

MANITOBA HYDRO 2017/18 & 2018/19 GENERAL RATE APPLICATION
MANITOBA HYDRO
INTERVENER EVIDENCE INFORMATION REQUESTS
COALITION (COMPTON/SIMPSON)
NOVEMBER 15, 2017

MH/Simpson-Compton I - 1

Reference:

Page 3 and 4

Question:

- a) Please outline the limitations of the methodology and modelling used by Dr. Simpson and Dr. Compton to arrive at their conclusions in the report.
- b) Please state all assumptions of the model, including variables that are assumed to remain constant over the seven year period (e.g. lagging effects of elasticity, the level of income, prices of other goods and services).

Response:

- a) The primary limitations of the methodology are noted in footnote 7 of the report. First, to maintain tractability, the model imposes the assumption that the structure of the economy is constant throughout the time period considered. That is, the economy may shrink and grow but inputs rise and fall in proportion – there is no substitution among inputs. Second, the economy is assumed to operate under conditions of excess capacity – increases in sectoral demand can be met. Third, the model does not include relative price changes or behavioural responses – these we adjusted for manually by altering the price of hydro and maintaining fixed relative prices on all other goods.
- b) The model is static and applies a *ceteris paribus* condition to all variables, including income and prices of other goods and services. We therefore assume that prices and income rise with the level of inflation each year, and consider only the increase in hydro prices over the price of inflation. The results should be interpreted as deviations from an inflationary rate of increase. We include one measure for elasticity, which should be interpreted as short-run price elasticity of demand. Long run changes to elasticity would be expected after the time frame considered.

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MH/Simpson-Compton I - 2

Reference:

Page 12, Table 4, column A

Question:

What year I-O tables were used to compute the industry size % of Total Input Use in Table 4, Column A? Please confirm the year is 2013 and not 2014, as stated.

Response:

Yes that is correct, a continued typo on our part. The Statistics Canada Use and Supply tables and multipliers are the 2013 tables, released in June 2017.

MH/Simpson-Compton I - 3

Reference:

Page 14, Table 5, 2nd column

Question:

- a) In Table 5, 2nd column, please explain the methodology that was applied to allocate the reduction in demand by industry, government, and households.
- b) Please provide the calculations for the detailed sectors.
- c) What were the assumptions regarding the price elasticity of demand across the different sectors in these calculations?

Response:

- a) This is outlined in Appendix C.
- b) See the table provided as Attachment C.

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- c) In the base case, we applied a price elasticity of demand of 0.29 on household spending, but did not apply a price elasticity of demand on industry or governments. In a robustness test (Table 7) we applied the price elasticity of 0.29 on all sectors.

MH/Simpson-Compton I - 4

Reference:

Page 15

Question:

The author assumes a zero price elasticity of demand for the industrial sector. What is the rationale for this decision?

Response:

We included three scenarios for the industrial sector: (a) zero price elasticity (base case); (b) applying the price elasticity of 0.29; (c) zero price elasticity with a 10% reduction in size of the top 10 hydro-intensive detailed industries. The results are found in Table 7. Applying the price elasticity of 0.29 reduces the overall impact on the economy.

MH/COALITION (COMPTON/SIMPSON) I - 5

Reference:

Page 15, Table 6

Preamble:

In its report, Dr. Simpson and Dr. Compton indicate that after seven years of the indicative rate increases the job losses are expected to be between 2974 and 3862.

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Question:

- a) Please provide the total employment level for Manitoba, on the same basis as the “jobs” indicated in Table 6.
- b) Please indicate what percentage of the overall employment level in Manitoba would 3862 job losses be?

Response:

The following table shows the annual estimates of employment in Manitoba from the Labour Force Survey (estimate of number of individuals employed in the province during the year) and the Survey of Employment and Payroll Hours (number of jobs in the province, including all industrial sectors except those primarily involved in agriculture, fishing and trapping, private household). Our estimate of 3900 fewer jobs in the province after seven years is a total loss of approximately 0.6% - 0.66% of total jobs in the province. Within the assumptions of the model, this is a permanent fall in jobs relative to the counterfactual of inflationary-level growth.

Annual Employment Estimates - Labour Force Survey and Survey of Employment and Hours

YEAR	LFS	SEPH
2001	549,900	491,673
2002	563,300	502,443
2003	566,500	509,028
2004	572,600	503,759
2005	576,500	506,712
2006	583,200	518,097
2007	592,500	535,183
2008	601,600	550,089
2009	600,500	546,153
2010	609,000	546,963
2011	611,700	553,206
2012	621,600	563,133
2013	625,800	575,985
2014	626,500	574,721

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2015	636,200	579,445
2016	633,600	583,742

Statistics Canada. Table 282-0002 - Total Employment. Labour force survey estimates (LFS), annual (persons)

Statistics Canada. Table 281-0042 - Survey of Employment, Payrolls and Hours (SEPH), employment, annual (persons)

The two graphs below show the monthly change in total employment, and the annual change in total employment in Manitoba over the previous ten years. The monthly figures show large month to month variation. Presented are six month moving averages to smooth out the monthly variations. Over the past ten years, the average monthly growth in employment was 467 individuals. The average annual change in employment is 5400 individuals, although there is much variation around that figure.

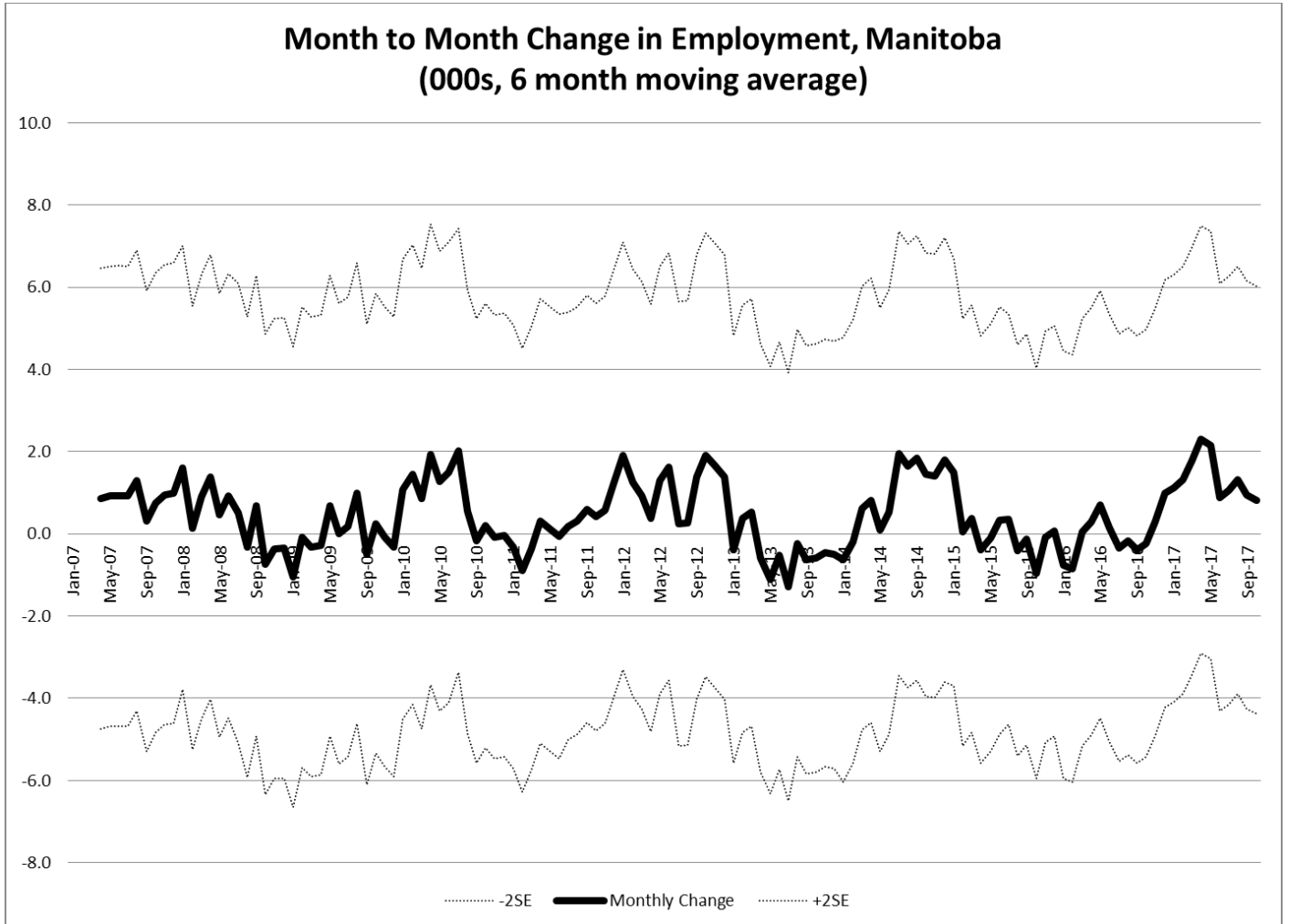
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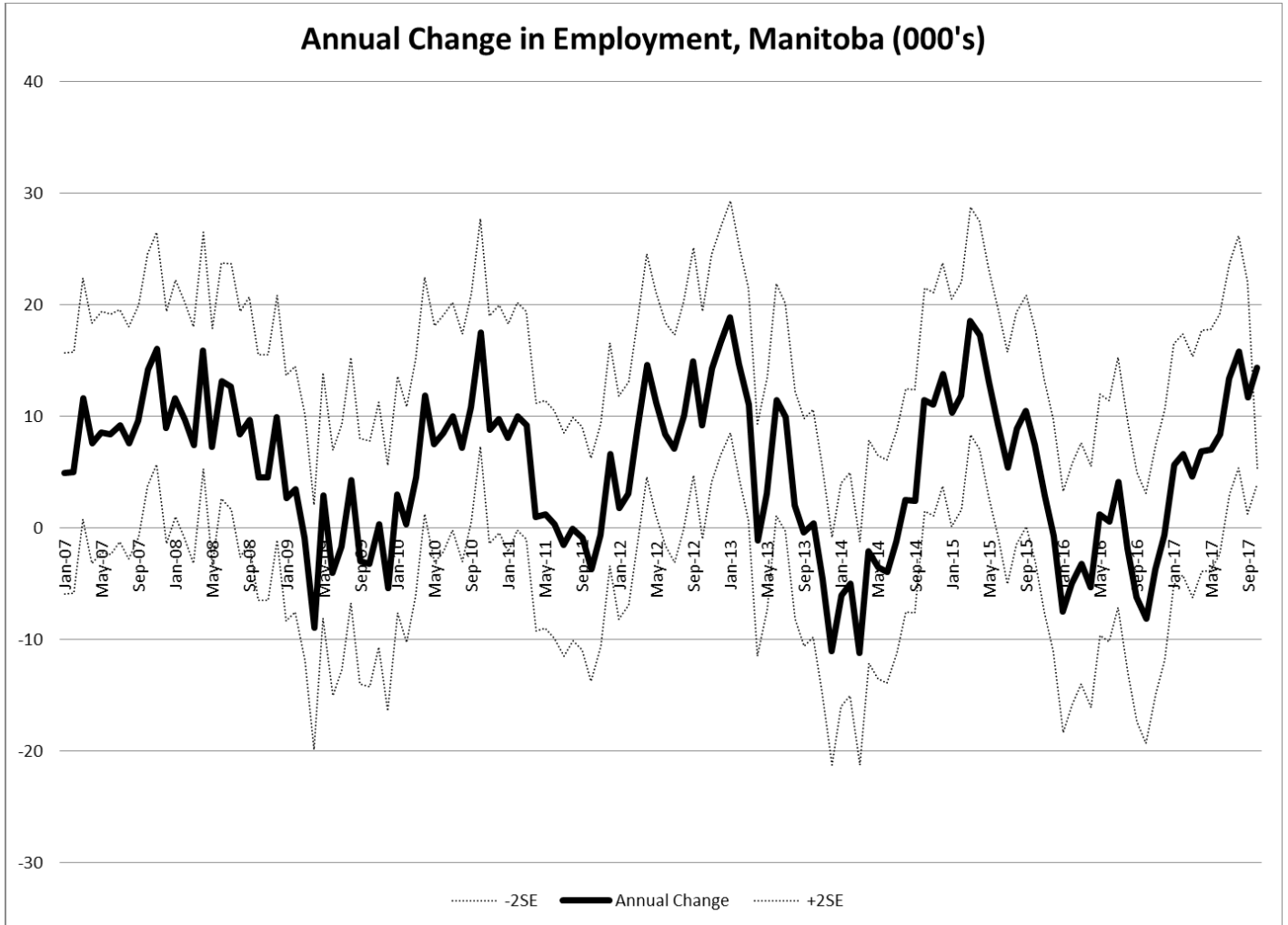
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MH/COALITION (COMPTON/SIMPSON) I - 6

Reference:

Page 15, Table 6

Preamble:

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The results provided in Table 6, and the conclusions outlined in page 15 of Dr. Simpson and Dr. Compton, was limited to the seven year period 2018/19 to 2024/25 of indicative rate increases in MH16 Update with Interim.

In Coalition/MH II-19, Manitoba Hydro provided a financial forecast using even annual rate increases of 4.14% from 2018/19 to 2033/34 to achieve a 25% equity level by 2033/34.

In PUB/MH I-34 Attachment 2, Manitoba Hydro provided a financial forecast using even annual rate increases of 3.95% annual from 2018/19 to 2028/29, followed by inflationary rate increases to 2035/36.

Question:

- a) Please explain why Dr. Simpson and Dr. Compton limited their analysis to the first seven years of the financial forecast.
- b) Please extend the analysis in Table 6 to include the years of inflationary rate increases in MH16 Update with Interim (2025/26 to 2035/36).
- c) If a further analysis as requested in part b) cannot be provided, please elaborate on how the results/conclusions of the analysis would be different if the subsequent years of inflationary rate increases were included.
- d) Did Dr. Simpson and Dr. Compton undertake an analysis based on any of the alternative rate scenarios provided in Manitoba Hydro's responses to Information Requests, including Coalition/MH II-19 and Coalition/MH II-7a-b?
- e) If the response to part d) is no, please elaborate on whether and how Dr. Simpson and Dr. Compton expect the results in Table 6 and the conclusions of the analysis would be different based on these alternative rate scenario in Coalition/MH II-19 which reflects above inflationary rate increases over a 16-year period.
- f) If the response to part d) is no, please elaborate on whether and how Dr. Simpson and Dr. Compton expect the results in Table 6 and the conclusions of the analysis would be different based on these alternative rate scenario in PUB/MH I-34 Attachment 2 which

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reflects above inflationary rate increases over a 10-year period.

Response:

- a) and
- b) and
- c) The projected price increases for the years after the first seven were at the inflationary rate. Since our analysis is done in real terms, we subtract the expected rate of inflation from the proposed price increase when calculating the decline in spending.

The model's assumptions (as outlined in a previous response) require a stable structure in the economy. This assumption becomes less tenable with each additional year added to the analysis. We do not believe that the applying the model to the years past the seven years of above inflationary price increases would be informative.

- d) In the following two tables, we show the first year and seventh year results for these two alternative rate proposals. The first table shows the real rates with and without the behavioural assumption of price elasticity of demand applied. The second table shows the overall results of applying these rates to the model. The base case scenarios are provided as a reference.

	Coalition/MH II-19 Alternative			Coalition/MH I-34 Alternative		
Fiscal year ending	Nominal Rate Increase	Real Cumulative Increase in Spending, No PED	Real Cumulative Increase in Spending With PED = 0.29	Nominal Rate Increase	Real Cumulative Increase in Spending, No PED	Real Cumulative Increase in Spending With PED = 0.29
2019	4.14	2.24	1.59	3.95	2.05	1.46
2020	4.14	4.53	3.22	3.95	4.14	2.94
2021	4.14	6.87	4.88	3.95	6.28	4.46
2022	4.14	9.27	6.58	3.95	8.46	6.00
2023	4.14	11.71	8.32	3.95	10.68	7.58
2024	4.14	14.22	10.09	3.95	12.95	9.19
2025	4.14	16.77	11.91	3.95	15.26	10.84

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	First Year Effect				After Seven Years			
	Output	GD P	La- bour In- come	Jo bs	Out- put	GDP	La- bour In- come	Jobs
Simple Multipliers PED on HH Only								
		- 0.0						
Base Case (Table 6)	-0.06	8	-0.08	-95	-1.95	-2.59	-2.63	-2975
		- 0.0						
Coalition/MH II-19 Al- ternative	-0.02	3	-0.03	-36	-0.69	-0.92	-0.94	-1062
		- 0.0						
Coalition/MH I-34 Al- ternative	-0.02	3	-0.03	-33	-0.63	-0.84	-0.85	-969
PED on all Sectors								
		- 0.0						
Lower Bound Case (Table 7)	-0.05	7	-0.07	-79	-1.62	-2.16	-2.19	-2480
		- 0.0						
Coalition/MH II-19 Al- ternative	-0.02	3	-0.03	-29	-0.58	-0.77	-0.78	-884
		- 0.0						
Coalition/MH I-34 Al- ternative	-0.02	2	-0.02	-27	-0.53	-0.70	-0.71	-806
Total Multipliers PED on HH Only								
		- 0.1						
Base Case (Table 6)	-0.07	1	-0.11	126	-2.19	-3.41	-3.31	-3862
		- 0.0						
Coalition/MH II-19 Al- ternative	-0.03	4	-0.04	-47	-0.79	-1.24	-1.20	-1401
		- 0.0						
Coalition/MH I-34 Al- ternative	-0.02	4	-0.04	-43	-0.72	-1.13	-1.09	-1277

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PED on all Sectors								
Lower Bound Case	-0.06	-0.09	104	-1.86	-2.89	-2.80	-3273	
Coalition/MH II-19 Alternative	-0.02	-0.03	-39	-0.66	-1.03	-1.00	-1167	
Coalition/MH I-34 Alternative	-0.02	-0.03	-36	-0.60	-0.94	-0.91	-1064	

MH/COALITION (COMPTON/SIMPSON) I-7

Reference:

Page 24

Question:

For each of Dr. Simpson and Dr. Compton:

- a) Please provide a copy of your written retainer letters. Please also provide any instructions received with respect to your retainers.
- b) Please advise whether issues regarding your evidence were identified by yourself and/or Consumers Coalition.
- c) Please identify which sections of the report you were responsible for by topic/finding.
- d) Did anyone other than Mr. (sic) Simpson or Dr. Compton contribute to or draft portions of the report. If so please identify those individuals, their qualifications and what portions of the report were prepared by that individual.
- e) Please provide the name and qualifications of any additional people who worked on each of the topics/findings by topic/finding, including a list of the previous projects or

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proceedings which the individuals participated in related to the topic and his/her role in the project or proceeding.

Response:

- a) Please see our retainer letters attached as Attachment A (Dr. Compton) and Attachment B (Dr. Simpson).

The Consumers Coalition adds: We have provided the letters but deleted the financial terms which are not relevant to the question or to the Board's deliberations.

- b) Once the topic had been developed in conversation with the Coalition, we did our research and report independently.
- c) This is a joint report. Dr. Compton was the lead researcher and author for the development and analysis of the model.
- d) We are the only authors.
- e) Not applicable.