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BY EMAIL AND RESS

January 24, 2022

Ms. Nancy Marconi
Acting Registrar
Ontario Energy Board
Suite 2700, 2300 Yonge Street
P.O. Box 2319
Toronto, ON M4P 1E4

Dear Ms. Marconi,

EB-2021-0110 – Custom IR Application (2023-2027) for Hydro One Networks Inc. Transmission and Distribution ("Hydro One") – Interrogatories on Expert Evidence by Pacific Economics Group LLC on behalf of OEB Staff

In accordance with Procedural Order No. 1 issued September 17, 2021 please find enclosed interrogatories on the above-noted expert evidence filed on January 12, 2022.

This filing has been submitted electronically using the OEB's Regulatory Electronic Submission System (RESS).

Sincerely,

Kathleen Burke

Kathleen Burke

Encls.

cc. EB-2021-0110 parties (electronic)

Hydro One Interrogatories on Pacific Economics Group (PEG) Expert Evidence

M-HONI-1

Reference:

Exhibit M, Page 7 and Curriculum Vitae

Preamble:

PEG describes and lists various North American energy utility productivity and statistical benchmarking work it has performed.

a) For each of PEG's electric utility studies in the last five years, please provide a table that shows the target utility, industry (G, T, D, or combination thereof), PEG's client in the proceeding, PEG's MFP industry trend finding, PEG's benchmark finding, PEG's recommended productivity factor, and PEG's recommended stretch factor. In cases where PEG only provided some but not all the elements above, please leave blank only those elements that PEG did not perform.

M-HONI-2

Reference:

Exhibit M, Page 8

Preamble:

PEG states that it is not clear to it that Hydro One will face comparable productivity growth challenges as those faced by U.S. transmitters during the sample period.

a) What specific productivity growth challenges, if any, will Hydro One not face in the next few years that U.S. transmitters did face? Please explain.

b) Does PEG accept that it is possible Hydro One Transmission may in fact face equal or more productivity growth challenges than those faced by U.S. transmitters during the sample period due to challenges resulting from items such as geomagnetic disturbances, increased cybersecurity, distributed generation, and other challenges? Does PEG have any specific factual information on these points regarding the productivity growth challenges faced by Hydro One?

M-HONI-3

Reference:

Exhibit M, Page 8

Preamble:

PEG states that due to transmitters joining ISOs and RTOs, this triggered idiosyncratic reporting of OM&A expenses for some members. PEG states, "In our view, data for some of the affected companies should be excluded from the research."

a) Which specific transmitters did PEG exclude from the sample on this basis?

b) Please provide and explain the criteria used by PEG for excluding these transmitters from the transmission benchmarking sample.

c) Were all these same utilities as listed in part (a) excluded from PEG's productivity research conducted in Québec and used to support its productivity factor recommendation of -0.62%?

d) Please confirm that idiosyncratic reporting of expenses is not a problem for a benchmarking study if those costs are shifting from other expense categories included within the benchmarking study cost definition?

e) Please provide evidence that expenses are shifting for these excluded transmitters between expense categories not included in the cost definition to/from an expense category that is included in the cost definition.

f) Are these excluded utilities the only utilities with cost impacts resulting from joining an ISO/RTO?

g) Does PEG accept that it is possible cost increases resulting from ISO/RTO membership may stem from increased requirements and costs placed on utilities as a result of being a member of an ISO/RTO?

M-HONI-4

Reference:

Exhibit M, Page 9

Preamble:

PEG notes that "Clearspring did not provide itemized results for Hydro One's transmission OM&A or capital cost performance."

a) Please confirm that PEG's stretch factor recommendations are based on its total cost models and results.

b) Please confirm that the itemized results of PEG's OM&A and capital cost performance models do not impact its total cost model results. If that is not the case, please advise and explain in detail the manner in which they impact the total cost model results.

M-HONI-5

Reference:

Exhibit M, Page 10

Preamble:

PEG recommends a 0.75% stretch factor for Hydro One Transmission. This results from a 0.45% base stretch factor based on PEG's total cost benchmark findings and a supplemental stretch factor "adder" of 0.3% due to what PEG states to be "unusually weak cost containment incentives" that the U.S. transmitters experienced. PEG recommends a productivity factor of -0.62% based on PEG's Québec transmission research. PEG's resultant X factor recommendation is 0.13%.

a) Please explain the rationale for adding this proposed supplemental 0.3% to the stretch factor rather than to the productivity factor?

b) Please explain what analysis PEG conducted to arrive at a supplemental stretch factor value of 0.3%, and provide a copy of any such analysis that was performed when preparing PEG's report.

c) Please provide a list of the transmission utilities in the sample that are now under formula rate making and include the year they began to be under formula rate making.

d) In respect of the basis for proposing the supplemental stretch factor of 0.3%, please confirm that the main basis or rationale for this is PEG's concern relating to weak capital cost containment incentives in the U.S. transmission sample?

e) Based on PEG's MFP results on which it relies in its report, please confirm that the X-factor would effectively contain an implicit stretch equal to base productivity trend in the event the OEB were to approve a productivity factor of 0%?

M-HONI-6

Reference:

Exhibit M, Page 10

Preamble:

PEG recommends a 0.75% stretch factor for Hydro One Transmission. In a recent report conducted on behalf of Hawaiian Electric Company ("HECO") in Docket No. 2018-0088, PEG filed a report on May 13, 2020 titled, "New X Factor Research for HECO". This research involved vertically integrated utilities (G, T, and D). PEG recommended a -1.41% X factor and a 0.22% consumer dividend on behalf of HECO.

a) Please confirm the 0.22% consumer dividend was based on PEG's statement on p. 29 that states the average of approved consumer dividends in current plans approved by North American energy regulators is 0.22%.

b) Did PEG suggest a supplemental stretch factor in that application in recognition of the weaker cost containment incentives of formula rates and/or cost of service regulation predominately found in the U.S. electric utility industry?

c) Did PEG conduct econometric total cost benchmarking research in the HECO application? If yes, please discuss the results. If no, what was PEG's assumption of HECO's cost performance in recommending a 0.22% stretch factor?

d) What time period for the MFP analysis was used as the basis for the proposed X factor of -1.41%?

M-HONI-7

Reference:

Exhibit M, Pages 9-10

Preamble:

PEG mentions in footnote 4 that it conducted research and produced a report titled, "Transmission Productivity and Benchmarking Study" in Québec in R-4167-2021 on February 15, 2021.

a) Please confirm that PEG reported two MFP trend findings that the Régie should consider, a -2.26% MFP trend based on a 15-year period (2005 to 2019) and the longer term (1996 to 2019) MFP trend of -0.62%.

b)

i. Did PEG use the "Kahn method" or geometric decay and indexing methods in constructing the MFP trends in the Québec proceeding?

ii. What method is the more accurate between the two, in PEG's opinion?

c) In PEG's Québec report on p. 6, PEG recommends a supplemental stretch factor of 0.1% if the productivity factor is based on the longer-term MFP estimate of -0.62%. Please explain why PEG's recommended supplemental stretch factor is 0.1% in that case?

d)

i. Please confirm that PEG found Hydro Québec's total cost benchmarking performance to be +67% above benchmarks using a U.S. transmitter dataset and econometric total cost model during the 2017 to 2019 period.

ii. Do the total cost benchmark results of PEG's analysis in Québec and in this application imply that Hydro One Transmission's total cost performance is considerably better than that of Hydro Québec?

iii. Please provide any other total cost econometric benchmarking results that PEG has conducted and reported on involving Canadian transmitters outside of Ontario in the last five years.

e) Why did PEG not include Hydro Québec in the transmission total cost model?

f) Please confirm that PEG inserted an ISO/RTO binary variable in its OM&A benchmarking model in that Hydro Québec research. If confirmed, please explain the rationale for why it was included.

g) PEG states on p. 72 of its Québec report, "For HQT, we used only the construction cost index value for Montréal (the highest reported for Québec) out of concern the RS Means reported no values for remote areas that HQT serves which might have higher construction costs." Clearspring and PEG both used an average of the construction cost index value in Ontario rather than the value for Toronto. Does PEG acknowledge, due to the same type of concern it outlined in its Quebec report, that this treatment might similarly disadvantage Hydro One Transmission?

h) In this same proceeding in Québec, The Brattle Group produced a report on February 19, 2021 titled, "Total Factor Productivity and the X-factor for Hydro-Quebec TransÉnergie. They provide on p. 38 a table of recent stretch factor decisions.

TABLE 5: SUMMARY OF RECENT STRECTH FACTOR DECISIONS

Jurisdiction	Stretch Factor	Methodology
Ontario (Hydro One Sault Ste. Marie, electricity transmission, 2019-2026)[1]	0.30%	Total cost benchmarking and judgement
Alberta (electricity and natural gas distribution, first generation plan, 2012-2017)[2]	0.20%	Judgement
British Colombia (Fortis BC Inc. (FBC) electricity distribution/transmission, Fortis BC Energy Inc. (FEI) natural gas, 2014-2018)[3]	FBC: 0.10% FEI: 0.20%	Total cost benchmarking and judgement
Massachusetts (NSTAR, electricity distribution 2018-2023)[4]	0.25% when inflation exceeds two percent	Judgement

Sources:
[1]Ontario Energy Board Decision EB-2018-0218
[2]Alberta Utilities Commission Decision 2012-237
[3]British Columbia Utilities Commission Decision, G-139-14, p. 83
[4]Massachusetts DPU 17-05 pp 394-395

i) Does this table and result align with PEG's statement in Docket No. 2018-0088, in PEG's report filed on May 13, 2020 titled, "New X Factor Research for HECO" when on p. 29 PEG states that the average consumer dividends in current plans averages 0.22%.

M-HONI-8

Reference:

Exhibit M, Page 11

Please confirm that the value Clearspring used in its study for the service area of Hydro One is the same value for Hydro One's service area that PEG used in its recent Hydro Ottawa benchmarking research in EB-2019-0261.

M-HONI-9

Reference:

Exhibit M, Page 12

Preamble:

PEG mentions that cost theory and index logic support use of a scale escalator in a revenue cap index and that it would be reasonable to add a customer growth term to Hydro One's distribution revenue cap index formula.

a) Please confirm that PEG is of the opinion that it would be reasonable to escalate both OM&A and capital-related distribution revenue by a customer growth term.

b) Does PEG consider this 0.7% annual customer growth to be equivalent to an additional stretch factor if it is not included in the escalation formula?

M-HONI-10

Reference:

Exhibit M, Page 13

Preamble:

PEG raises a concern regarding C factors and that the Company can be compensated twice for the same capex: once via the C factor and then again by low X factors in past, present, and future IRMs. Later on p. 13 PEG states that utilities should not be encouraged to stay on Custom IR indefinitely.

a) Given the Ontario precedents in setting productivity factors no less than zero despite negative industry MFP trends and instituting stretch factors even after the utility being on consecutive IR plans, when does PEG anticipate that Hydro One will have a low X factor in future IRMs?

b) In PEG's view, when utilities operate under high X factors would this exacerbate the need for utilities to file under Custom IR and request C-factors since the parameters of IRM are not designed to provide the commensurate revenue growth? By "high" we mean to say X factors that are above what cost theory and indexing logic would entail.

c) If the OEB were to decide on an X factor above PEG's recommended 0.13%, would that increase the likelihood, in PEG's view, of the Company needing to file another Custom IR application in the future?

M-HONI-11

Reference:

Exhibit M, Page 18

Preamble:

PEG states that Clearspring's 2001-2019 transmission productivity trend equaled -1.66%.

a) In PEG's Québec research what was PEG's MFP trend for that same time period?

M-HONI-12

Reference:

Exhibit M, Page 20

Preamble:

PEG states that The Brattle Group, who represented Hydro-Québec, made an X factor recommendation of 1.04%. Later on p. 20, PEG states they found a 0.62% base productivity trend that served as the basis for its MFP trend recommendation.

a) Please confirm that The Brattle Group actually recommended an X factor of -1.04%, a negative number rather than the positive cited in PEG's report.

b) Please confirm that PEG found a -0.62% base productivity trend, again a negative number rather than the positive cited in PEG's report.

c) Please confirm that PEG also presented in its report a choice for the Régie to either base the productivity factor on the longer-run transmission productivity trend of -0.62% or the shorter MFP trend from 2004 to 2019 of -2.26%. Please confirm that PEG considered both of these to be viable or reasonable options?

M-HONI-13

Reference:

Exhibit M, Pages 20-21

Preamble:

PEG discusses the structural change in the industry and how ISO members began purchasing a wide range of transmission services from the agencies and that this impacted cost accounting procedures. PEG says that Clearspring's sample includes data from several companies that reported implausibly large values for dispatch-related and/or miscellaneous transmission expenses.

a) Does PEG have factual evidence in respect of what services these transmitters began purchasing from the ISOs? If yes, please provide.

b) Are these purchased services different from what Hydro One also purchases or conducts itself? If yes, please discuss and provide data per excluded utility if available.

c) What threshold did PEG use to determine what is implausibly high for dispatch-related expenses? How did PEG determine this threshold?

d) What threshold did PEG use to determine what is implausibly high for miscellaneous transmission expenses? How did PEG determine this threshold?

e) Does PEG's research fully account for the structural change in the transmission industry?

M-HONI-14

Reference:

Exhibit M, Page 25

Preamble:

PEG includes the construction standards index variable which Mr. Fenrick developed and used in the prior Hydro One transmission application.

a) In PEG's prior report in Hydro One's last transmission application (EB-2019-0082), PEG provided a report on September 5, 2019 titled, "Incentive Regulation for Hydro One Transmission". On p. 22 PEG mentions the construction standards variable and states, "Moreover, the accuracy of the calculation of the value for Hydro One is critically important, and we believe that PSE has misstated Hydro One's value." Did PEG use this same value in its current research or did PEG modify the value for Hydro One? If it was modified, please explain how. If it was not, please explain the rationale for PEG inserting a variable that it has previously asserted misstates Hydro One's value.

b) In EB-2019-0082, Exhibit L1, Tab 1, Schedule 7, part c, the issue of the construction standards variable was raised in an interrogatory to PEG. It stated, "In the technical conference, Mr. Fenrick (lead author of the PSE report) states that PSE examined the transmission service territory of Hydro One and that the current approach of using the retail service territory of Hydro One is a conservative one. The variable value for Hydro One is higher (i.e., more challenging) if the transmission service territory is inserted rather than the retail service territory. Given PEG's concern over this issue, please re-run the PEG model and substitute the value 0.99 for the current value for the construction standards variable for Hydro One and revise Table 5 of the PEG report." Does PEG now believe it is appropriate to use the full retail service territory of Hydro One in the construction of this variable?

c) Please confirm that if the variable is constructed using the area where transmission assets actually are rather than Hydro One's full retail service territory, that is inserting the 0.99 value rather than the lower one used by PEG, Hydro One's transmission total cost score improves by approximately 2% during the CIR period (all else being equal). If PEG cannot confirm, please provide PEG's estimate of the impact and provide details including the model used with a 0.99 value rather than the lower value for Hydro One.

M-HONI-15

References:

Exhibit M, Pages 27-40 and PEG Working Papers

Preamble:

PEG provides its transmission econometric model and results for Hydro One Transmission.

a) Please provide a sample table displaying PEG's transmission benchmarking sample.

b) In the transmission model (Table 1) the legend key says that a percentage of overhead distribution plant variable is included. Did PEG include the percentage of overhead distribution plant as a variable in a transmission cost model?

c) There is no "ISO" variable included in the transmission cost models. Please explain why this business condition is not included as a business condition variable in PEG's transmission cost models.

d) Please confirm that if PEG includes an ISO variable as a business condition into its transmission total cost model, Hydro One's transmission total cost score improves by approximately 12% (all else being equal). If not confirmed, please provide an estimate of the impact along with details explaining the calculation including the model used to estimate the impact.

e) Please confirm that if PEG substitutes Clearspring's substation values for its own into the transmission total cost model, the benchmark score for Hydro One is essentially unchanged, i.e. less than 0.2% change (all else being equal). If not confirmed, please provide an estimate of the impact along with details explaining the calculation including the model used to estimate the impact.

M-HONI-16

References:

Exhibit M, Pages 27-40 and PEG Working Papers

Preamble:

PEG's peak demand variable is labeled as ratcheted max transmission peak. By "ratcheted" it means the maximum peak demand value of all historic years of the sample or the current year is used. That is, the variable never decreases from prior years, it can only increase if the current year has a higher peak demand.

a) Please confirm that PEG only ratcheted the U.S. sample but did not ratchet the variable value for Hydro One. If confirmed, why did PEG not ratchet Hydro One's variable value?

b) Please confirm that if PEG had used the same ratchet definition for Hydro One as it conducted for the U.S. sample utilities, Hydro One's transmission total cost score would improve by approximately 13% (all else being equal). If not confirmed, please provide an estimate of the impact along with explanatory details including the model used to estimate the impact.

c) PEG used the U.S. transmission peak demand data to formulate its ratcheted transmission peak demand variable. For a few utilities, this data is reported at the holding company level rather than at the operating level. How did PEG adjust the data in those circumstances?

d) Did PEG consider removing those observations with bad transmission peak data from the sample given the inconsistent data? Why or why not?

M-HONI-17

Reference:

Exhibit M, Pages 40 – 41

Preamble:

PEG states that their transmission productivity research methodology in Québec was broadly similar to Clearspring's but with a few notable differences.

a) What utilities did PEG exclude in their Québec productivity trend research that Clearspring included?

b) Did PEG exclude those same utilities from its transmission total cost benchmarking research in this application?

c) Are there utilities that PEG excluded in the current total cost benchmarking research that it did not exclude in its Québec productivity research? If yes, please provide a list.

d) In Table 8, PEG states that MFP trends in the transmission industry are -0.62% for the 1996-2019 period and -2.26% for the 2005-2019 period. Given the structural change that occurred in the transmission industry in the late 1990's and early 2000's and that productivity challenges have evidently increased in recent years, does PEG acknowledge that the more recent MFP trend of -2.26% may be a reasonable choice for the productivity factor?

M-HONI-18

Reference:

Exhibit M, Pages 43 – 62

Preamble:

PEG provides the details of its distribution cost models and results and includes transmission line lengths as a proxy for distribution service area as an output variable into its distribution cost models.

a) On p. 45 PEG states, "In his previous work for Hydro One Distribution Mr. Fenrick used as his estimate the total area of Ontario, including water bodies." Please further examine this statement to see if the area used was Hydro One's full retail service territory, including water bodies rather than the full area of Ontario. We note that Mr. Fenrick used a value of 961,498 square kilometres in the prior study and according to World Atlas the total area of Ontario (including water bodies) is 1,076,395 square kilometres.

b) Clearspring used the reduced value of 651,974 sq. kilometres for Hydro One's service area in its current distribution total cost benchmarking research. This matched the same value PEG used for Hydro One's service area in its Hydro Ottawa benchmarking research. Please explain PEG's statement on p. 45, "This is the area of Ontario's land surface less the estimated service territory areas of other utilities." We note the sum of all of the other Ontario distribution service territories is 29,634 sq. km according to the 2019 OEB Yearbook data and the land area of Ontario is approximately 917,741 sq. kilometres.

M-HONI-19

Reference:

Exhibit M, Page 45

Preamble:

PEG states on p. 45, "We agree that a variable measuring the extent of distribution subtransmission lines is worthwhile. However, we don't think that the variable Clearspring used for this purpose (% of transmission lines with ratings above 50kV) is appropriate."

a) Please explain why PEG believes Clearspring's variable is not appropriate.

b) Please explain how PEG's model accounts for the extent of distribution subtransmission lines of the sampled utilities.

M-HONI-20

Reference:

Exhibit M, Page 50

Preamble:

PEG used a ratcheted peak demand variable in its distribution cost models.

a) Please confirm that PEG only ratcheted the U.S. sample but did not ratchet the variable value for Hydro One. If confirmed, why did PEG not ratchet Hydro One's variable value to be consistent with the variable definition for the rest of the sample?

M-HONI-21

Reference:

Exhibit M, Pages 45 - 50

Preamble:

Instead of using the service area variable in its distribution cost models that PEG used in its Hydro Ottawa research and that Clearspring used in the current research, PEG instead uses transmission line length as it states on p. 49, "Lacking a good estimate of the area of Hydro One's service territory, we replaced the area variable that Clearspring used with their transmission line length variable. This variable should be highly correlated with distribution service territory and sidesteps the problem of obtaining an accurate value for Clearspring's area variable for Hydro One."

a) On what basis and factual evidence did PEG rely to make the assertion that transmission line lengths are highly correlated with distribution area? Please provide any data and/or other factual information used or relied on to support this assertion.

b) Has PEG ever included a transmission line length variable in a distribution total cost benchmarking model prior to this application? If yes, please provide the study report or reports.

c) Did PEG take any steps at all to pursue estimating what it would consider a more accurate or suitable service area estimate for Hydro One's service territory? If so, please advise what steps were taken and what preliminary results were obtained and provide copies of any material indicating the work PEG did and the results of it. If PEG did not do so, please explain why?

d) Does PEG accept that it would be preferable to use distribution area over transmission line lengths if an accurate estimate was available for Hydro One?

e) Does PEG accept that it would be preferable to use distribution line lengths over transmission line lengths if accurate data were available for both the sample and Hydro One?

f) PEG shows on p 48 that Hydro One has 3.89 times the sample average transmission km of line. The sample average for distribution service area in PEG's dataset is 24,188 sq. km. Please confirm that using PEG's transmission line lengths as the output variable is equivalent to giving Hydro One credit for a service territory of 94,091 sq. km, which is calculated by taking the sample average area of 24,188 sq. km multiplied by 3.89.

g) Is PEG of the view that 94,091 sq. km is a reasonable estimate of Hydro One's distribution service territory?

h) Please confirm that the land area of Southern Ontario, including the Parry Sound and Muskoka districts is approximately 140,000 sq. km. If not able to confirm, please provide PEG's estimate of the land area in square kilometres of Southern Ontario.

i) Please confirm that PEG acknowledges that Hydro One Distribution and other Ontario distributors also serve substantial service areas outside of Southern Ontario.

j) Please confirm that Hydro One's distribution total cost benchmark score improves by approximately 27% if instead of transmission line lengths, PEG uses the distribution land area variable that it used in its Hydro Ottawa research (all else being equal, with no other methodological changes). If not confirmed, please provide an estimate of the impact along with details explaining the calculation including the model used to estimate the impact of moving to transmission line miles from distribution land area.

M-HONI-22

Reference:

Exhibit M, Pages 49 – 54

Preamble:

PEG provides its distribution total cost model.

a) Please explain why PEG does not include the standard deviation of elevation variable in its distribution cost models as it did include the variable in its Hydro Ottawa benchmark cost models?

b) Please explain why PEG added a new scope variable to its distribution cost models that examines the percent of distribution of transmission and distribution plant.

c) Did PEG include the percent of distribution of transmission and distribution variable in its research in the prior Hydro Ottawa, Toronto Hydro, or the last Hydro One Distribution applications?

d) Would the inclusion of this new scope variable have helped the scores of Hydro Ottawa or Toronto Hydro if PEG had included it in those applications since those utilities do not offer transmission services (all else being equal)?

e) Please confirm that the inclusion of this new variable harms Hydro One's distribution total cost benchmark score by approximately 7 percent (all else being equal). If PEG cannot confirm, please provide PEG's estimate of the impact and explanatory details including the model used to estimate the impact.

f) Is PEG's new scope variable for distribution (percent distribution plant in transmission and distribution plant) consistent with its scope variable in its transmission cost models which measures percent transmission plant in total utility plant net of general plant? Please explain.

g) Please explain why PEG includes the statistically insignificant first order variable of percent overhead distribution plant in its distribution total cost model (p-value = 0.262) when it states on p. 49, "In all three models, all of the parameter estimates for the first-order terms of the business condition variables were statistically significant and plausible as to sign and magnitude."

h) Please confirm that if PEG uses the exact same model explanatory variables and explanatory variable values in its distribution total cost model for Hydro One (with no other methodological changes made) that PEG used in its Hydro Ottawa distribution benchmarking research, the PEG total cost result improves by approximately 29% for Hydro One and is almost identical to Clearspring's distribution total cost results. If not confirmed, please provide an estimate of what PEG's result would have been for Hydro One's distribution total costs if PEG had used the same model it supported in the Hydro Ottawa proceeding, and provide explanatory details and model used to estimate this impact.

i) Please confirm there are no substation variables included in either Clearspring or PEG's distribution models.