TECHNICAL CONFERENCE UNDERTAKING RESPONSES OF PACIFIC ECONOMICS GROUP RESEARCH LLC TO ENERGY PROBE

UNDERTAKING NO. JT4.15

To produce what might be a recommended forward-looking growth factor for both capital and OM&A for the outlook period based on the assessment of scaling factors.

Response:

a. Hydro Ottawa included a scale escalator, which the Company calls a "G factor", in its custom price escalation factor ("CPEF"). PEG discussed the rationale for including a scale escalator in a revenue cap index ("RCI") in Section 3.1 of their June report. PEG showed that inclusion of a scale escalator is consistent with cost theory. Inclusion is more important to the extent that the output growth of the subject utility is expected to be brisk during the plan. A G factor can reduce a utility's need for supplemental capital revenue. This can be especially beneficial if such supplemental revenue is provided in a way that weakens performance incentives and raises regulatory cost.

   The escalator can be multidimensional in the sense of summarizing the growth in multiple scale variables. Econometric estimates of the cost elasticities of the scale variables can then be used to weight these variables.

   Scale variables chosen for inclusion in an RCI scale escalator should be important drivers of utility cost. For gas or electric power distributors, the most sensible candidates are line length, expected peak demand, and the number of customers served. The number of customers has been the most widely used scale variable in RCIs approved to date. It is an important driver of distributor OM&A and capital costs and is highly correlated with other scale variables such as expected peak demand and line length. The precedents for using customers as an RCI scale escalator include an MRP for Enbridge Gas Distribution in Ontario.[1]

[1] EB-2006-0615.

In their June report and response to M-HOL-12 PEG noted that, in the design of an RCI, there are several possible rationales for applying a "scaling factor" (aka markdown) to the growth in the output metrics.

- If output is multidimensional, the expected growth rate of one or more of the scale variables may be zero during the sample period. For example, expected peak demand might not grow due to a combination of slow economic growth and an aggressive CDM program. It may then make sense to mark down the growth in customers rather than going to the bother of developing a multidimensional scale index.

- The regulator may not wish to encourage inefficient growth in system use by including a usage variable in the scale index.

- The impact of output growth on cost may for some reason be considerably lower in the short run than in the long run. One possible reason is that load growth is expected to occur chiefly in areas where there is ample capacity (e.g., power lines and substations) to accommodate it.

Consideration of scale economies is generally a *false* rationale for a scaling factor since scale economies are a component of TFP growth and make it more positive.

With this overview, we now discuss whether any of these rationales apply to Hydro Ottawa. Our discussion considers CPEFs for total cost as well as for operation, maintenance, and administrative ("OM&A") expenses.

OM&A CPEF

PEG's revised OM&A cost model was presented in an attachment to their response to interrogatory M-HOL-14 (g). Two statistically significant and time-variant scale variables were identified: the number of customers served and ratcheted peak demand. The estimated (long-run) cost elasticities for these variables are 0.882 and 0.106. The respective cost elasticity shares are 89.3% and 10.7%. Ratcheted peak demand is not expected to grow during the sample period. Thus, a reasonable formula for a scale escalator based on long-run elasticity estimates is 0.893 x growth Customers. PEG is not aware of evidence in this proceeding suggesting that a growth escalator based on short-run cost impacts is more pertinent for Hydro Ottawa. Thus, the evidence seems to

support a 0.893 x growth Customers scale escalator for an OM&A CPEF. Since, however, the Company is proposing a *lower* scaling factor, PEG does not object to this should the OEB decide in favor of a Custom IR plan broadly similar to that which the Company has proposed (with, essentially, cost of service treatment of capital cost). The Company's proposal may reflect special knowledge that its lower scaling factor will be compensatory, and/or a willingness to offer a low G factor in consideration of other plan provisions that benefit the Company such as prior approval of high capital expenditures.

Total Cost CPEF

Suppose, now, that a Custom IR plan design like that of Toronto Hydro is instead applied to Hydro Ottawa. Such a plan would require a CPEF that addresses capital as well as OM&A revenue. PEG also presented a revised total cost model in attachment to their response to M-HOL-14 (g). This model has the same two time-variant output variables (the number of customers served and ratcheted peak demand) as the OM&A cost model. The respective estimated cost elasticities for these two variables are 0.656 and 0.280, and their respective elasticity weights are 70.1% and 29.9%. Since additionally ratcheted peak demand is not expected to grow during the indexing years, long-run econometric cost research suggests that a reasonable formula for the scale escalator of a comprehensive CPEF is 70.1% x growth Customers. With respect to evidence that the short-run cost impact of demand growth will be unusually small, PEG notes that the Company is in the process of building a costly MTS to serve load growth. Thus, an important long run cost of output growth is occurring right now.

If the OEB approves the higher scaling factor resulting from PEG's research, this should reduce the appropriate C factor.