Economic Outlook

2012 – 2033

Manitoba Hydro

**Economic Analysis
Department
Spring, 2012
EO12-1**

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Preface

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, several financial and banking institutions such as BMO Nesbitt Burns, CIBC, Desjardins, Laurentian, 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 perform risk assessment analyses as necessary.

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 2011, Manitoba, Canada, and U.S. **real GDP** growth rate declined relative to 2010 yet still resulted in positive growth in those economies over the past year.

In 2011, Manitoba, Canada, and U.S. **CPI** increased by 3.0%, 2.9%, and 3.1% respectively. These inflation rates are significantly higher than those experienced over the previous year-to-year.

All three economies' **population** and **employment rates** stabilized in 2011 relative to 2010. Manitoba's **unemployment rate** remained at 5.4% in 2011 for a second year in a row. Both Canada's and U.S.'s unemployment rate experienced a decline in 2011 relative to 2010.

Although the Canadian and U.S. short-term interest rates (**90 Day T-Bill rate**) remain historically low, the Canadian rate increased in 2011 relative to 2010 while the U.S. rate experienced a further decline. Both the Canadian and U.S. **long bond rate** decreased in 2011 relative to 2010. The **Canadian dollar** appreciated from 1.03 Cdn$/US$ in 2010 to 0.99 Cdn$/US$ in 2011.

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 lower for Manitoba, Canada, and the U.S.

In the long term, Manitoba and Canada **CPI** are expected to escalate at 1.9% while the U.S. at 2.0%, all lower relative to EO2011.

In the long term, Manitoba's **population** is expected to grow at an annual rate of 1.2%, while the Canadian and U.S. population are expected to grow annually at 0.9%.

Relative to the EO2011 forecast, this year's outlook for **housing starts** in Manitoba has increased by 900 units per year from 7,400 units to 8,300 units. Over the forecast period, Manitoba **residential electricity customers** are expected to increase on average by 6,300 units per year as compared to last year's forecast of 5,400 residential customers per year.

In the long term, Canada's **90 Day T-Bill rate** is expected to be unchanged from last year's forecast while the Canadian **long bond rate** is expected to be lower than last year's forecast. The U.S. 90 Day T-Bill rate and long bond rate are expected to be down from last year's forecast.

In EO2012, the **Canadian dollar** is forecast to be at or close to par by 2012/13 and depreciate slowly thereafter to 1.04 Cdn$/US$ by 2016/17 and on.

Page 4 provides comparisons of the current forecast of key variables to those prepared in the spring and fall of 2011.

Recent Economic Performance

	2007	2008	2009	2010	2011
Manitoba					
Real GDP – % chge	2.3	4.0	-0.5	2.3	2.2
CPI – % chge	2.0	2.3	0.6	0.8	3.0
Population – % chge	0.8	1.0	1.1	1.3	1.3
Employment – % chge	1.7	1.7	0.0	1.9	0.7
Unemployment rate – %	4.4	4.2	5.2	5.4	5.4
Residential customers – '000s	431	436	441	445	449
Housing starts – Units	5,738	5,537	4,174	5,888	6,083
Retail sales – $M	14,016	14,980	14,915	15,737	16,472
Manufacturing Shipments – $M	16,185	16,376	14,622	14,378	15,313
Canada					
Real GDP – % chge	2.2	0.7	-2.8	3.2	2.5
CPI – % chge	2.2	2.3	0.3	1.8	2.9
Population – % chge	1.1	1.2	1.2	1.1	1.0
Employment – % chge	2.4	1.7	-1.6	1.4	1.6
Unemployment rate – %	6.0	6.1	8.3	8.0	7.5
Housing starts – '000s	228	211	149	190	194
Retail sales – $B	412	426	415	437	454
Manufacturing Shipments – $B	602	598	494	533	566
90 Day T-Bill rate – %	4.15	2.39	0.35	0.59	0.93
LT Bond rate 10 Yr+ – %	4.29	3.84	3.77	3.55	3.09
C$/US$	1.07	1.07	1.14	1.03	0.99
United States					
Real GDP – % chge	1.9	-0.3	-3.5	3.0	1.7
CPI – % chge	2.9	3.8	-0.4	1.7	3.1
GDP Price Deflator – % chge	2.9	2.1	1.2	1.1	2.1
90 Day T-Bill rate – %	4.35	1.37	0.15	0.13	0.05
LT Bond rate 10 Yr – %	4.63	3.67	3.26	3.23	2.86
Unemployment rate – %	4.6	5.8	9.3	9.6	8.9
Prices					
Wheat – US$/bu	7.1	11.2	7.0	7.6	11.2
Cattle – US$/cwt	90.0	89.2	80.4	91.9	113.3
Hogs – US$/cwt	46.7	47.6	42.0	55.0	66.5
Copper – US$/lb	3.2	3.2	2.3	3.4	4.0
Nickel – US$/lb	16.9	9.6	6.6	9.9	10.4
Zinc – US$/lb	1.5	0.9	0.8	1.0	1.0
Gold – US$/oz	697.0	872.0	973.0	1225.0	1570.0
Silver – US$/oz	13.4	15.0	14.7	20.2	35.1

Reference Case Forecast
Fiscal Year Basis

MANITOBA	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	
Real GDP (% chge)	2.2	2.3	2.4	2.4	2.5	2.4	2.1	1.8	*
CPI (% chge)	2.8	1.7	1.8	1.8	1.8	1.8	1.9	1.9	& on
Population (000's)	1,255	1,272	1,289	1,306	1,323	1,340	1,358	1,375	*
Residential Customers (000's)	453	459	465	472	478	484	491	497	*
Unemployment Rate (%)	5.4	5.3	5.1	5.0	5.0	4.9	4.8	4.9	

*for 2019/20 and beyond, see Appendix A, page A-1

CANADA	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	
Real GDP (% chge)	2.4	2.1	2.3	2.3	2.4	2.3	2.3	2.1	*
CPI (% chge)	2.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	& on
GDP Price Deflator (% chge)	3.2	2.0	1.8	1.8	1.8	1.8	1.8	1.8	& on
90 Day T-Bill (%)	0.91	1.00	1.45	2.95	3.60	4.05	4.30	4.30	& on
LT Bond Rate 10 Yr+ (%)	2.79	2.65	3.00	3.95	4.45	5.00	5.30	5.40	& on
U.S. Exchange Rate (C$/US$)	0.99	1.00	0.99	1.02	1.03	1.04	1.04	1.04	& on
Unemployment Rate (%)	7.4	7.2	7.0	6.7	6.5	6.2	6.1	5.9	

*for 2019/20 and beyond, see Appendix A, page A-1

| UNITED STATES	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	
Real GDP (% chge)	1.9	2.3	2.6	3.0	3.0	2.8	2.6	2.5	& on
CPI (% chge)	3.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	& on
GDP Price Deflator (% chge)	2.1	1.8	1.8	1.8	1.8	1.8	1.8	1.8	& on
90 Day T-Bill (%)	0.04	0.10	0.15	2.25	3.20	3.80	4.00	4.00	& on
LT Bond Rate 10 Yr (%)	2.51	2.35	2.75	4.15	4.60	5.02	5.30	5.30	& on
Unemployment Rate (%)	8.8	8.2	7.5	6.7	6.2	5.7	5.3	5.3	

Manitoba Hydro Key Variables
Fiscal Year Basis

Changes from Previous Forecast

Fiscal Year	2011 Base Case	October 2011 Update	2012 Base Case
RGDP (% chge)			
10/11	2.5	n/a	2.3
11/12	2.7	n/a	2.2
12/13	2.8	n/a	2.3
13/14	2.9	n/a	2.4
14/15	2.6	n/a	2.4
15/16	2.5	n/a	2.5
16/17	2.3	n/a	2.4
17/18	1.9	n/a	2.1
18/19	1.9	n/a	1.8
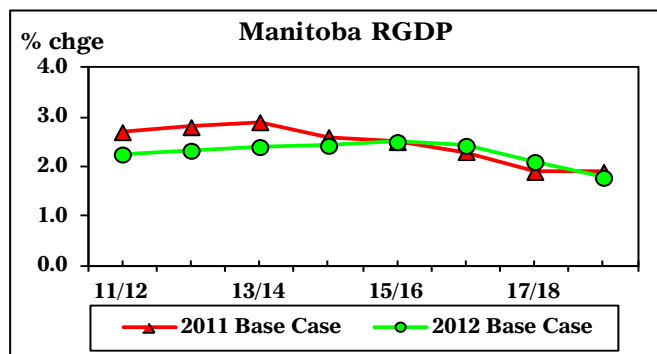
Fiscal Year	2011 Base Case	October 2011 Update	2012 Base Case
CPI – Inflation (% chge)			
10/11	1.0	n/a	1.0
11/12	2.0	n/a	2.8
12/13	2.0	n/a	1.7
13/14	2.0	n/a	1.8
14/15	2.0	n/a	1.8
15/16	2.0	n/a	1.8
16/17	2.0	n/a	1.8
17/18	2.0	n/a	1.9
18/19 & on	2.1	n/a	1.9
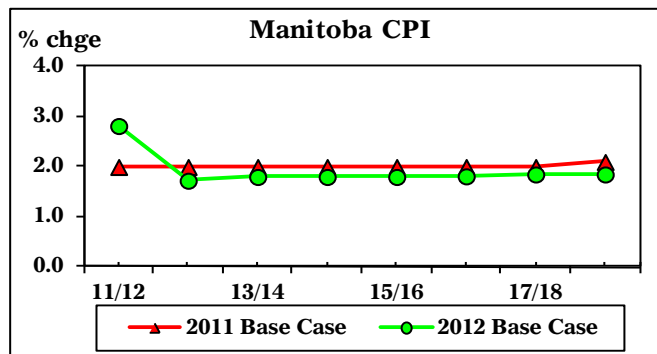
Fiscal Year	2011 Base Case	October 2011 Update	2012 Base Case
Canadian LT Bond Rate 10 Yr+ (%)			
10/11	3.48	n/a	3.48
11/12	3.80	2.86	2.79
12/13	4.25	2.94	2.65
13/14	4.45	3.42	3.00
14/15	4.80	n/a	3.95
15/16	5.30	n/a	4.45
16/17	5.60	n/a	5.00
17/18	5.80	n/a	5.30
18/19 & on	5.80	n/a	5.40
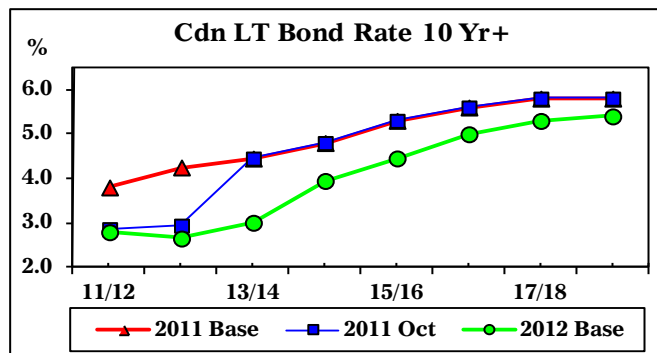
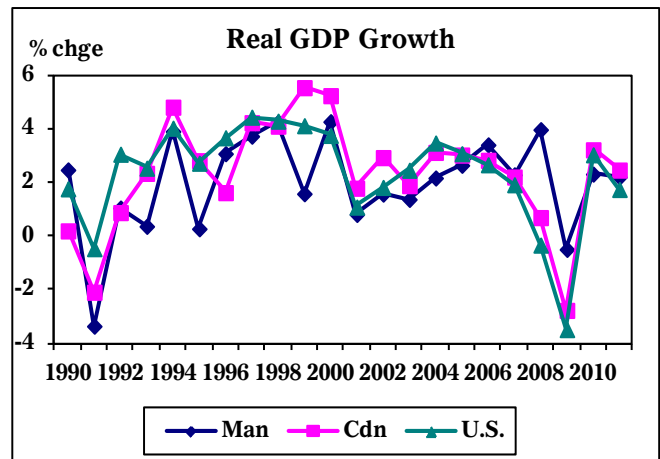| Fiscal Year	2011 Base Case	October 2011 Update	2012 Base Case
Foreign Exchange (C$/US$)			
10/11	1.02	n/a	1.02
11/12	0.98	n/a	0.99
12/13	0.99	n/a	1.00
13/14	1.03	0.99	0.99
14/15	1.05	n/a	1.02
15/16	1.06	n/a	1.03
16/17	1.06	n/a	1.04
17/18	1.06	n/a	1.04
18/19 & on	1.06	n/a	1.04
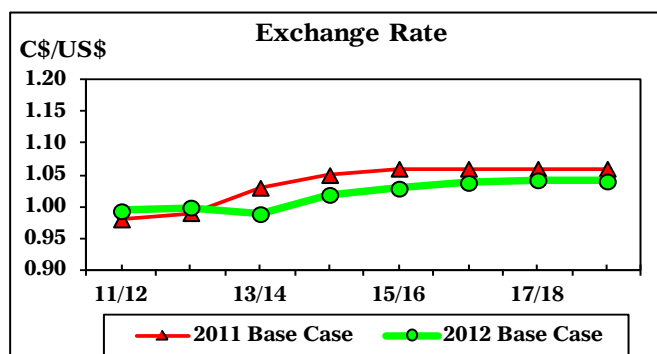
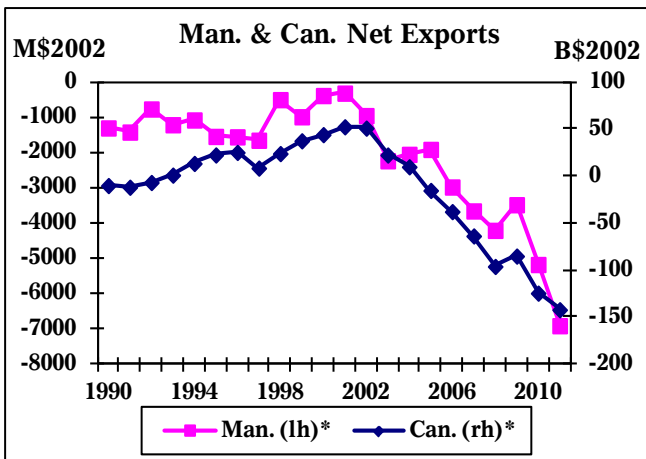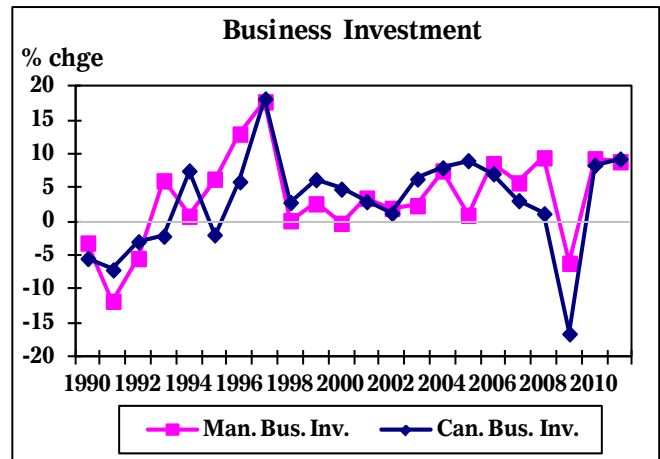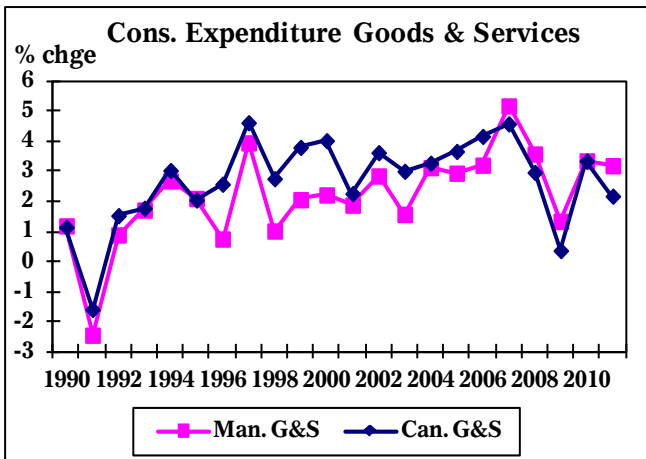# Forecasts of Key Economic and Financial Indicators

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 2012 Economic Outlook, the forecasting sources include IHS Global Insight, the Conference Board of Canada, Informetrica, Spatial Economics, BMO Nesbitt Burns, CIBC, Desjardins, Laurentian, 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

Cons. Expenditure Goods & Services
% chge

Man. G&S ■ — Can. G&S ♦

Business Investment
% chge

Man. Bus. Inv. ■ — Can. Bus. Inv. ♦

Man. & Can. Net Exports
M$2002 · B$2002

Man. (lh)* ■ — Can. (rh)* ♦

Real GDP Growth
% chge

Man ♦ — Cdn ■ — U.S. ▲

Average Annual Growth 1990-2011, % chge

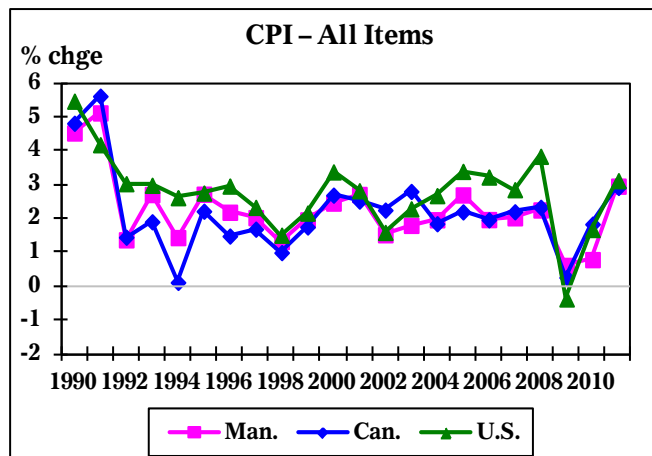|	Man.	Can.	U.S.
Consumer Expenditure Goods and Services	2.2	2.8	2.8
Government Goods and Services	1.6	1.8	1.4
Government Investment	5.5	4.6	
Business Investment	3.7	3.2	2.9
Exports	3.7	3.6	5.3
Imports	4.3	4.7	5.8
Real GDP	2.0	2.4	2.4

Manitoba's real GDP increased by 2.2% in 2011 compared to a 2.3% growth in 2010. Consumption, which is 64-70% of aggregate demand, remained the key driving force in North American economies in 2011. Consumption was up 3.2% and 2.2% in Manitoba and Canada, respectively, and up by 2.2% in the U.S. In response to higher retail sales and manufacturing shipments as well as escalating corporate profits, business investments were up in 2011 with increases of 8.9% and 9.3% in Manitoba and Canada, respectively. Although ongoing problems in the U.S. housing market still persist, U.S. business investments were up 4.7%. EO2012 forecasts Manitoba's long-term real GDP to be 1.7%, 1.9% for Canada, and 2.5% for the U.S.

In 2011, nominal Manitoba and Canada GDP income posted increases of 4.9% and 5.8%, respectively. Higher corporate profits, as well as interest and miscellaneous investment income were responsible for the increase. U.S. nominal GDP increased 3.9% in 2011.

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

Consumer Price Index and GDP Price Deflator

CPI – All Items

% chge

| Man. | Can. | U.S. |

GDP Price Deflator

% chge

| Man. | Can. | U.S. |

CPI – Energy
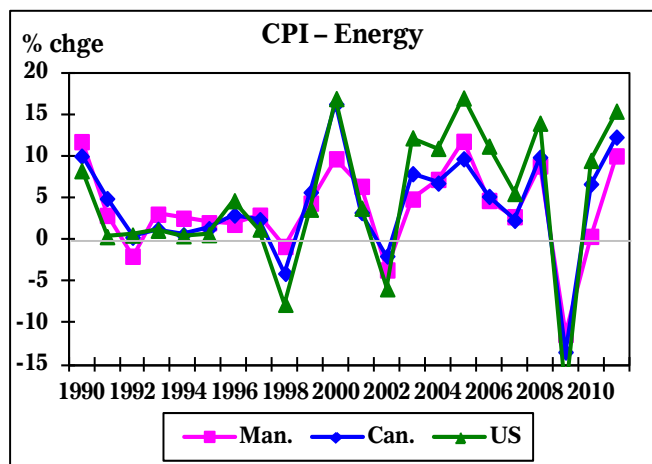
% chge

| Man. | Can. | US |

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 2011, Manitoba and Canada CPI increased by 3.0% and 2.9%, respectively, while the U.S. CPI increased by 3.1%. Manitoba and Canadian GDP price deflators increased by 2.6% and 3.3% respectively, while the U.S. GDP price deflator increased by 2.1% in 2011. Manitoba, Canada, and U.S. energy consumer price index increased by 10.0%, 12.3%, and 15.4%, respectively, in 2011. The 2012 Economic Outlook forecasts that the Manitoba and Canada long-term CPI to be 1.9% while the U.S. long-term CPI will be 2.0%. The 2012 Economic Outlook forecasts that in the long term the Manitoba, Canada, and U.S. GDP price deflator will be 1.8%.
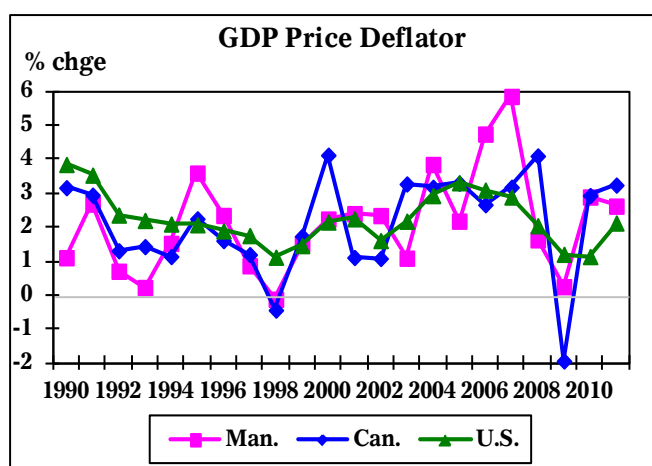
2011 Consumer Price Index
% chge

	Manitoba	Canada	U.S.
All Items – CPI	3.0	2.9	3.1
Food	3.7	3.7	3.6
Shelter	2.6	1.9	
Household	1.1	1.9	1.3
Clothing	0.8	0.3	2.2
Transportation	5.4	6.4	9.8
Health	1.5	1.7	3.1
Recreation	1.8	1.3	0.1
Other Deflators:			
Energy	10.0	12.3	15.4
GDP Deflator	2.6	3.3	2.1

Population

Man. & Can. Population

'000s — Millions

1,650 — 45
1,550 — 40
1,450 — 35
1,350 — 30
1,250 —
1,150 —
1,050 — 25

Historical — Forecast

1985 1990 1995 2000 2005 2010 2015 2020 2025 2030

— Man. (lh)   — Can. (rh)

Change in Man. & Can. Population

% chge

2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0

Historical — Forecast

1985 1990 1995 2000 2005 2010 2015 2020 2025 2030

— Man.   — Can.

Manitoba Population Cohorts

'000s — '000s

325 — 1050
275 — 1000
225 — 950
175 — 900
125 — 850
 — 800
 — 750
75 — 700

Historical — Forecast

1985 1990 1995 2000 2005 2010 2015 2020 2025 2030

— 0-14 (lh)   — 65+ (lh)   — 15-64 (rh)

Manitoba Births, Deaths, Net Int'l. Mig'n. & Net Intprov. Mig'n.

'000s

20
15
10
5
0
-5
-10
-15

Historical — Forecast

1985 1990 1995 2000 2005 2010 2015 2020 2025 2030

— Births   — Deaths   — Net Intl Mign   — Net Intprov Mign

Manitoba's total population increased by 16,039 persons in 2011 or 1.3% relative to 2010. Total net migration to Manitoba was 10,338 people and the total natural increase was 5,701 in 2011.

Manitoba's population is expected to grow on average at 1.2% or 17,000 people annually over the forecast period, 3,700 people higher than the growth rate forecast in EO2011. 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 16,000 immigrants annually. Manitoba's population forecast is based on a 1.9 total fertility rate and

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
2000-2011	0.8
2012-2033	1.2

Year	Mb Pop'n. Changes
1995	5,921
1996	5,046
1997	1,929
1998	1,360
1999	4,962
2000	4,864
2001	4,126
2002	5,174
2003	7,206
2004	9,747
2005	4,736
2006	5,730
2007	9,528
2008	11,918
2009	13,706
2010	15,352
2011	16,039

13,700 net international migration offset by -2,000 net interprovincial migration. This translates to population growth resulting from a natural increase of 5,300 per annum and 11,700 from net migration. Refer to Appendices A and B for the forecasts of Manitoba population expressed in calendar and fiscal years.

Canada's population is expected to grow on average at 0.9% or 361,000 people annually over the forecast period. The United States' population is expected to grow on average at 0.9% or 3,230,000 people annually.
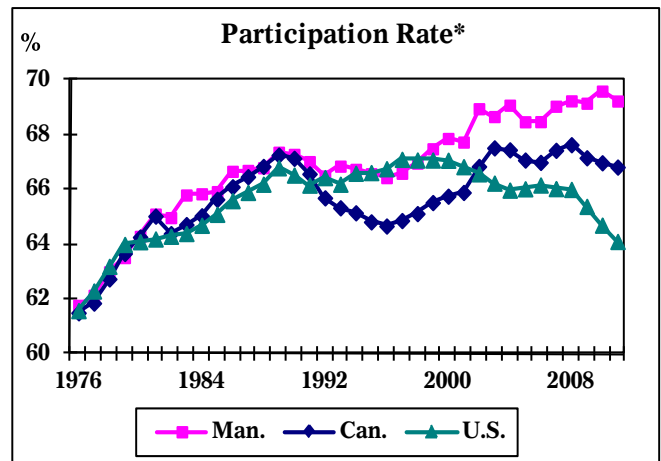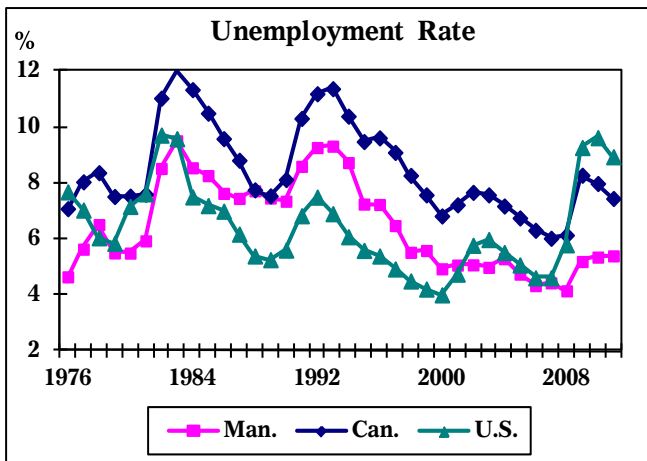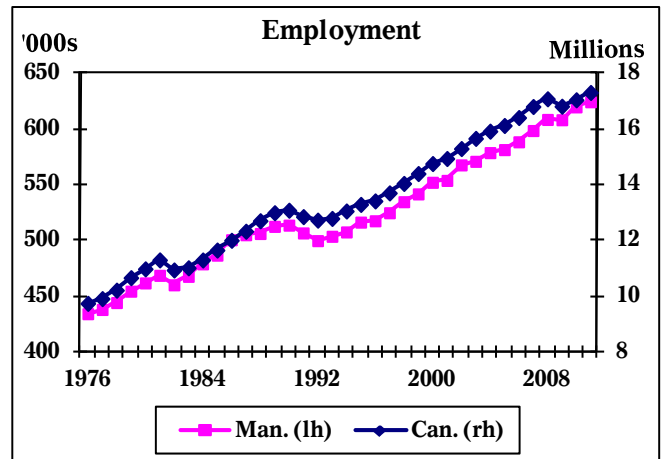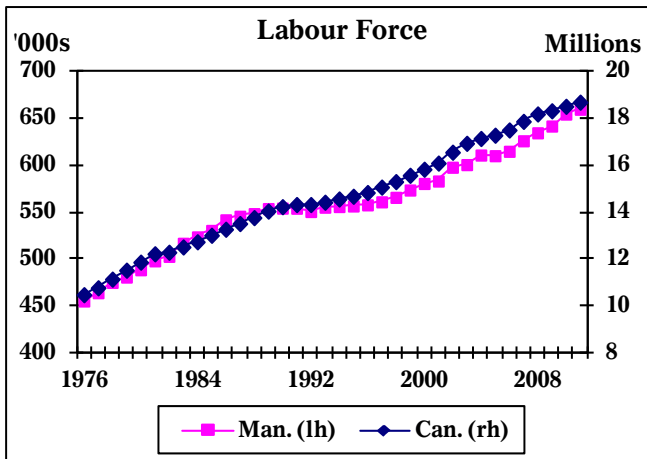
Manitoba Aboriginal Population

	Aborig. Pop'n. '000s	Annual Diff.	Man Pop'n. '000s	Aborig. Pop'n. Share Man Pop'n.
1998	153	3,975	1,137	13.4%
1999	157	4,530	1,142	13.8%
2000	164	6,355	1,147	14.3%
2001	169	5,709	1,151	14.8%
2002	173	3,746	1,157	15.0%
2003	177	3,660	1,164	15.3%
2004	181	3,764	1,174	15.5%
2005	184	3,660	1,178	15.7%
2006	188	3,764	1,184	16.0%
2007	192	3,880	1,194	16.2%
2008	196	3,880	1,205	16.4%
2009	200	3,880	1,219	16.6%
2010	204	3,880	1,235	16.7%
2011	207	3,880	1,251	16.6%
Forecast				
2012	211	3,880	1,267	16.7%
2013	215	3,880	1,284	16.8%
2014	219	3,880	1,301	16.8%
2015	223	3,880	1,319	16.9%
2016	227	3,880	1,336	17.0%
2017	231	3,880	1,354	17.0%
2018	235	3,880	1,371	17.1%
2019	238	3,880	1,389	17.2%
2020	242	3,880	1,406	17.2%
2021	246	3,880	1,424	17.3%
2022	250	3,880	1,441	17.4%
2023	254	3,880	1,459	17.4%
2024	258	3,880	1,476	17.5%
2025	262	3,880	1,493	17.5%
2026	266	3,880	1,510	17.6%
2027	269	3,880	1,527	17.7%
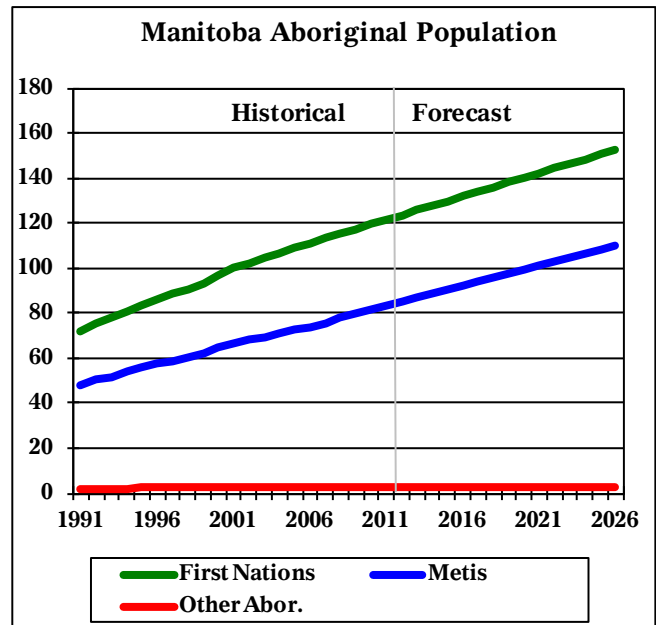
Manitoba Aboriginal population includes registered Indian, Métis (non-registered), and other Aboriginal. Total Manitoba Aboriginal population increased by 3,880 people or 1.9% in 2011. Manitoba has the second largest registered Aboriginal population in Canada, after Ontario. In EO2012, Manitoba's Aboriginal population is expected to grow at an annual rate of 1.7% or 3,880 people per year. EO2012 is based on annual growth of 2,080 registered Indians, 1,800 non-registered Métis. Manitoba's Aboriginal population share of the total Manitoba population trends from 16.6% in 2011 to 17.7% in 2027 in EO2012. In EO2011, Manitoba's Aboriginal population share of the total Manitoba population trended from 15.8% in 2010 to 17.9% 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 Statistics Canada's publication *Population projections by Aboriginal Identity in Canada* 91-552-X.
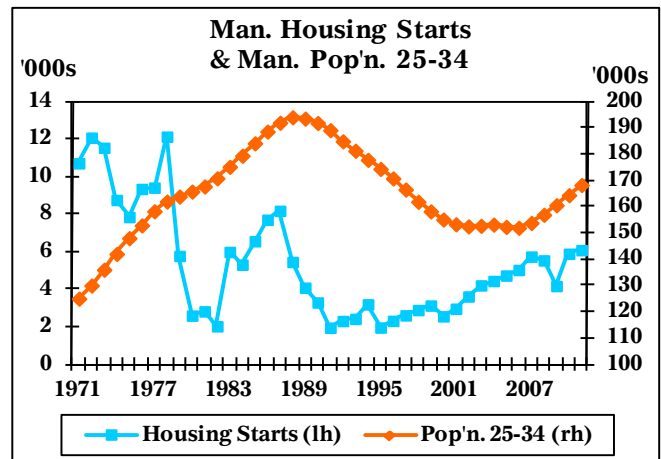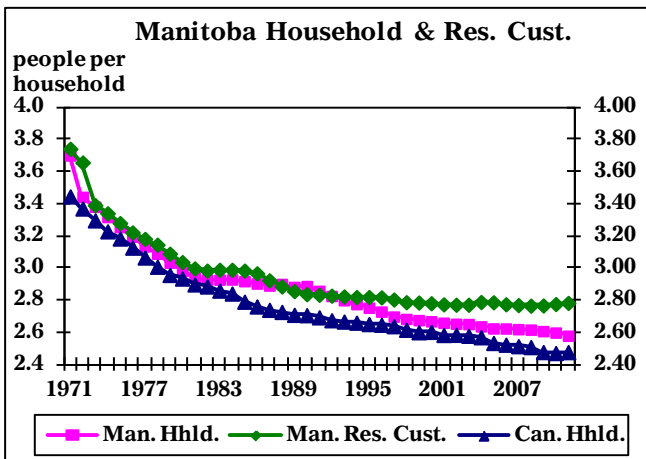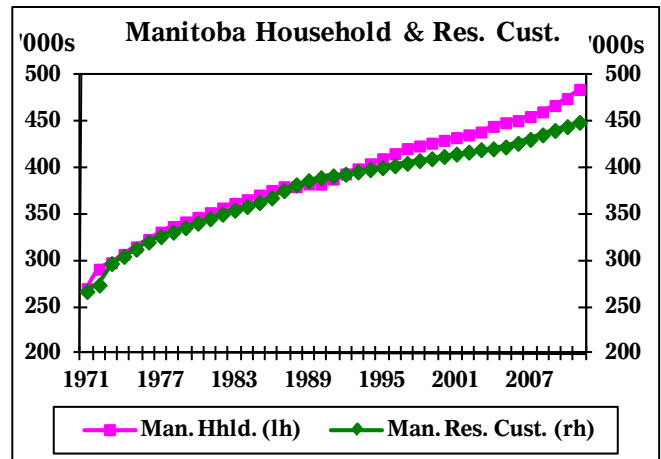
Employment

Labour Force

'000s (left axis: 400–700), Millions (right axis: 8–20)
Years: 1976, 1984, 1992, 2000, 2008
Legend: ■ Man. (lh) ◆ Can. (rh)

Employment

'000s (left axis: 400–650), Millions (right axis: 8–18)
Years: 1976, 1984, 1992, 2000, 2008
Legend: ■ Man. (lh) ◆ Can. (rh)

Unemployment Rate

% (2–12)
Years: 1976, 1984, 1992, 2000, 2008
Legend: ■ Man. ◆ Can. ▲ U.S.

Participation Rate*

% (60–70)
Years: 1976, 1984, 1992, 2000, 2008
Legend: ■ Man. ◆ Can. ▲ U.S.

*Participation Rate = Labour Force/Popn 15+

	Manitoba			Canada			United States		
	2001	2011	% chge 11/10	2001	2011	% chge 11/10	2001	2011	% chge 11/10
Population 15+ – '000s	861	953	1.3	24,439	27,987	1.2	215,091	239,618	0.8
Participation Rate - %	67.7	69.2		65.9	66.8		66.8	64.1	
Labour Force – '000s	584	660	0.8	16,105	18,703	1.0	143,769	153,616	-0.2
Employment – '000s	554	624	0.7	14,941	17,309	1.5	136,939	139,873	0.6
Unemployment Rate – %	5.1	5.4		7.2	7.5		4.8	8.9	
Employment Rate – %	64.3	65.5		61.1	61.8		63.7	58.4	
Industrial Weekly Wage – $	608	809	2.9	657	875	2.5	494	651	3.1

Over the 2012-2033 period, Manitoba's and Canada's employment levels are forecast to grow annually at 1.1% and 0.7% respectively, while the United States' is anticipated to grow at 0.9% annually. Manitoba's unemployment rate is expected to trend downwards from 5.3% in 2012 to 5.0% in 2020 and remain around the 5.0% rate until 2033. Canada's unemployment rate is expected to trend from 7.3% in 2012 to 5.8% in 2033. The United States' unemployment rate is expected to trend from 8.3% in 2012 to 5.3% in 2033.

Housing

Manitoba & Canada Housing Starts

Manitoba Household & Res. Cust.

Manitoba Household & Res. Cust.

Man. Housing Starts & Man. Pop'n. 25-34
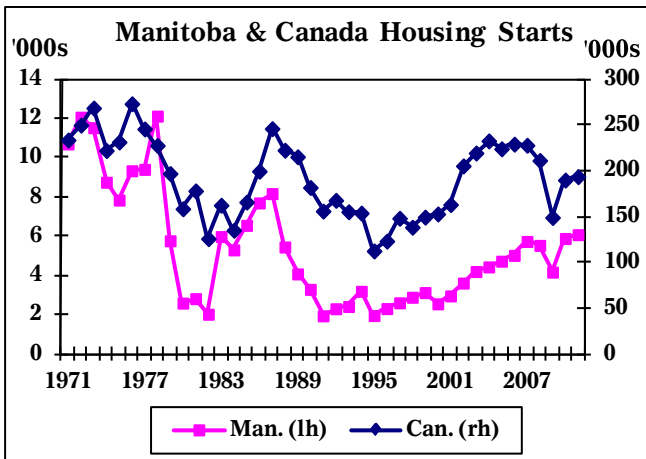
	Man. Housing Starts	Man. Res. Cust. '000s	Can. Housing Starts '000s
1994	3,197	398	154
1995	1,963	401	113
1996	2,318	403	123
1997	2,612	405	148
1998	2,895	408	138
1999	3,133	410	149
2000	2,560	413	153
2001	2,963	415	163
2002	3,617	417	205
2003	4,206	420	219
2004	4,440	421	233
2005	4,731	423	224
2006	5,028	427	229
2007	5,738	431	228
2008	5,537	436	211
2009	4,174	441	149
2010	5,888	445	190
2011	6,083	449	194

Total Manitoba housing starts were 6,083 in 2011, up from 5,888 units in 2010. Strong population and employment growth, rising wages, and low mortgage rates were the driving force behind the demand for housing in 2011, which was the highest level in 24 years. EO2012 forecasts that Manitoba housing starts will increase at approximately 8,300 units annually in the longer term. The forecasted annual population growth rate in Manitoba of 17,000 people in EO2012 is 3,700 people higher than the growth rate forecast in EO2011 and is the main driver in the increased housing starts.

The number of Manitoba Hydro metered residential customers increased by 4,654 units in 2011 relative to 2010. EO2012 forecasts that Manitoba residential customers will increase by 6,300 units or 1.2% annually over the 2012-2033 period, up 900 units annually from EO2011. Refer to Appendices A and B for the forecasts of Manitoba residential customers expressed in calendar and fiscal years.

Interest Rates

Canadian Interest Rates

	2011 Average %	12 Month Low %	12 Month High %
90 Day T-Bill Rate	0.93	0.86	0.98
Prime Rate	3.00	3.00	3.00
LT Bond Rate 10 Yr+	3.09	2.35	3.68

U.S. Interest Rates

	2011 Average %	12 Month Low %	12 Month High %
90 Day T-Bill Rate	0.05	0.01	0.16
Prime Rate	3.25	3.25	3.25
LT Bond Rate 10 Yr	2.86	2.02	3.63

Short-Term Interest Spread

	Cdn. 90 Day T-Bill Rate %	U.S. 90 Day T-Bill Rate %	Spread %
1981	17.72	14.08	3.64
1991	8.73	5.38	3.35
2001	3.77	3.39	0.38
2011	0.93	0.05	0.87

Long-Term Interest Spread

	Cdn. LT Bond Rate 10 Yr+ %	U.S. LT Bond Rate 10 Yr %	Spread %
1981	15.22	13.91	1.31
1991	9.57	7.86	1.71
2001	5.63	5.02	0.61
2011	3.09	2.86	0.23

90 Day T-Bill Rate
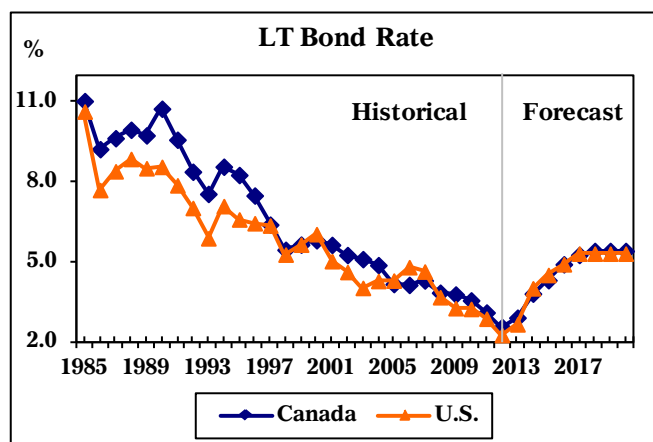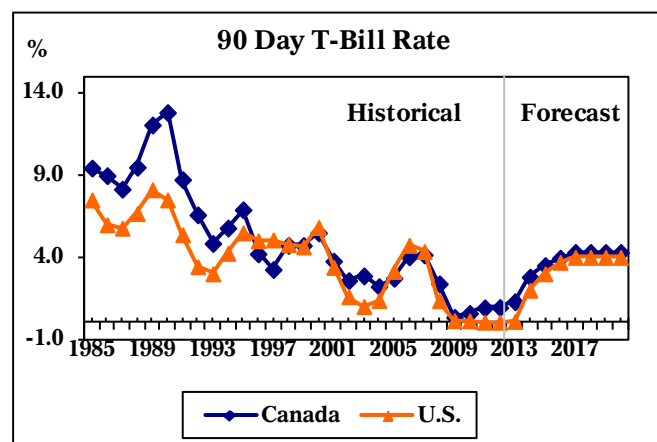
LT Bond Rate

For the purpose of representing the long-term interest rates that impact Manitoba Hydro, for Canadian long-term debt the average of a 10 year and a 30 year Canadian long bond rate is used and is referred to as a 10 Yr+ rate. For U.S. long-term debt, a 10 year U.S. long bond rate is used.

In 2011, the Bank of Canada maintained its stimulative monetary policy throughout the year. The Bank of Canada maintained the overnight rate at 1.00% throughout 2011. As a result, the 90 Day T-Bill rate increased from 0.59% in 2010 to 0.93% in 2011, while the 10 Yr+ bond rate dropped from 3.55% to 3.09% over the same period.

Canadian 90 Day T-Bill rates are forecast to trend from 0.95% in 2012 to 4.30% in the long term. The U.S. 90 Day T-Bill rate is expected to trend from 0.05% in 2012 to 4.00% in the long term. Canada and U.S. long bond rates are forecast to trend up to 5.40% and 5.30%, respectively. The positive spread in Canadian–U.S. T-Bill rates in 2011 is expected to decline over the forecast period. The positive spread in Canadian-U.S. long bond rates in 2011 is also expected to decline over the forecast period.

Refer to Appendices A and B for the forecasts of Canadian interest rates expressed in calendar and fiscal years. Forecasts of U.S. interest rates can be found on page 3.

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	0.65	1.49
2001	0.64	1.55
2002	0.71	1.57
2003	0.77	1.40
2004	0.83	1.30
2005	0.88	1.21
2006	0.93	1.13
2007	0.94	1.07
2008	0.94	1.07
2009	0.88	1.14
2010	0.97	1.03
2011	1.01	0.99
2012	1.00	1.00
2022	0.96	1.04
2033	0.96	1.04

Range in Exchange Rate

	2011 Average	12 Month Low	12 Month High
Cdn. $/US $	0.99	1.03	0.96
US $/Cdn. $	1.01	0.97	1.05

Cdn$/US$ Exchange Rate
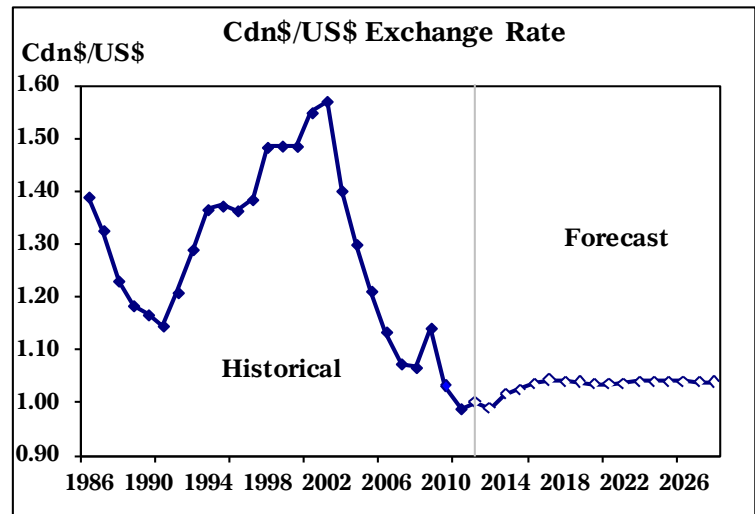
The Canadian dollar appreciated relative to the U.S. dollar by 4.1% in 2011 relative to 2010. Rising commodity prices, including oil, are the main factors behind the stronger Canadian dollar in 2011. It has appreciated over 59% since 2002, when it was at its lowest historic value relative to the U.S. dollar.

The Canadian dollar is expected to continue to depreciate slightly over the next few years from parity in 2012 and 2013 to 1.04 Cdn$/US$ in 2016 and beyond.

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 LT Bond Rate 10 Yr+ %	C$/ US$
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	2.3	2.2	1,144	408	5.8	2.2	4.82	5.69	1.47
2000/01	3.4	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	1.5	2.3	1,158	415	3.1	3.0	2.79	5.41	1.55
2003/04	1.6	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	2.8	2.4	1,180	426	3.2	2.3	3.02	4.17	1.19
2006/07	3.1	2.0	1,186	430	2.2	1.9	4.16	4.23	1.14
2007/08	2.7	1.9	1,197	434	2.3	2.1	3.83	4.24	1.03
2008/09	2.8	2.2	1,209	440	-0.5	2.2	1.84	3.66	1.13
2009/10	0.2	0.6	1,223	444	-1.3	0.4	0.22	3.89	1.09
2010/11	2.3	1.0	1,239	448	3.0	2.0	0.78	3.48	1.02
2011/12	2.2	2.8	1,255	453	2.4	2.8	0.91	2.79	0.99
Forecast									
2012/13	2.3	1.7	1,272	459	2.1	1.9	1.00	2.65	1.00
2013/14	2.4	1.8	1,289	465	2.3	1.9	1.45	3.00	0.99
2014/15	2.4	1.8	1,306	472	2.3	1.9	2.95	3.95	1.02
2015/16	2.5	1.8	1,323	478	2.4	1.9	3.60	4.45	1.03
2016/17	2.4	1.8	1,340	484	2.3	1.9	4.05	5.00	1.04
2017/18	2.1	1.9	1,358	491	2.3	1.9	4.30	5.30	1.04
2018/19	1.8	1.9	1,375	497	2.1	1.9	4.30	5.40	1.04
2019/20	1.7	1.9	1,393	504	1.9	1.9	4.30	5.40	1.04
2020/21	1.7	1.9	1,411	510	1.9	1.9	4.30	5.40	1.04
2021/22	1.7	1.9	1,428	517	1.9	1.9	4.30	5.40	1.04
2022/23	1.7	1.9	1,446	523	1.9	1.9	4.30	5.40	1.04
2023/24	1.7	1.9	1,463	530	1.9	1.9	4.30	5.40	1.04
2024/25	1.7	1.9	1,480	536	1.9	1.9	4.30	5.40	1.04
2025/26	1.7	1.9	1,497	542	1.9	1.9	4.30	5.40	1.04
2026/27	1.7	1.9	1,514	549	1.9	1.9	4.30	5.40	1.04
2027/28	1.7	1.9	1,531	555	1.9	1.9	4.30	5.40	1.04
2028/29	1.7	1.9	1,547	561	1.9	1.9	4.30	5.40	1.04
2029/30	1.7	1.9	1,564	567	1.9	1.9	4.30	5.40	1.04
2030/31	1.7	1.9	1,580	573	1.9	1.9	4.30	5.40	1.04
2031/32	1.7	1.9	1,596	579	1.9	1.9	4.30	5.40	1.04
2032/33	1.7	1.9	1,612	585	1.9	1.9	4.30	5.40	1.04

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 LT Bond Rate 10 Yr+ %	C$/ US$
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	4.2	1.3	1,137	408	4.1	1.0	4.73	5.44	1.48
1999	1.6	2.0	1,142	410	5.5	1.8	4.72	5.64	1.49
2000	4.3	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	1.4	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	2.6	2.7	1,178	423	3.0	2.2	2.73	4.16	1.21
2006	3.4	2.0	1,184	427	2.8	2.0	4.03	4.13	1.13
2007	2.3	2.0	1,194	431	2.2	2.2	4.15	4.29	1.07
2008	4.0	2.3	1,205	436	0.7	2.3	2.39	3.84	1.07
2009	-0.5	0.6	1,219	441	-2.8	0.3	0.35	3.77	1.14
2010	2.3	0.8	1,235	445	3.2	1.8	0.59	3.55	1.03
2011	2.2	3.0	1,251	449	2.5	2.9	0.93	3.09	0.99
Forecast									
2012	2.3	1.7	1,267	455	2.1	1.9	0.95	2.55	1.00
2013	2.4	1.8	1,284	461	2.3	1.9	1.30	2.90	0.99
2014	2.4	1.8	1,301	467	2.3	1.9	2.80	3.80	1.02
2015	2.5	1.8	1,319	474	2.4	1.9	3.50	4.30	1.03
2016	2.5	1.8	1,336	480	2.3	1.9	3.95	4.90	1.04
2017	2.2	1.9	1,354	487	2.3	1.9	4.30	5.25	1.04
2018	1.8	1.9	1,371	493	2.2	1.9	4.30	5.40	1.04
2019	1.7	1.9	1,389	500	1.9	1.9	4.30	5.40	1.04
2020	1.7	1.9	1,406	506	1.9	1.9	4.30	5.40	1.04
2021	1.7	1.9	1,424	513	1.9	1.9	4.30	5.40	1.04
2022	1.7	1.9	1,441	519	1.9	1.9	4.30	5.40	1.04
2023	1.7	1.9	1,459	526	1.9	1.9	4.30	5.40	1.04
2024	1.7	1.9	1,476	532	1.9	1.9	4.30	5.40	1.04
2025	1.7	1.9	1,493	538	1.9	1.9	4.30	5.40	1.04
2026	1.7	1.9	1,510	545	1.9	1.9	4.30	5.40	1.04
2027	1.7	1.9	1,527	551	1.9	1.9	4.30	5.40	1.04
2028	1.7	1.9	1,543	557	1.9	1.9	4.30	5.40	1.04
2029	1.7	1.9	1,560	563	1.9	1.9	4.30	5.40	1.04
2030	1.7	1.9	1,576	569	1.9	1.9	4.30	5.40	1.04
2031	1.7	1.9	1,592	575	1.9	1.9	4.30	5.40	1.04
2032	1.7	1.9	1,608	581	1.9	1.9	4.30	5.40	1.04
2033	1.7	1.9	1,624	587	1.9	1.9	4.30	5.40	1.04

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 2012 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, %	1.9	4.0	0.5
U.S. CPI, %	2.0	5.0	-0.5
Cdn. 10 Yr+ Long Bond Rate, %	5.40	7.25	5.25
U.S. 10 Yr+ Long Bond Rate, %	5.30	7.50	4.75
Cdn. 90 Day T-Bill Rate, %	4.30	5.75	3.75
U.S. 90 Day T-Bill Rate, %	4.00	6.00	3.25
CAD/USD Exchange Rate	1.04	0.90	1.00