

MANITOBA HYDRO 2017/18 & 2018/19 GENERAL RATE APPLICATION

MANITOBA HYDRO

INDEPENDENT EXPERT CONSULTANTS INFORMATION REQUESTS

DR. ADONIS YATCHEW

NOVEMBER 24, 2017

MH/YATCHEW I - 1

Reference:

Expert Testimony of Adonis Yatchew, pages 25 and 27.

Preamble:

At page 27 of his Testimony, Dr. Yatchew states the long term electricity price elasticity of -0.4 (-0.35 for residential & commercial and -0.5 for industrial) provides reasonable benchmarks and are recommended because they are better supported by the literature.

Dr. Yatchew also states at page 25 that "Surveys of estimated demand elasticities reveal a very broad range of estimates" and at page 27 that "A literature search for studies that estimated demand elasticities in a uniform fashion across the Provinces and Territories of Canada has turned up very little".

Question:

- a) Please provide the source and/or calculations where the reasonable benchmarks of own electricity price elasticity of -0.4 (-0.35 for residential & commercial and -0.5 for industrial) are derived from the literature.
- b) Please confirm that the electricity price elasticities values produced by Manitoba Hydro are within the broad range of estimates.
- c) Please indicate whether the source and/or calculation of the reasonable benchmarks are based on own electricity price elasticity studies in Canada and/or within similar cold climates where electricity is also used for space heating.

Response:

- a) The benchmarks are not based on a specific numerical calculation. They take into account time-series, cross-section and panel data studies of electricity demand, meta-analyses, and studies of intensity analyses trends. Sources are discussed in Section C and Appendix 3 of the report.

- b) Confirmed.
- c) Some of the studies that were reviewed include data on jurisdictions with similar climates. For example, the Burke and Abayasekara 2017 study (referenced in footnote 48 of the report) analyses U.S. state-level panel data; some of the states have cold climates and electric heating is not uncommon. It should be kept in mind that as the price of electricity increases, incentives are increased to substitute natural gas (where it is available) and capital investments (that tighten the building envelope).

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Reference:

Expert Testimony of Adonis Yatchew, Appendix 2.

Question:

- a) Please identify whether any other third party participated or assisted in the preparation of the Report.
- b) If the answer to part a) is yes, please:
 - i. Identify the name and experience of each individual;
 - ii. File the curriculum vitae for each individual;
 - iii. Identify whether those individuals intend on appearing to give evidence during the oral portion of the proceeding;
 - iv. Provide a list of the previous projects or judicial and administrative proceedings which the individual(s) have been qualified as an expert witness.

Response:

- a) Yes.
- b) Mr. Dhruv Sinha provided research support. He updated CANSIM data, verified and updated my reference list, and conducted web searches on energy related topics. Mr. Sinha's contributions were not substantive in the sense of affecting my opinions on matters expressed in my report.

Mr. Sinha is a Ph.D. candidate in the Economics Department at the University of Toronto; I chair his thesis committee. He and I have been conducting research in various areas of energy economics and he has also been my teaching assistant in energy courses.

Mr. Sinha's curriculum vitae is attached. He will not be appearing to give evidence. Mr. Sinha has confirmed that he not been qualified as an expert witness in any judicial or administrative proceeding.

Dhruv Sinha

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Citizenship: Canadian

EDUCATION & SKILLS

University of Toronto 2014- Present

- PhD Candidate, Economics

University of Toronto 2014

- Master of Arts, Economics.
- Courses: Microeconomics, Econometrics, Financial Economics, Monetary Theory.

University of Western Ontario 2013

- Bachelor of Arts, Honours Specialization in Global Economics.
- Recipient of the Western Entrance Scholarship.
- Dean's Honours List 2012, 2013.
- Awarded the University of Western Ontario Gold Medal.

Software: Proficient: Stata, Excel, LaTeX; Experienced: Matlab, Maple, Mathematica; Basic: R.

WORK EXPERIENCE

University of Toronto Toronto, ON

Course Instructor May 2017-August 2017

- Taught ECO206Y: an intermediate microeconomics course geared towards students in the economics specialization at the University of Toronto.
- This involved preparing lectures, tests, and assignments, and collaborating with TAs and university administration to ensure a positive and rigorous learning experience for students.

Teaching Assistant September 2013-Present

- Experience: Introductory Microeconomics and macroeconomics, Intermediate microeconomics and quantitative methods, graduate energy and regulatory economics. Head TA for 3 years in a row.
- Held tutorials and office hours to enhance students' understanding of economic concepts and to address any gaps in learning.
- Responsible for grading exams and midterms.
- Liaised with undergraduate and graduate students and faculty members to provide a positive learning experience.

Research Assistant September 2015-Present

- Research assistant to Professors Michel Serafinelli (starting September 2015) and Adonis Yatchew (starting May 2016).
- Performed various tasks ranging from data manipulation and compilation to regression analysis on specialized statistical software. The projects are in the fields of applied microeconomics and energy economics.

University of Western Ontario London, ON

Research Assistant June 2012-July 2013

- Responsible for downloading and organizing expansive sets of data from a large data collection program created by the US Department of Education. This often required correspondence with data personnel at the National Center for Education Statistics (NCES) in the US.
- Assisted in merging and reshaping data on student loan defaults for an empirical project in the Department of Economics.

ACTIVITIES & INTERESTS

Senior Thesis, University of Western Ontario 2012-2013

- Developed a theoretical model for affirmative action in the admissions processes of Historically Black Colleges and Universities in the US.

Academic Interests

- Interested in the study of corporate social and environmental responsibility using tools in applied economic theory, empirical corporate finance and industrial organization.

Languages: English, Hindi/Urdu, intermediate French.

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Reference:

Expert Testimony of Adonis Yatchew, Appendix 1- Scope of Work

Question:

Please provide copies of all documents received from the PUB, PUB advisors, other independent expert consultants, interveners, or any third party in connection with your retainer and/or in contemplation of preparing your report in this proceeding. Please provide notes of all meetings with these parties in connection with your participation in this proceeding (in confidence if necessary).

Response:

Several telephone conversations took place with witnesses for the Coalition (Dr. Simpson, Dr. Compton and Mr. Harper). No notes were taken. The summary below was provided to me by email by Dr. Compton on October 1, 2017.

Impact of Proposed Manitoba Hydro Rate Increases on the Manitoba Economy.

Janice Compton and Wayne Simpson

This report will focus on the effects of the proposed hydro rate increases on households in Manitoba. Using household and industry data from Statistics Canada, we will estimate both the direct and indirect effect on households. The direct impact measures the response of households in terms of hydro usage and total spending on hydro, as well as the decline in spending on other goods and services. This will be estimated for households in different regions, to address the availability (or lack of availability) in different geographic areas. The indirect effect measures the extent to which the hydro price increase will propagate through the economy by raising output prices on many other goods and services in our provincial economy, and potentially reducing output and employment. This will be done using an Input-Output model. The estimates will be compared to previous research on the effect of energy price shocks on provincial economies.

No other documents were received from other individuals or parties, other than what I understand to be covered by solicitor-client privilege.

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Reference:

Expert Testimony of Adonis Yatchew, Appendix 1- Scope of Work

Question:

Did Dr. Yatchew coordinate the review of price elasticity impacts on electricity demand with any other IECs retained by the PUB? If so, please identify which ones and the extent to which coordination occurred.

Response:

Several telephone conversations took place with Daymark witnesses during which there were general discussions on scope of work and coverage of issues, and trends in energy and electricity industries (e.g. natural gas prices and the impacts on electricity demand) and elasticities. No report drafts or other documents were exchanged.

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Reference:

Expert Testimony of Adonis Yatchew, Section D. Manitoba Hydro Electricity Prices, page 32.

Preamble:

At page 32 of his Testimony, Dr. Yatchew states:

“Manitoba electricity prices are low by national standards. Even the projected rate increases will not produce especially high rates compared to other provinces, with the exception of Quebec. It is possible that at low electricity prices, the response to an increase would be attenuated until the price crosses a certain threshold.”

Question:

To what degree would Dr. Yatchew expect the price response be attenuated given Manitoba’s lower electricity prices?

Response:

The statement “It is possible that at low electricity prices, the response to an increase would be attenuated until the price crosses a certain threshold.” implies a nonlinear response to price increases. Calibrating a threshold would be difficult, even with very good data. However, one would expect that industrial and large commercial users would respond to price changes more quickly.