

**Manitoba Hydro**

**Book of Documents**

**Elenchus – Load Forecasting &  
DSM**



1 **REFERENCE:** Elenchus report, pages 11-12.

2  
3 **PREAMBLE:**

4 The Elenchus report states that "Another potential issue is the timeliness of the population forecast  
5 given recent trends in immigration to Manitoba."  
6

7 Elenchus calculates that a reduction in average annual immigration from 15,100 to 13,100 would Result  
8 in reduced load growth of 258 GWh by 2032/33, and reliance on Spatial Economics' projection would  
9 reduce load growth by 666.5 GWh.  
10

11 **a) QUESTION:**

12 Is Elenchus aware of any changes to the Provincial Nominee Program or other immigration initiatives  
13 that would suggest a permanent downward trend in Manitoba Immigration or is Elenchus merely  
14 identifying population projections as a risk factor.  
15

16 **RESPONSE:**

17 Elenchus remarks are identifying the risk of a downward trend in immigration according to the various  
18 reports available on the [Citizenship and Immigration Canada](#) web site. As shown below immigrant  
19 receiving permanent status in Manitoba in 2012 declined by 2,651 from 2011. Further, in the first two  
20 quarters of 2013 immigrants receiving permanent status in Manitoba declined by 655 compared to the  
21 same two quarters in 2012. While this is not an empirical study it shows that a slowing down of  
22 migration is expected by Citizenship and Immigration Canada.

**Canada – Permanent residents by province or territory and category**

Number										
Category	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Economic immigrants	4,079	4,999	5,724	7,376	8,328	8,694	10,905	13,274	13,152	10,337
Refugees	1,234	1,252	1,094	1,238	1,170	972	1,098	1,032	1,303	1,140
Other immigrants	147	57	86	101	134	167	159	124	108	96
Manitoba	6,503	7,426	8,096	10,048	10,954	11,218	13,521	15,807	15,963	13,312

[Canada – Permanent residents by province or territory and category](#)

Canada - Permanent residents by province or territory and urban area										
Urban area	2012						2013			
	Q1	Q2	YTD	Q3	Q4	Total	Q1	Q2	YTD	
Manitoba	3,246	3,581	6,827	3,234	3,251	13,312	2,610	3,562	6,172	

[Canada - Permanent residents by province or territory and urban area](#)

23 **b) QUESTION:**

24 Confirm that population fertility analysis was not undertaken by MH and that changes in assumed  
25 immigration indicated by the most current forecast should be a factor considered.  
26

27 **RESPONSE:**

28 Elenchus confirmed that population fertility analysis was not undertaken by MH.

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- 1 Manitoba Hydro advised Elenchus that it does not perform analysis on population fertility when
  - 2 producing their consensus forecast. MH's population estimates are generated annually by performing a
  - 3 simple average of several independent forecasts.

the change in the load forecast (consistent with the methodology described in *Chapter 8 – Determination and Description of Development Plans*. For the Preferred Development Plan, the in-service dates for Keeyask G.S., Conawapa G.S. and the new U.S. interconnection were held constant and the effect of changes in Manitoba load are mainly reflected in increased or decreased surplus hydro-electric energy. As shown in Table 10.11<sup>4</sup>, under the low load forecast, new resources are required for dependable energy in 2028/29 and persistent winter peak capacity deficits start in 2029/30. Assuming the high load forecast, new resources are required for dependable energy in 2020/21 and persistent winter peak capacity deficits start in 2021/22.

**Table 10.11 Sensitivity Analysis – Manitoba Load  
Supply-Demand Balances for High, Base and Low Load Forecast  
Dependable Energy (GWh) and Winter Peak Capacity (MW)**

No New Resources											
Fiscal Year	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
<b>90%th Percentile (2012 Load Forecast)</b>											
System Surplus (Deficit) Dependable GW.h	251	(894)	(1,423)	(1,961)	(2,497)	(3,054)	(2,694)	(3,321)	(3,892)	(4,472)	(5,047)
System Surplus (Deficit) Winter Peak MW	112	-	(109)	(218)	(335)	(452)	(815)	(928)	(1,047)	(1,169)	(1,291)
<b>2012 Load Forecast</b>											
System Surplus (Deficit) Dependable GW.h	1,607	574	152	(279)	(713)	(1,168)	(733)	(1,262)	(1,712)	(2,197)	(2,678)
System Surplus (Deficit) Winter Peak MW	458	376	296	214	126	35	(301)	(388)	(481)	(577)	(674)
<b>10%th Percentile (2012 Load Forecast)</b>											
System Surplus (Deficit) Dependable GW.h	2,964	2,042	1,728	1,402	1,072	718	1,053	613	272	(79)	(428)
System Surplus (Deficit) Winter Peak MW	805	753	701	646	586	522	212	152	85	14	(58)

The description of the development plans under base, low and high load forecasts is provided in Table 10.12. The All Gas, K22/Gas and Preferred Development Plan described as “Base Load” in Table 10.12, are the same as those described in *Chapter 8 – Determination and Description of Development Plans*. Under low and high load forecasts the resources are adjusted, as applicable, to accommodate the change in the load forecast.

<sup>4</sup> Based on Appendix 4.2 Manitoba Hydro Supply and Demand Tables, Section 3 NFAT 2012 Reference and Section 4 NFAT 2012 Sensitivities



Table 2 - Change in Energy and Peak

GROSS FIRM ENERGY AND GROSS TOTAL PEAK						
Change from Previous Forecast						
2013/14 - 2032/33						
Fiscal Year	Gross Firm Energy			Gross Total Peak		
	2013 Forecast (GW.h)	2012 Forecast (GW.h)	Change (GW.h)	2013 Forecast (MW)	2012 Forecast (MW)	Change (MW)
2012/13 Act	24759			4559		
Weather Adj.	-356			-127		
2012/13 Wadj	24404	24961	(557)	4432	4491	(59)
2013/14	25239	25734	(495)	4601	4609	(8)
2014/15	25676	26071	(395)	4680	4677	3
2015/16	26013	26393	(380)	4742	4738	4
2016/17	26322	26677	(355)	4801	4794	7
2017/18	26606	27128	(522)	4857	4874	(17)
2018/19	27003	27616	(614)	4930	4959	(29)
2019/20	27398	27919	(521)	5002	5024	(22)
2020/21	27789	28400	(611)	5074	5109	(35)
2021/22	28197	28859	(661)	5147	5192	(45)
2022/23	28605	29322	(717)	5222	5276	(54)
10 Year Avg Gr.	420	436		79	79	
	1.6%	1.6%		1.7%	1.6%	
2023/24	29013	29779	(766)	5296	5360	(64)
2024/25	29418	30239	(821)	5369	5445	(76)
2025/26	29822	30691	(869)	5443	5528	(85)
2026/27	30225	31138	(913)	5516	5611	(95)
2027/28	30625	31594	(968)	5588	5695	(107)
2028/29	31041	32053	(1012)	5664	5779	(115)
2029/30	31453	32511	(1058)	5739	5863	(124)
2030/31	31863	32967	(1104)	5813	5947	(134)
2031/32	32265	33425	(1159)	5886	6032	(146)
19 Year Avg Gr.	414	445	-32	77	81	-5
	1.5%	1.5%	-0.1%	1.5%	1.6%	-0.1%





# Keeyask ISD's for DSM Options

-2013 Reference Load Forecast, no new exports

<u>DSM Option</u>	<u>Energy 2027/28</u>	
• 2013 Base DSM	773 GWh (1 X DSM)	2023 Keeyask ISD
• NFAT DSM 1	1704 GWh (2 X DSM)	2028 Keeyask ISD
• NFAT DSM 2	2962 GWh (4 X DSM)	2031 Keeyask ISD
• NFAT DSM 3	3546 GWh (5 X DSM)	2033 Keeyask ISD