Economic Outlook

2011 – 2032

Manitoba Hydro

Economic Analysis
Department
Spring, 2011
EO11-1

Table of Contents

Preface

The objective of this annual forecast is to provide a set of economic parameters for corporate use.

This information is used in several areas of the corporation; for example, in load forecasting, project evaluation, and financial planning.

The document is derived from a variety of sources, including forecasts from IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank, and TD Bank. As a final step prior to publication, the forecast is refined to reflect information available in early spring.

This forecast is based on what was known and could reasonably be foreseen at the time of its preparation. Users should be cognizant that conditions can and do change and should apply sensitivity analysis accordingly.

The variables are presented in both calendar year and fiscal year format. Fiscal year data have been derived from calendar year data. Fiscal year data which conform with data found in G911 are presented on pages 3 and 4 and Appendix A. The balance of the text relates to calendar year information.

Executive Summary

Recent Economic Performance

The recent economic performance of several key economic indicators for Manitoba, Canada, and the U.S. for the past five years is provided on page 2.

In 2010, Manitoba, Canada, and U.S. **real GDP** increased significantly relative to 2009 indicating a strong recovery in economic growth in those economies over the past year.

In 2010, Manitoba, Canada, and U.S. **CPI** increased in 2010 by 0.8%, 1.8%, and 1.7% respectively.

All three economies' **population** and **employment rates** increased in 2010 relative to 2009. Manitoba's **unemployment rate** increased slightly from 5.2% in 2009 to 5.4% in 2010. Canada's unemployment rate decreased relative to 2009 while the U.S. experienced an increase.

Both the Canadian and U.S. short-term interest rate **(90 Day T-Bill rate)** have increased slightly in 2010 relative to 2009. The Canadian **long bond rate** in 2010 has decreased slightly from 2009 while the U.S. long bond rate has increased modestly. The **Canadian dollar** appreciated by 10.8% from 1.14 Cdn$/US$ in 2009 to 1.03 Cdn$/US$ in 2010. The main drivers behind the strengthened Canadian dollar are rising commodity prices and oil prices, as well as its relatively healthy fiscal situation compared to the U.S. and Europe.

Future Outlook of Economic Performance

The reference case outlook of several key economic indicators for Manitoba, Canada, and the U.S. is provided on page 3.

Relative to last year's outlook, the long-term average annual growth in **real GDP** is expected to be slightly higher for Manitoba, slightly lower for Canada, and unchanged for the U.S.

In the long term, Manitoba, Canada, and U.S. **CPI** are expected to escalate at 2.1% similar to EO2010.

In the long term, Manitoba's and Canada's **population** are expected to grow modestly at an annual rate of 1.0%, while the U.S. population is expected to grow at 0.9%.

Relative to the EO2010 forecast, this year's outlook for **housing starts** in Manitoba has increased by 2,000 units per year from 5,400 units to 7,400 units. Over the forecast period, Manitoba **residential electricity customers** are expected to increase on average by 5,400 units per year as compared to last year's forecast of 4,100 residential customers per year.

In the long term, Canada's **90 Day T-Bill rate** and **long bond rate** are expected to decrease slightly from last year's forecast. Similarly, the U.S. 90 Day T-Bill rate is expected to decrease slightly from last year's forecasts, while the U.S. long bond rate is forecast to be unchanged.

In EO2011, the **Canadian dollar** is forecast to strengthen in 2011/12 and 2012/13, and depreciate slowly thereafter to 1.07 Cdn$/US$ by 2015/16. In the long-term the Canadian dollar is forecast to trend at 1.06 Cdn$/US$.

Page 4 provides comparisons of the current forecast of key variables to those prepared in the spring and fall of 2010.

Recent Economic Performance

	2006	2007	2008	2009	2010
Manitoba					
Real GDP - % chge	3.7	2.7	2.1	-0.1	2.5
CPI - % chge	2.0	2.0	2.3	0.6	0.8
Population - % chge	0.5	0.8	1.0	1.2	1.3
Employment - % chge	1.2	1.7	1.7	0.0	1.9
Unemployment rate - %	4.3	4.4	4.2	5.2	5.4
Residential customers - '000s	427	431	436	441	445
Housing starts - Units	5,028	5,738	5,537	4,174	5,888
Retail sales - $M	12,874	14,016	14,980	14,915	15,737
Manufacturing Shipments - $M	14,862	16,185	16,376	14,622	14,378
Canada					
Real GDP - % chge	2.8	2.2	0.5	-2.5	3.1
CPI - % chge	2.0	2.2	2.3	0.3	1.8
Population - % chge	1.0	1.1	1.2	1.2	1.1
Employment - % chge	1.8	2.4	1.7	-1.6	1.4
Unemployment rate - %	6.3	6.0	6.1	8.3	8.0
Housing starts - '000s	229	228	211	149	190
Retail sales - $B	389	412	426	415	436
Manufacturing Shipments - $B	606	602	598	494	536
90 Day T-Bill rate - %	4.03	4.15	2.39	0.35	0.59
Long Bond rate - %	4.25	4.30	3.81	3.59	3.55
C$/US$	1.13	1.07	1.07	1.14	1.03
United States					
Real GDP - % chge	2.7	1.9	0.0	-2.6	2.9
CPI - % chge	3.2	2.9	3.8	-0.4	1.7
GDP Price Deflator - % chge	3.3	2.9	2.0	1.1	1.0
90 Day T-Bill rate - %	4.73	4.35	1.37	0.15	0.13
Long Bond Rate - %	4.79	4.63	3.67	3.26	3.23
Unemployment rate - %	4.6	4.6	5.8	9.3	9.6
Prices					
Wheat - US$/tonne	216.6	300.3	451.0	300.2	312.0
Cattle - US cents/lb	86.2	93.9	93.7	84.0	95.0
Hogs - US cents/lb	64.2	65.7	66.1	58.2	75.6
Copper - US cents/lb	305.1	323.2	315.8	233.7	342.0
Nickel - US $/lb	11.0	16.9	9.6	6.7	9.9
Zinc - US cents/lb	148.6	147.5	85.1	75.1	98.1
Gold - US$/oz	604.0	696.3	872.1	972.4	1224.6
Silver - US$/oz	11.6	13.4	15.0	14.7	20.2

Reference Case Forecast
Fiscal Year Basis

MANITOBA	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	
Real GDP (% chge)	2.5	2.7	2.8	2.9	2.6	2.5	2.3	1.9	& on
CPI (% chge)	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.1	& on
Population (000's)	1,239	1,254	1,269	1,283	1,298	1,314	1,329	1,344	*
Residential Customers (000's)	448	453	458	464	470	476	482	488	*
Unemployment Rate (%)	5.1	4.5	4.4	4.4	4.4	4.3	4.2	4.2	

*for 2018/19 and beyond, see Appendix A, page A-1

CANADA	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	
Real GDP (% chge)	3.0	2.9	2.8	2.6	2.4	2.4	2.3	2.0	& on
CPI (% chge)	2.0	2.3	2.1	2.0	2.0	2.0	2.0	2.1	& on
GDP Price Deflator (% chge)	3.0	2.8	2.0	2.0	1.9	1.9	1.9	1.9	& on
90 Day T-Bill (%)	0.78	1.60	2.80	3.45	3.80	4.05	4.25	4.30	& on
Long Bond Rate (%)	3.48	3.80	4.25	4.45	4.80	5.30	5.60	5.80	& on
U.S. Exchange Rate (C$/US$)	1.02	0.98	0.99	1.03	1.05	1.06	1.06	1.06	& on
Unemployment Rate (%)	7.9	7.6	7.2	6.9	6.6	6.4	6.3	6.2	

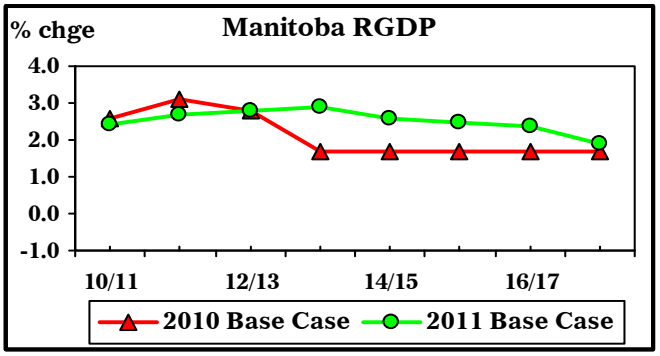
UNITED STATES	10/11	11/12	12/13	13/14	14/15	15/16	16/17	17/18	
Real GDP (% chge)	2.8	3.1	3.2	3.3	3.1	2.9	2.7	2.6	& on
CPI (% chge)	1.6	2.2	2.1	2.1	2.1	2.1	2.1	2.1	& on
GDP Price Deflator (% chge)	1.2	1.5	1.7	1.7	1.7	1.9	1.9	1.9	& on
90 Day T-Bill (%)	0.14	0.30	1.40	3.05	4.05	4.20	4.25	4.30	& on
Long Bond Rate (%)	3.18	3.75	4.20	4.85	5.25	5.60	5.60	5.60	& on
Unemployment Rate (%)	9.5	9.0	8.2	7.2	6.4	5.9	5.6	5.1	

Manitoba Hydro Key Variables
Fiscal Year Basis

Changes from Previous Forecast

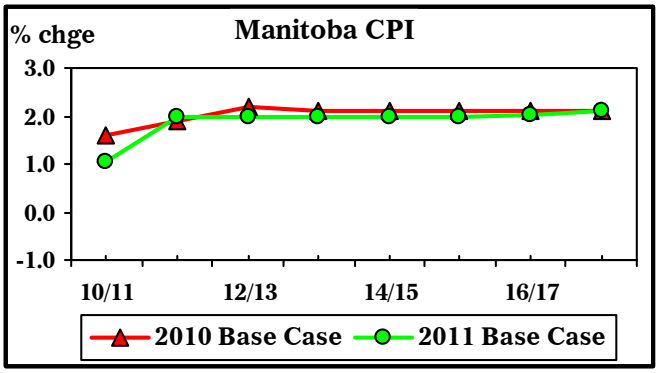
RGDP (% chge)

Fiscal Year	2010 Base Case	October 2010 Update	2011 Base Case
09/10	-0.1	n/a	0.6
10/11	2.6	n/a	2.5
11/12	3.1	n/a	2.7
12/13	2.8	n/a	2.8
13/14	1.7	n/a	2.9
14/15	1.7	n/a	2.6
15/16	1.7	n/a	2.5
16/17	1.7	n/a	2.3
17/18	1.7	n/a	1.9



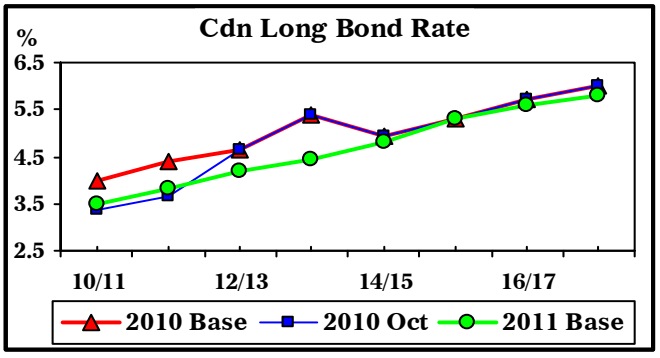
CPI – Inflation (% chge)

09/10	0.7	n/a	0.6
10/11	1.6	n/a	1.0
11/12	1.9	n/a	2.0
12/13	2.2	n/a	2.0
13/14	2.1	n/a	2.0
14/15	2.1	n/a	2.0
15/16	2.1	n/a	2.0
16/17	2.1	n/a	2.0
17/18 & on	2.1	n/a	2.1



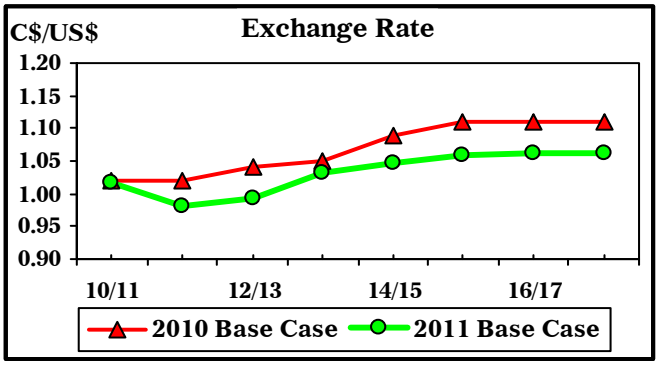
Canadian Long Bond Rate (%)

09/10	3.89	n/a	3.89
10/11	4.00	3.35	3.48
11/12	4.40	3.65	3.80
12/13	4.65	n/a	4.25
13/14	5.40	n/a	4.45
14/15	4.95	n/a	4.80
15/16	5.30	n/a	5.30
16/17	5.70	n/a	5.60
17/18 & on	6.00	n/a	5.80



Foreign Exchange (C$/US$)

09/10	1.09	n/a	1.09
10/11	1.02	n/a	1.02
11/12	1.02	n/a	0.98
12/13	1.04	n/a	0.99
13/14	1.05	n/a	1.03
14/15	1.09	n/a	1.05
15/16	1.11	n/a	1.06
16/17	1.11	n/a	1.06
17/18 & on	1.11	n/a	1.06



Forecasts of Key Economic and Financial Indicators

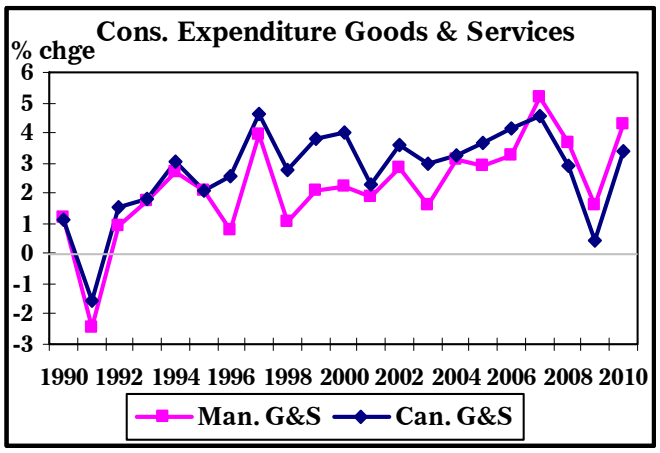
The forecasts reported in the Economic Outlook are based on a consensus view of several independent sources including Canada's primary financial institutions in addition to several other independent sources, all of which are well known and respected. For the purpose of the 2011 Economic Outlook, the forecasting sources include IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, Manitoba Bureau of Statistics, BMO Nesbitt Burns, CIBC, Royal Bank of Canada, Scotiabank, National Bank of Canada, and TD Bank.

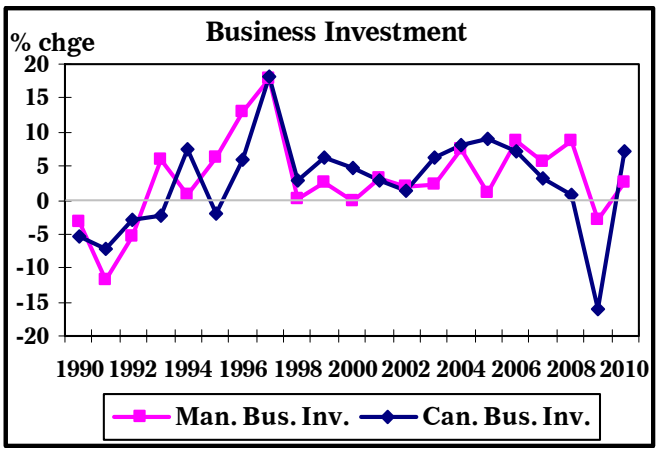
The following sections of the report provide tables, graphs, and written summaries of the data behind the forecasts for the following key economic indicators:

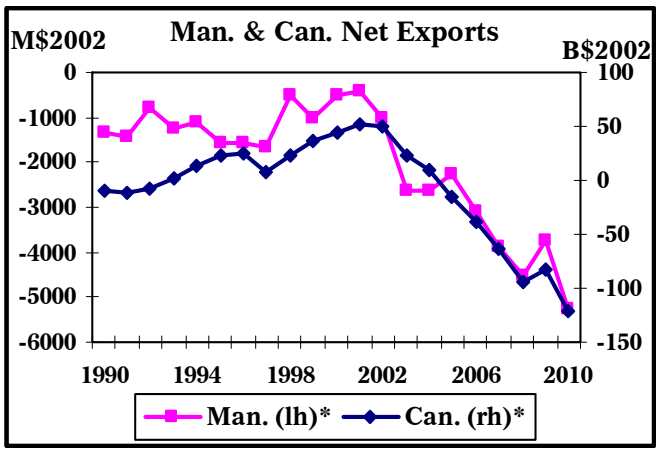
- Real Gross Domestic Product,
- Consumer Price Index and GDP Price Deflator,
- Population including Manitoba Aboriginal Population,
- Employment,
- Housing,
- Short-term and Long-term Interest Rates, and
- C$/US$ Exchange Rate.

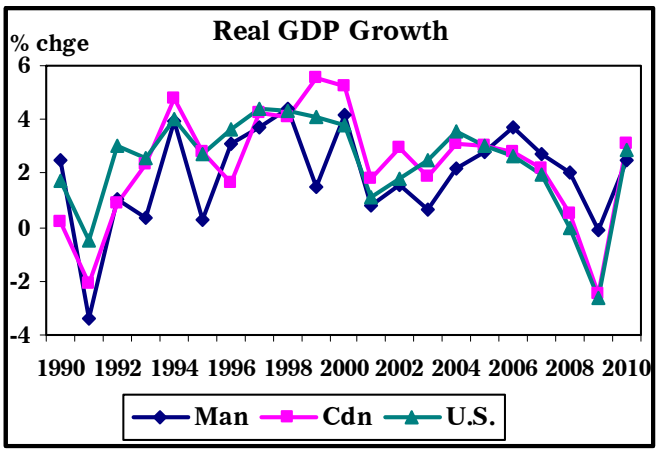
Appendix A and B of this report provide the history and forecasts for key economic indicators for Manitoba and Canada on a fiscal year basis and a calendar year basis, respectively. Appendix C provides a description and data related to economic alternative cases.

Real Gross Domestic Product









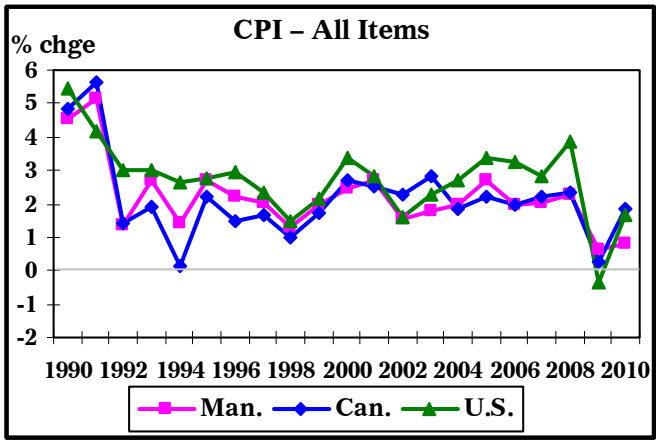
	Man.	Can.	U.S.
Consumer Expenditure Goods and Services	2.2	2.8	2.8
Government Goods and Services	1.4	1.9	1.6
Government Investment	4.8	5.0	
Business Investment	3.4	2.8	2.9
Exports	3.6	3.6	5.2
Imports	4.0	4.6	5.8
Real GDP	1.9	2.4	2.5

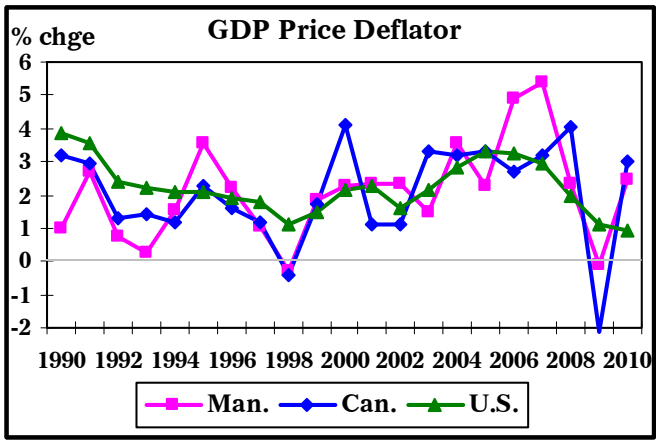
Manitoba's real GDP increased by 2.5% in 2010 compared to a revised decline of -0.1% growth in 2009. Consumption, which is 64-70% of aggregate demand, remained the key driving force in North American economies in 2010. Consumption was up 4.1% and 3.4% in Manitoba and Canada, respectively, and up by 1.7% in the U.S. In response to higher retail sales and manufacturing shipments as well as escalating corporate profits, business investments were up in 2010 with increases of 7.8% and 7.1% in Manitoba and Canada, respectively. Although ongoing problems in the U.S. housing market still persist, U.S. business investments were up 17.1%. EO2011 forecasts Manitoba's long-term real GDP to be 1.9%, 2.0% for Canada, and 2.6% for the U.S.

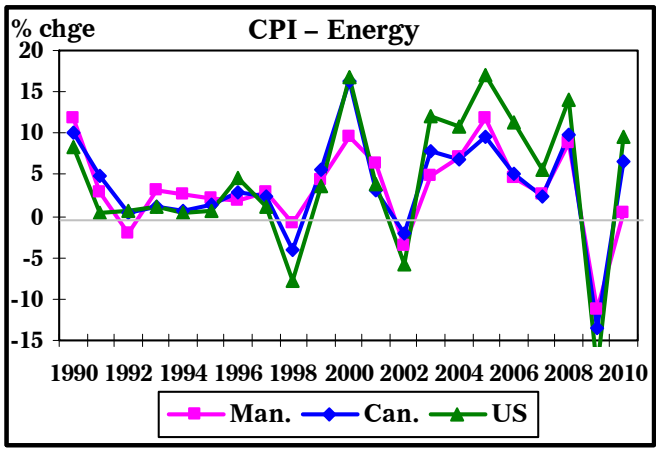
In 2010, nominal Manitoba and Canada GDP income posted increases of 5.0% and 6.2%, respectively. Higher corporate profits, as well as interest and miscellaneous investment income were responsible for the increase. U.S. nominal GDP increased 3.8% in 2010.

* lh = left hand axis and rh = right hand axis

Consumer Price Index and GDP Price Deflator





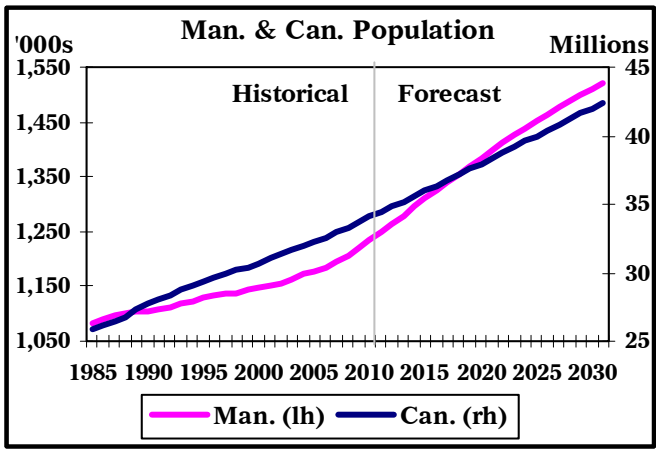


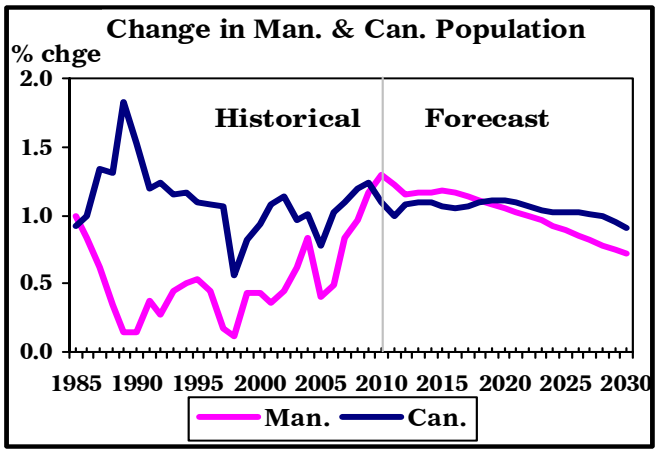
The Consumer Price Index (CPI) is based on a basket of household goods while the GDP price deflator is based on all goods produced domestically. In 2010, Manitoba and Canada CPI increased by 0.8% and 1.8%, respectively, while the U.S. CPI increased by 1.7%. Manitoba and Canadian GDP price deflators increased by 2.5% and 3.0% respectively, while the U.S. GDP price deflator increased by 1.0% in 2010. Manitoba, Canada, and U.S. energy consumer price index increased by 0.4%, 6.7%, and 9.5%, respectively, in 2010. The 2011 Economic Outlook forecasts that the Manitoba, Canada, and U.S. long-term CPI will be 2.1%. The 2011 Economic Outlook forecasts that in the long term the Manitoba and Canada GDP price deflator will be 1.7% and 2.0%, respectively, while the U.S. GDP price deflator will be 1.9% annually.

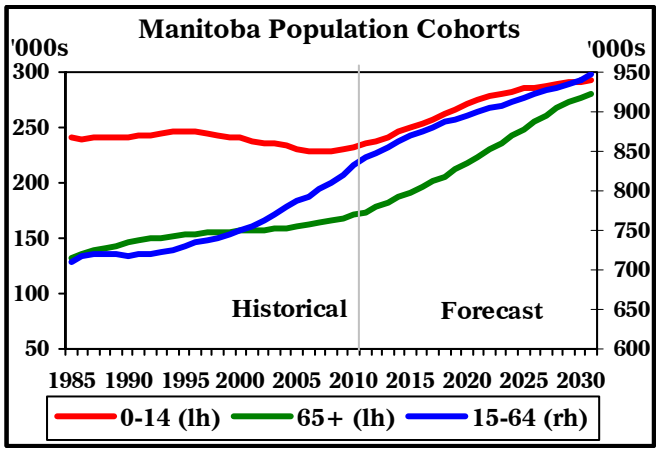
2010 Consumer Price Index
% chge

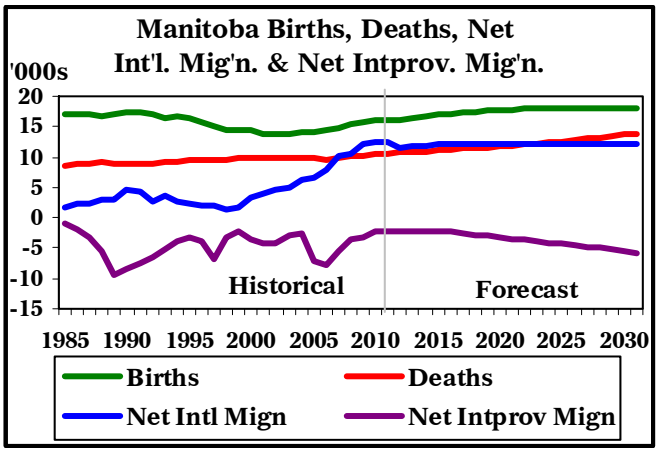
	Manitoba	Canada	U.S.
All Items – CPI	0.8	1.8	1.7
Food	0.1	1.4	0.8
Shelter	-0.2	1.4	
Household	0.1	1.4	-0.4
Clothing	-1.0	-1.9	-0.5
Transportation	2.9	4.3	7.9
Health	0.7	2.7	3.4
Recreation	1.1	0.9	-0.9
Other Deflators:			
Energy	0.4	6.7	9.5
GDP Deflator	2.5	3.0	1.0

Population









Manitoba's total population increased by 15,850 persons in 2010 or 1.3% relative to 2009. Total net migration to Manitoba was 10,303 people and the total natural increase was 5,547 in 2010.

Manitoba's population is expected to grow on average at 1.0% or 13,300 people annually over the forecast period, 5,300 people higher than the growth rate forecast in EO2010. This year's forecast assumes that the Provincial Nominee Program will continue to sustain high annual growth in immigrants. As a result, international migration is forecast to grow by 13,900 immigrants annually. Manitoba's population forecast is based on a 1.9 total fertility rate and 11,900 net international migration offset by -3,700 net interprovincial migration. This translates to population growth resulting from a natural increase of 5,100 per annum and 8,200 from net migration.

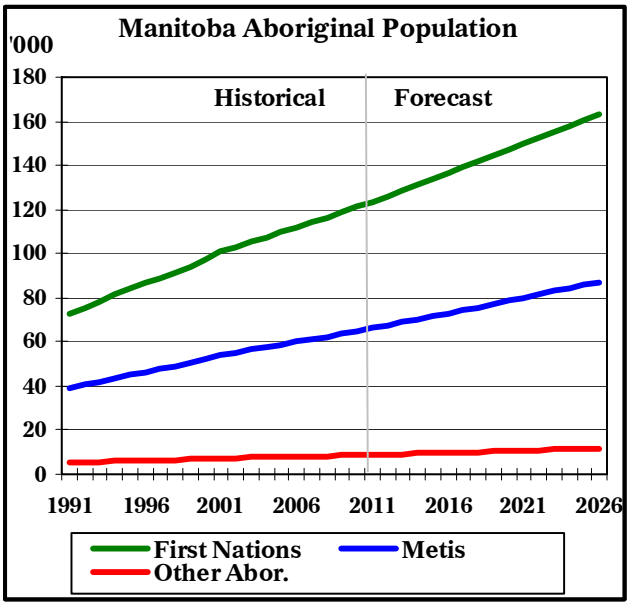
Canada's population is expected to grow on average at 1.0% or 393,000 people annually over the forecast period. The United States' population is expected to grow on average at 0.9% or 3,220,000 people annually.

Year	Mb Pop'n. 5 Yr Avg (% chge)
1960-1965	1.2
1965-1970	0.4
1970-1975	0.8
1975-1980	0.2
1980-1985	0.9
1985-1990	0.4
1990-1995	0.4
1995-2000	0.3
2000-2010	0.7
2011-2032	1.0

Year	Mb Pop'n. Changes
1992	3,085
1993	4,929
1994	5,612
1995	5,920
1996	5,046
1997	1,932
1998	1,361
1999	4,959
2000	4,865
2001	4,126
2002	5,174
2003	7,206
2004	9,747
2005	4,736
2006	5,730
2007	9,902
2008	11,584
2009	14,045
2010	15,850

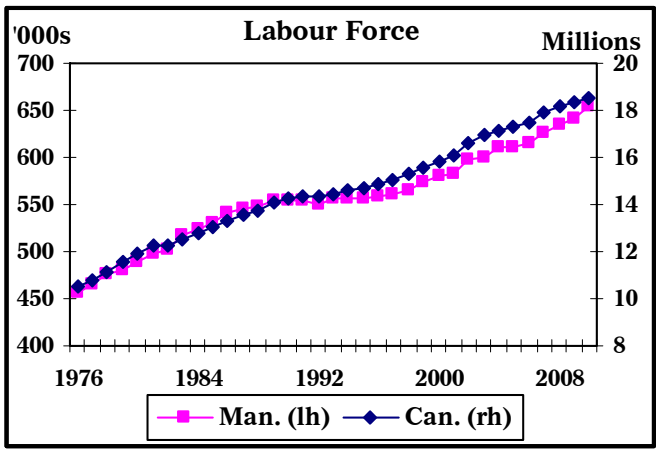
Manitoba Aboriginal Population

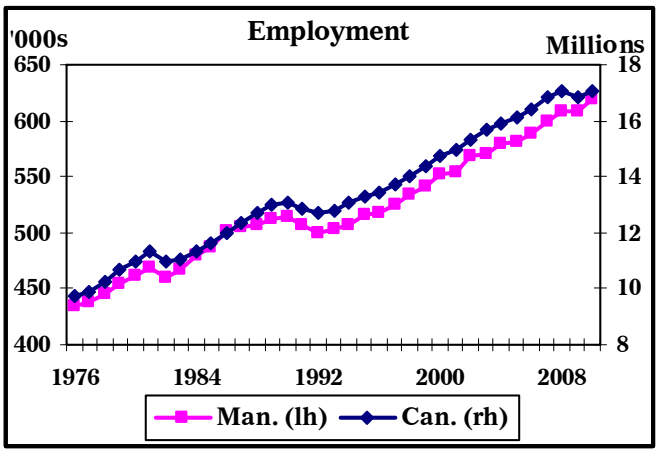
	Aborig. Pop'n. '000s	Annual Diff.	Man Pop'n. '000s	Aborig. Pop'n. Share Man Pop'n.
1997	143	3,975	1,136	12.6%
1998	146	3,090	1,137	12.9%
1999	150	4,332	1,142	13.2%
2000	157	6,078	1,147	13.7%
2001	162	5,460	1,151	14.1%
2002	166	3,583	1,157	14.4%
2003	169	3,500	1,164	14.6%
2004	173	3,600	1,174	14.8%
2005	176	3,500	1,178	15.0%
2006	180	3,600	1,184	15.3%
2007	184	3,700	1,194	15.5%
2008	187	3,700	1,206	15.7%
2009	191	3,800	1,220	15.8%
2010	195	3,900	1,235	15.8%
Forecast				
2011	199	3,900	1,250	15.9%
2012	203	4,000	1,265	16.0%
2013	207	4,000	1,280	16.2%
2014	211	4,100	1,295	16.3%
2015	215	4,200	1,310	16.4%
2016	219	4,100	1,325	16.5%
2017	223	4,200	1,340	16.7%
2018	228	4,200	1,355	16.8%
2019	232	4,200	1,370	16.9%
2020	236	4,200	1,384	17.1%
2021	240	4,300	1,398	17.2%
2022	245	4,300	1,412	17.3%
2023	249	4,400	1,426	17.5%
2024	253	4,300	1,439	17.6%
2025	258	4,400	1,452	17.8%
2026	262	4,400	1,464	17.9%

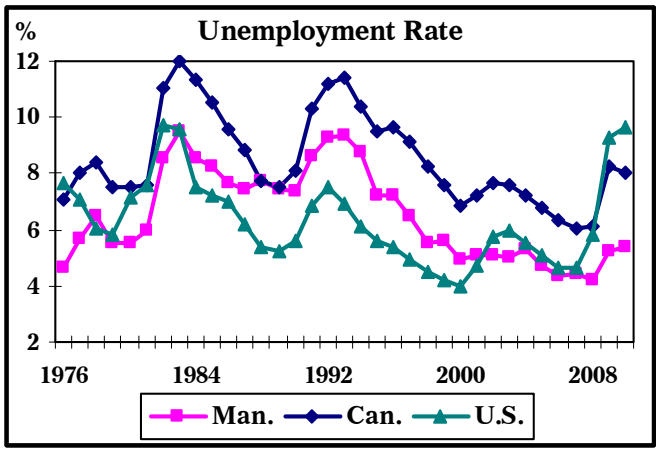


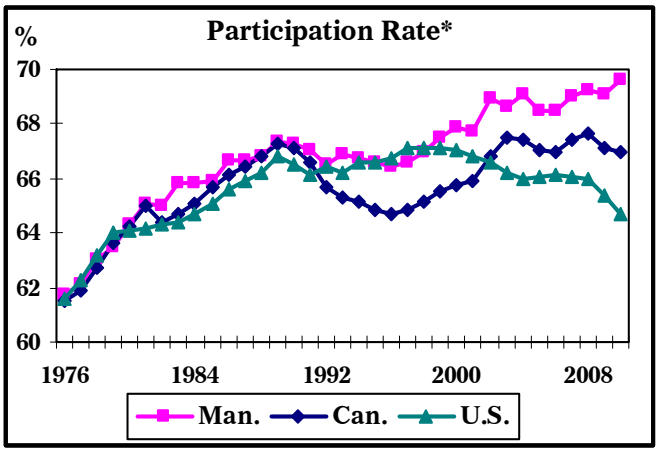
Manitoba Aboriginal population includes registered Indian, Métis (non-registered), and other Aboriginal. Total Manitoba Aboriginal population increased by 3,900 people or 2.0% in 2010. Manitoba has the second largest registered Aboriginal population in Canada, after Ontario. In EO2011, Manitoba's Aboriginal population is expected to grow at an annual rate of 1.8% or 4,300 people per year. EO2011 is based on annual growth of 2,600 registered Indians, 1,400 non-registered Métis, and 300 other Aboriginals. Manitoba's Aboriginal population share of the total Manitoba population trends from 15.8% in 2010 to 17.9% in 2026 in EO2011. In EO2010, Manitoba's Aboriginal population share of the total Manitoba population trended from 16.4% in 2009 to 19.8% in 2026. Total Manitoba Aboriginal population is expected to increase mainly due to a higher projected fertility rate relative to the rest of the Manitoba population. The Aboriginal population forecast is based on the Manitoba Bureau of Statistics' publication *Manitoba's Aboriginal Community: A 2001 to 2026 Population and Demographic Model*.

Employment







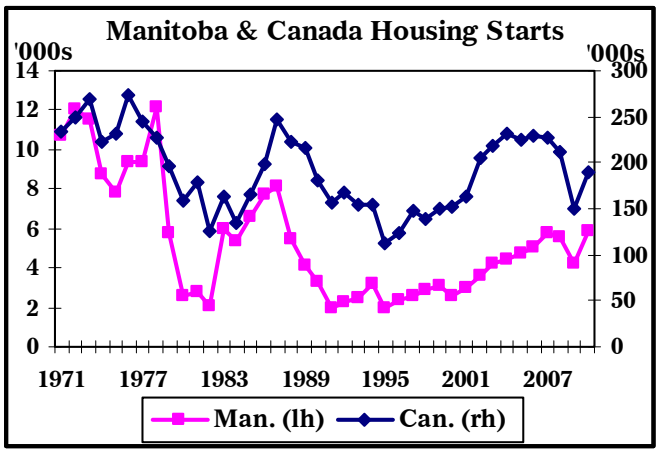


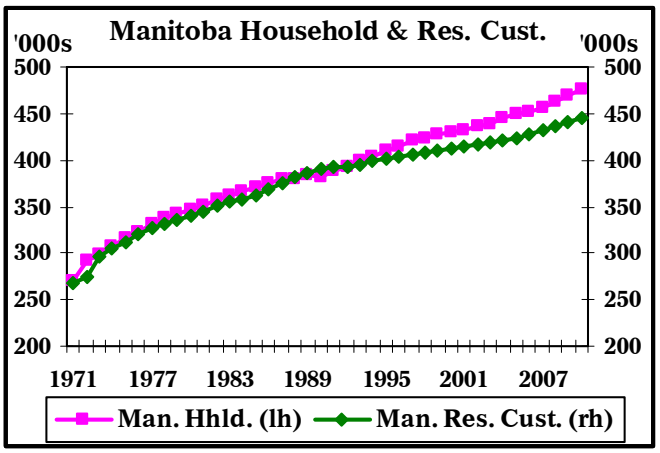
*Participation Rate = Labour Force/Popn 15+

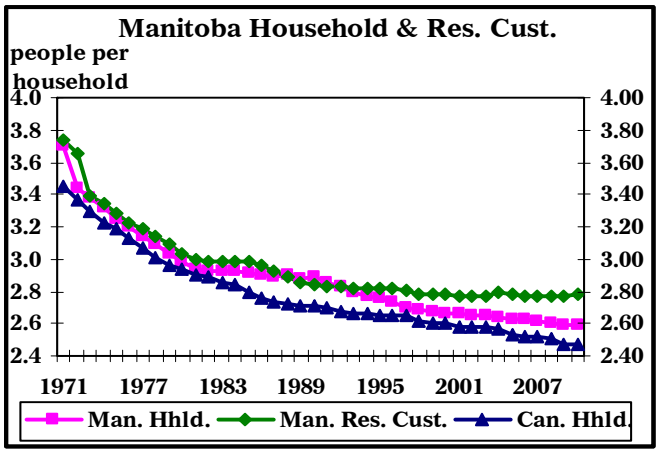
	Manitoba			Canada			United States		
	2000	2010	% chge 10/09	2000	2010	% chge 10/09	2000	2010	% chge 10/09
Population 15+ – '000s	856	941	1.3	24,090	27,659	1.3	212,575	237,829	0.9
Participation Rate - %	67.9	69.6		65.8	67.0		67.1	64.7	
Labour Force – '000s	581	655	2.0	15,842	18,525	1.1	142,586	153,893	-0.2
Employment – '000s	552	620	1.9	14,760	17,041	1.4	136,901	139,069	-0.6
Unemployment Rate – %	4.9	5.4		6.8	8.0		4.0	9.6	
Employment Rate – %	64.5	65.9		61.3	61.6		64.4	58.5	
Industrial Weekly Wage – $	588	787	1.9	656	853	3.6	480	636	3.1

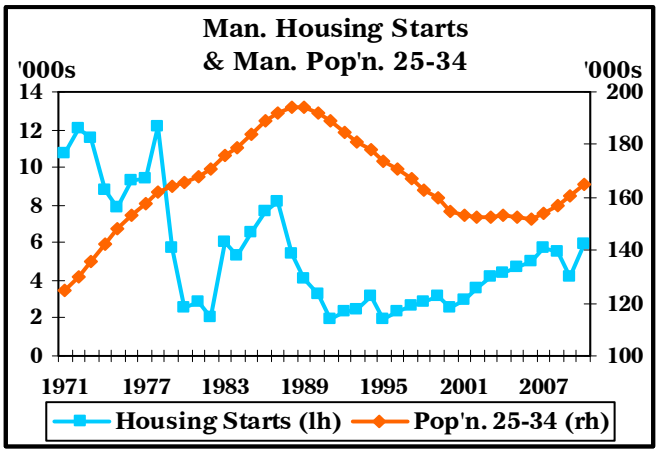
Over the 2011-2032 period, Manitoba's and Canada's employment levels are forecast to grow annually at 1.0% and 0.8% respectively, while the United States' is anticipated to grow at 0.8% annually. Manitoba's unemployment rate is expected to trend from 4.5% in 2011 to 4.1% in 2032. Canada's unemployment rate is expected to trend from 7.6% in 2011 to 6.0% in 2032. The United States' unemployment rate is expected to trend from 9.2% in 2011 to 5.1% in 2032.

Housing









	Man. Housing Starts	Man. Res. Cust. '000s	Can. Housing Starts '000s
1994	3,197	398	154
1995	1,963	401	113
1996	2,318	403	123
1997	2,612	405	148
1998	2,895	408	138
1999	3,133	410	149
2000	2,560	413	153
2001	2,963	415	163
2002	3,617	417	205
2003	4,206	420	219
2004	4,440	421	233
2005	4,731	423	224
2006	5,028	427	229
2007	5,738	431	228
2008	5,537	436	211
2009	4,174	441	149
2010	5,888	445	190

Total Manitoba housing starts were 5,888 in 2010, up from 4,174 units in 2009. Strong population and employment growth, rising wages, and low mortgage rates were the driving force behind the demand for housing in 2010, which was the highest level in 23 years. EO2011 forecasts that Manitoba housing starts will increase at approximately 7,400 units annually in the longer term. The forecasted annual population growth rate in Manitoba of 13,300 people in EO2011 is 5,300 people higher than the growth rate forecast in EO2010 and is the main driver in the increased housing starts.

The number of Manitoba Hydro metered residential customers increased by 4,106 units in 2010 relative to 2009. EO2011 forecasts that Manitoba residential customers will increase by 5,400 units or 1.1% annually over the 2011-2032 period, up 1,300 units annually from EO2010.

Interest Rates

Canadian Interest Rates

	2010 Average %	12 Month Low %	12 Month High %
90 Day T-Bill Rate	0.59	0.20	0.99
Prime Rate	2.60	2.25	3.00
Govt 10-30 Rate	3.55	3.13	3.90

U.S. Interest Rates

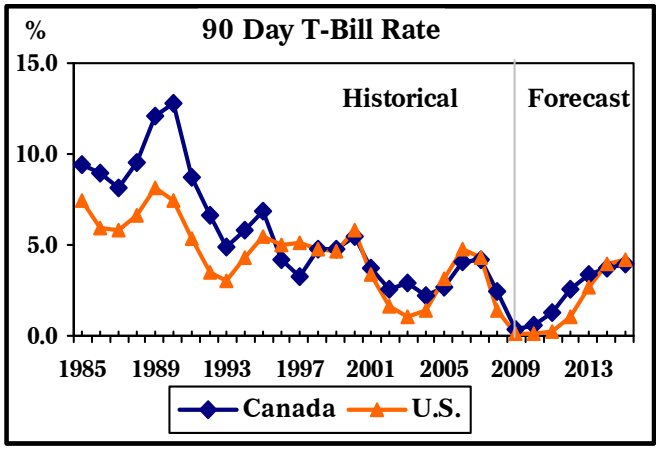
	2010 Average %	12 Month Low %	12 Month High %
90 Day T-Bill Rate	0.13	0.05	0.18
Prime Rate	3.25	3.25	3.25
Govt 10 Yr Rate	3.23	2.56	3.83

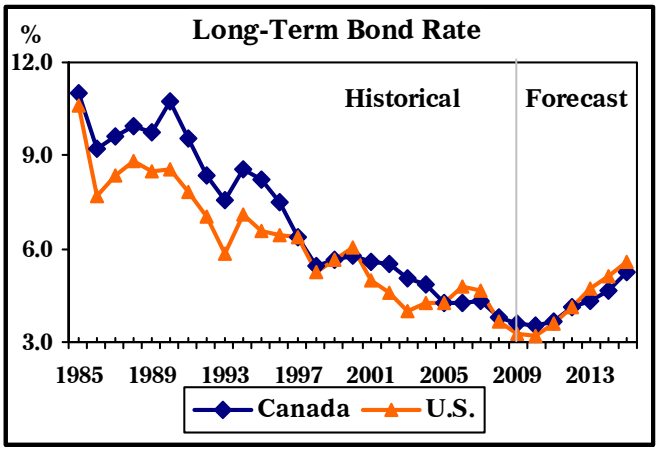
Short-Term Interest Spread

	Cdn. 90 Day T-Bill Rate %	U.S. 90 Day T-Bill Rate %	Spread %
1980	12.79	11.61	1.18
1990	12.81	7.49	5.32
2000	5.49	5.82	-0.33
2010	0.59	0.14	0.46

Long-Term Interest Spread

	Cdn. GOC 10-30 Yr Rate %	U.S. Long Bond 10 Yr Rate %	Spread %
1980	12.48	11.46	1.02
1990	10.73	8.55	2.18
2000	5.80	6.03	-0.23
2010	3.55	3.23	0.32





In 2010, the Bank of Canada maintained its stimulative monetary policy during the first half of the year. The Bank of Canada raised the overnight rate twice in 2010, once in July and again in September. As a result, the 90 Day T-Bill rate increased from 0.35% in 2009 to 0.59% in 2010, while the 10-30 Yr bond rate dropped from 3.77% to 3.55% over the same period.

Canadian 90 Day T-Bill rates are forecast to trend from 1.30% in 2011 to 4.30% in the long term. The U.S. 90 Day T-Bill rate is expected to trend from 0.20% in 2011 to 4.30% in the long term. Canada and U.S. 10 Yr+ long bond rates are forecast to trend at 5.80% and 5.60%, respectively. The positive spread in Canadian–U.S. T-Bill rates of 0.46% in 2010 is expected to decline to zero over the forecast period. The positive spread in Canadian-U.S. long bond rates of 0.32 in 2010 is expected to decline to 0.20 over the forecast period.

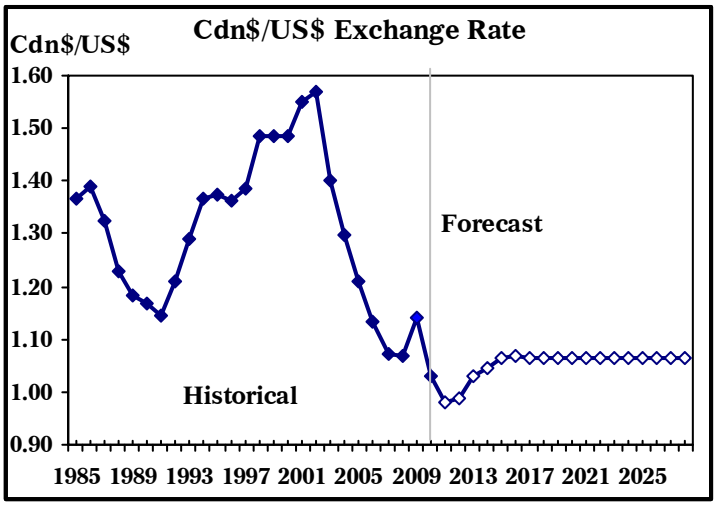
Exchange Rate

Exchange Rate

Year	US$/ Cdn.$	Cdn.$/ US$
1970	0.96	1.04
1975	0.98	1.02
1980	0.86	1.17
1985	0.73	1.37
1990	0.86	1.17
1995	0.73	1.37
1996	0.73	1.36
1997	0.72	1.38
1998	0.67	1.48
1999	0.67	1.49
2000	0.67	1.49
2001	0.65	1.55
2002	0.64	1.57
2003	0.71	1.40
2004	0.77	1.30
2005	0.83	1.21
2006	0.88	1.13
2007	0.93	1.07
2008	0.94	1.07
2009	0.88	1.14
2010	0.97	1.03
2011	1.02	0.98
2020	0.94	1.06
2031	0.94	1.06

Range in Exchange Rate

	2010 Average	12 Month Low	12 Month High
Cdn. $/US $	1.03	1.06	1.01
US $/Cdn. $	0.97	0.95	0.99



The Canadian dollar appreciated relative to the U.S. dollar by 10.8% in 2010 relative to 2009. Rising commodity prices, including oil, are the main factors behind the stronger Canadian dollar in 2010. It has appreciated over 52% since 2002, when it was at its lowest historic value relative to the U.S. dollar.

The Canadian dollar is expected to continue to appreciate during 2011 to an annual average of 0.98 Cdn$/US$ in 2011 and depreciate to 0.99 Cdn$/US$ in 2012. It is expected to further depreciate to 1.06 Cdn$/US$ in 2015, and then stabilize at that level for the remainder of the forecast period.

Appendix A

Manitoba/Canada Economic Statistics
Fiscal Year Basis

Year	Man. Real GDP % chge	Man. CPI % chge	Man. Popu-lation '000s	Man. Residential Customers '000s	Cdn. Real GDP % chge	Cdn. CPI % chge	90 Day T-Bill Rate %	Cdn Long Bond Rate %	C$/ US$
1986/87	0.5	4.3	1,093	371	2.3	4.1	8.06	8.86	1.37
1987/88	1.0	4.1	1,099	378	5.0	4.4	8.47	9.90	1.31
1988/89	0.3	4.4	1,103	383	4.4	4.1	10.29	10.11	1.21
1989/90	2.6	4.7	1,104	386	2.2	5.2	12.37	9.77	1.18
1990/91	1.0	5.0	1,106	389	-1.0	5.0	12.07	10.59	1.16
1991/92	-2.3	3.8	1,110	391	-1.0	4.4	8.03	9.29	1.15
1992/93	0.9	1.9	1,114	393	1.1	1.6	6.25	8.18	1.23
1993/94	1.3	2.4	1,119	396	2.8	1.5	4.46	7.39	1.31
1994/95	3.0	1.6	1,125	398	5.1	0.4	6.46	8.95	1.38
1995/96	1.0	2.5	1,130	400	1.8	2.1	6.17	7.93	1.36
1996/97	3.2	2.5	1,135	402	2.4	1.7	3.67	7.28	1.36
1997/98	3.9	1.5	1,136	405	4.5	1.4	3.63	6.06	1.40
1998/99	3.6	1.5	1,139	406	4.1	0.9	4.81	5.35	1.50
1999/00	2.1	2.2	1,144	408	5.8	2.2	4.82	5.69	1.47
2000/01	3.3	2.5	1,148	410	4.6	2.7	5.42	5.66	1.50
2001/02	1.0	2.1	1,153	413	1.5	2.2	3.09	5.91	1.57
2002/03	1.4	2.3	1,158	415	3.1	3.0	2.79	5.41	1.55
2003/04	1.1	0.9	1,166	419	1.7	1.9	2.67	4.97	1.35
2004/05	2.3	2.7	1,175	422	3.5	2.2	2.31	4.81	1.28
2005/06	3.0	2.4	1,180	426	3.2	2.3	3.02	4.17	1.19
2006/07	3.5	2.0	1,186	430	2.2	1.9	4.16	4.23	1.14
2007/08	2.5	1.9	1,197	434	2.3	2.1	3.83	4.24	1.03
2008/09	1.5	2.2	1,209	440	-0.5	2.2	1.84	3.66	1.13
2009/10	0.6	0.6	1,224	444	-1.1	0.4	0.22	3.89	1.09
2010/11	2.5	1.0	1,239	448	3.0	2.0	0.78	3.48	1.02
Forecast									
2011/12	2.7	2.0	1,254	453	2.9	2.3	1.60	3.80	0.98
2012/13	2.8	2.0	1,269	458	2.8	2.1	2.80	4.25	0.99
2013/14	2.9	2.0	1,283	464	2.6	2.0	3.45	4.45	1.03
2014/15	2.6	2.0	1,298	470	2.4	2.0	3.80	4.80	1.05
2015/16	2.5	2.0	1,314	476	2.4	2.0	4.05	5.30	1.06
2016/17	2.3	2.0	1,329	482	2.3	2.0	4.25	5.60	1.06
2017/18	1.9	2.1	1,344	488	2.0	2.1	4.30	5.80	1.06
2018/19	1.9	2.1	1,359	494	2.0	2.1	4.30	5.80	1.06
2019/20	1.9	2.1	1,373	500	2.0	2.1	4.30	5.80	1.06
2020/21	1.9	2.1	1,388	505	2.0	2.1	4.30	5.80	1.06
2021/22	1.9	2.1	1,402	511	2.0	2.1	4.30	5.80	1.06
2022/23	1.9	2.1	1,416	517	2.0	2.1	4.30	5.80	1.06
2023/24	1.9	2.1	1,429	522	2.0	2.1	4.30	5.80	1.06
2024/25	1.9	2.1	1,442	528	2.0	2.1	4.30	5.80	1.06
2025/26	1.9	2.1	1,455	533	2.0	2.1	4.30	5.80	1.06
2026/27	1.9	2.1	1,467	538	2.0	2.1	4.30	5.80	1.06
2027/28	1.9	2.1	1,479	543	2.0	2.1	4.30	5.80	1.06
2028/29	1.9	2.1	1,490	548	2.0	2.1	4.30	5.80	1.06
2029/30	1.9	2.1	1,501	553	2.0	2.1	4.30	5.80	1.06
2030/31	1.9	2.1	1,512	557	2.0	2.1	4.30	5.80	1.06
2031/32	1.9	2.1	1,522	562	2.0	2.1	4.30	5.80	1.06

Appendix B

Manitoba/Canada Economic Statistics
Calendar Year Basis

Year	Man. Real GDP % chge	Man. CPI % chge	Man. Popu-lation '000s	Man. Residential Customers '000s	Cdn. Real GDP % chge	Cdn. CPI % chge	90 Day T-Bill Rate %	Cdn Long Bond Rate %	C$/ US$
1986	0.2	4.4	1,092	368	2.4	4.1	8.97	9.21	1.39
1987	1.5	4.2	1,098	376	4.3	4.4	8.15	9.62	1.33
1988	-0.5	4.2	1,102	382	5.0	3.9	9.48	9.94	1.23
1989	2.7	4.7	1,104	387	2.6	5.1	12.05	9.73	1.18
1990	2.5	4.5	1,105	390	0.2	4.8	12.81	10.73	1.17
1991	-3.4	5.1	1,110	392	-2.1	5.6	8.73	9.57	1.15
1992	1.0	1.4	1,113	394	0.9	1.4	6.58	8.37	1.21
1993	0.4	2.7	1,118	396	2.3	1.9	4.84	7.54	1.29
1994	3.9	1.4	1,123	398	4.8	0.1	5.78	8.56	1.37
1995	0.3	2.7	1,129	401	2.8	2.2	6.89	8.24	1.37
1996	3.1	2.2	1,134	403	1.6	1.5	4.21	7.48	1.36
1997	3.7	2.0	1,136	405	4.2	1.7	3.26	6.39	1.38
1998	4.4	1.3	1,137	408	4.1	1.0	4.73	5.44	1.48
1999	1.5	2.0	1,142	410	5.5	1.8	4.72	5.64	1.49
2000	4.2	2.5	1,147	413	5.2	2.7	5.49	5.80	1.49
2001	0.8	2.7	1,151	415	1.8	2.5	3.77	5.63	1.55
2002	1.6	1.5	1,157	417	2.9	2.2	2.59	5.25	1.57
2003	0.7	1.8	1,164	420	1.9	2.8	2.87	5.09	1.40
2004	2.2	2.0	1,174	421	3.1	1.8	2.22	4.87	1.30
2005	2.8	2.7	1,178	423	3.0	2.2	2.73	4.16	1.21
2006	3.7	2.0	1,184	427	2.8	2.0	4.03	4.13	1.13
2007	2.7	2.0	1,194	431	2.2	2.2	4.15	4.29	1.07
2008	2.1	2.3	1,206	436	0.5	2.3	2.39	3.84	1.07
2009	-0.1	0.6	1,220	441	-2.5	0.3	0.35	3.77	1.14
2010	2.5	0.8	1,235	445	3.1	1.8	0.59	3.55	1.03
Forecast									
2011	2.7	2.0	1,250	451	2.9	2.4	1.30	3.70	0.98
2012	2.7	2.0	1,265	456	2.8	2.2	2.60	4.15	0.99
2013	3.0	2.0	1,280	462	2.7	2.0	3.35	4.35	1.03
2014	2.6	2.0	1,295	468	2.4	2.0	3.75	4.65	1.04
2015	2.5	2.0	1,310	474	2.4	2.0	4.00	5.25	1.06
2016	2.5	2.0	1,325	480	2.4	2.0	4.20	5.50	1.06
2017	1.9	2.1	1,340	486	2.0	2.1	4.30	5.80	1.06
2018	1.9	2.1	1,355	492	2.0	2.1	4.30	5.80	1.06
2019	1.9	2.1	1,370	498	2.0	2.1	4.30	5.80	1.06
2020	1.9	2.1	1,384	503	2.0	2.1	4.30	5.80	1.06
2021	1.9	2.1	1,398	509	2.0	2.1	4.30	5.80	1.06
2022	1.9	2.1	1,412	515	2.0	2.1	4.30	5.80	1.06
2023	1.9	2.1	1,426	520	2.0	2.1	4.30	5.80	1.06
2024	1.9	2.1	1,439	525	2.0	2.1	4.30	5.80	1.06
2025	1.9	2.1	1,452	531	2.0	2.1	4.30	5.80	1.06
2026	1.9	2.1	1,464	536	2.0	2.1	4.30	5.80	1.06
2027	1.9	2.1	1,476	540	2.0	2.1	4.30	5.80	1.06
2028	1.9	2.1	1,487	545	2.0	2.1	4.30	5.80	1.06
2029	1.9	2.1	1,499	550	2.0	2.1	4.30	5.80	1.06
2030	1.9	2.1	1,509	554	2.0	2.1	4.30	5.80	1.06
2031	1.9	2.1	1,520	559	2.0	2.1	4.30	5.80	1.06
2032	1.9	2.1	1,530	563	2.0	2.1	4.30	5.80	1.06

Appendix C

Economic Alternative Cases

Two alternative economic cases have been developed for the purpose of testing the robustness of major projects or of long-term development plans. The two cases differ from the reference case where one assumes more government stimulus spending (quantitative easing) while the other assumes deficit cutting (austerity). Each of the cases – 1) inflationary or higher economic growth and 2) deflationary or lower economic growth – represents an integrated outlook in which significant but plausible changes in the economic environment could impact Manitoba Hydro's plans.

The reference case represents the best view of the long-term trend in a collection of integrated economic and financial indicators. It is expected that year to year changes and fluctuations of individual variables will occur but the long-term relationships are expected to follow the reference case. The alternative cases are intended to bracket the reference case economic environment with a plausible range of outcomes.

The reference case assumptions in the 2011 Economic Outlook are considered to be anchored to the U.S. Congressional Budget Office's (CBO) *Extended Baseline Scenario* of U.S. debt-to-GDP ratio. The reference case focuses on the continuation of current laws, policies, and trends. It assumes that the U.S. Federal Reserve Board has the ability to effectively and efficiently manage the monetary environment. It recognizes that the U.S. debt-to-GDP ratio may be reaching unsustainable levels, but assumes that there will be sufficient future tradeoffs between world economic growth, U.S. government revenue, and U.S. government spending so as to allow the U.S. economic system to return to equilibrium. The resultant assumptions associated with Canada reflect the response to the U.S. economic environment.

The alternative economic cases have also been developed by considering the CBO's forecast of U.S. Debt to GDP ratio using its *Alternative Fiscal Scenario*. The alternative economic cases focus on U.S. actions to deal with an anticipated fiscal crisis. The inflationary or higher economic growth case focuses on a strong response to a fiscal crisis while the deflationary or lower economic growth case focuses on a weak response.

Inflationary – Higher Economic Growth Case

In this case, the high and growing U.S. debt-to-GDP ratio is assumed to cause some form of sovereign debt crisis for the United States. The empirical evidence regarding the effect of government fiscal imbalances on interest rates is mixed, but the spread between long and short-term interest rates has been shown to be positively correlated with government indebtedness. Moreover, a common finding is that expected fiscal deficits, as opposed to actual ones, have an effect on long-term interest rates on government bonds. There is also evidence that interest rate effects are non-linear and tend to be greater at higher levels of indebtedness.

As the risk premium that investors demand for holding U.S. assets rises, U.S. interest rates would be forced higher. Recognizing the danger on future economic output posed by higher domestic interest rates, the U.S. Federal Reserve Board takes aggressive actions to increase the money supply – implementing existing or as yet un-contemplated measures of quantitative easing.

This new liquidity has the effect of lowering real interest rates on both short and long-term debt and boosting lending. Lower real interest rates positively impact consumer spending and business investment which result in higher economic output, lower unemployment, and increasing labour productivity. The existing poor fiscal position along with lower real interest rates would decrease the exchange value of the U.S. dollar, improving domestic export

opportunities, but causing the cost of imports to increase. These factors would combine to cause higher domestic inflation. Rising inflation erodes the real value of the debt held by creditors. In fact, higher inflation is recognized as one of the four basic mechanisms through which nations can reduce their debt/GDP ratio.

This inflationary, higher economic output environment would be characterized by generally higher costs for all capital and labour inputs. It is expected that higher energy and electricity demand would be other characteristics in this environment, leading, over the medium-term, to higher prices for primary and intermediate energy forms. The ultimate impact on energy prices over the long term is indeterminate, but history would suggest that high energy prices cannot be associated with high economic growth over the long term. The development of new efficient technologies and substitutes on both the supply and demand side of the energy equation is fundamentally related to the commodity business investment cycle.

Furthermore, it is likely that the political environment in an inflationary, higher economic growth environment would be more amenable (than a recessionary environment) to the development of environmental legislation, specifically the addition of some externality cost based on fuel carbon content.

Deflationary – Lower Economic Growth Case

In this case, the high and growing U.S. debt-to-GDP ratio is assumed to cause some form of sovereign debt crisis for the United States. However, in this case it is assumed that the U.S. Federal Reserve Board limits actions to increase the money supply.

As the risk premium that investors demand for holding U.S. assets rises, U.S. interest rates would be forced higher. This new illiquidity has the effect of raising real interest rates on both short and long-term debt. Higher real interest rates would negatively impact consumer spending and business investment which result in higher unemployment and decreasing labour productivity. The declining fiscal position along with higher real interest rates would increase the exchange value of the U.S. dollar, reducing domestic export opportunities and further impacting potential economic growth. These factors would combine to cause lower domestic inflation. With current and/or reference case forecast domestic inflation at near zero levels, it is assumed that the U.S. economy would be characterized by a mild deflation similar to the 10-20 year experience of Japan. A process of mild price deflation would result in further real interest rate increases and would have a worsening effect on the U.S. debt/GDP ratio.

This deflationary, lower economic output environment would be characterized by generally lower costs for all capital and labour inputs. It is expected that lower energy and electricity demand would be other characteristics in this environment, leading, over the medium-term, to lower prices for primary and intermediate energy forms. The ultimate impact on energy prices over the long term is indeterminate, but history would suggest that low energy prices cannot be sustained over the long term any more than high energy prices. Necessary long-term investments on both the supply and demand side of the energy equation would be hampered, ultimately leading to higher prices over the long term.

In this alternative case, it is likely that the political environment in a deflationary, lower economic growth environment would be less amenable to the development of environmental legislation.

Application of Economic Alternative Cases

Forecasts of several key economic and financial indicators are provided for the two alternative cases in the table that follows. The longer term reference case assumptions are provided for comparison purposes. The alternative case assumptions are meant to reflect a change in the economic environment relative to the reference case in the longer term, at least five years out in time. In assessing the robustness of a project or plan, the alternative case assumptions should be applied for a period of approximately ten consecutive years during a critical period for the project or development plan.

The alternative cases consider the inter-relationships of key economic and financial variables in addition to other key planning assumptions such as load forecast, electricity export prices and fuel prices. Testing a plan with an integrated set of assumptions is more meaningful and realistic than solely assessing the impact of a single variable (sensitivity analysis). The alternative cases are intended to bracket the reference case economic environment with a plausible range of outcomes.

Economic Alternative Cases

Indicator	Reference	Inflationary: Higher Economic Growth	Deflationary: Lower Economic Growth
CAN CPI, %	**2.1**	**4.0**	**0.5**
U.S. CPI, %	**2.1**	**5.0**	**-0.5**
Cdn. 10 Yr+ Long Bond Rate, %	**5.80**	**7.25**	**5.25**
U.S. 10 Yr+ Long Bond Rate, %	**5.65**	**7.50**	**4.75**
Cdn. 90 Day T-Bill Rate, %	**4.30**	**5.75**	**3.75**
U.S. 90 Day T-Bill Rate, %	**4.30**	**6.00**	**3.25**
CAD/USD Exchange Rate	**1.06**	**0.90**	**1.00**

Fall 2011 Update to Appendix A of the 2011 Economic Outlook, 2011-2032

MANITOBA / CANADA ECONOMIC STATISTICS

Year	Man. Real GDP % chge	Man. CPI % chge	Man. Popu-lation '000s	Man. Residential Customers '000s	Cdn. Real GDP % chge	Cdn. CPI % chge	90 Day T-Bill Rate %	Cdn Long Bond Rate %	C$/ US$
1986/87	0.5	4.3	1,093	371	2.3	4.1	8.06	8.86	1.37
1987/88	1.0	4.1	1,099	378	5.0	4.4	8.47	9.90	1.31
1988/89	0.3	4.4	1,103	383	4.4	4.1	10.29	10.11	1.21
1989/90	2.6	4.7	1,104	386	2.2	5.2	12.37	9.77	1.18
1990/91	1.0	5.0	1,106	389	-1.0	5.0	12.07	10.59	1.16
1991/92	-2.3	3.8	1,110	391	-1.0	4.4	8.03	9.29	1.15
1992/93	0.9	1.9	1,114	393	1.1	1.6	6.25	8.18	1.23
1993/94	1.3	2.4	1,119	396	2.8	1.5	4.46	7.39	1.31
1994/95	3.0	1.6	1,125	398	5.1	0.4	6.46	8.95	1.38
1995/96	1.0	2.5	1,130	400	1.8	2.1	6.17	7.93	1.36
1996/97	3.2	2.5	1,135	402	2.4	1.7	3.67	7.28	1.36
1997/98	3.9	1.5	1,136	405	4.5	1.4	3.63	6.06	1.40
1998/99	3.6	1.5	1,139	406	4.1	0.9	4.81	5.35	1.50
1999/00	2.1	2.2	1,144	408	5.8	2.2	4.82	5.69	1.47
2000/01	3.3	2.5	1,148	410	4.6	2.7	5.42	5.66	1.50
2001/02	1.0	2.1	1,153	413	1.5	2.2	3.09	5.91	1.57
2002/03	1.4	2.3	1,158	415	3.1	3.0	2.79	5.41	1.55
2003/04	1.1	0.9	1,166	419	1.7	1.9	2.67	4.97	1.35
2004/05	2.3	2.7	1,175	422	3.5	2.2	2.31	4.81	1.28
2005/06	3.0	2.4	1,180	426	3.2	2.3	3.02	4.17	1.19
2006/07	3.5	2.0	1,186	430	2.2	1.9	4.16	4.23	1.14
2007/08	2.5	1.9	1,197	434	2.3	2.1	3.83	4.24	1.03
2008/09	1.5	2.2	1,209	440	-0.4	2.2	1.84	3.66	1.13
2009/10	0.6	0.6	1,224	444	-1.6	0.4	0.22	3.89	1.09
2010/11	2.5	1.0	1,239	448	3.4	2.0	0.78	3.48	1.02
Forecast									
2011/12	2.7	2.0	1,254	453	2.9	2.7	0.92	2.86	0.98
2012/13	2.8	2.0	1,269	458	2.8	1.9	1.25	2.94	0.99
2013/14	2.9	2.0	1,283	464	2.6	2.1	2.19	3.42	0.99
2014/15	2.6	2.0	1,298	470	2.4	2.0	3.80	4.80	1.05
2015/16	2.5	2.0	1,314	476	2.4	2.0	4.05	5.30	1.06
2016/17	2.3	2.0	1,329	482	2.3	2.0	4.25	5.60	1.06
2017/18	1.9	2.1	1,344	488	2.0	2.1	4.30	5.80	1.06
2018/19	1.9	2.1	1,359	494	2.0	2.1	4.30	5.80	1.06
2019/20	1.9	2.1	1,373	500	2.0	2.1	4.30	5.80	1.06
2020/21	1.9	2.1	1,388	505	2.0	2.1	4.30	5.80	1.06
2021/22	1.9	2.1	1,402	511	2.0	2.1	4.30	5.80	1.06
2022/23	1.9	2.1	1,416	517	2.0	2.1	4.30	5.80	1.06
2023/24	1.9	2.1	1,429	522	2.0	2.1	4.30	5.80	1.06
2024/25	1.9	2.1	1,442	528	2.0	2.1	4.30	5.80	1.06
2025/26	1.9	2.1	1,455	533	2.0	2.1	4.30	5.80	1.06
2026/27	1.9	2.1	1,467	538	2.0	2.1	4.30	5.80	1.06
2027/28	1.9	2.1	1,479	543	2.0	2.1	4.30	5.80	1.06
2028/29	1.9	2.1	1,490	548	2.0	2.1	4.30	5.80	1.06
2029/30	1.9	2.1	1,501	553	2.0	2.1	4.30	5.80	1.06
2030/31	1.9	2.1	1,512	557	2.0	2.1	4.30	5.80	1.06
2031/32	1.9	2.1	1,522	562	2.0	2.1	4.30	5.80	1.06