

Ontario Energy Board

IN THE MATTER OF the *Ontario Energy Board Act, 1998*, Schedule B to the *Energy Competition Act, 1998*, S.O. 1998, c.15;

AND IN THE MATTER OF an Application by Toronto Hydro-Electric System Limited for an Order or Orders approving or fixing just and reasonable distribution rates and other charges, effective May 1, 2020 to December 31, 2024.

Energy Probe Research Foundation

Interrogatories to Toronto Hydro on PSE Reply Report

June 12, 2019

M3-EP-73

References: Exhibit M3, Reply Report to PEG Evidence; Exhibit L1/Tab 2/Schedule 2, Pages 3-4.

Preamble: With regard to the reference 2, we wish to understand directionally, how the differences in sample, input data and methodology between PEG and PSE may affect the PSE total cost benchmark for Toronto Hydro. Exhibit L1/Tab 2/Schedule 2, Page 3 of 4 IRM-4” refers to the 2013 PEG study (and its annual updates) and Exhibit M1 refers to the PEG’s revised benchmarking study of Toronto Hydro submitted in response to M1-TH-026. The table also lists differences found between the latter study and PSE’s study in Exhibit 1B, Tab 4, Schedule 2.

		IRM-4	Exhibit M1 (Revised)	PSE
Sample	Region of sampled Utilities	Ontario	U.S., Ontario (THESL only)	U.S., Ontario (6 utilities)
	Sample Size	73	84	90
	Sample Period	2002-2012	1995-2017	2002-2016
Cost Definition	Distribution O&M	Included	Included	Included
	Sales Expenses	Included	Included	Included
	Customer Accounts (less uncollectible)	Included	Included	Included
	Customer Service and Information	Included	Excluded	Excluded
	Pensions and Benefits	Included	Excluded	Included
	Capital Benchmark Year	1989 or 2002	1964 (U.S.), 1989 (THESL) ²	1989 (U.S.), 2002 (Ontario)
	Contributions in Aid of Construction	Included	Excluded	Excluded
	High Voltage Expenses	Excluded	Included	Included
Price Indexes	Labor Price Index	Ontario AWE	Regionalized ECI ⁴ (US), Ontario AWE (THESL)	ECI (US), ECI*PPP ⁶ (Ontario)
	Materials Price Index	Canada GDP-IPI	Canada GDP-PI (US), GDP-IPI (THESL)	GDP-PI (US), GDP-PI*PPP (Ontario)
	Construction Cost Trend Index	EUCPI ³	HW (US), Custom ⁵ (THESL)	HW (US), HW*PPP (Ontario)
	O&M Cost Share Weights	Fixed	Varied	Fixed
Function	Translog Treatment of Scale Variables	Yes	Yes	Yes
Estimation Procedure	Cost-share equations, SUR ⁷	Yes	No	No
	Composite price index, one equation	No	Yes	Yes
	Correction for Autocorrelation	Yes	Yes	No
	Correction for Heteroskedasticity	Yes	Yes	Yes
Total Cost Model Variables	Number of Customers	Yes	Yes	Yes
	Ratcheted Maximum Peak Demand	Yes	Yes	Yes
	Retail Deliveries	Yes	No	No
	Average Line Length	Yes	No	No
	Customer Growth over 10 Years	Yes	No	No
	Percent Congested Urban	Yes	Yes	Yes
	Percent of Plant Underground	Yes	No	Yes
	Area Not Congested Urban	No	Yes	No
	Percent Forested	No	Yes	Yes
	Percent of Customers Electric	No	Yes	Yes
	Percent of Customers with AMI	No	Yes	Yes
	Elevation Deviation	No	Yes	Yes
	Trend	Yes	Yes	Yes
	Ontario Binary Variable	No	No	Yes
	%UG*%CU	No	No	Yes
	Percent Plant Overhead	No	Yes	No

1. Kaufmann, Lawrence, Hovde, Kalfayan, Rebane. *Productivity and Benchmarking Research in Support of Incentive Rate Setting: Final Report to the Ontario Energy Board*. November 5, 2013.

2. Exceptions are Toronto Hydro and Northern States Power – WI, which both received a 1989 benchmark year.

3. Electric utility construction price index for distribution systems (Statistics Canada).

4. Regionalized Utility Salaries and Wages ECIs (Employment Cost Indexes from the U.S. Bureau of Labor and Statistics). Note that PSE uses the salaries and wages version of ECI too even though pensions and benefits are included in their cost.

5. PEG’s preferred Ontario LDC plant additions deflator originates from Statistics Canada Stock and Consumption of Fixed Non-Residential Capital (“SCFNRC”) program. The annual survey collects data on utility-business capital expenditure on over 140 different types of machinery, equipment, and construction assets, which is then used to construct an annual index of deflated capital investment. Since deflated investment is provided in both constant (2012) and current prices, the ratio of the two implicitly yields capital asset price change over time. The indexes are constructed by industry and region and in particular, are available for the utility business in Ontario. Handy-Whitman (HW) regional power distribution construction cost indexes are used for the U.S. companies.

6. Utility Employment Cost Index (U.S. Bureau of Labor Statistics). Purchasing Power Parity between U.S. and Canada.

7. SUR = seemingly unrelated regression technique for estimating parameters of multiple equations.

- a) Please provide any corrections or additions to the PSE column in the PEG Table
- b) Please add an additional column showing, where applicable, directionally, the noted material differences between PSE and PEG that may affect the PSE Result for Toronto Hydro cost benchmark. Use arrows to indicate Neutral/No Change ➡ Reduce ⬇ and Increase ⬆ Toronto Hydro benchmark total costs.
Provide complete explanations for the results.
- c) Based on Table 2 in Exhibit M3, please provide a graphical representation of the PSE and PEG total benchmark cost for Toronto Hydro for the 2015-2024 period.
- d) Please add a line for the PSE forecast from the prior proceeding

M3-EP-74

Reference: Exhibit M3 Reply Report to PEG Evidence Page 8, 2.2.1

Preamble: PEG’s sample does not include any Ontario distributors. PEG did not include the six Ontario distributors that PSE included in our sample. The PSE sample is more comprehensive and more reflective of a large utility serving in Ontario.

- a) Please list the 6 Ontario utilities and provide the specific criteria for selection.
- b) Provide the Congested Urban Variable, the Undergrounding Percentages and Rural variable for each.
- c) Compare to Toronto Hydro and the Averages for US sample.
- d) Please provide the recent 2012-2017 Total Cost performance for the chosen Ontario distributors and compare to the average of the US Sample.
- e) Provide the TFP cohort for each of the chosen utilities.
- f) Why did PSE not use a larger Ontario sample from the OEB Yearbook based on scale factors such as km of lines, customers, assets that are comparable to the 84 US distributor sample?
- g) Why did PSE not include data from Hydro Quebec Distribution that have been filed by PEG and CEA with the Regie d'Énergie in Quebec?
- h) Please discuss why using a limited selective sample of 6 Ontario distributors (as opposed to a larger sample) does not introduce selective bias.

M3-EP-75

Reference.: Exhibit M3 Reply Report to PEG Evidence

Preamble: PSE Reply to Concern #6: PSE notes that PEG did include both a congested urban variable and a measure of percent undergrounding (constructed as a percent overhead variable) in their reliability model for SAIFI. This is inconsistent for PEG to say they are not convinced that both variables are needed for a total cost model, but they are needed for PEG's reliability model.

- a) Please confirm that Toronto Hydro provided PSE with Reliability Projections (SAIDI/SAIFI) for 2018-2024.
- b) Please list these and provide an update for the 2018 actuals.
- c) How have the 2018 results affected the data set and the results (directionally)?
- d) Please provide a comparison table and chart showing Toronto Hydro reliability as estimated by the PEG and PSE models for the full data and IRM period.
- e) Please provide a discussion on the cause/effect of congested urban area and underground/overhead variables on SAIDI and SAIFI.
- f) Please provide a commentary regarding the differences between the results from PEG and PSE reliability models.
- g) Why should the Board adopt Toronto Hydro/PSE's reliability projection for the CIR period?

Roger Higgin
Consultant to Energy Probe