

ENERGY PROBE RESEARCH FOUNDATION INTERROGATORIES

M1-EP-1

Reference: Exhibit M1, Page 8

Preamble: “We found that the transmission MFP of sampled utilities averaged a 1.47% annual decline over the 2005-2016 sample period chosen by PSE but only a 0.25% decline over the full sample period. OM&A productivity growth averaged -1.64% over the shorter sample period but -0.69% over the full period. Capital productivity growth averaged -1.45% over the shorter period but -0.19% over the full period.”

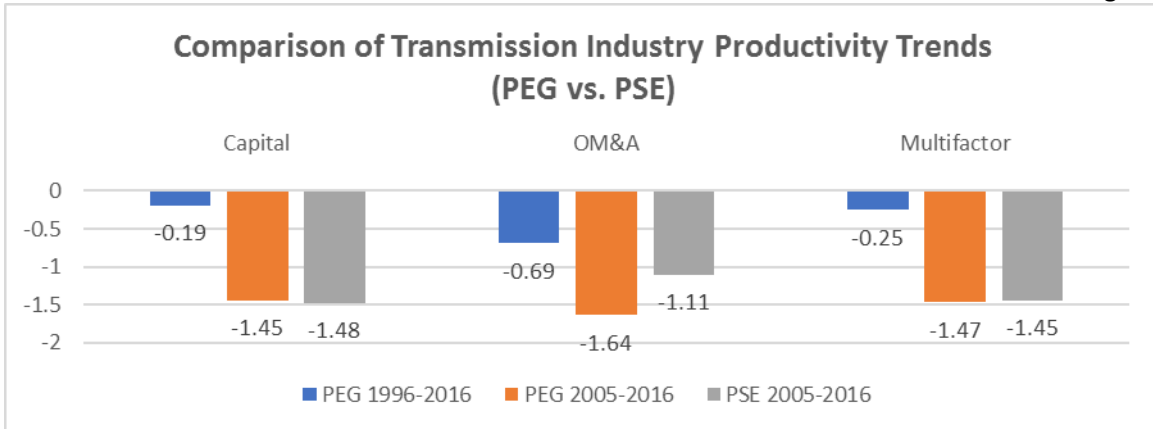
Interrogatory:

- a) Please provide a comparison table and a chart that shows the PEG and PSE industry productivity results for the sample for the chosen sample periods.
- b) Please provide the statistics for each.
- c) Please comment on the significance to the base productivity trend and X factor

Response to EP-1: The following response was provided by PEG.

- a) See below for the requested comparison table and chart.

U.S. Transmission Productivity Growth Trends (%)			
	<u>Capital</u>	<u>OM&A</u>	<u>Multifactor</u>
PEG 1996-2016	-0.19	-0.69	-0.25
PEG 2005-2016	-1.45	-1.64	-1.47
PSE 2005-2016	-1.48	-1.11	-1.45



- b) The average annual productivity growth rates of the sampled utilities are reported on the table and the chart.
- c) PEG does not usually consider the statistical significance of the results of productivity studies that it uses to calibrate X factors and has not done so in this study. We usually average the productivity trends of a sizable share of all utilities in the industry, including most of the larger ones. The sample period is chosen to be representative of a longer-run industry trend. The productivity growth potential of Hydro One will vary for various reasons that include the Company's current level of operating efficiency. The level of operating efficiency is estimated with statistical benchmarking and this estimate provides the basis for the stretch factor.

M1-EP-2

References: Exhibit M1, Pages 14/15, Page 68, Table B3, Page 69 Table B4; Exhibit A, Tab 3, Schedule 1, Business Plan, Attachment 1, Pages 12-14

Preamble: “Based on Hydro One’s forecasted/proposed revenue requirement, proposed X factor, and forecasted annual inflation of 1.4% during the two indexing years, the Company estimates that the C-factor would average about 3.84% annually during the two indexing years of plan. RCI growth would average 5.24% annually. Thus, the C factor would accelerate allowed revenue growth substantially in 2021 and 2022.”

Interrogatory:

- a) Has PEG examined Hydro One’s TSP Capital Plan (reference above)? If so, please provide for 2020 PEG’s understanding of the breakdown of the components and gross costs - Sustainment, Common and Development-Projects approved by the IESO.
- b) Please discuss if the mandatory IESO Development projects ~ \$160 million/yr should be treated differently under the C-factor, S factor formula taking into account the ICM/ACM guidelines.
- c) Please provide a table with a revised analysis similar to Appendix B3 and B4 that assumes the IESO Development projects are a Flow-through (i.e. essentially a Y-Factor).

Response to EP-2: The following response was provided by PEG.

- a) Yes. PEG understands that sustainment capex represents the lion’s share (about 73%) of the 2020 capex in Hydro One’s TSP. Most of this would be for stations and lines. There is also a sizable share (about 19%) for development capex. According to Hydro One’s TSP, some of this capex is “to implement regional development plans that were developed jointly with large industrial customers, distributors, and the Independent Electricity System Operator.” Some of this capex is not for mandatory projects.
- b) PEG acknowledges that IESO development projects that are truly mandatory could be accorded Y or Z factor treatment. This would reduce the size of the C factor but would not eliminate it. C

factor treatment would have stronger capex containment incentives and reduce concern about overcompensation since neither Y factors nor Z factors have dead bands.

- c) PEG is unable to provide the requested analysis, which would require a detailed review and modelling of specific projects in Hydro One's TSP. Such analysis is beyond the scope of the work on transmission sector TFP and total cost benchmarking that PEG has been retained for in this proceeding. Even if PEG were to attempt to perform this additional work, it would be difficult to do in the timeframe allowed.

M1-EP-4

Reference: Exhibit M1, Pages 35/36

Preamble: “Table 4 reports results of our transmission productivity calculations for Hydro One. Over the full 2005-2016 sample period for which Hydro One Transmission’s historical data are available, the Company’s annual multifactor productivity growth averaged -1.17% while its OM&A productivity growth averaged 0.83% and its capital productivity growth averaged -1.67%.”

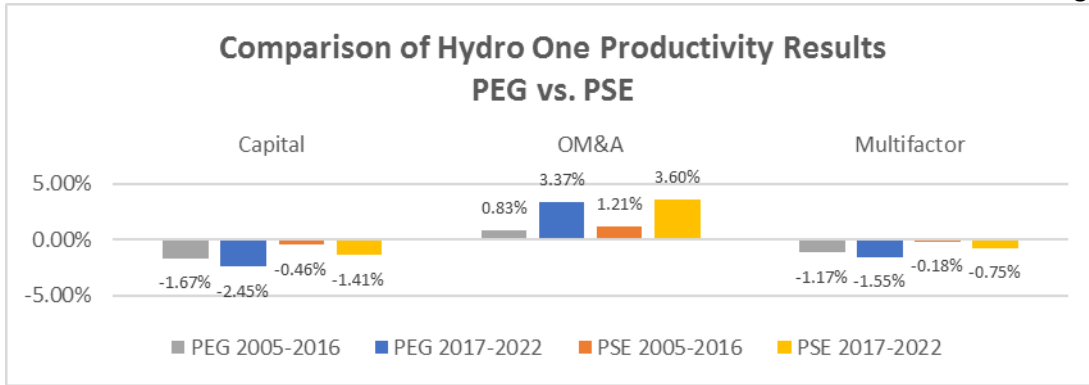
Interrogatory:

- a) Please provide a graphical representation of the Hydro One’s Productivity showing both the PEG and PSE results and projections.
- b) Please add the projections for the period 2017-2022.

Response to EP-4: The following response was provided by PEG.

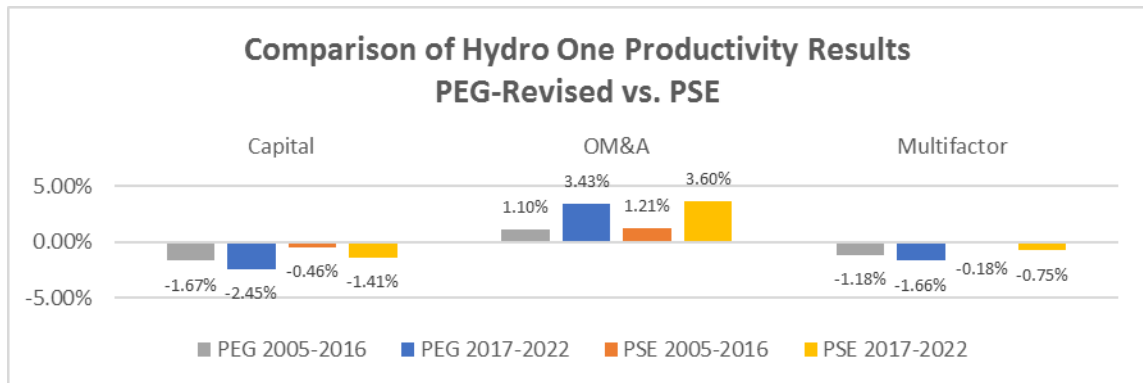
- a) See below for a table and the requested graphical presentation. This response uses results updated to reflect data changes as discussed in our response to HON-21 (Exhibit L1/Tab 1/Schedule 21). This response contains three sets of results. The first is a version based on what PEG originally reported. The second correctly removes certain cost items from Hydro One’s OM&A cost. The third is a version that does not remove any of these costs. We present the requested information for both results. Of these results, we believe the third version is more relevant and is very close to that originally reported.
 - i. Results shown as originally filed

Hydro One's Productivity Growth Trends			
	Capital	OM&A	Multifactor
PEG 2005-2016	-1.67%	0.83%	-1.17%
PEG 2017-2022	-2.45%	3.37%	-1.55%
PSE 2005-2016	-0.46%	1.21%	-0.18%
PSE 2017-2022	-1.41%	3.60%	-0.75%



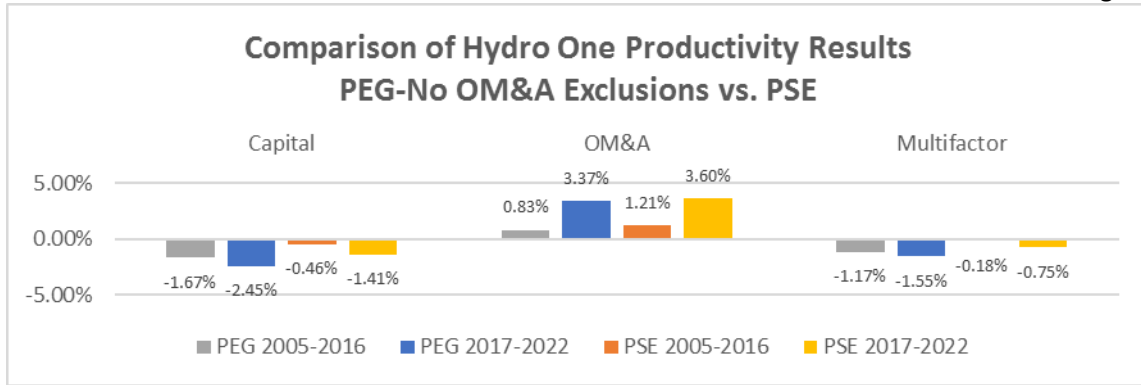
ii. Results shown as revised

Hydro One's Productivity Growth Trends			
	Capital	OM&A	Multifactor
PEG 2005-2016	-1.67%	1.10%	-1.18%
PEG 2017-2022	-2.45%	3.43%	-1.66%
PSE 2005-2016	-0.46%	1.21%	-0.18%
PSE 2017-2022	-1.41%	3.60%	-0.75%



iii. Results shown with no OM&A exclusions

Hydro One's Productivity Growth Trends			
	Capital	OM&A	Multifactor
PEG 2005-2016	-1.67%	0.83%	-1.17%
PEG 2017-2022	-2.45%	3.37%	-1.55%
PSE 2005-2016	-0.46%	1.21%	-0.18%
PSE 2017-2022	-1.41%	3.60%	-0.75%



b) Projections for the period 2017-2022 are shown in bold in the tables in part a) above.

M1-EP-5

Reference: Exhibit M1, Pages 37/38

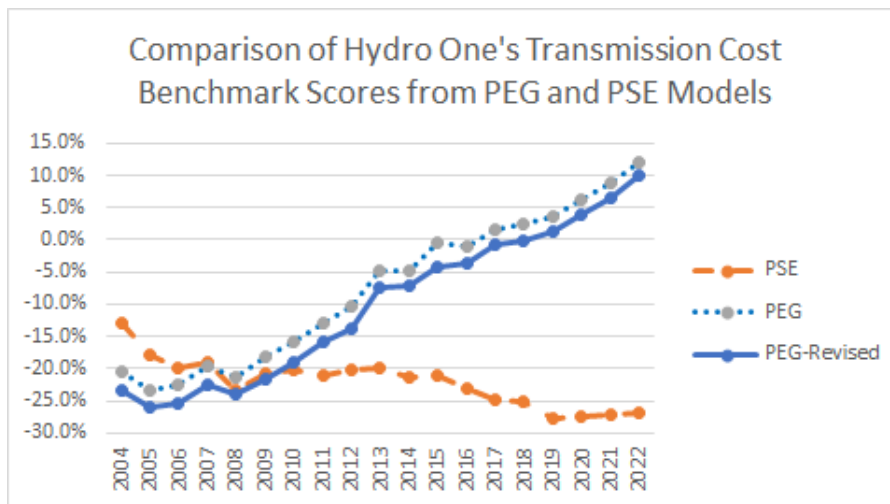
Preamble: “Results of our benchmarking work are presented in Table 5. It can be seen that the Company’s transmission cost performance began a steady decline after 2008. Its cost was about 2.1% below the model’s prediction on average from 2014 to 2016, the three most recent historical years for which data for all required variables were available. The Company’s forecasted/proposed total costs are about 9.0% above the model’s prediction on average during the three years of its proposed IR plan (2020-2022).”

Interrogatory:

- a) Please provide a graphical representation of the Hydro One Transmission’s Cost Benchmark Scores for the PSE and PEG Models.
- b) Please discuss which result, the TFP Analysis or Cost Benchmark should be used in determining the RCI formula for the MRI.

Response to EP-5: The following response was provided by PEG.

- a) Here is the requested graph and a pertinent table. This response uses results updated to reflect data changes as discussed in our response to HON-21 (Exhibit L1/Tab 1/Schedule 21). We also present the results originally reported.



Hydro One's Cost Performance			
Year	PSE	PEG	PEG-Revised
2004	-12.9%	-20.5%	-23.4%
2005	-17.8%	-23.3%	-26.0%
2006	-19.9%	-22.5%	-25.4%
2007	-18.9%	-19.5%	-22.6%
2008	-23.4%	-21.4%	-23.8%
2009	-20.8%	-18.0%	-21.5%
2010	-20.1%	-15.7%	-18.9%
2011	-21.0%	-12.9%	-15.9%
2012	-20.2%	-10.4%	-13.9%
2013	-20.0%	-4.8%	-7.5%
2014	-21.2%	-4.9%	-7.2%
2015	-21.1%	-0.4%	-4.2%
2016	-23.2%	-0.9%	-3.7%
2017	-24.9%	1.5%	-0.8%
2018	-25.0%	2.5%	-0.1%
2019	-27.6%	3.5%	1.3%
2020	-27.5%	6.2%	4.0%
2021	-27.0%	8.7%	6.5%
2022	-26.7%	12.0%	9.9%
Annual Averages			
2004-2016	-20.0%	-13.5%	-16.5%
2014-2016	-21.8%	-2.1%	-5.0%
2020-2022	-27.1%	9.0%	6.8%

b) PEG believes that Hydro One’s cost benchmarking scores for the proposed plan period should be the primary basis for stretch factor selection. The Company’s MFP trend is less pertinent, for several reasons.

- Stretch factors are usually based on the reasonableness of recent or proposed future cost levels rather than a utility’s cost trend.
- The Company’s capital costs are difficult to estimate accurately in the early years of the sample period due to the paucity of capital cost data prior to 2004. This hinders accurate calculation of its MFP trend.

MFP trends of U.S. transmitters are clearly pertinent in the determination of the base productivity trend.

M1-EP-8

Reference: Exhibit M1, Appendix B4, Tables B1, B2, B3, B4, Pages 61-69

Preamble: The impact of our calculations on Hydro One's proposed C-factor is shown in Table B1. The calculations of the C-factor follow the familiar formula, $C = Cn - Scap \cdot (I + S)$.

Interrogatory:

- a) If there is CAPEX underspending (for example in 2020) and In-Service Assets are less than forecast Capex, how should the adjustment be made for the next years?
- b) Please provide an example including showing the balances in the CISVA.
- c) Please comment on the practicality of the revised adjustments, noting that actual ISA may not be available at the end of Q1.

Response to EP-8: The following response was provided by PEG.

PEG notes that the question seems to pertain to the treatment of capex underspends, whereas the C factor is set in advance and will not change during the Custom IR plan term.

PEG was retained by Board Staff to provide general commentary on Hydro One's proposed custom transmission IR plan provisions. In our September report, the ratemaking treatment of plant addition underspends was one of the provisions that we addressed in this fashion. We did not have the time or budget to develop a detailed underspend mechanism. PEG believes that a full response to this question cannot be addressed within a reasonable time and with reasonable effort within the current schedule of this proceeding. With these caveats, PEG provides the following responses.

- a) Please see our response to LPMA-4 (Exhibit L1/Tab 3/Schedule 4) for a discussion of the treatment of capex underspends.
- b) Please see our response to LPMA-4 (Exhibit L1/Tab 3/Schedule 4) for a discussion of the treatment of capex underspends.
- c) PEG is not proposing to update the C factor during the term of the Custom IR plan to reflect capex underspends that may occur. PEG is also not proposing that capex underspends be refunded prior to the end of the proposed Custom IR plan.

However, there is a concern that in-service addition data will be needed when it is unavailable at rate rebasing. As proposed by PEG and PSE, the CISVA, including Hydro One's share of capex underspends, will be cleared at rebasing. However, based on recent history, Hydro One will likely file for rebasing prior to the end of the plan (e.g., during 2022). This would occur largely before data on in-service additions for 2022 (and possibly 2021) are available. Hydro One could insert a placeholder value for revenue requirement adjustment associated with capex underspends until such time as the actual data become available.

M1-EP-9

Reference: Exhibit M1

Interrogatory:

Please provide a projection of the Hydro One Transmission Revenue Requirement for the Base Year 2020 and estimates for 2021 and 2022 using PEG's proposed RCI formula, including the C and S Factor adjustments. Please provide the result in Excel Format

Response to EP-9: The following response was provided by PEG.

PEG has proposed no changes to Hydro One's 2020 revenue requirement. Please see our response to HON – 13 (Exhibit L1/Tab 1/Schedule 13) for a table that details the RCI growth that is consistent with PEG's S and C factor calculations under three X factor scenarios (X = 0, 0.05%, and 0.3%).