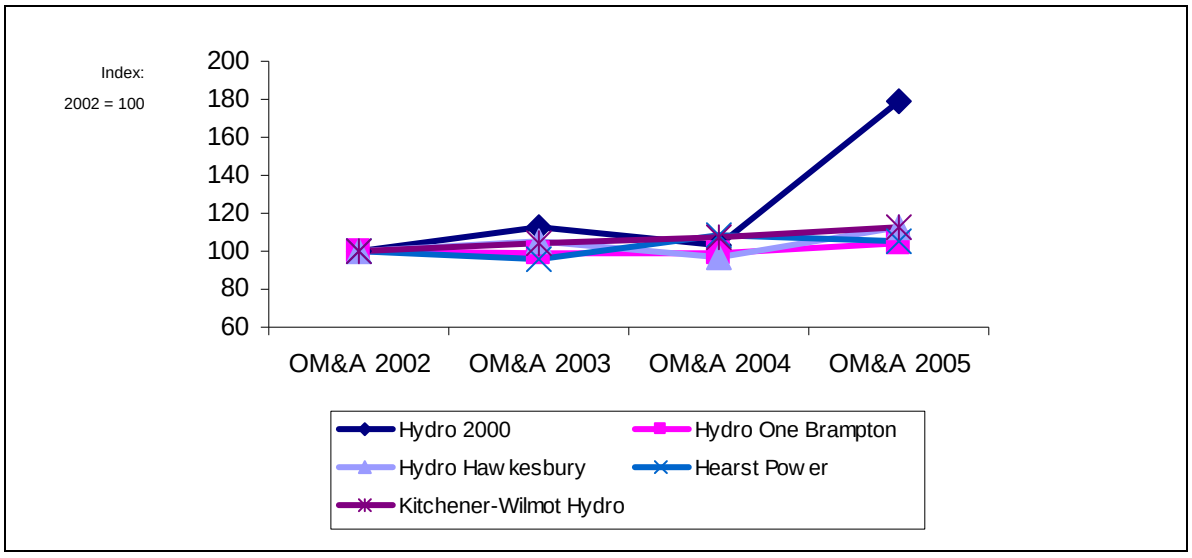


Figure 6: kWh-delivered 2002-2005 (2002=100)

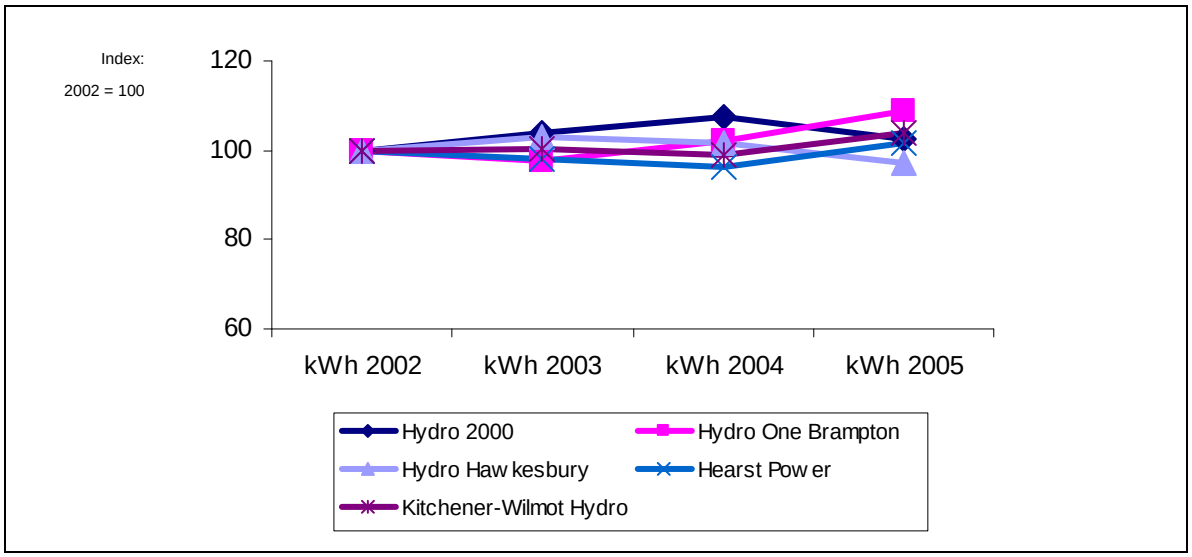


Figure 7: Number of customers 2002-2005 (2002=100)

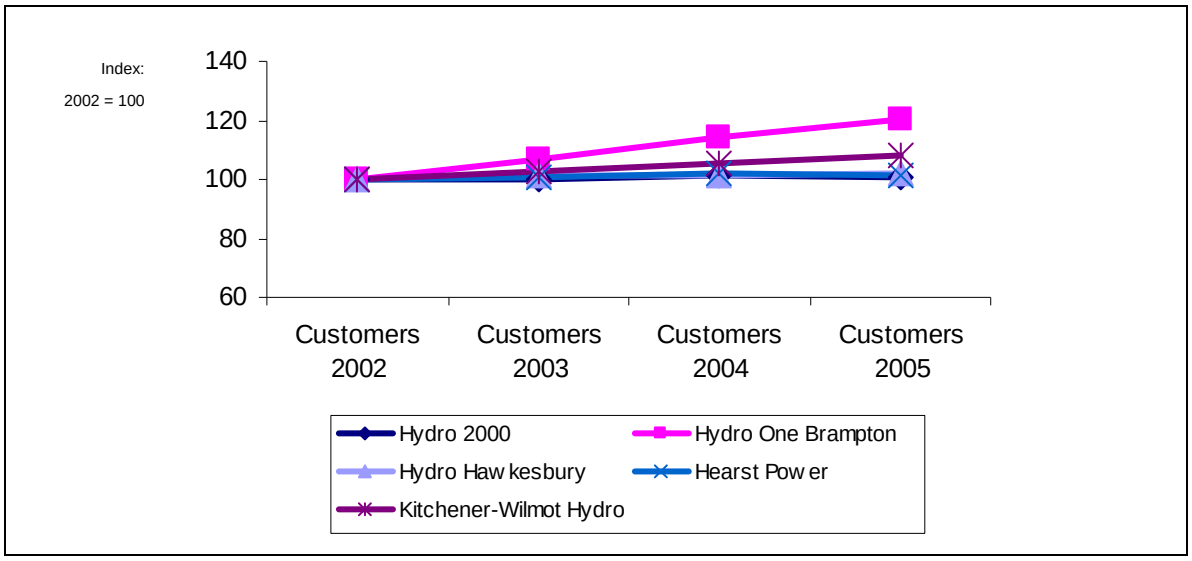
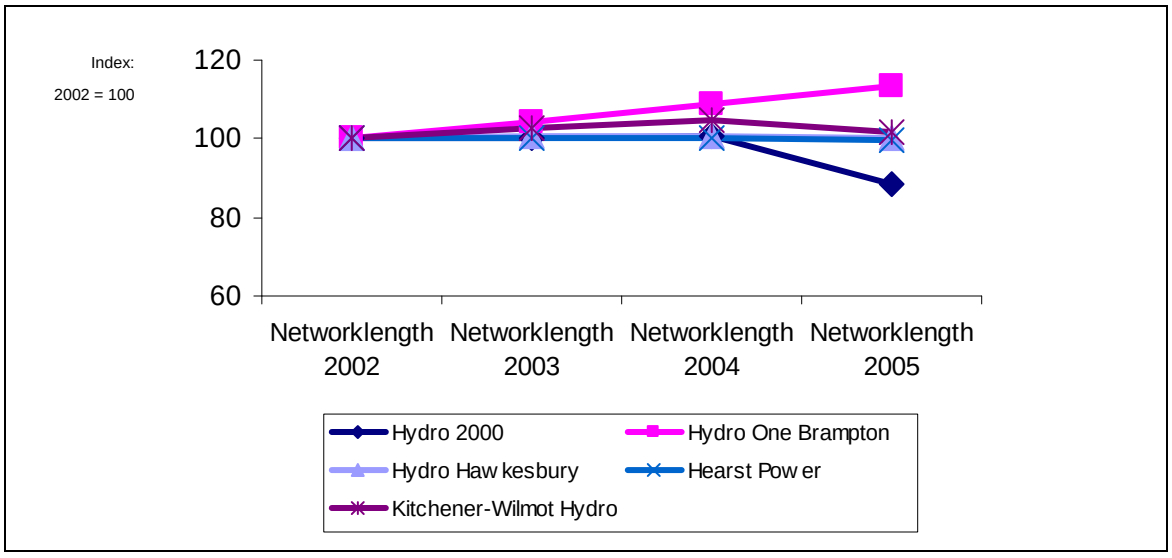


Figure 8: Network length 2002-2005 (2002=100)



The figures above demonstrate significant year-over-year changes in data. Hydro 2000 is an important example in this regard. Between 2004 and 2005 there is a significant (20%) reduction in network length (Figure 8), which is typically a relatively stable variable year over year while costs increase by more than 80% in the same period (Figure 5.)

2.2 Capital costs

As discussed above, the inclusion of all relevant costs is critical for there to be a good comparison between companies within any benchmarking analysis. We have noted that

capital costs are missing from the current analysis. PEG concludes that defining an appropriate capital cost per company is fraught with difficulties. However, the trade-off between operational costs and capital costs is likely to be significant, as is the average age of the capital stock.

Future benchmarking analyses will need to account for this trade-off in order to provide a full and balanced overview of efficiency of LDCs.

2.3 Structural and environmental factors and quality of service

The analysis undertaken by PEG thus far has drawn on the variables previously collected by the OEB plus the limited number of explanatory factors/cost drivers that were identified by PEG (forestation and Canadian Shield).

There is a wide range of variables that should be considered before a final model specification is agreed and finalized. In some cases, this may require further development of data from all distribution companies. These variables include:

- **Calculation of capital inputs:** Capital costs are a substantial determinant of overall cost per customer and their exclusion leads to distorted results. At a minimum, capital costs included in rate-setting should be included in the cost comparisons.
- **Quality of service:** Both system reliability and customer service are significant outputs. Many aspects of service quality (e.g., telephone response rates) have a direct and immediate impact on OM&A, while others have a longer term impact. Analyzing costs without reference to service quality and reliability levels therefore ignores a very significant set of cost drivers that matter to customers.
- **Consideration of asset stock age:** This is a key driver of maintenance decisions and replacement investments.
- **Wheeling:** As the PEG report identifies, there is a major problem with respect to the lack of data on power deliveries between distributors. There is a further deficiency with respect to this power delivery data. The low voltage charges paid by embedded distributors are being reported by those distributors as a supply cost rather than a distribution cost within OM&A. This creates obvious comparison problems between those LDCs that purchase or supply low voltage distribution services and other LDCs that do not share low voltage distribution systems with other distributors.
- **Reporting of line lengths:** It is unclear whether all utilities have followed a consistent and appropriate convention when reporting line lengths, given apparent fluctuations in that the data is difficult to rationalize on a physical basis. A determination also needs to be made on how to treat pole lines that carry multiple phases and circuits as compared to those that carry single phase and/or single circuits.
- Other variables to consider include:
    - Billing frequency;
    - Annual customer turnover (as a percentage of customer base);
    - LDC and municipal development policies;
    - Urban forestation and municipal forestry policies;

- Level of distributor consolidated billing on behalf of retailers;
- Property tax differences;
- Ease of transportation within the service area;
- Traffic congestion and degree of traffic control required within the service area;
- Road restoration costs for underground repairs;
- Age of underground plant;
- Outage response service level differences (LDC's with lower customer average interruption times are likely to have higher operating costs);
- Weather conditions that impact costs of operating and maintenance; and
- Temperature variations (heating degree days, snowfall).

2.4 Conclusions

The CLD believes these data issues are significant enough to affect the quality of the analysis undertaken and the resulting efficiency scores. We would therefore recommend that the OEB work closely with the sector on how to determine the most effective way to address these comparability issues or to ensure the econometric models are adjusted to reflect these issues.

Ensuring data consistency and comparability will enhance the credibility of the results for all stakeholders.

3 Econometric issues

The key econometric issues that the CLD has identified within the PEG analysis relate to:

- The lack of replicability of the PEG results;
- The approach PEG has used with respect to using a number of years of data; and
- Possible alternative models.

3.1 Lack of replicability of the PEG results

Limited replicability: In the time available to respond to the paper, we have been unable to replicate the PEG data or its results exactly. Key variables such as the percentage forestation of rural service territory and the binary variables for the Canadian Shield and non contiguous service territory that have been developed by PEG are not part of the OEB's publicly available data set. The CLD requests that these variables be made available for verification and assessment.

As part of our review of the PEG report, we have conducted our own regression analysis using publicly available information from the OEB. Our regression analysis is based on the following specification, using the pooled dataset over four years, which is the closest we are able to replicate PEG's analysis without further details concerning the other variables[3].

$$\textbf{Ln(OM\&A)} = \text{Constant} + \beta_1 \text{Ln(Total Customers)} + \beta_2 \text{Ln(kWh delivered)} + \beta_3 \text{Ln (Network length)} + \beta_4 \text{(Percentage underground)} + \varepsilon$$

Table 1: PEG Double log replication using pooled data

					Number of obs	323
					F(4, 318)	3607.77
					Prob > F	0
					R-squared	0.9784
					Adj R-squared	0.9782
LN(OM&A)	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
LN(Customers)	0.6205152	0.0492812	12.59	0	0.5235569	0.7174735
LN(kWh-delivered)	0.1197785	0.0362394	3.31	0.001	0.0484792	0.1910778
LN(Network length)	0.2490697	0.0227254	10.96	0	0.2043585	0.2937808
Percentage underground	-0.0190817	0.0829749	-0.23	0.818	-0.1823308	0.1441674
Constant	5.533981	0.3511006	15.76	0	4.843208	6.224755

From Table 1, it can be seen that the coefficient for percentage underground is not statistically significant. The coefficients on customers, kWh-delivered and network length are similar to the findings by PEG. Similar to PEG we find a high R-squared. Although the R-squared is indicative of the model's explanatory power, we are of the opinion that an R-squared of this magnitude is an indication that there may be some underlying

[3] We have concentrated on the double-log formulation as time constraints in responding have not allowed us to fully replicate the translog models to date.

issues with the model specification. In particular, the use of kWh is likely to be highly correlated with number of customers and thus introduce colinearity.

3.2 The approach to a number of years of data

The pooling of data over four years is likely to introduce autocorrelation and it is likely - with the great variation in company size and mix of customer classifications- that there will be heteroskedasticity. The PEG analysis accounts for the latter using Generalised Least Squares ("GLS"), but does not mention the possibility of autocorrelation, which can impact overall results.

When we account for the possibility of autocorrelation and/or heteroskedasticity and correct the standard errors, we find that the standard errors in our regression decrease substantially. In Table 2, we present our results based on the same regression from Table 1.

Table 2: PEG Double log replication using pooled data with robust standard errors

Number of obs	323
F(4, 80)	934.85
Prob > F	0
R-squared	0.9784

LN(OM&A)	Coef.	Robust Std.	t	P>t	95% Conf. Interval	
LN(Customers)	0.6205152	0.0877348	7.07	0	0.4459174	0.7951129
LN(kWh-delivered)	0.1197785	0.0808733	1.48	0.143	-0.0411645	0.2807214
LN(Network length)	0.2490697	0.0595469	4.18	0	0.1305675	0.3675718
Percentage underground	-0.0190817	0.1300455	-0.15	0.884	-0.2778805	0.2397171
Constant	5.533981	0.8763724	6.31	0	3.789945	7.278018

From Table 2, it can be seen that the standard errors decrease by half when compared to the results presented in Table 1. In the analysis kWh-delivered turns out to be statistically insignificant.

This result can be further demonstrated by using the same regression model on a year by year basis instead of pooling the data. The coefficients change substantially over the years. Most notable, however, is the fact that kWh-delivered is not statistically significant in 2004. Below we report the results for 2004. The others are reported in Appendix A.

Table 3: PEG Double log replication 2004

Number of obs	81
F(4, 76)	899.85
Prob > F	0
R-squared	0.9793
Adj R-squared	0.9782

LN(OM&A) 2004	Coef.	Std. Err.	t	P>|t|	95% Conf. Interval	
LN(Customers) 2004	0.6998425	0.0845515	8.28	0	0.5314435	0.8682415
LN(kWh-delivered) 2004	0.0568472	0.0568556	1	0.321	-0.0563905	0.170085
LN(Network length) 2004	0.2332626	0.0460212	5.07	0	0.1416035	0.3249217
Percentage underground 2004	0.000162	0.1608011	0	0.999	-0.3201012	0.3204252
Constant 2004	6.099156	0.5584479	10.92	0	4.986911	7.211402

3.3 Alternative models

CLD is of the opinion that further analysis into model specification is required. Either better use should be made of available data, or additional data should be collected.

We have also considered a unit cost model in which OM&A per customer is compared with the explanatory factors considered by PEG for 2005. We have included both the number of customers and the number of customers squared in this equation. This specification allows for the testing of a U-shaped relationship between number of customers and costs per customer. We would expect that as customer numbers increase unit costs initially fall, but increase beyond a certain level of customers.

Technically, we would expect a negative coefficient on customer numbers and a positive coefficient on customer numbers squared.

The expected result is exactly what results in the unit cost regression as shown below. We draw two main points from this. The first is the strength of economies of scale in the sector. The second is that even simple reformulations of the PEG analysis can give rise to similarly statistically robust results with potential consequential impact on efficiency scores and rankings.

Table 4: Unit cost regression 2005

					Number of obs	81
					F(5, 75)	10.76
					Prob > F	0
					R-squared	0.4177
					Adj R-squared	0.3789
LN(OM&A per Customer) 2005	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
LN(Customers) Squared 2005	0.0166513	0.0084475	1.97	0.052	-0.000177	0.0334796
LN(Customers) 2005	-0.7696342	0.1897713	-4.06	0	-1.147678	-0.39159
LN(kWh-delivered) 2005	0.1487153	0.0710091	2.09	0.04	0.007258	0.2901726
LN(Network length) 2005	0.2887228	0.0466071	6.19	0	0.1958766	0.3815689
Percentage underground 2005	-0.1833646	0.1877148	-0.98	0.332	-0.5573116	0.1905824
Constant 2005	6.982345	1.087591	6.42	0	4.815752	9.148938

Table 5: Unit cost regression 2005 without kWh

					Number of obs	81
					F(5, 75)	11.83
					Prob > F	0
					R-squared	0.3836
					Adj R-squared	0.3512
LN(OM&A per Customer) 2005	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
LN(Customers) Squared 2005	0.0178677	0.0086132	2.07	0.041	0.000713	0.0350224
LN(Customers) 2005	-0.625494	0.180748	-3.46	0.001	-0.9854849	-0.265503
LN(Network length) 2005	0.2805537	0.047467	5.91	0	0.186015	0.3750924
Percentage underground 2005	-0.1823911	0.1918504	-0.95	0.345	-0.5644943	0.1997121
Constant 2005	8.457353	0.8470121	9.98	0	6.770382	10.14432

3.4 Conclusions

Based on our findings regarding the data and the econometrics presented within the PEG report, we feel the OEB should give considerable thought to the further development of the econometric analysis. We would suggest that the OEB consider allowing PEG to present their findings and take questions from interested distributors.

We would then suggest that the OEB and the industry work together on issues of data quality and to determine an appropriate methodology to ensure that future versions of the econometrics address some of the issues raised in this submission. We are aware that in other jurisdictions, regulatory authorities have worked closely with regulated companies to develop regulatory reporting rules and data requirements. This approach has largely been developed through joint working groups with representation both from the industry and the regulatory authority. The CLD recommends that OEB consider such an approach.

Appendix A

PEG double log replication 2002

Number of obs	80
F(4, 75)	834.98
Prob > F	0
R-squared	0.978
Adj R-squared	0.9769

LN(OM&A) 2002	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
LN(Customers) 2002	0.5952035	0.1137047	5.23	0	0.3686921	0.8217149
LN(kWh-delivered) 2002	0.1807551	0.0901912	2	0.049	0.001085	0.3604251
LN(Network length) 2002	0.2234097	0.0445165	5.02	0	0.1347283	0.312091
Percentage underground 2002	-0.0357087	0.1636964	-0.22	0.828	-0.3618088	0.2903913
Constant 2002	4.700144	0.8637546	5.44	0	2.979456	6.420831

PEG double log replication 2003

Number of obs	81
F(4, 76)	891.9
Prob > F	0
R-squared	0.9791
Adj R-squared	0.978

LN(OM&A) 2003	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
LN(Customers) 2003	0.5162387	0.1194411	4.32	0	0.2783511	0.7541264
LN(kWh-delivered) 2003	0.1888689	0.0918302	2.06	0.043	0.0059731	0.3717647
LN(Network length) 2003	0.2742094	0.0471763	5.81	0	0.1802498	0.3681691
Percentage underground 2003	0.0790939	0.1636836	0.48	0.63	-0.2469102	0.405098
Constant 2003	4.995228	0.8705058	5.74	0	3.261466	6.728991

PEG double log replication 2004

Number of obs	81
F(4, 76)	899.85
Prob > F	0
R-squared	0.9793
Adj R-squared	0.9782

LN(OM&A) 2004	Coef.	Std. Err.	t	P>|t|	95% Conf. Interval	
LN(Customers) 2004	0.6998425	0.0845515	8.28	0	0.5314435	0.8682415
LN(kWh-delivered) 2004	0.0568472	0.0568556	1	0.321	-0.0563905	0.170085
LN(Network length) 2004	0.2332626	0.0460212	5.07	0	0.1416035	0.3249217
Percentage underground 2004	0.000162	0.1608011	0	0.999	-0.3201012	0.3204252
Constant 2004	6.099156	0.5584479	10.92	0	4.986911	7.211402

PEG double log replication 2005

Number of obs	81
F(4, 76)	923.48
Prob > F	0
R-squared	0.9798
Adj R-squared	0.9788

LN(OM&A) 2005	Coef.	Std. Err.	t	P>t	95% Conf. Interval	
LN(Customers) 2005	0.5506527	0.09988	5.51	0	0.3517245	0.7495809
LN(kWh-delivered) 2005	0.1583389	0.0721733	2.19	0.031	0.0145934	0.3020845
LN(Network length) 2005	0.2759163	0.04702	5.87	0	0.1822678	0.3695648
Percentage underground 2005	-0.1421206	0.1900532	-0.75	0.457	-0.5206444	0.2364032
Constant 2005	5.352252	0.7196598	7.44	0	3.918925	6.785579