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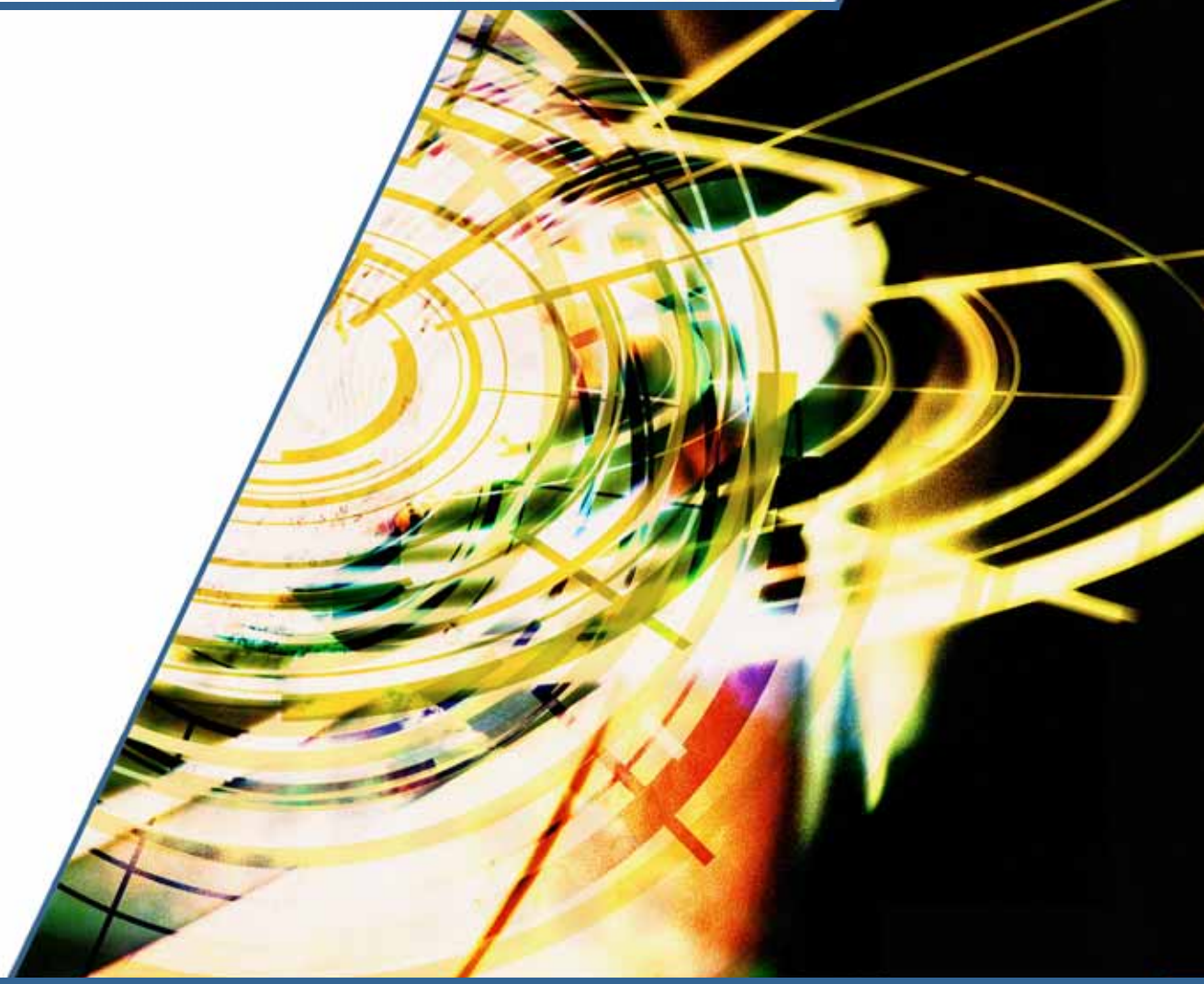
Canada's Energy Outlook:

The Reference Case 2006



Analysis and Modelling Division

Canada

The digital mosaic of Canada which appears on the cover of this publication is produced by Natural Resources Canada (Canada Centre for Remote Sensing), and is a composite of individual satellite images. The colours reflect differences in the density of vegetation cover: bright green for dense vegetation in the humid southern regions; yellow for semi-arid and mountainous regions; brown for the far north where vegetation cover is very sparse; and white for the Arctic regions.

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Preface

Isn't it interesting that the same people who laugh at science fiction listen to weather forecasts and to economists? – Kelvin Throop III

Natural Resources Canada (NRCan) has been producing long-term energy outlooks for three decades. Over the years, the emphasis among topics has changed. The main purposes of this new Outlook (the Reference Case) for Canada's energy supply and demand to 2020 are to:

- Identify pressure points and emerging issues in Canadian energy markets.
- Contribute to an informed public discussion on energy and related economic and environmental issues in Canada.
- Provide a reference scenario from which new energy and climate change policies can be consistently evaluated.

This Outlook is based on a specific set of assumptions regarding oil price and economic growth, among other things. Different assumptions regarding these major drivers produce different results. It is important to understand that the Outlook is NOT a prediction of the future; neither can it be viewed as "business-as-usual," since that implies a continuation of current circumstances. This projection more closely resembles a scenario, which is conditional on a number of assumptions (see box).

A prediction:
It will be 30 degrees tomorrow; we will go to the beach.
Business as usual:
Normal weather patterns indicate that it will be 30 degrees tomorrow; our usual practice is to go to the beach.
A scenario:
***If** it is 30 degrees tomorrow, we **may** go to the beach, **if** transportation is available.*

These projections provide detailed information at the provincial and sectoral levels. As such, the more detailed results tend to have a lower level of confidence than the aggregated results.

The design and development of the study was directed by Ian Hayhow, who had the overall responsibility for its completion.

During the development of this report, consultations were undertaken with other federal departments, notably:

Agriculture and Agri-Food Canada
Environment Canada
Finance Canada
Industry Canada
Privy Council Office
Transport Canada

Equally important were the consultations and feedback received from the Provinces and Territories, all of which have made this report a much-improved document.

Additionally, a special thanks to the Office of Energy Efficiency, the Energy Policy Sector management at NRCan and to the staff of the Analysis and Modelling Division, without whom this report would not have been possible:

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Anna Zyzniewski	Electricity

Dale Clark, who was on assignment at NRCan, deserves a special mention for his contribution to the petroleum-refining module. Thanks also to Réjean Casaubon and Tony Peluso for their efforts and contributions in the preparation, editing and coordination of this report.

NRCan would be pleased to receive your comments and recommendations for future work; please direct them to:

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Executive Summary

This report provides a reference outlook for Canadian energy supply and demand up to 2020. Natural Resources Canada (NRCan) consulted with other federal departments, and with the Provinces and Territories to reach a general consensus on the principal economic assumptions of the Outlook. The relationships among energy production, consumption and prices, as well as economic, technological and policy factors were then carefully examined to develop the energy projections.

Principal changes since the last Outlook

Since the previous Outlook (1999) was prepared, there have been a number of substantial changes to the major influences on energy projections. Compared to the 1999 Outlook:

- Crude oil prices are assumed to be about double.
- Natural gas prices are expected to be about three times higher.
- The economy is expected to be 8 percent larger in 2010.
- Oil sands production is expected to be significantly higher.
- Most of Canada's nuclear power plants are assumed to be refurbished.
- The Mackenzie Delta gas pipeline is expected to be in service in 2011.

It should be noted that this report, as was the case with its predecessors, is not a prediction of the future, but is only one of many possible energy outcomes for Canada.

The previous long-term projection, *Canada's Emissions Outlook – An Update*, was issued in 1999 and modified in early 2002. World oil prices and North American natural gas prices are much higher today than in the previous Outlook. As well, there have been some major changes in federal, provincial and territorial energy and environmental policies and programs. It is timely to provide a new projection of energy supply and demand.

Government initiatives to promote greater energy efficiency or increase the use of alternative energy, that remained active after May 2006, are reflected in the Outlook, providing they were implemented prior to 2005.

The principal assumptions used to develop this Outlook to 2020 are:

- Population will grow at about 0.7 percent annually and Real Gross Domestic Product (GDP) at about 2.4 percent per year to 2020.

- Crude oil prices, in 2003 dollars, will decline to US$45 per barrel by 2010 and will remain constant thereafter. Although lower than today's high level, this is much higher than the oil prices prevailing through most of the last two decades.

- All but two of Canada's nuclear power plants will stay in service for at least eight more years, or will be refurbished and returned to service. The two units at Pickering A, which are currently out of service, will remain so indefinitely.

The highlights of the results are:

- Total energy demand is projected to grow by 1.3 percent per year. The fuel mix will not change substantially over this period since the relative prices of different energy sources are not expected to change significantly.

- In the residential sector energy intensity improves by 0.3 percent annually due to a combination of autonomous stock turn over and to appliance regulations, while in the commercial sector, the energy intensity increase by about 0.2 percent annually, primarily due to structural changes.

- Transportation demand is expected to grow at about 1.6 percent per year, despite vehicle efficiency initiatives.

- The intensity of the energy intensive industries is projected to improve by about 0.7 percent per year. However, growth in the industrial GDP will be approximately 1.1 percent per year.

- Conventional oil production will decline, but the oil sands are expected to show a significant rise to 2.9 million barrels per day. This will represent about 80 percent of total crude oil production in 2020, more than offsetting the decline in conventional crude oil.

- Total natural gas production is projected to peak in 2011 at 6.6 trillion cubic feet (Tcf), and then decline. The decline in conventional natural gas will be tempered somewhat by the development of the Mackenzie Delta and by coalbed methane production, both of which will become important supply sources.

- Net exports of natural gas will decline to 1.3 Tcf in 2020, from current levels of 3.7 Tcf.

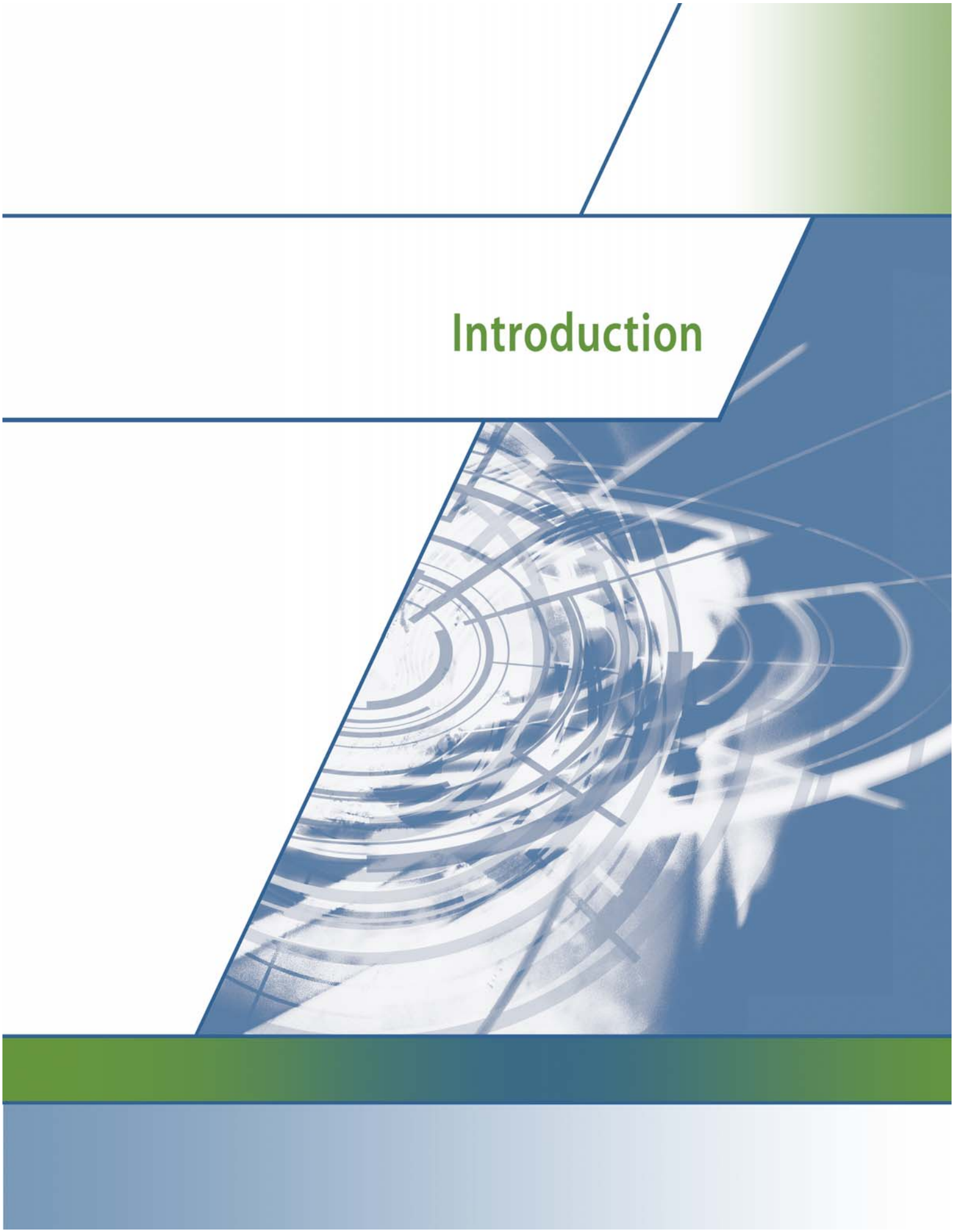
- Energy intensity in the refining sector is expected to increase by about 20 percent, as the mix of crude oil for Canadian refineries becomes heavier, hence requiring more processing.

- End-use prices, in real terms, are expected to decline compared to their relatively high levels in 2005.

- Growing energy demand and a changing energy production mix lead to growth in GHG emissions from 758 megatonnes (Mt) in 2004 to 828 Mt in 2010 and 897 Mt in 2020. The 2010 figure is 265 Mt above Canada's Kyoto target (6 percent below 1990 levels).

This Outlook is particularly sensitive to key assumptions about economic growth, oil sands development and the electricity generation mix (especially the refurbishing of nuclear power plants and the development of large hydro projects such as Churchill Falls and Conawapa).

Introduction



1 Introduction

This report provides a reference outlook to 2020 for Canadian energy supply and demand and emissions. In preparing this Outlook, the relationships were carefully examined among energy production, consumption and prices, as well as economic, technological and policy factors.

The previous long-term projection, *Canada's Emissions Outlook – An Update (CEOU)*, was issued in 1999, and modified in early 2002. World oil prices and North American natural gas prices are much higher today than in the previous Outlook. As well, there have been some major changes in federal, provincial and territorial energy and environmental policies and programs. It is timely to provide a new projection of energy supply and demand.

This projection of long-term energy supply and demand provides a reference from which new policies can be developed and analyzed.

It is not a prediction of the future, but one possible outcome; different assumptions will lead to different projections.

In order to make a projection of energy supply and demand, a view of the Canadian economy is needed over the entire outlook horizon—in this case, to 2020. There are many assumptions that influence the overall size and growth rate of the economy, which, in turn, determines the level and composition of energy supply and demand. The assumptions that underlie the projections need to be internally consistent. They include population, economic output and crude oil prices, among others.

In 2004, a consensus on the economic assumptions that underlie this Outlook was reached through extensive consultations with other federal departments (Environment, Finance, Industry, Transport, and Agriculture and Agri-Food), as well as with government representatives of all Provinces and Territories.

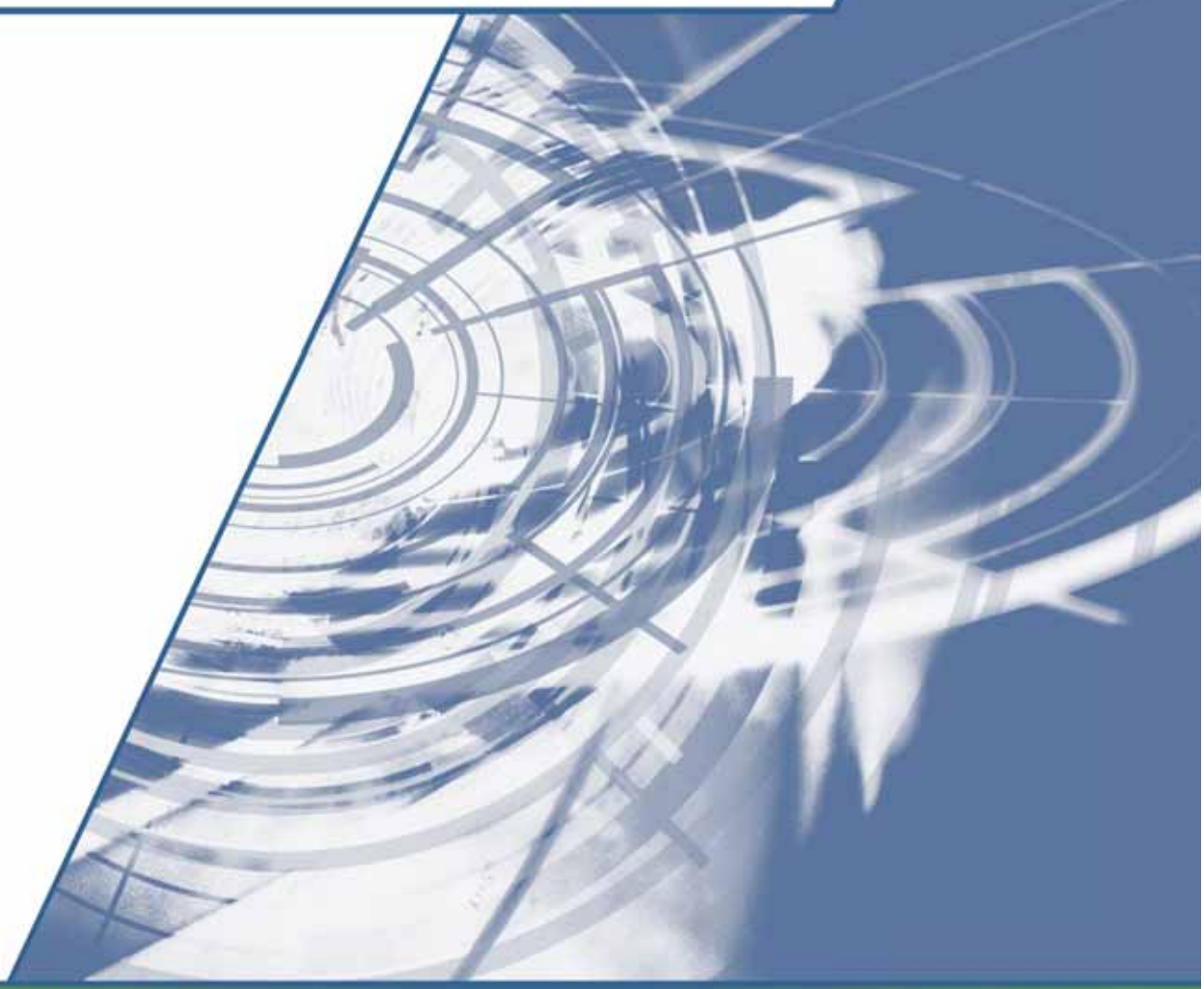
This Outlook has been developed using NRCan's new *Model to Analyze Policies Linked to Energy in Canada* (MAPLE-C). This tool was adapted for Canada from the US National Energy Modelling System. It ensures consistent results among sectors and regions (see Appendix I for more details).

Principal changes since the last Outlook

Since the last Outlook was prepared (1999), there have been a number of substantial changes to the major influences on the energy projection. In particular, it is expected that crude oil prices will be some 100 percent higher, and natural gas wellhead prices will be about 200 percent higher. Previously, it was assumed that the GDP would grow at 2.3 percent annually. Since then, the economy has grown on average by 2.5 percent annually to 2004, after which it is assumed to grow at 2.9 percent to 2010. This means that the economy, in 2010, would be about 8 percent larger for this Outlook.

Other major assumptions that have changed are: oil sands production is expected to be significantly higher than in previous projections; most Canadian nuclear power plants are assumed to be refurbished (Bruce A was previously excluded); and the Mackenzie Delta gas pipeline will be in service in 2011 instead of 2013.

Key Drivers for Energy



2 Key Drivers for Energy

This section presents an overview of macroeconomic, oil price and policy assumptions, which are the main drivers behind energy demand and supply. Sector-specific assumptions are described later in this document.

2.1 The Canadian Economy

The Canadian economy is highly integrated with that of the United States. As a result, the assumptions made regarding Canadian economic activity are consistent with the consensus view of US forecasters about their own economy.

A number of key macroeconomic variables[2] — also called "drivers"—have a large influence on energy consumption and production throughout the economy. The assumptions for most of the drivers, described below, were the product of consultations with Federal, Provincial and Territorial officials during the winter of 2004. Some values have been modified slightly, to be consistent with an oil price assumption that has been revised upwards since those consultations took place.

POPULATION

The population projection is consistent with the declining trend in fertility, with immigration assumed to remain unchanged at about 225,000 immigrants per year, and net immigration of 168,000. Overall, population is projected to grow at an annual rate of 0.8 percent from 2005 to 2010, and at 0.7 percent thereafter, reaching 35.8 million in 2020 (Table M1).

The population projection is combined with expected trends in the formation of households to arrive at the number of households, which is one of the main determinants of energy use in the Residential sector.

The demographic composition of the population projection determines the expected population of driving age. This population, together with the average number of vehicle-kilometres driven per person of driving age, and vehicle technologies, determines gasoline and diesel consumption for light-duty vehicles in the Transportation sector.

Table M1

Demographic Assumptions, 1990-2020 (AAGR*, percent)

	1990-2004	2005-2010	2010-2020
Population	1.0	0.8	0.7
Households	1.6	1.4	1.1
Population of driving age (16+)	1.2	1.1	0.7

*Average Annual Growth Rates

SIZE OF THE ECONOMY

The population projection also has a bearing on the size of the economy. Population or, more precisely, the source population for the labour force and employment, combined with productivity per worker, determines the size of the economy. The productivity per worker is projected to increase at an average annual rate of 1.6 percent over the projection, compared with a historical value of 1.4 percent for the period 1990-2004 (Table M2). This compares with labour productivity growth of 2.3 percent in the US over the outlook horizon.

The labour force is expected to increase by 0.7 percent annually on average between 2005 and 2020. This translates into an average growth rate of 0.8 percent in employment as the unemployment rate is assumed to fall to 6.6 percent by the year 2020.

[2] The macroeconomic and demographic projections were provided by Informetrica Limited based on specific assumptions from NRCan.

The combination of productivity growth and labour force growth leads to an anticipated increase of 2.4 percent per year in economic activity, measured in terms of constant-dollar (or real) Gross Domestic Product (GDP) over the next 15 years. In the US, GDP is anticipated to grow at the rate of 2.9 percent for the same period.

Economic activity also translates into income to households. Two household decisions in particular, both energy-related, respond to changes in income: vehicle and home purchases. Vehicle sales accelerate slightly over the horizon compared to historical trends, while the number of housing starts actually falls over the 2005-2020 period, in keeping with slower growth in the number of households for that period.

Table M2

Macroeconomic Assumptions, 1990-2020 (AAGR, percent)

	1990-2004	2005-2010	2010-2020
Labour force	1.4	0.9	0.6
Labour force productivity	1.4	1.7	1.6
GDP	2.8	2.7	2.3
Disposable personal income per capita	0.7	2.3	1.5
Vehicle purchases	0.9	1.5	1.8

COMPOSITION OF THE ECONOMY

The composition[3] of the economy is expected to change somewhat over the course of the outlook as industries vary their output in response to changes in consumption patterns, investment, government purchases and trade. For example, consumers are expected to spend a larger share of their income on services by the year 2020, which translates into greater economic activity in Canada's service sector. Nevertheless, the structure of individual industries remains unchanged over the horizon, though their activity level may change.

These changes in the composition of the economy determine the relative rates at which industries, and their energy consumption, grow. Growth in the service industries is expected to outpace growth in manufacturing by an even larger margin, compared to the resource, construction and utilities industries (Table M3). Already representing 69 percent of the economy, the service sector's share is anticipated to increase to over 71 percent by 2020.

Changes in composition within the service part of the economy have an effect on floor space and building types, and therefore on associated energy use.

Furthermore, the changing composition of the economy leads to a changing mix of commodities, and hence on the energy used to transport them.

[3] The economy is broadly divided into two main sectors: one produces goods, the other services.

Table M3
Structure of the Economy, 1990-2020

	Share of economy in 2004 (percent)	Share of economy in 2020 (percent)	AAGR of constant-dollar GDP (percent)		
			1990-2004	2005-2010	2010-2020
Agriculture, forestry, hunting & fishing	2.2	1.8	0.7	0.8	1.3
Mining	3.5	3.3	2.2	3.3	1.5
Utilities	2.5	2.2	1.0	1.8	1.7
Construction	5.5	4.8	1.2	1.2	1.7
Manufacturing	17.2	16.3	3.1	2.4	2.0
Services	69.1	71.5	3.1	2.9	2.5
Total economy	*100.0*	*100.0*	*2.8*	*2.7*	*2.3*

OTHER MACROECONOMIC VARIABLES

Other macroeconomic variables play an important role in energy use and production. The exchange rate, for example, has an impact on the whole of the economy, and on the price of internationally traded commodities such as crude oil. Inflation affects prices throughout the economy. Interest rates also have economy-wide impacts, particularly on decisions to purchase energy-using and energy-producing equipment. Table M4 shows both historical averages and expected values for these three variables.

Over the projection period, the exchange rate is higher than long-term values, but more consistent with recent history. Inflation, slightly higher in Canada than the US, slows down somewhat over this period while interest rates are at about historical levels.

Table M4
Additional Macroeconomic Variables, 1990-2020 (Average rates)

	1990-2004	2005-2010	2010-2020
Exchange rate (Cents US/CDN dollar)	74	82	83
Inflation rate (percent)	1.8	1.7	1.5
Interest rate (AAA Industrial bonds - percent)	8.2	8.1	8.2

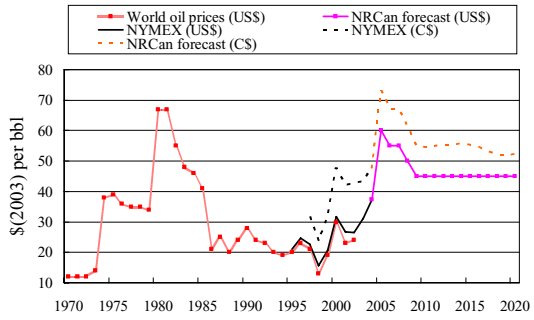
2.2 Crude Oil Price

Canada is a price-taker in the world oil market since its share of oil production is not large enough (4 percent) to significantly influence international oil prices. The New York Mercantile Exchange (NYMEX) price of the widely-traded West Texas Intermediate (WTI) crude oil closely follows the world price of crude oil and is the reference from which regional prices are determined throughout North America. Thus, WTI is used as the crude oil price benchmark for Canada.[4]

After a low of $11 per barrel (per bbl) in the late 1990s, WTI prices have been on an upward trend, reaching a high of $66 per bbl in 2005. These prices are now similar to the peak, inflation-adjusted prices experienced during the late 1970s and early 1980s (Figure P1).

Figure P1

Crude Oil Price



Much of the price run-up can be attributed to continued uncertainty as a result of the unusual and unprecedented confluence of oil market challenges: global terrorism, geopolitical pressures, strong demand (especially from China and India), paper traders' perceptions and commodity speculation. High prices persist, even though supply and demand are reported to be well-balanced. OPEC has increased supply, and there are high levels of commercial and strategic stocks to make up for unforeseen shortfalls, but may not be sufficient to reduce prices to pre-2000 levels

[4] Unless indicated otherwise, all prices in this section are in US dollars.

The recent price run-up started in 2003, when the WTI price increased by over $5 per barrel to $31 relative to 2002, followed by a similar increase in 2004. As events unfolded, even though there were no OPEC supply disruptions, crude oil prices have continued to rise relentlessly, reaching $66 per barrel in mid-2005. Hurricanes Katrina and Rita also had a short-term effect on world oil prices in the summer of 2005.

While some analysts believe that high oil prices are here to stay, many large production companies are still using prices around $25 per barrel for project benchmarking and planning. In its *World Energy Outlook 2005*, the IEA is projecting international crude oil price of US$(2004) 35 to $39 per barrel, which compares to about US$(2003) 37 per barrel for WTI. In its 2006 Annual Energy Outlook, the US Energy Information Administration (EIA) projects a crude oil price of US$(2004) 47.30 in 2010.

SHORT-TERM OUTLOOK

While a precipitous drop in price over the next five years is possible, the conditions for it to happen— the rapid departure of the commodity traders from the futures market, much weaker demand from Asia and strong non-OPEC supply growth—are not likely. Alternatively, there may be conditions, perhaps with equal probability, for prices to continue their upward path, such as a worsening of the situation in the Middle East and Nigeria.

LONG-TERM OUTLOOK

If higher prices, say over $50, persist in the longer term, it is likely that there would be a sustained demand response. This would be the case for transportation in particular, as hybrid vehicles would become more prevalent and governments could introduce new vehicle efficiency standards. Capital spending by oil companies may increase with higher discretionary cash flows, tending to raise non-OPEC production levels, though Russian production will remain unpredictable. The IEA surmises that non-OPEC production increases

could be limited over the next 20 years and that unconventional oil (e.g., oil sands) could only provide about 6 percent of world crude oil supply.[5] Moreover, OPEC may attempt to "control" markets by limiting spare capacity—in other words, it is unlikely to make investments that would fundamentally reduce prices. Given the sustained high price over the past two years, it is reasonable to expect that OPEC could maintain a price of $40 to $50 per barrel by adjusting supply. In view of these, and other factors, a price of $45 per barrel, in constant US 2003 dollars, has been assumed for the period from 2010 to 2020 (Figure P1).

Because the projection of crude oil prices remains inherently uncertain, the oil price assumption for the period covered by the Outlook represents a significant departure from previous projections. During consultations, provinces and territories generally supported the proposed crude oil price assumptions.

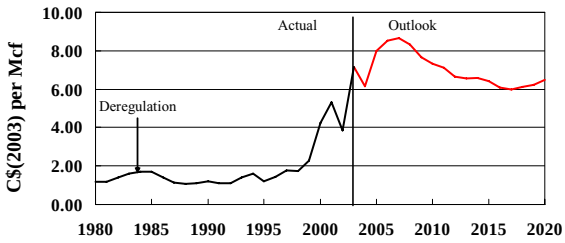
Although the international price of oil, expressed in US dollars, is assumed to remain constant, oil prices expressed in real Canadian dollars are projected to decline slightly over time as inflation in Canada is assumed to outpace that in the US over the projection period.[6]

2.3 Natural Gas Prices

The price of natural gas is driven in part by the price of crude oil, by the characteristics of the remaining resources of natural gas and by the level of natural gas demand. However, the most significant influence is the integrated nature of the North American natural gas market.

Prior to 1985, companies were required to demonstrate a 20-year inventory of reserves prior to the approval of any exports, and wellhead prices were regulated. In October 1985, prices and reserve levels were deregulated. At that time, there was large production capacity overhang and a lack of pipeline export capacity from Alberta. This situation caused a decline in Canadian natural gas prices (Figure P2), which was evident until the late 1990s. Soon afterwards, export capacity ceased to be a constraint as existing pipelines were expanded and new ones built. Since then, prices in Canada have been generally determined by the NYMEX natural gas price in the US because the Canadian natural gas market has become well integrated with that of the US.

Figure P2
Natural Gas Wellhead Price
Alberta



It is expected that natural gas wellhead prices in Alberta (the benchmark for Canadian prices) will decline from recent short-lived highs, in excess of $14 per thousand of cubic feet (Mcf) caused by hurricane activity in the Gulf Coast, to about $6 per Mcf in 2017. This projected decline will be primarily a result of the similar decline in the crude oil price. After 2017, prices will rise to about $6.50 by 2020 per Mcf because the conventional resources in the Western basin will be depleting and production will likely be replaced with more costly supplies from coalbed methane and the Mackenzie Delta. Price increases may be moderated by the potential for liquefied natural gas (LNG) imports into the North American market.

The natural gas price projection suggests levels that are two to three times higher than those of the 1990s, which is generally consistent with recent published projections. The US EIA's 2006 *Annual Energy Outlook* projects a similar path for natural gas prices.

[5] *World Energy Outlook 2004*, International Energy Agency (December 2005).

[6] The nominal Canada-US exchange rate is assumed to be relatively constant over the outlook.

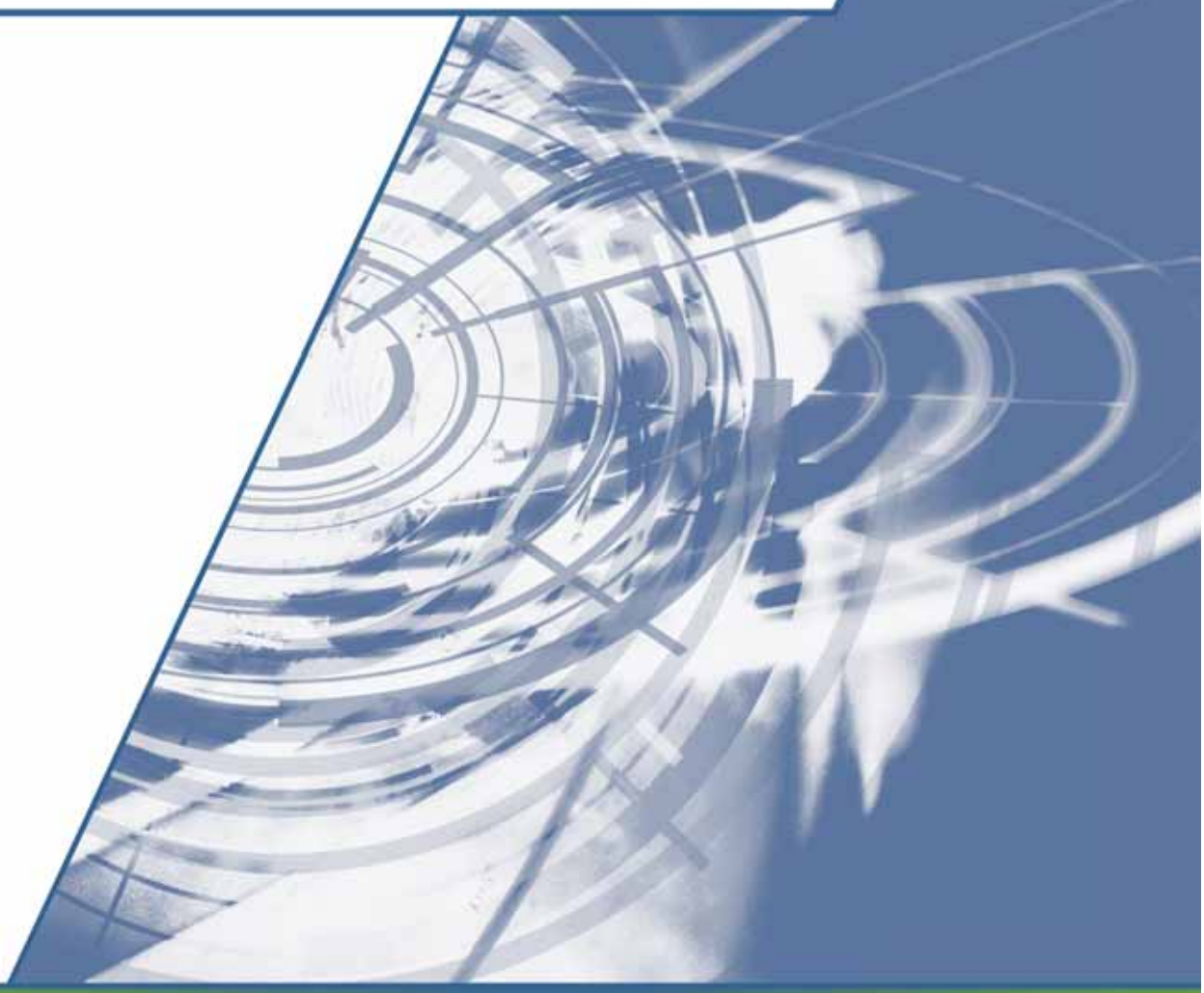
2.4 Policy Assumptions

During 2000-2004, the Government of Canada introduced approximately 150 individual programs. Only those programs with spending authority from Treasury Board as of May 2006 are reflected in this Outlook.

The impacts of these programs other than those embodied in consumer behavior are assumed to cease when the approved funding terminates. There will be, however, some carryover effects, especially with equipment regulations. Appendix II provides a more detailed description of these programs.

The Large Final Emitters (a proposed program to reduce emissions in energy-intensive industries), any programs proposed during 2005 and all the programs that were terminated or cancelled by May 2006 are not reflected in this Outlook. Provincial and territorial programs have been included when sufficient definition and commitment was provided by the province or territory (see Chapter 10 for more detail).

End-Use Prices



3 End-Use Prices

The end-use prices displayed in Table EP1 are averages for Canada. Regional prices will vary, especially for natural gas and electricity, though the trends are representative. The main drivers for end-use prices are the WTI crude oil price and the Alberta natural gas price (refer to Section 2.3).

The real price of crude oil is assumed to decline in Canadian dollar terms from the high in 2005, over the projection period. As a result, the prices of crude oil-derived products also will decline in real terms.

This assumed decrease is further compounded by excise taxes on transportation fuels, which remain constant in nominal dollars, i.e., declining in real terms.

Despite the declines from recent very high levels, the real end-use prices of energy are much higher than the prices experienced in the 1980s and 1990s.

Table EP1
End-Use Price C$(2003) per GJ (Unless noted otherwise)

	1990	2000	2005	2010	2020
Oil Price (WTI) C$ per barrel	35.79	47.85	70.20	52.65	49.50
Oil Price	5.85	7.82	11.47	8.60	8.09
Natural Gas (Alberta Wellhead)	1.67	4.50	7.98	7.33	6.48
Residential					
Natural Gas	6.40	10.14	13.00	11.89	10.71
Heating Oil	10.86	15.75	18.43	15.25	14.36
Electricity	21.48	24.60	23.56	23.51	23.68
Commercial					
Natural Gas	6.40	8.58	11.87	10.73	9.66
Heavy Fuel Oil	4.30	7.63	10.87	8.43	7.96
Electricity	20.16	17.26	17.10	17.02	17.33
Industrial					
Natural Gas	3.45	5.86	9.64	8.50	7.66
Heavy Fuel Oil	3.59	7.38	10.63	8.06	7.58
Electricity	13.86	15.36	14.33	14.01	13.01
Transportation					
Gasoline	21.1	22.07	25.05	21.06	19.24
Diesel	16.54	18.88	21.51	18.04	16.57
Electricity Generators					
Natural Gas	1.88	5.61	9.51	8.62	8.41
Heavy Fuel Oil	3.46	6.16	9.19	6.94	6.53
Coal	0.97	1.41	1.45	1.65	1.53

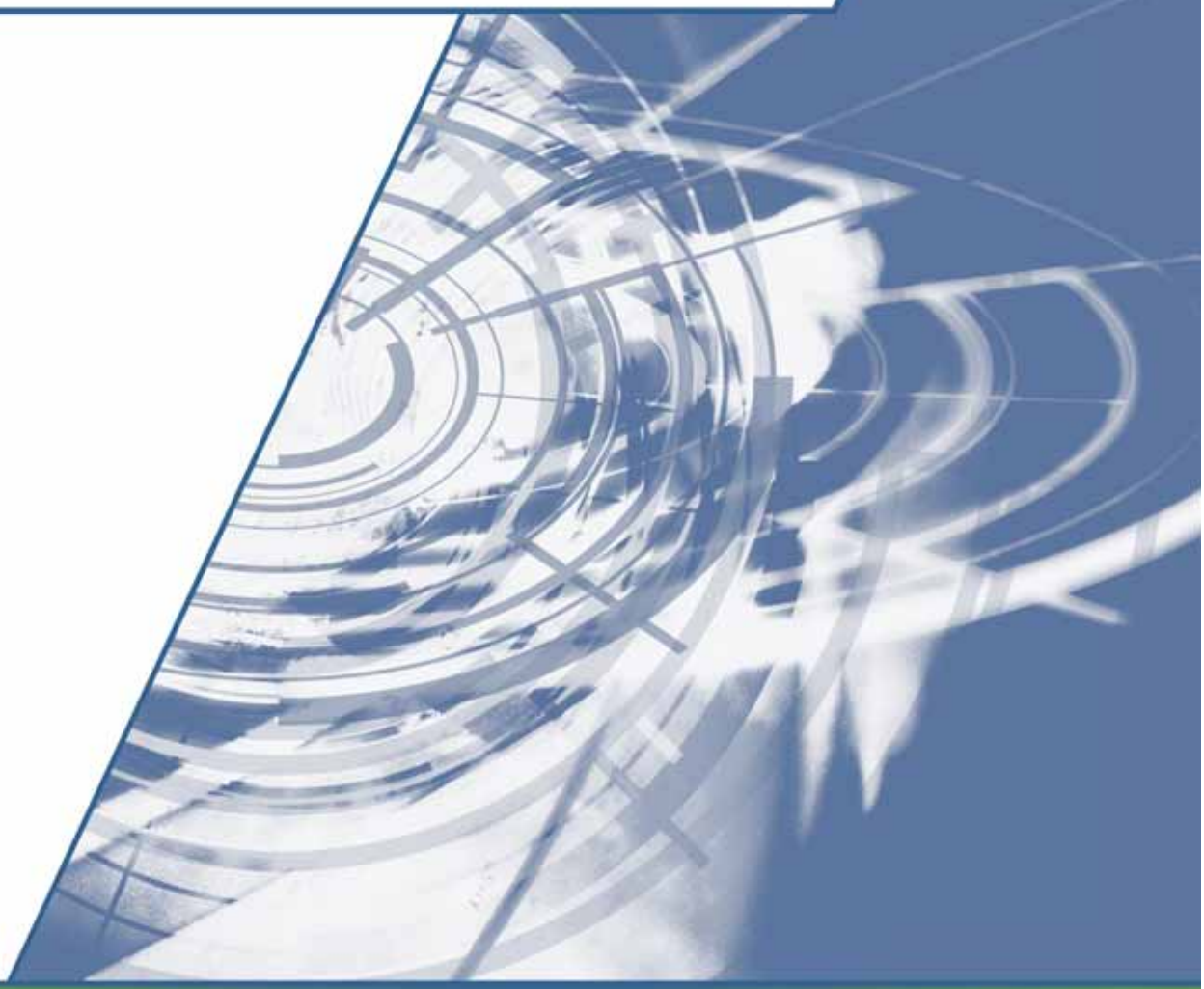
In most Canadian markets, the price of refined petroleum products is typically set by the import price of products.[7] From 2005 to 2010, refined petroleum product prices are expected to decline by a little over 20 percent in the Commercial, Industrial, and Electricity sectors, and by about 15 percent in the Residential and Transportation sectors. After 2010, the real price decline will be about 5 percent across all sectors.

Natural gas prices in all sectors are expected to trend down from the high in 2005 by about 15 percent, reflecting in part the decline in crude oil prices. The price differences among sectors are primarily due to higher distribution costs for the Residential and Commercial sectors.

After a substantial increase until 2005, coal prices are expected to remain relatively constant through the projection.

[7] Prices are set in New York Harbour (NYH), a major trading point for refined petroleum product in North America. Pricing in local markets generally reflects the NYH price plus a transportation differential.

End-Use Demand



4 End-Use Demand

- Energy use in the residential sector is projected to increase by 14.8 percent over the outlook horizon, as continued growth in the number of households and a persistent trend towards larger homes more than offset energy efficiency improvements partly resulting from changes in equipment regulations. Most of this increase is in the use of electricity.

- By the end of the outlook horizon, energy intensity in the Commercial sector is expected to return to pre-1990 levels, in spite of trends towards more energy-intensive building types and the expansion of the service sector. Again, the shift is towards more electricity-intensive energy consumption.

- In spite of the growing need for transportation services, energy demand for transportation is expected to grow at 1.7 percent per year over the projection period, slower than the annual growth of 2 percent experienced from 1990 to 2004. Several government initiatives contribute to improved vehicle fuel efficiency in all modes. The use of ethanol in blended gasoline will become more widespread, primarily as a result of government initiatives to expand ethanol supply.

- Energy-intensive manufacturers are expected to reduce their energy intensity by 1 percent on average for the next five years, after which the opportunities for efficiency improvement are expected to taper off. In spite of these efficiency gains, energy consumption will increase.

This section reviews and projects energy demand by end-use sectors: Residential, Commercial, Transportation and Industry. Energy prices are expected to decline in real terms (Chapter 2.2), though they will remain much higher than the levels of the 1980s and 1990s.

4.1 Residential Sector

The anticipated demand for energy is influenced primarily by energy prices, demographic patterns (including household formation), efficiency of equipment, home characteristics and weather.[8] In this Outlook, the households in the Residential sector respond to these pressures by changing their levels of energy consumption, switching between fuels, or adopting technologies of different efficiencies.

The number of households is expected to increase by about 1.4 percent annually from 2005 to 2010 and by 1.1 percent from 2010 to 2020 (Table R1). This is based on a combination of the population projection and historical trends in household formation. In addition, average floor space area is also expected to increase by 0.4 percent per year. The impact of this increase in households and in average floor space area will be higher demand for energy. However, other factors such as higher natural gas prices, equipment standards (Appendix II) and the natural replacement of old equipments by more efficient ones over time will dampen this potential growth in energy demand. The expected impacts of these factors include:

- New gas furnace efficiency will reach 90 percent in 2009.

- Efficiency gains ranging between 5 and 40 percent for other equipment, such as gas water heaters, heat pumps, and clothes washers and dryers by 2010.

The expected effect of introducing new equipment standards will be to contribute to an overall intensity improvement of about 0.5 percent per year, for the period 2005 to 2010.

For 2010 to 2020, the anticipated intensity improvements will be only 0.2 percent per year. This is because there is limited room to introduce higher energy efficient appliances.

[8] Normal weather patterns are assumed, based on the 30-year historical average.

Table R1
Residential Demand, 1990-2020

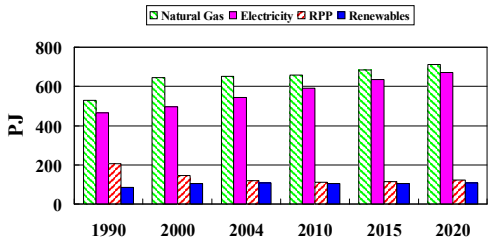
					AAGR, percent		
	1990	2005	2010	2020	1990-2004	2005-2010	2010-2020
Households (million)	10.1	12.6	13.5	15.2	1.5	1.4	1.1
Energy Consumption (PJ)	1,287	1,402	1,467	1,609	0.7	0.9	0.9
Energy Intensity (GJ/household)	128	111	108	106	-0.8	-0.5	-0.2

Reflecting these trends, energy consumption in the Residential sector is expected to increase more slowly than the number of households (Table R1). This is due to improvements in energy efficiency of equipment. Demand is expected to grow an average of 0.9 percent per year between 2005 and 2010, and by the same percentage per year between 2010 and 2020.

As a result of these factors, energy intensity per household is expected to continue to decline from 128 GJ in 1990 to 111 GJ in 2005, reaching 106 GJ per household by 2020.

Natural gas is expected to remain the predominant fuel used in homes, over 44 percent by 2020, compared to 46 percent in 2004. Electricity will represent the second most important fuel, accounting for nearly 42 percent of household demand in 2020, compared to 38 percent in 2004. The growth in electricity consumption reflects the anticipated penetration of air conditioning, appliances and electronic devices.

Figure R1
End-Use Energy Demand by Fuel
Residential Sector



4.2 Commercial Sector

Table C1
Commercial Demand, 1990-2020

					AAGR, percent		
	1990	2005	2010	2020	1990-2004	2005-2010	2010-2020
Floor space (million of m^2)	466	592	661	825	1.6	2.2	2.2
Energy Consumption (PJ)	867	1,137	1,296	1,635	2.2	2.6	2.3
Energy Intensity (GJ/m^2)	1.86	1.92	1.96	1.98	0.6	0.4	0.1

The demand for energy in the Commercial sector is determined by the level of economic activity, which translates into demand for floor space and equipment, and by energy prices, technologies and policies which determine the level of energy efficiency of the building shells and of equipment.

The economic activity in the Commercial sector will follow the long-term trends in the Canadian economy. Commercial GDP, in real terms, grew on average by 3.1 percent annually from 1990 to 2004. It is anticipated to slow to 2.9 percent annually from 2005 to 2010, and to 2.5 percent for the final ten years of the outlook, consistent with the lower GDP growth rate for the whole economy.

In keeping with economic growth, overall floor space (both commercial and institutional) is expected to increase an average of 2.2 percent per year from 2005 to 2020.

Energy prices in the Commercial sector will decline for natural gas and heavy fuel oil but remain relatively stable for electricity.

Growth in energy demand in the Commercial sector is expected to be moderated by government regulations and natural penetration of new technologies. A description of these programs can be found in Appendix II. The impact of these programs includes:

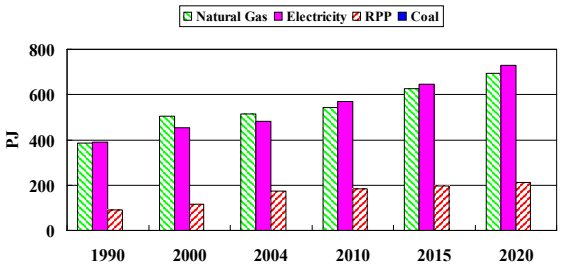
- Efficiency for new gas boilers will reach 85 percent in 2010.
- Efficiency gains ranging from 5 to 30 percent for other equipment such as air conditioners, heat pumps, chillers, water heaters, etc., by 2010.

Commercial energy intensity, measured as energy consumption per square metre, increased by 0.6 percent per year from the 1990s up until 2004 (Table C1). The increase in energy intensity was mainly due to structural change (more office floor space relative to other, less energy-intensive buildings, such as warehouses), and penetration of air conditioning and auxiliary equipment, such as computers. This trend is expected to continue but at a slower pace with average intensity gains of 0.1 per year for the last 10 years of the projection period.

Commercial energy consumption continues to be dominated by electricity and natural gas, representing about 85 percent of the total in 2004 (Figure C1). Demand increased by about 2.2 percent per year during the period of 1990 to 2004 and is projected to increase at 2.6 percent during the period 2005 to 2010. After 2010, energy requirements are expected to continue to increase at a slightly lower rate (2.3 percent).

The increase in consumption during the last decade of the projection can be attributed for the most part to electricity, which reflects a much higher demand for space cooling and lighting, and, to a lesser extent, office equipment, ventilation and other uses. The share of electricity in commercial energy consumption will increase from 41 percent in 2004 to 45 percent in 2020.

Figure C1
End-Use Energy Demand by Fuel
Commercial Sector



4.3 Transportation Sector

The key determinants of transportation energy use include the driving population, income, energy prices and vehicle efficiency (Table T1). The driving population (16 years and older) is derived from the general population growth, and disposable income follows from the economic trends discussed in Section 2. The real price of motor gasoline is expected to decline from today's level by about 3 percent per year from 2005 to 2010, and by 0.9 percent per year from 2010 to 2020 as a result of the crude oil price assumption and the excise taxes, which are expressed in nominal terms. Nonetheless, gasoline prices will remain well above their levels of the 1980s and 1990s.

All these factors will tend to increase vehicle use. Taken together, these assumptions suggest that, for the period 2005 to 2010, vehicle kilometres driven will increase by about 3.4 percent annually and vehicle stock will increase by slightly less than 2 percent. These rates are assumed to slow somewhat after 2010 as the economy is assumed to grow more slowly.

Table T1
Determinants of Transportation Demand

					AAGR, percent		
	1990	2005	2010	2020	1990 - 2004	2005 - 2010	2010 - 2020
Driving Population (millions)	21.6	25.9	27.4	29.5	1.2	1.1	0.7
Gasoline Price ($2003 per GJ)	21.1	25.1	21.1	19.2	-0.1	-3.4	-0.9
Income Per Capita $1997 (thousands)	19.1	21.9	24.5	28.4	0.8	2.3	1.5
LDV km (billions)	242	327	387	485	2.1	3.4	2.3
LDV Stock (millions)	14.7	18.5	20.1	23.8	1.5	1.7	1.7
LDV km/stock (thousands)	16.5	17.7	19.3	20.4	0.5	1.6	0.6
LDV per 10 drivers	6.8	7.1	7.3	8.1	0.3	0.5	0.9
New Car Fuel Eff (L/100 km), lab tested	8.2	7.8	7.3	7.1	-0.4	-1.2	-0.3
New Light Truck Fuel Eff (L/100 km), lab tested	11.4	11.0	9.7	9.0	-0.2	-2.5	-0.7

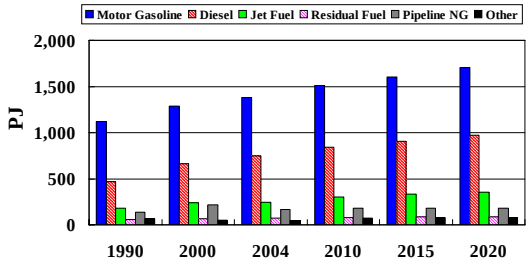
The projected growth in demand for transportation services will not translate into a similar increase in fuel use, partially as a result of energy efficiency initiatives. These programs are described in Appendix II.

Over the period 1990 to 2004, the energy efficiency of new vehicles showed steady improvement as automobiles improved from 8.2 to 7.8 L/100 km and light trucks from 11.4 to 11 L/100 km. By 2004, these levels were better than the voluntary targets of 8.6 L/100 km for cars and 11.4 L/100 km for light trucks. This trend is expected to continue, partly due to the recent agreement between the Federal Government and the Canadian Automotive Industry to reduce emissions. By 2010, the fuel efficiencies of new light-duty vehicles are projected to improve to 7.3 L/100 km for cars and 9.7 L/100 km for light trucks. Thereafter, fuel efficiencies of new automobiles are expected to remain relatively constant, whereas the fuel efficiency of light trucks will continue to improve.

Based on these assumptions, energy demand in the transportation sector will grow by annual rates of 2.4 percent for the first five years and 1.2 percent for the last 10 years of the projection period, substantially lower than the growth rate of 2.0 percent experienced from 1990 to 2004.

In 2004, petroleum products accounted for the largest share of transportation fuels, with motor gasoline, diesel and aviation fuels representing 52, 28 and 9 percent of transport energy use respectively (Figure T1). Alternative fuels, such as compressed natural gas (CNG), fuel ethanol, liquid petroleum gas (LPG) and electricity, met less than 1 percent of energy demand. By 2020, the motor gasoline share is expected to decline slightly to 51 percent, with diesel increasing to 29 percent. Meanwhile, the share of alternative fuels is expected to increase slightly to about 1.5 percent. The changes in fuel shares will be largely a result of motor vehicle fuel efficiency improvements, which will reduce the growth in demand for gasoline.

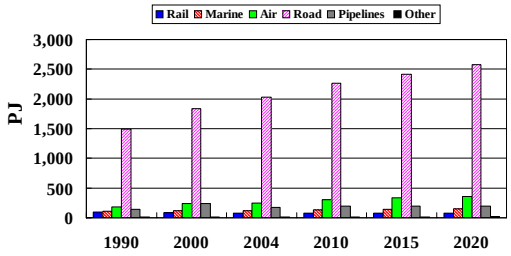
Figure T1
End-Use Energy Demand by Fuel
Transportation Sector



It is assumed that the Federal Ethanol Expansion Program as well as provincial incentives and regulations will encourage ethanol use as a transportation fuel. Demand for ethanol for blending with gasoline as well as for E-85 vehicles is expected to increase from 6 PJ in 2004 to 29 PJ by 2010, representing about 2 percent of total gasoline market.

Transportation energy demand consists of six modes: road, rail, air, water, natural gas pipelines and "other", which includes the remaining uses of energy products, such as lubricants (Figure T2). About 75 percent of energy is used for road transportation, followed by air, water, and rail at 10, 5 and 2 percent respectively. These shares are expected to remain fairly constant throughout the projection. Off-road diesel and gasoline use in the industrial and agricultural sectors were not included in transportation energy demand.

Figure T2
End-Use Energy Demand by Mode
Transportation Sector



Light-duty trucks, which include minivans, SUVs and pickup trucks, are expected to represent an increasing share of light-duty vehicles: they will reach 42 percent of light-duty vehicle sales by 2020, up from the current share of 39 percent. The impact of this trend, and other factors causing increased demand are partially offset by gains in fuel efficiency. As a result, the pace of energy demand growth for light-duty vehicles will slow from 2.4 percent per year, during 2005 to 2010, to 1.3 percent per year from 2010 to 2020. Light-duty vehicles are expected to account for a slightly lower share of transportation energy, going from 48 percent in 2005 to 47 percent by 2020.

Road freight energy demand reflects economic conditions in Canada and the US. From 1990 to 2004, the growth in road diesel consumption was strong, averaging 4 percent per year. Projections of energy demand incorporate efficiency gains for freight trucks stemming from efficiency initiatives. Efficiency gains will only partially offset the growth in trucking activity associated with the assumed industrial growth. The net result is an anticipated growth rate of 2.5 percent per year up to 2010, and 1.8 percent per year from 2010 to 2020.

From 2005 to 2020, aircraft efficiencies are projected to improve at 1.1 percent per year, which includes 0.1 percent due to efficiency initiatives. However, rising incomes and the prevalence of low-cost airlines are expected to lead to rising demand for air travel. Hence the demand for aviation fuels is projected to increase by 2.6 percent annually from 2005 to 2020.

Since 1990, rail companies have significantly improved their fuel efficiency (2.8 percent annually) as a result of new equipment purchases and changes in operating practices. There is, however, less potential to maintain these gains over the projection period. Therefore, an annual improvement of 1.5 percent in rail efficiency, which includes a modest contribution from efficiency initiatives, is assumed for this Outlook.

Rail energy demand fell over the last three years as a result of declining industrial shipments. This demand is expected to show little change over the projected horizon, increasing from 78 PJ in 2005 to 80 PJ by 2020, as efficiency improvements offset the impact of growth in the Industrial sector.

Significant use of hydrogen-fueled vehicles is not envisaged during the outlook period.

4.4 Industrial Sector

In developing an outlook for industrial energy consumption, it is helpful to divide the economy between net suppliers of energy and net users of energy. Energy consumption by energy suppliers (upstream production, electricity and refineries are discussed elsewhere in this Outlook) depends to a great extent on the interplay of energy market forces. Energy consumption by industrial energy users depends mostly on the anticipated state of the economy, together with expected trends in energy efficiency. This section concentrates on energy users in the goods-producing part of the economy. Among the energy-using sectors in industry, energy-intensive[9] industries receive special attention.

Economic growth for energy-using industries is anticipated to be consistent both with the projected growth in the overall economy (refer to Chapter 2) and broadly consistent with historical trends.

In particular, for energy-intensive manufacturers, GDP in constant dollar terms is expected to grow at an average annual rate of

[9] The industrial sector, here, consists of: the non-manufacturing, goods-producing sectors (agriculture, forestry, coal mining, metallic and non-metallic mineral mining, construction); the energy-intensive manufacturing sector (iron and steel, aluminium, other non-ferrous smelting and refining, cement, pulp and paper, and chemicals – broadly equivalent to the manufacturing industries in Canada's Large Final Emitters system); and non-energy intensive manufacturing ("other manufacturing").

1.0 percent over the 2005 to 2020 period. This compares to an annual rate of 1.6 percent for the previous ten years and is consistent with the slowdown in growth of the whole economy that has been occurring since the 1990s.

In addition to economic activity, other factors such as the level of energy intensity and changes to the composition of manufactured goods need to be considered. Assumptions for the rate of improvement in energy intensity are similar to those reported by industries in various annual report of the Canadian Industry Program for Energy Conservation (CIPEC). These assumptions vary in magnitude and duration, typically between 0.1 percent and 2.0 percent per year and run for the period ending anywhere between 2005 and 2010.

The annual rate of improvement in energy intensity for energy-intensive industries to the year 2010, are assumed to be 1.0 percent, with the exception of aluminium whose improvement rate is assumed to be 0.1 percent[10] . The balance of (non-energy-intensive) manufacturing was assumed to have an annual improvement of 2.0 percent.

Improvement rates beyond 2010 are assumed to taper off, owing to diminishing returns as the average level of energy intensity of the capital stock over time approaches practical limits.

Lastly, these rates of improvements were assumed to apply to industries at the provincial/territorial level and are, in most cases, reflected in the projected values. It should also be noted that this reference case does not make any intensity improvement rate assumptions with respect to non-energy use of fuels[11].

Table IN1 presents the anticipated trends in energy intensity and energy use for the industrial sector, excluding net suppliers of energy. The average annual rate of improvement in energy intensity for the energy-intensive manufacturers is anticipated to slow slightly, from 1 percent annually between 2005 and 2010, to 0.4 percent between 2010 and 2020.

Table IN1
AAGR of Energy Consumption, Output and Energy Use in Canada

	2005-2010			2010-2020		
Sector	**Energy Use**	**Real Gross Output**	**Energy Intensity**	**Energy Use**	**Real Gross Output**	**Energy Intensity**
Energy-Intensive Manufacturing	-0.1	1.1	-1.1	0.5	0.9	-0.4
Other Manufacturing	0.8	2.8	-2.0	0.9	2.5	-1.5

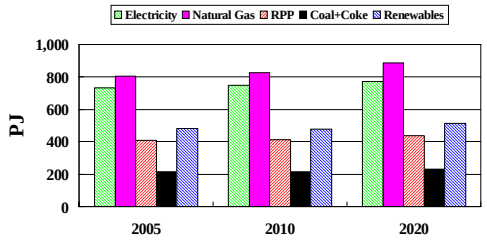
* Excludes oil and gas extraction and petroleum refining

[10] This target was indicated in the 1997/98 CIPEC report, since then, there have been no energy intensity targets listed, but in 2002/03, a target set for reducing emissions from 3.33 tonnes of CO_2 equivalent per tonne of aluminum in 2002 to 3.07 in 2010.

[11] Energy consumption refers to energy products that are used for heat and power. The consumption of energy products for other uses, such as natural gas as a chemical feedstock, is accounted for as non-energy use.

Based on these assumptions, industrial energy consumption will increase from 2,640 PJ in 2005 to 2,850 PJ by 2020 (Figure IN1), an average annual growth rate of 0.6 percent. Output over this period is expected to increase at 2.1 percent per year on average. The fuel mix for energy-using industries is not expected to change substantially over the outlook horizon, in large part because the relative prices of energy sources change little over that period.

Figure IN1
End-Use Energy Demand by Fuel
Industrial Sector



The following sections present both energy and non-energy use projections for mining and various manufacturing sectors at the national level. The sector definitions correspond to those used in Statistics Canada's *Report on Energy Supply-Demand* (catalogue number 57-003-XIB). For some sectors, national results may exclude a given province's activity in that sector because of data confidentiality. In such instances, the sector is aggregated into the "other manufacturing" category.

Aluminium Production

The aluminium smelting industry is predominantly located in Quebec, with one plant in BC. This sector is energy intensive, with electricity accounting for over 95 percent of total energy consumption. The industry is capable of meeting about 50 percent of its electricity consumption from its own hydro-generating facilities.

This industry's consumption of petroleum coke and pitch, which is used to manufacture carbon anodes, is accounted for as non-energy use.

Since 2000, the aluminium smelters in Quebec have undergone significant capital turnover and net capacity addition. All growth in smelting production through 2010 is assumed to occur in this province.

No new smelting capacity is assumed in Canada after 2010 and any subsequent growth is attributed to incremental productivity increases to capacity at existing smelters.

Consequently, energy use is expected to peak in 2010 at approximately 174 PJ and essentially maintain this level through 2020.

Figure IN2
End-Use Energy Demand by Fuel
Aluminium

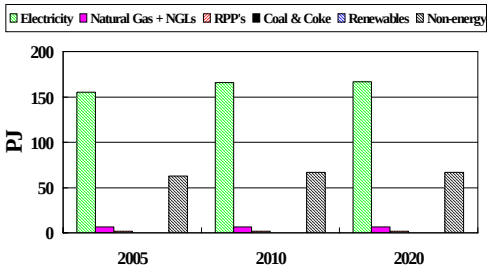


Table IN2
Aluminium

				AAGR, percent	
	2005	**2010**	**2020**	**2005-2010**	**2010-2020**
Gross output ($1997 billions)	4.2	4.5	4.6	1.5	0.2
Energy consumption (PJ)	163	174	175	1.3	0.1
Energy intensity (MJ per $)	39.1	38.6	38.4	-0.2	-0.1
Non-Energy Use* (PJ)	62	66	67	1.3	0.1

*Petroleum Coke and Pitch

Cement

Table IN3
Cement *

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross Output ($1997 billions)	1.6	1.8	2.3	1.7	2.5
Energy consumption (PJ)	67	71	86	1.1	1.9
Energy intensity (MJ per $)	40.9	39.7	37.7	-0.6	-0.5

* Alberta, British Columbia, Ontario and Quebec

The cement industry is anticipated to grow at approximately 2.2 percent per year during the outlook period.

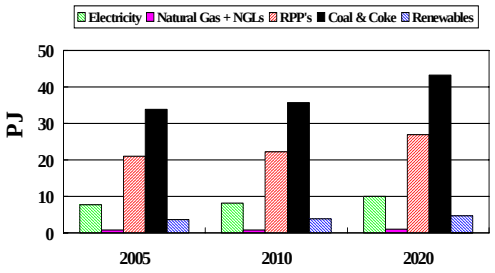
With a projected rate of improvement in energy intensity of about 0.6 percent per year, total energy use by the industry will be 19 PJ greater in 2020 relative to 2005.

Cement kilns are generally capable of accepting a wide range of fuels, including waste materials such as tires, for meeting their thermal requirements.

In response to the recent rise in energy prices, the cement industry has substantially switched away from natural gas to the use of solid fossil fuels (coal and petroleum coke), beginning in 2003. This mix, weighed heavily towards solid fuels, is maintained throughout the projection period.

Solid fossil fuels represent approximately 75 percent of total energy consumption. Note that petroleum coke is accounted for within petroleum products, representing about 85 percent of that total.

Figure IN3
End-Use Energy Demand by Fuel
Cement



Iron and Steel

Table IN4
Iron and Steel*

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross output ($1997 billions)	9.8	10.4	11.6	1.3	1.1
Energy consumption (PJ)	261	262	276	0.1	0.5
Energy intensity (MJ per $)	26.7	25.1	23.8	-1.2	-0.6

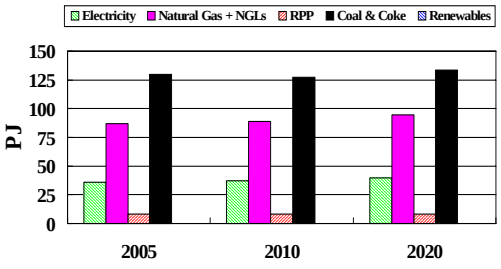
*Ontario and Quebec

The Canadian iron and steel industry is concentrated in the provinces of Quebec and Ontario.

The industry will grow on average by 1.2 percent annually to 2020. Meanwhile, energy intensity is projected to decline by 1.2 percent annually from 2005 to 2010, slowing to a 0.6 percent annual rate of decline thereafter. The total consumption of energy is expected to grow at 0.4 percent annually between 2005 and 2020.

The use of coal in the iron-making process represents approximately 50 percent of the total energy mix in this sector. In addition, it is assumed that the current proportion of primary to secondary steel production is maintained over the outlook period.

Figure IN4
End-Use Energy Demand by Fuel
Iron & Steel



Pulp and Paper

Table IN5
Pulp and Paper

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross output ($1997 billions)	35.9	34.7	37.2	-0.7	0.7
Energy consumption (PJ)	815	783	811	-0.8	0.4
Energy intensity* (MJ per $)	16.4	15.9	14.8	-0.1	-0.3

*Apparent Energy Intensity is shown - see accompanying text for a definition.

Recent announcements for permanent mill closures and production curtailments in Canada's pulp and paper industry are expected to cause output to decline over the next year or two. Although numerous mill closures have been announced, the structure of the pulp and paper industry is expected to remain unchanged, with the mechanical and chemical processes retaining their respective shares of industrial output.

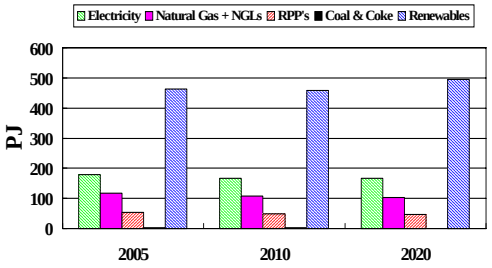
The sector's real output is then expected to remain flat through to 2010, after which the industry will recover at a relatively slow annual average rate of 0.7 percent.

Over the next 15 years, the Apparent Energy Intensity— which includes the fuels used for cogeneration and the effect of biomass fuel substitution[12]—is projected to improve by 0.2 percent annually on average. When excluding the effects of cogeneration and biomass fuel substitution, process level end-use energy intensity improves by 0.6 percent.

Biomass, in the form of wood waste and spent pulping liquor produced by the industry, represents about 57 percent of total energy consumption in 2005. The share of these by-products, both considered renewable energy sources, is not expected to increase significantly from present levels. The remaining energy consists principally of electricity, representing 21 percent of the industry's energy consumption, with petroleum products and natural gas accounting for the balance.

Since pulp mills generate a substantial portion of their own biomass, the supply of this renewable is expected to track the industry's output.

Figure IN5
End-Use Energy Demand by Fuel
Pulp & Paper



[12] Energy intensity improvement, as opposed to Apparent Energy Intensity, is based on process level and end-use energy only.

Chemicals

Table IN6
Chemicals

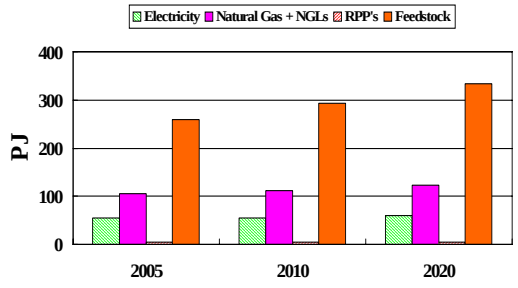
				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross Output ($1997 billions)	40.9	45.2	51.0	2.0	1.2
Energy consumption (PJ)	166	173	189	0.8	0.9
Energy intensity (MJ per $)	4.1	3.8	3.7	-1.2	-0.3
Non-Energy Use* (PJ)	259	294	334	2.5	1.3

*Natural Gas, LPGs and petrochemicals

In addition to directly consuming energy for heat and power during the manufacturing process, the chemicals industry also requires a substantial quantity of energy products for non-energy purposes in the form of chemical feedstock. The consumption of energy products for non-energy use exceeds the consumption for energy use.

Energy use for combustion will increase from 166 PJ to 189 PJ, whereas non-energy uses will increase much faster, from 259 PJ to 334 PJ, by 2020.

Figure IN6
End-Use Energy Demand by Fuel
Chemicals



Electricity and natural gas represent approximately 65 percent and 32 percent respectively of the consumption of energy products in 2005 for energy use. It has been assumed that the sector's composition of manufactured products will be similar to that of 2004.

During the outlook period, this industry is expected to grow at about 1.5 percent per year. The intensity of energy use is projected to decline at an annual average rate of 1.2 percent through 2010, and at 0.3 percent in the last ten years of the outlook.

Non-Ferrous Smelting and Refining

Table IN7
Smelting & Refining*

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross Output ($1997 billions)	10.1	11.6	11.7	2.7	0.0
Energy consumption (PJ)	73	79	75	1.5	-0.5
Energy intensity (MJ per $)	7.2	6.8	6.4	-1.2	-0.5

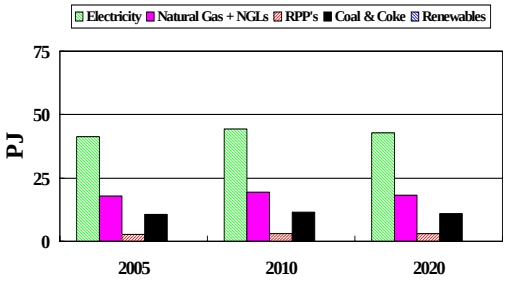
* British Columbia, New Brunswick, Ontario and Quebec

The non-ferrous smelting and refining industry is expected to grow by 2.7 percent on average to 2010 and remain relatively flat thereafter. Combined with a projected decrease of energy intensity of 0.7 percent annually, the total growth in energy consumption will average below 0.2 percent per year during the outlook period. In 2020, energy demand will be similar to that in 2005, about 75 PJ.

In addition, no changes are expected to the energy mix, with electricity (56 percent) and natural gas (25 percent) remaining dominant.

The proposed nickel smelter and refinery in Newfoundland and Labrador is not considered in this projection.

Figure IN7
End-Use Energy Demand by Fuel
Smelting & Refining



Mining

The mining sector in Canada is heterogeneous, with mine products varying from high value / low volume commodities such as gold, to low value / high volume products such as sand and gravel. This industry is comprised of the metal ore mining and non-metallic mineral extraction and quarrying sectors, thus excluding fossil fuel minerals.

Overall growth is expected to average 1.4 percent per year between 2005 and 2020 while energy intensity is projected to improve by 0.6 percent per year over the same period. The energy mix is not expected to change from the current proportions of electricity (38 percent), petroleum products (33 percent) and natural gas (23 percent). Energy demand will increase from 141 to 159 PJ in 2020.

Figure IN8
End-Use Energy Demand by Fuel
Mining

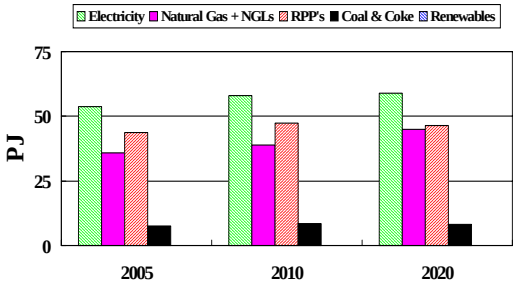


Table IN8
Mining

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross Output ($1997 billions)	16.1	18.0	19.7	2.3	0.9
Energy consumption (PJ)	141	153	159	1.7	0.4
Energy intensity (MJ per $)	8.9	8.6	8.1	-0.6	-0.6

Other Manufacturing

The "other manufacturing" sector contains all of the industries not analyzed elsewhere.

This sector is assumed to achieve the largest rate of improvement in energy intensity, at 1.7 percent per year throughout the outlook period. Combined with annual output growth of 2.6 percent, this leads to average annual growth in energy consumption of 0.9 percent over the projection period, reaching 717 PJ in 2020.

The energy mix remains static in this manufacturing category and is made up of 60 percent natural gas and 27 percent electricity. There are small quantities of other fuels: petroleum products (7 percent), coal (4 percent) and renewables (2 percent).

Figure IN9
End-Use Energy Demand by Fuel
Other Manufacturing

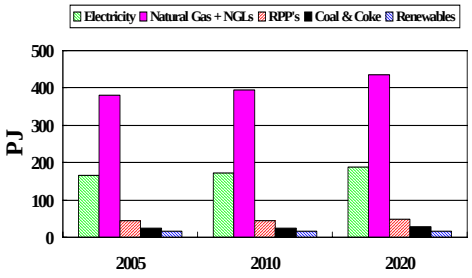
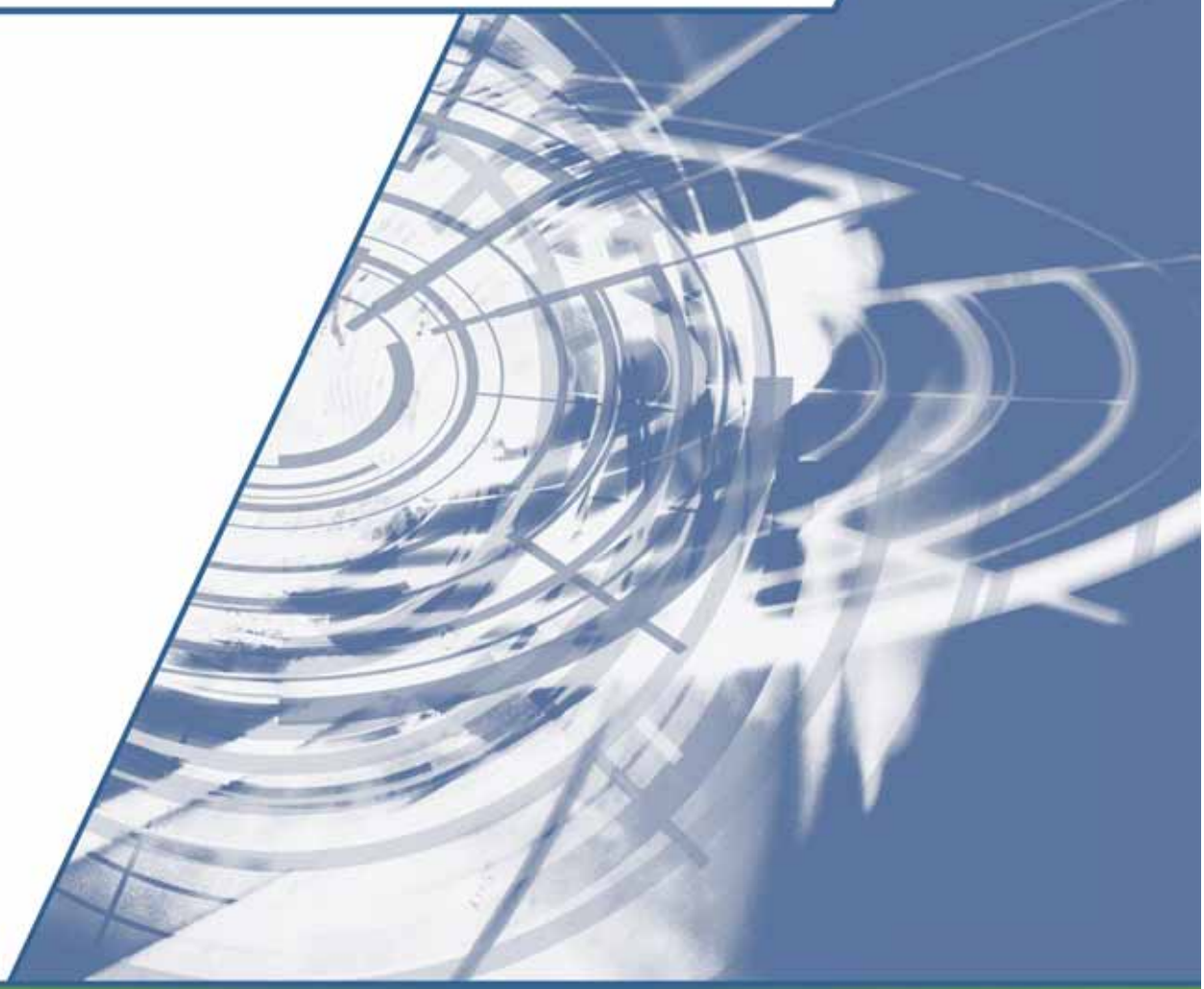


Table IN9
Other Manufacturing

				AAGR, percent	
	2005	2010	2020	2005-2010	2010-2020
Gross Output ($1997 billions)	470	540	690	2.8	2.5
Energy consumption (PJ)	630	655	717	0.8	0.9
Energy intensity (MJ per $)	1.3	1.2	1.0	-2.0	-1.5
Non-energy use (PJ)	82	94	117	2.6	2.2

Upstream Oil and Gas



5 Upstream Oil and Gas

- Conventional oil and gas resources are depleting, and the production of conventional oil and gas is expected to decline.

- Oil sands are projected to become the main source of crude oil: by 2020, its production will have tripled compared to 2004 levels, and its share of total Canadian production will have increased to 80 percent in 2020.

- By 2020, coalbed methane (CBM) production is expected to represent about 12 percent of natural gas production.

- The upstream oil and gas sector is becoming much more energy intensive owing to the increasing importance of unconventional energy sources. Its share of Canada's primary energy consumption is expected to increase from 11 currently to 14 percent in 2020.

Oil and natural gas production are a function of the resource base, commodity prices, investment and energy demand—including exports. The oil price assumption is discussed in Chapter 2 and the domestic demand from the four end-use sectors (Residential, Commercial, Transportation and Industrial) is discussed in Chapter 4. Additionally, the electricity sector requires natural gas and, to a much lesser extent, products derived from crude oil.

The Canadian and US markets are fully integrated for the trade of crude oil and natural gas through the network of pipelines. Thus, any Canadian production exceeding domestic requirements can be sold in the US market.

5.1 Crude Oil

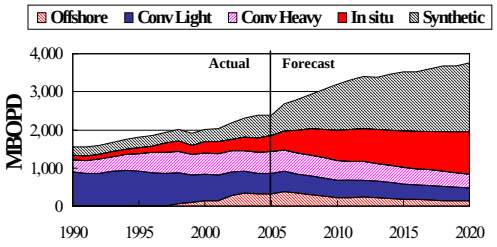
Production from the mature resource of conventional light and heavy crude oil in Western Canada is widely understood to be plateauing as the remaining resources decline. Conversely, the resources in Newfoundland and Labrador, while not as large as in Western Canada, have only been extracted since 1997. Alberta's enormous oil sands resources are expected to dominate Canadian production over the next two decades (Table US1).

Table US1
Remaining Potential Crude Oil Resources (billion barrels)

	NL	SK	AB	BC
Conv. light oil	1.4	1.1	5.7	0.5
Conv. heavy oil		2.7	1.3	
Oil sands mining			66.7	
Oil sands *in situ*			244.1	

Canadian conventional light and heavy oil production is expected to peak in 2006 at 1,480 thousand barrels per day (MBOPD) and then to gradually decline to about 840 MBOPD by 2020 as these resources deplete (Figure US1).

Figure US1
Crude Oil Production



In Newfoundland and Labrador, oil production is expected to rise to 390 MBOPD in 2006 when White Rose begins full production and then decline, even though new production from Hebron/Ben Nevis is assumed to begin in 2011.

By 2020, the oil sands share of production is anticipated to double, from about 40 percent today, to roughly 80 percent. Oil sands production is expected to triple in volume from 2004 levels to 2,900 MBOPD in 2020. The growth of synthetic oil production will be somewhat higher than that of the *in situ* bitumen, owing to the former's greater acceptability by the refining industry since it requires less processing. The transportation of *in situ* production requires large amounts of diluent, which has traditionally been condensate (a by-product of conventional natural gas production).

OIL SANDS PRODUCTION

Oil is extracted in two ways from Canada's oil sands. One way is through surface *mining*, in which the mined material is fed into an *upgrader* that yields *synthetic crude*. This crude is then sent on to refineries by pipeline.

The other way is by sub-surface or *in situ* extraction, generally using a thermal recovery process such as steam-assisted gravity drainage. The oil thus extracted is referred to as *bitumen*, and is mixed with a *diluent* for transportation by pipeline. This blended bitumen is still quite heavy, which makes it more complicated to refine than synthetic crude.

By 2020, synthetic crude is expected to be an important blending agent. In 2020, synthetic oil production is estimated to be about 1,800 MBOPD, and *in situ*, 1,100 MBOPD.

Projected crude oil and petroleum product imports will remain at about 1 MMBOPD (million barrels per day) for the next 15 years. Crude oil exports from Canada will increase over the projection period, as increasing demand will not offset increasing production. By 2010, gross exports are projected to be about 2,600 MBOPD, and by 2020, should exceed 2,500 MBOPD. Therefore, net exports of crude oil are expected to increase from 1,600 MBOPD to about 1,700 MBOPD between 2010 and 2020.

5.2 Natural Gas

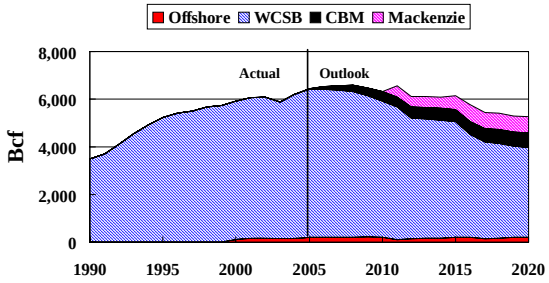
Canada's remaining natural gas resources are concentrated in Alberta (Table US2). Currently, there is no production from the Mackenzie Delta region and there are comparatively small amounts from offshore Nova Scotia. There is limited production of coalbed methane (CBM) although the potential is thought to be large.

Table US2
Remaining Potential Natural Gas Resources (Tcf)

	NS	SK	AB	BC	Mackenzie
Conv. Gas	4	3	95	32	64
Coal bed Methane gas in place			500		

Natural gas production is expected to peak at about 6.6 trillion cubic feet (Tcf) in 2011 (Figure US2), when the Mackenzie Delta is anticipated to commence production. After 2011, total gas production will decline to about 5.3 Tcf by 2020. Alberta will remain the dominant producing province, but its share of Canadian production is projected to decline from 77 percent currently to 62 percent by 2020. British Columbia and the Northwest Territories are expected to contribute 19 and 13 percent respectively in 2020. Natural gas production in Nova Scotia is expected to remain relatively stable at 200 billion cubic feet (Bcf) by 2020, with the decline from current production being offset by production from Deep Panuke.

Figure US2
Natural Gas Production



As conventional gas resources deplete, CBM is projected to become an important component: it will supply about 12 percent (620 Bcf) of total natural gas production in 2020. If CBM is not developed at this rate, there will be implications for Canadian exports.

Due to a projected decline in natural gas production and an increase in domestic demand (from 2,700 Bcf in 2005 to 3,900 Bcf by 2020), net exports are expected to decline from a current level of 3,700 Bcf to 1,300 Bcf by 2020.

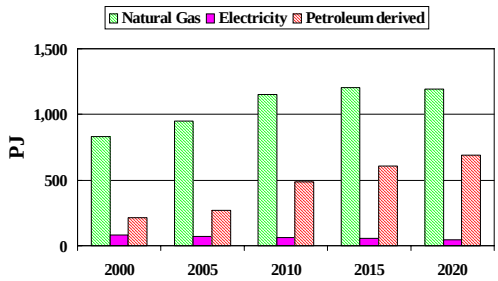
It is expected that liquefied natural gas (LNG) imports will begin in 2011, to Eastern Canada, at the rate of about 210 Bcf per year. Since Canada will be in a surplus position throughout the projection period, these volumes are assumed to be exported to the US. For that reason, these volumes do not appear in the Outlook.

Upstream Sector Energy Requirements

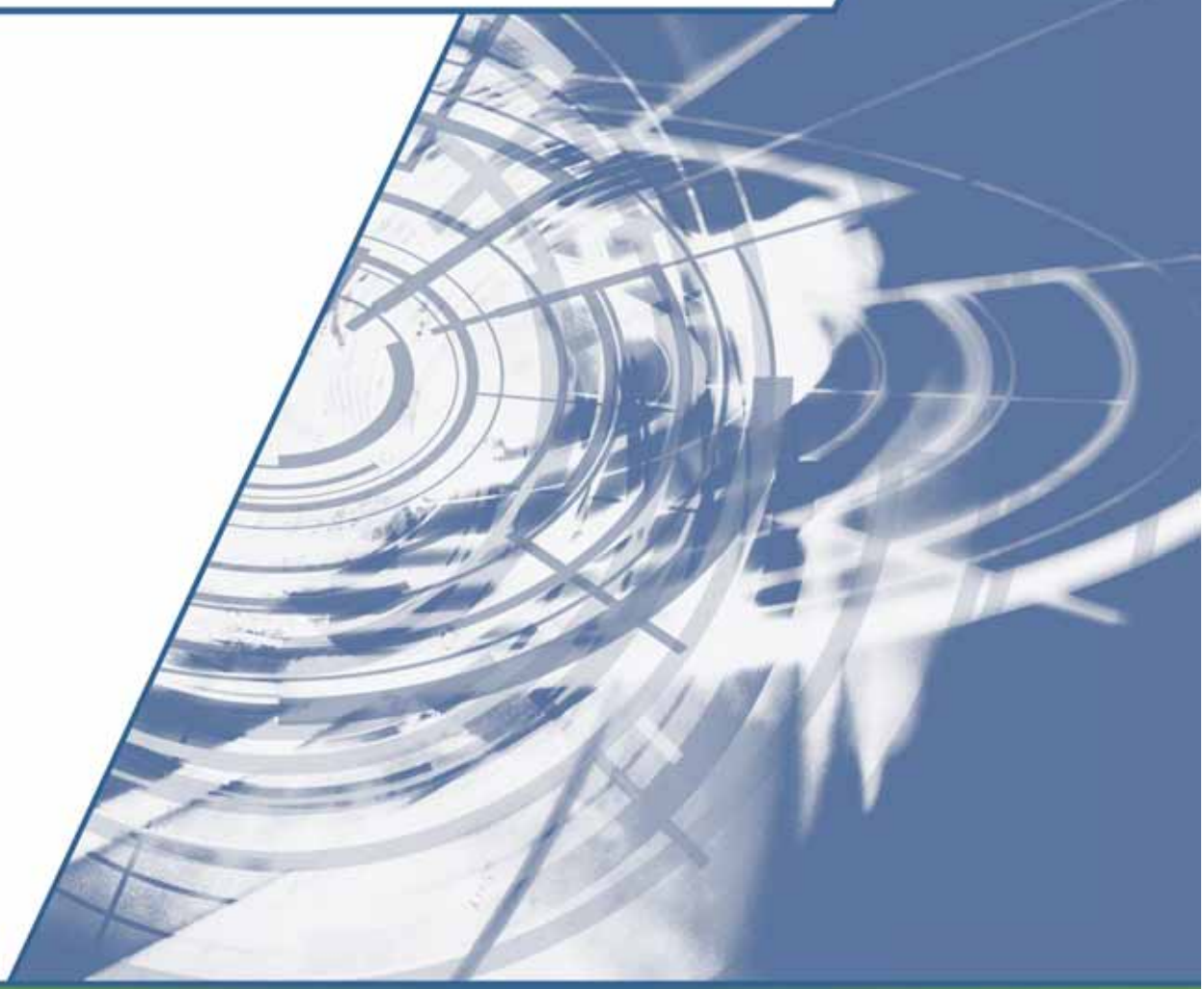
The energy required to support conventional production of natural gas and crude oil represents between 8 and 15 percent of the net energy produced. For unconventional production (oil sands bitumen and upgrading) the energy required represents more than 30 percent (see Appendix III for methodology).

The overall energy demand for this sector is presented in Figure US3. The growth in demand reflects the substantial increase in unconventional production, which is more energy intensive. Based on anticipated production levels and energy requirements for consumption and flaring, demand will increase from about 1,300 PJ in 2005, to about 2,000 PJ in 2020. These energy requirements include the petroleum service industries. Energy requirements for pipelines are reported in the transportation section of this Outlook.

Figure US3
Upstream Energy Demand



Petroleum Refining Industry



6 Petroleum Refining Industry

- Refineries are expected to process heavier crude oil. As *in situ* oil sands production increases, refineries in Ontario and Western Canada will expand heavy-oil upgrading units to process additional volumes of blended bitumen.

- Energy use in the refining industry will increase rapidly, as will energy intensity from processing heavier crude oil. Consumption of coke and still gas is expected to increase and replace a share of natural gas purchases.

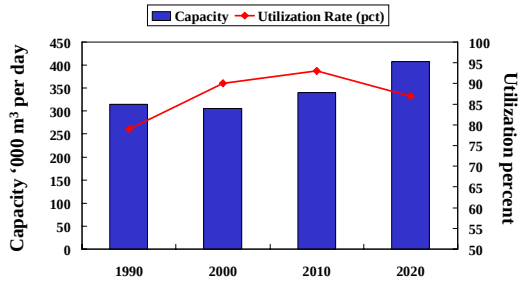
Refined petroleum products are produced in three distinct regions: Western Canada, Ontario and Quebec / Atlantic Canada. Although some product movements do occur between regions, such as shipments from Quebec refineries into Eastern Ontario, each of these regions has been largely self-sufficient historically. This self-sufficiency is expected to continue.

Western refiners process only domestic crude while the Ontario refiners process a mixture of both domestic and imported crude oil. Quebec/Atlantic refineries process both imported crude and some domestic crude from the East coast offshore, but none from Western Canada.

Crude oil for Canadian refineries is purchased at prices related to WTI, which is the North American marker price for crude oil. Heavier crude oil or crude oil containing high levels of sulphur are purchased at a discount[13] to WTI, since these types of crude oil require additional processing to produce gasoline and distillates.

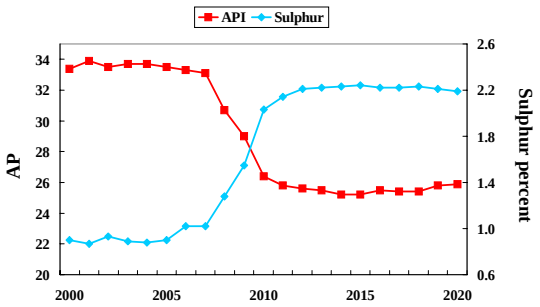
Growing demand for petroleum products may be met by imports or by expansion of refinery capacity. In 2005, refinery capacity was 324,400 m^3 per day. By 2020, capacity is expected to increase to 408,000 m^3 per day, an average growth of 1.5 percent annually. This growth is slightly higher than the projected end-use demand growth for petroleum; hence capacity utilization in 2020 will be lower than the current rate of 93 percent (Figure RPP1).

Figure RPP1
Canadian Refinery Capacity and Utilization Rates



As *in situ* oil sands production increases (Section 5), refineries in Ontario and Western Canada are expected to expand heavy oil upgrading units to process additional volumes of blended bitumen. As a result, the Canadian average crude quality is expected to change from the current 33.5° American Petroleum Institute (°API),[14] 0.85 percent sulphur to 25.4°API, 2.2 percent sulphur, and the share of blended bitumen in the crude slate is expected to grow from 12 percent to about 60 percent (Figure RPP2).

Figure RPP2
Average Refinery Crude Slate

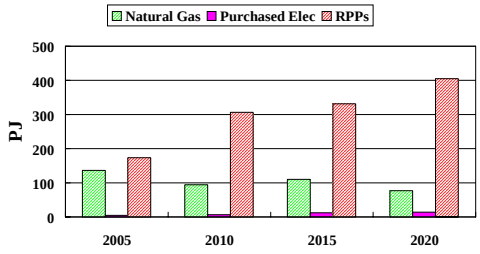


[13] The discount will vary depending on the API gravity and the sulphur content.

[14] API is a measure of crude oil density; the higher the number, the lighter the grade of crude oil.

Energy consumption for the refinery industry is a function of the quantity of crude runs and the quality of crude types. The processing of heavier grades of crude oil will increase the energy intensity of Canadian refineries from the present level of 3.0 GJ per m^3 of crude processed to 3.5 GJ per m^3 by 2010 and 3.8 GJ by 2020 (Figure RPP3). This trend mirrors the changes of crude quality displayed in figure RPP2. This projected increase is principally due to additional hydrogen production to meet the upgrading requirements and higher levels of desulphurization. These expected values may be somewhat understated, as they do not fully account for the new ultra-low sulphur diesel regulations or the possible desulphurization of home heating oil.

Figure RPP3
Refinery Energy Consumption by Fuel



Total energy use is expected to grow from 315 PJ in 2005 to 495 PJ by 2020, an average annual growth rate of 3.0 percent over 15 years. The crude runs will increase at a rate of 2.0 percent per year while unit energy consumption will increase at a rate of 1.0 percent.

Additional fluid catalytic cracking units, hydrocrackers and cokers are expected to be built in order to process a heavier 8^o API crude slate. By-products from these processes will be increasing and will be used to meet refinery energy requirements. Coke and still gas consumption is expected to increase rapidly and replace some of the purchases of natural gas for combustion. The proportion of coke is expected to increase from 25 percent in 2005 to 37 percent by 2020. The share of still gas is anticipated to grow from 27 percent to 37 percent. Natural gas will drop from 43 percent to 17 percent.

Electricity

7 Electricity

- All but two nuclear units are scheduled to stay in service or be refurbished.
- In Ontario, coal plants, other than Lakeview, Atikokan and Thunder Bay, which are closed as announced, will continue to operate for their remaining economic life.
- Wind-powered generation is expected to experience very strong growth over the outlook, and will represent 3 percent of total generation by the year 2020. Wind will account for 6 percent of total generating capacity in that year.

Demand for electricity is driven by three stationary end-use sectors, Residential, Commercial and Industrial, and by the Refining and the Upstream Oil and Gas sectors, which are discussed elsewhere in this report.

In order to project the electricity generation mix, certain assumptions were made about nuclear capacity, coal-fired generation and the potential for new large hydro projects.

It was assumed that all the nuclear plants in Quebec, New Brunswick and Ontario would stay in service for at least eight more years, or will be refurbished and returned to service. There are two exceptions: two units at Pickering A are currently out of service and will remain so over the projection. The Bruce A 1 and A 2, which have been laid up since 1997, will return to service in 2008 and will have a useful life of 25 years. Bruce A 3 and A 4 will close in 2015.

By 2013, almost all nuclear plants within the three provinces will be in service. Pickering unit A 1 will retire in 2015 and unit A 4 in 2014. All four Pickering B units will be refurbished at some point between 2008 and 2011 and returned to service by 2012.

The reference case includes a number of hydro projects: in Quebec, large projects together with small facilities will add almost 2,000 MW of hydro capacity by 2009, at which time another 800 MW will be added to capacity elsewhere in Canada, principally in Manitoba. La Romaine with a capacity of 1,500 MW, will be in service in 2018. The Revelstoke and Mica projects in BC, with a combined capacity of 950 MW, will be in service between 2013 and 2015.

The Lower Churchill Falls proposal in Newfoundland and Labrador, and the Conawapa project in Manitoba were not included. These projects are not sufficiently well advanced into the planning stage to make an informed judgment on their capacity and timing.

A number of initiatives encourage the use of renewable fuels, particularly the wind power production incentive, in the electricity sector.

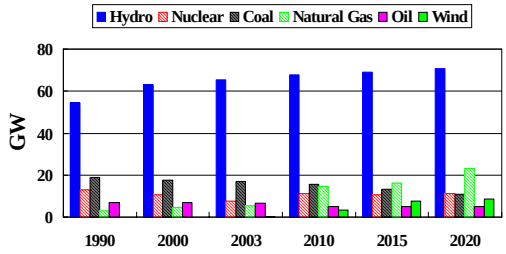
Electricity demand increased by about 1.2 percent annually between 1990 and 2004, and is expected to increase somewhat at the same rate to 593 terawatt-hours (TWh) by 2020 (Table EL1).

Table EL1
Electricity Demand (TWh)

	1990	2000	2005	2010	2020	AAGR, percent 2005-2020
Residential	130	138	153	164	186	1.3
Commercial	108	126	137	158	203	2.6
Industrial	163	187	193	196	200	0.2
Transportation	3	4	4	4	5	0.8
Total	**404**	**456**	**488**	**523**	**593**	**1.3**

In 2003, generating capacity was 104 gigawatts (GW), of which over 60 percent was hydroelectricity. Currently, there is very little excess capacity and most of the assumed increase in demand is expected to be satisfied by the refurbishment of laid-up nuclear plants and by new capacity additions. As a result, generating capacity is expected to increase to 119 GW by 2010 and to 131 GW by 2020 (Figure EL1).

Figure EL1
Generating Capacity

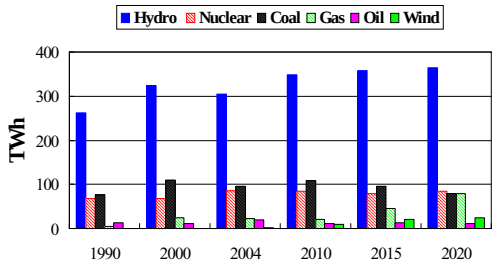


Over the projection, hydro capacity will grow modestly, but its share of total generating capacity will decline from 63 percent in 2003 to about 54 percent by 2020. Nuclear power's share of generating capacity will drop from 11 percent in 2005 to 9 percent by 2020. The share of coal capacity declines from 14 percent in 2005 to 8 percent in 2020. Over the same period, natural gas capacity is expected to increase its share of generating capacity from 5 percent to 16 percent.

Total renewable capacity, including hydro, was 64 GW in 2000 and is expected to increase to 72 GW in 2010 and to 80 GW in 2020. Almost half of the increase in renewable capacity will be driven by the expansion of wind capacity. Wind capacity, is expected to increase from 0.4 GW in 2004 to 3.5 GW in 2010 and to 8.5 GW by 2020, mostly in Quebec. By 2020, wind will represent 6 percent of Canada's generating capacity. This increase is, in part, due to federal initiatives and, in part, due to supporting provincial initiatives. Biomass is expected to increase to 0.9 GW by 2020 from the current level of 0.6 GW, and Municipal Solid Waste (MSW) is expected to reach 0.3 GW by 2020.

Electricity generation was 533 TWh in 2004, primarily from hydro (57 percent). It is expected to increase to 590 TWh by 2010 and to 652 TWh by 2020, an average annual growth rate of about 1 percent (Figure EL2). Electricity generation growth is slower than the demand growth, because of a projected decline in net exports, from 17 TWh to 14 TWh.

Figure EL2
Electricity Generation



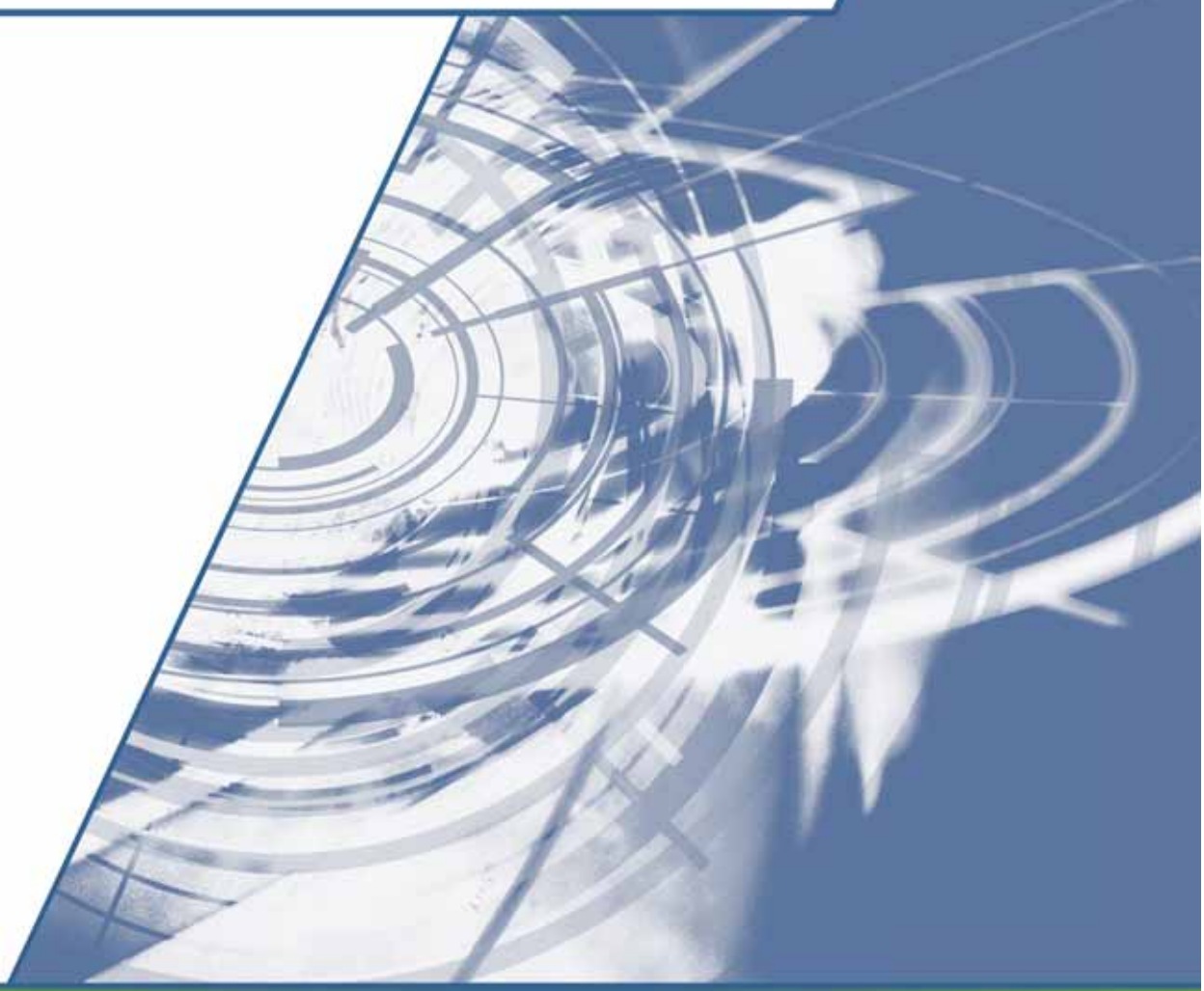
The generation from renewables was 310 TWh in 2004, approximately 60 percent of the total generation. However, only about 1 percent of this can be considered as "emerging alternatives" such as biomass, MSW and wind, with the balance being represented by hydro. Wind generation is expected to increase from 1 TWh in 2004 to 9 TWh by 2010 and to 24 TWh by 2020, an annual average growth rate of about 20 percent, but will be relatively small at 3.6 percent of total generation.

Although some new coal-fired generation will be built, coal-fired generation is expected to decline through the outlook period, largely because all the Ontario units will be retired by 2020.

The share of natural gas generation is expected to increase over the projection period. After 2010, natural gas generation increase because of the growth in demand and the anticipated retirement of two nuclear units at Bruce A, totaling 1,600 MW. Additionally, this natural gas demand is influenced by the temporary

closure of some nuclear units that are being refurbished. The natural gas share of generation is expected to increase from 19 TWh in 2005 to 80 TWh in 2020, an average growth rate of about 10 percent per year.

Primary Demand



8 Primary Demand

- The economy's energy intensity, expressed in energy units per constant dollar of GDP, is expected to improve by 1.1 percent annually on average over the outlook.

- The share of oil in total primary energy consumption will increase from 37 percent in 2005 to 41 percent in 2020.

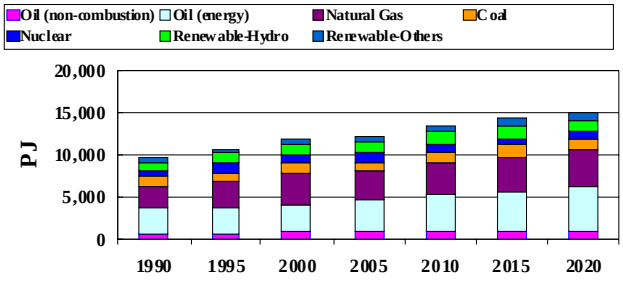
The demand for primary energy provides a concise overview of total energy use at the economy-wide level because it accounts for both energy in end-use and energy used in the generation of electric power, refineries, and upstream oil and gas production.

Total primary energy use increased from approximately 9,700 PJ in 1990 to 11,800 PJ in 2000, and is projected to reach 13,500 in 2010 and 14,900 by 2020 (Figure PR1). This corresponds to an average increase of 2 percent annually for the period 1990 to 2000, followed by 1.3 percent until 2010 and 1 percent per year for the last decade.

The increase in total primary energy consumption between 2005 and 2020 is a result of higher consumption of refined petroleum products (accounting for 60 percent of total increase) and also higher consumption of natural gas (40 percent). During that period, consumption of coal and nuclear are expected to decline by 11 percent and 7 percent respectively while energy renewable is expected to increase by 16 percent.

The increase in total primary energy demand between 2005 and 2020 is largely attributable to higher production from the oil sands and crude oil refining. This will account for two-thirds of the projected increase in natural gas consumption and 30 percent of the projected increase in oil consumption. Transportation is expected to account for just over half (53 percent) of the increased oil consumption. Meanwhile, about 90 percent of the reduction in coal use over the projected horizon, about 130 PJ in total, is attributable to the reduction of coal use in the electricity sector, largely through plant retirement.

Figure PR1
Primary Energy Demand



Real GDP is projected to increase by 2.4 percent annually over the 2005 to 2020 period while the economy's energy intensity will improve by 1.1 percent annually for the same period compared to the 1.2 percent annual improvement from 1990 to 2005.

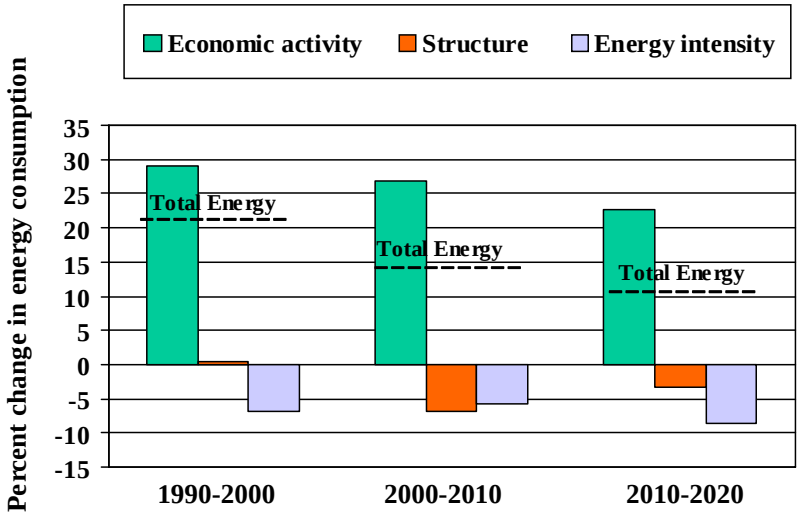
The fuel mix, over the 2005 to 2020 period, is expected to stay relatively unchanged, with one major exception: the share of oil in total primary energy demand will rise from 37 percent in 2005 to 41 percent in 2020. The share of natural gas will increase by 2 percent, reaching 30 percent in 2020, and that of coal and hydro are expected to decline by 2 and 1 percent respectively, reaching 7 and 10 percent respectively in 2020, while the nuclear share will decline by 3 percent to 6 percent.

Figure PR2 presents changes in energy use for the goods and services sectors of the economy, for the period 1990-2020.

This analysis is limited to producers of goods and services (about 80 percent of energy consumption in Canada) and excludes households. Three factors cause these changes: growth in overall economic activity (in terms of real GDP), changes in the structure of the economy, and changes in the energy intensity of industrial output (in terms of physical energy per unit of real GDP).[15]

During the 1990s, the industrial mix tended towards more energy-intensive industries, thus contributing to the growth of energy consumption. This tendency is expected to reverse itself during the 2000-2010 period, but taper off somewhat during the 2010-2020 period. Economic growth is expected to continue to contribute to energy consumption over the outlook period—though less so after 2010—while improvements in energy efficiency continue to offset, if only partially, this economic growth.

Figure PR2
Decomposition of Changes in Energy Consumption—Goods and Services (1990-2020)



[15] This was calculated using a log-mean Divisia index of GDP at the 2-digit level of the North American Industrial Classification System.

Emissions

9 Emissions

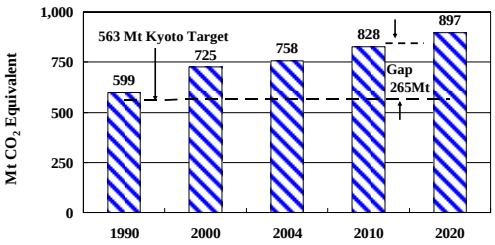
The implications for GHG emissions associated with this Outlook are:

- In the first commitment period, the projected "gap" is 265 Mt.
- Overall emissions growth slows to about 1.1 percent annually, compared to economic growth of 2.4 percent.
- Only the refining sector increases its emissions intensity, due to synthetic crude production and the processing of generally heavier crude oils.
- Provincial shares remain relatively unchanged.

The Outlook provides the basis for the projections of energy-related GHG emissions. Environment Canada and Agriculture and Agri-Food Canada provide the non-energy components[16] of total GHG emissions. Under the Kyoto Protocol, Canada has a target of 563 Mt during the first commitment period. In 2010, the projected combined total of energy and non-energy emissions is expected to be 828 Mt, which implies a "gap" of 265 Mt, 32 percent of the projected level (Figure EM1).

Figure EM1

Total GHG Emissions



[16] Non-energy emissions associated with mineral production, agriculture, land use change and forestry, waste, production of nitric acid and adipic acid, perfluorcarbons (PFCs) from aluminium production, and use of HFCs and SF_6.

About 85 percent of total Canadian GHG emissions are associated with energy consumption, production and distribution. Of that, 60 percent is due to end-use consumption of fossil fuels (combustion and non-energy use of hydrocarbons), and the remaining 40 percent is from energy production and distribution.

Canada's greenhouse gas emissions have increased from 599 Mt CO_2 equivalent in 1990 to 758 MT in 2004, an average growth of 1.7 percent annually. It is expected that the total GHG emissions will increase by almost 1.1 percent annually during the projection period. The increase in total emissions (71 Mt) between 2004 and 2010 is mainly due to: 41 Mt increase in the upstream and refining sectors; 16 Mt in transportation; and 4 Mt in industry.

Between 2004 and 2010 the emissions from electricity are not expected to increase considerably. However, between 2010 and 2020, the emissions from this sector are expected to decrease by 4 Mt due to retirement of coal plants in Ontario, replaced largely by natural gas (Table EM1).

Table EM1

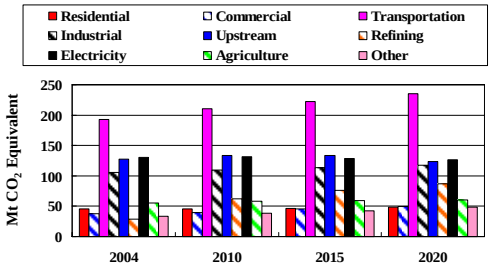
Changes to Annual Emissions by Sector (Mt)

Sector	2004 - 2010	2010 - 2020
Upstream Oil and Gas	7	-10
Upgrading synthetic crude oil	27	19
Refining (heavier grades of crude oil)	7	6
Electricity	1	-4
Industrial	4	8
Commercial and Residential	1	13
Transportation	16	25
Other	8	11
Total	**71**	**68**

From 2010 to 2020, emissions from the upstream sector will decline somewhat, as conventional production declines, while emissions from refining and synthetic crude oil production will continue to increase, due to higher production of oil sands and the refining industry's reliance on heavier crude. Emissions from all other sectors (with the exception of electricity) will increase further, notably in the transportation, industrial, residential and commercial sectors.

The share of GHG emissions among sectors is expected to change modestly between 2004 and 2020 (Figure EM2).

Figure EM2
GHG Emissions by Sector



Transportation will continue to have the largest share, increasing slightly from 25 percent in 2004 to 26 percent in 2020. More significant changes are expected to take place in the refining sector, whose share is expected to increase from 4 percent to 8 percent by 2010 and to 10 percent by 2020.

9.1 Residential

GHG emissions for the residential sector are expected to remain 45 Mt through 2004 to 2010, as a result of energy efficiency improvement and some fuel switching. After 2010, emissions will increase to 48 Mt in 2020, reflecting the projected growth in energy demand. The GHG emissions for this sector include about 2 Mt associated with agriculture non-transportation activities. The residential emissions are mostly (96 percent) CO_2 but include about 2 Mt of CO_2 equivalent for methane associated with the use of wood.

9.2 Commercial

GHG emissions for the sector are expected to increase slightly from 38 Mt in 2004 to 40 Mt in 2010, and are projected to increase to 49 Mt by 2020 mainly as a result of increasing floor space.

9.3 Transportation

The estimated emissions for this sector[17] are expected to increase by 16 MT (1.4 percent per year) between 2004 and 2010 and by 25 Mt (1.1 percent per year) between 2010 and 2020. Despite fuel efficiency gains, the expectation of strong growth in travel demand and the expected slow penetration of new technologies using alternative fuels will result in continued growth in emissions for the transportation sector. These results include the reduction of N_2O emissions (1 Mt of CO_2e by 2010), reflecting the memorandum of understanding with the automobile manufacturers. The rate of growth of emissions over the projection period is significantly lower than the 2.1 percent growth experienced in the 1990s.

9.4 Industry

Projected emission growth rates are roughly consistent with growth in energy use for both 2004 to 2010 and 2010 to 2020, about 0.7 percent per year. Emissions in 2010 will be 110 Mt and 118 Mt by 2020.

9.5 Upstream

Emissions from fossil fuel production, which includes natural gas, conventional light and heavy crude oil, and *in situ* bitumen from oil sands production, are estimated to grow from 127 Mt in 2004 to 133 Mt in 2010, then decline to 124 Mt in 2020, reflecting the anticipated changes in the production mix (Figure EM3).

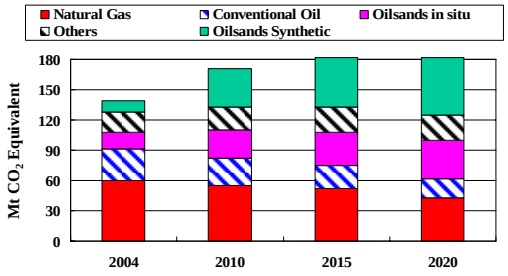
[17] The IPCC guidelines require emissions from off-road uses in the industrial sector be transferred to the transportation sector, but exclude lubricant emissions.

The emissions associated with the upgrading oil sands[18] are included in the refining industry. However, for illustration purposes, figure EM3 displays these emissions. Including the emissions from the production of synthetic oil causes the total emissions to increase to 171 Mt in 2010 and 180 Mt in 2020.

From 2010 to 2020, CBM production is expected to increase as conventional gas production declines. This change will tend to reduce emissions since CBM does not require as much processing as conventional gas. The drop in conventional oil production from 2010 to 2020 is expected to offset the increases in *in situ* oil sands production, which will result in a small decrease in emissions.

Figure EM3

GHG Emissions Upstream



9.6 Petroleum Refining

As noted previously, the GHG emissions from upgrading synthetic crude oil are included in the refining industry totals. In 2004, emissions from petroleum refining and upgrading were 29 Mt. It is expected that by 2010, they will increase to 63 Mt and by 2020 to 87 Mt. The emission growth rate will be about 13 percent annually between 2004 and 2010, then 3.4 percent after 2010. This growth is substantially higher than all other sectors as a result of increased throughput, a heavier crude slate and increased production of synthetic crude oil.

[18] By UNFCC convention, emissions from the production of synthetic crude oil are included in the petroleum refining industry.

9.7 Electricity

The GHG emissions associated with electricity generation, which accounted for 130 Mt in 2004, will increase slightly to 131 Mt in 2010. Between 2010 and 2020, emissions from this sector will decline to 126 Mt, due to assumed retirement of coal-fired plants in Ontario, replaced mainly by natural gas. The expected increase in coal-fired generation in Saskatchewan and Alberta will dampen this decline.

9.8 Emissions by Source

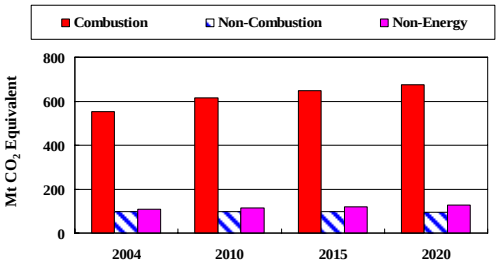
Energy (both combustion and non-combustion) is projected to remain the major source of GHG emissions (Figure EM4), and it will maintain the same share (85 percent) during the projection period. However, the share of the combustion component is expected to increase as their associated emissions will increase by 1.3 percent per year (compared to 2.1 percent for the 1990s). Meanwhile, the emissions associated with non-combustion use of fuels[19] are expected to decline slightly from 97 Mt in 2004 to 95 Mt by 2020, owing to lower projected fugitive emissions associated with lower production of conventional natural gas and heavy crude oil.

Emissions from non-energy sources (mostly agriculture)[20] are expected to increase by 1 percent per year from 108 Mt in 2004 to 127 Mt by 2020. The share of non-energy emissions is expected to remain at 14 percent throughout the projection period.

[19] Non-combustion comprises fugitives from fossil fuel production and distribution, CO_2 emissions associated with petrochemical feedstock, coke used in the iron and steel industries, and petroleum coke in aluminium industries.

[20] In 2000, agriculture contributed 61 Mt of GHGs, waste contributed 25 Mt, and 20 Mt of non-energy GHGs came from production of cement, lime, soda ash, nitric acid and adipic acid, and use of SF_6, PFCs, land use change, forestry and HFC.

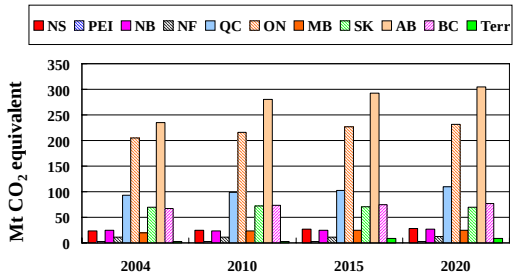
Figure EM4
GHG Emissions by Source



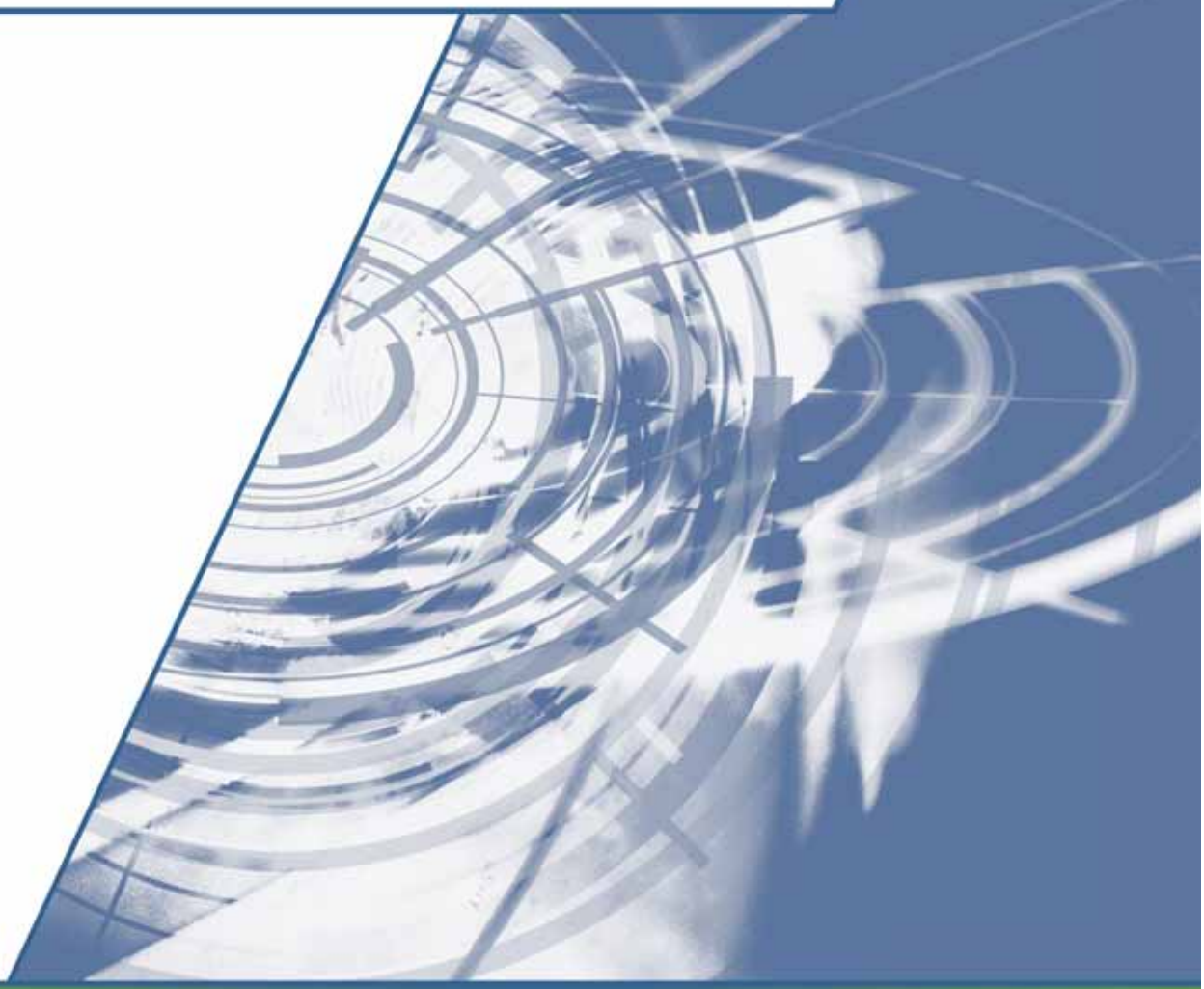
9.9 Emissions by Province/Territories

Figure EM5 displays the emissions by Province and Territory. Alberta and Ontario will continue to have the largest emissions, although their share in total emissions will change slightly during the projection period. Alberta's share is expected to increase from 31 percent in 2004, to 34 percent by 2020 (mainly due to higher oil sands production). Ontario's share will decline slightly from 27 percent to 26 percent. Quebec and BC are the next two largest emitters, with 12 and 9 percent respectively. Atlantic Canada has about 8 percent of total emissions; Nova Scotia and New Brunswick will emit about 25 Mt and 23 Mt respectively, followed by Newfoundland and Labrador at 11 Mt in 2010.

Figure EM5
GHG Emissions by Region



Provincial Results



10 Provincial Results

This section provides a general overview of provincial and territorial results as they affect energy supply and demand. They were influenced by the extensive consultations that took place over the past two years. During those consultations, various government programs and policy proposals were introduced, and every effort was made by NRCan to include their impacts in the final version of this Outlook. However, it was not possible to incorporate all proposals, for reasons such as, insufficient information and/or lack of funding.

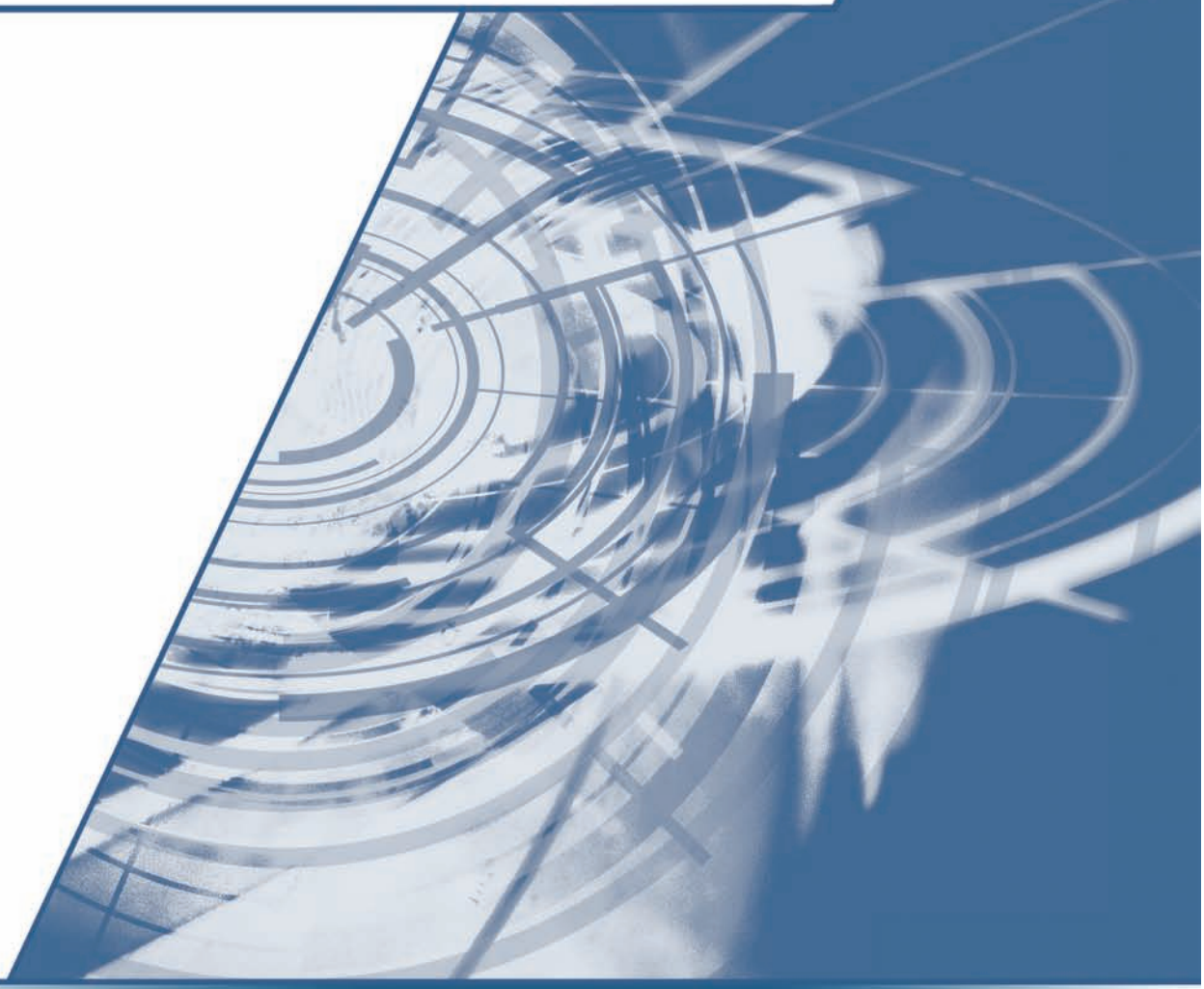
Much of the explanation for changes to population, GDP, and energy intensities is common to all Provinces and Territories. Therefore, most of the explanation for these changes is provided with national results and will not be repeated here, unless there is a particular difference for a specific province.

The refinery analysis was performed on a regional basis. Energy consumption was allocated to Provinces based on historical values, except in Atlantic Canada. There, historical greenhouse gas emissions were used for the allocation.

Although results are shown for each Province and the Territories, general comments have been organized into three geographical groupings: the four Atlantic jurisdictions; Quebec and Ontario; and the Western Provinces plus the Territories.

More details of the energy supply and demand for each province are provided in the Annex Tables.

Atlantic Provinces



10.1 Atlantic Provinces

- Throughout the projection period, population growth in the Atlantic provinces is expected to be well below the national average, and growth in provincial GDP, in real terms, will also lag behind the rest of Canada's.

- Joint initiatives on air issues, taken between Atlantic Premiers and New England Governors, have not been included owing to their voluntary nature.

- Several Liquefied Natural Gas (LNG) development projects have been proposed for construction in Eastern Canada. For this Outlook, the LNG sites have been considered as transit locations for the import and re-export of natural gas to the US. As such, the projects were recognized but have not been identified with a particular province.

Due to the confidentiality of provincial industry-specific data, energy consumption in the industrial sectors, such as pulp and paper and mining, were estimated using the unit energy consumption (UEC) value for the Atlantic region as a whole.

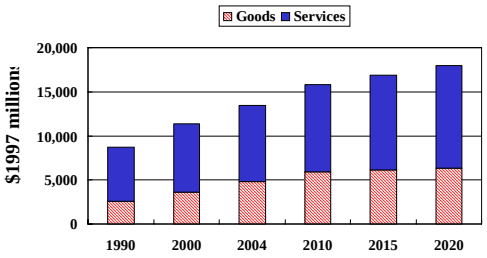
10.1.1 Newfoundland and Labrador

Economy

Between 1990 and 2004, population in Newfoundland and Labrador declined at 0.8 percent per year while the labour force increased at 0.5 percent over the same period. It is projected that during the 2005 to 2010 period, population in the province will remain relatively unchanged, and decline thereafter at a rate of 0.2 percent annually as will the labour force.

The economy of the province of Newfoundland and Labrador is driven to a large degree by natural resource sectors such as mining and oil extraction. Over the next decade, crude oil output, Voisey's Bay, White Rose and Hebron projects will continue to stimulate the province's economic growth. Consequently, the share of goods in GDP, relative to services, will increase from 36 percent in 2005 to 38 percent in 2010 (Figure NL1), and fall back down to 35 percent by 2020. During this same fifteen-year period, the annual growth rate of real GDP is projected at 1.7 percent annually.

Figure NL1
Real Gross Domestic Product



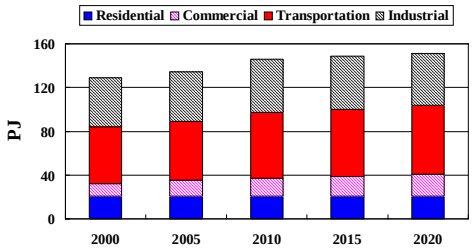
Specific Assumptions

No specific energy policies have been incorporated in the Outlook. However, the Residential sector has seen a trend away from oil to electricity heating, which is included. Also, a limited amount of wind power—100 MW—has been included.

End-Use Demand

With the positive economic growth, demand for energy is projected to increase at a rate of 0.8 percent annually. Total consumption will be 151 PJ in 2020, of which 63 percent will be petroleum products and 25 percent will be electricity. In 2020, industry will consume 31 percent of total energy products (for both energy and non-energy uses) in the province (Figure NL2). The Transportation sector will have a share of 42 percent of the consumption of energy products, followed by the Residential sector and Commercial each accounting for 13 percent.

Figure NL2
End-Use Demand by Sector



Residential Sector

Demand in this sector will decrease by 0.1 percent per year over the projection period, to reach 21 PJ by 2020. The number of households is expected to grow by 0.5 percent annually over the same period. Electricity currently comprises about 58 percent of energy demand, with heating oil at 24 percent and renewable fuels (in this case wood) at 18 percent. By 2020, these shares will have changed to 65 percent for electricity, 20 percent for heating oil, and 14 percent for renewables.

Commercial Sector

Floor space is projected to grow at 2 percent per year while energy use is expected to grow at 1.9 percent. Currently, the principal fuels are electricity at 64 percent and petroleum products at 36 percent. By 2020, these shares are expected to change to 57 and 43 percent respectively. In 2020, energy demand in this sector will be 20 PJ, up from 10 PJ in 2004.

Transportation Sector

In 2004, motor gasoline represented 36 percent and diesel about 40 percent of energy use in this sector, followed by jet fuel and small amounts of heavy fuel oil. Diesel grew substantially from 1990 to 2000, and has remained relatively stable over the past five years. In contrast, demand for motor gasoline changed little over this period. Overall demand is expected to reach 63 PJ by the end of the projection, an average growth of 1.1 percent per year from 2005 to 2020. Jet fuel will show the largest growth, while diesel will grow at 0.7 percent per year, slightly faster than motor gasoline at 0.5 percent per year.

Industrial Sector

Industrial end-use demand is projected to be 47 PJ by 2020, an annual growth of 0.2 percent over the projection period. In that year, the major fuels are expected to be petroleum products (40 percent) and electricity (37 percent, including own generation). Other components of demand include coal and coke, renewables, and energy products used for non-energy purposes.

Pulp and paper currently comprises about 30 percent of total industrial energy consumption. With the announced production capacity reductions in the province, it was estimated that the gross output of the sector would decrease by approximately 20 percent in 2006. The energy consumption in 2006 is expected to decline to 12.2 PJ from 14.6 PJ in the previous year. Relative to 2006, energy demand increases only slightly to 12.5 PJ by 2020.

In 2006 the output of the mining sector will increase by 25 percent, principally driven by a full year of production from the Voisey's Bay nickel mine in Labrador. Only the open-pit mining phase is assumed in this projection. The second phase of development to underground mining was assumed to occur after 2020. Also, it should be noted that the proposed smelter, and the related energy consumption that could be associated with processing the mine's concentrates, has not been included in this projection.

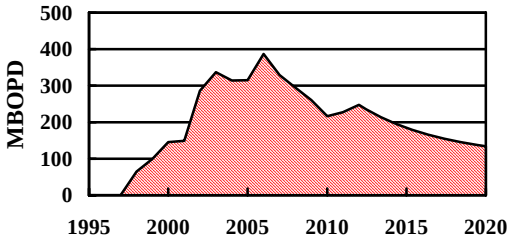
The total consumption of energy for the mining industry is estimated to be 25 PJ in 2005 and is expected to reach 28 PJ in 2020. Electricity will represent 35 percent of total energy consumption, followed by petroleum products at 46 percent and coal and coke at 18 percent. These shares are expected to remain unchanged over the horizon.

Upstream Oil and Gas

Existing oil production includes Hibernia and Terra Nova. Hibernia began production in 1997 and, by 2004, was producing 204 thousands of barrels per day (MBOPD), at which time Terra Nova production was 110 MBOPD. White Rose, which started operation in the fall of 2005, has reserves of 283 million barrels and is expected to produce at 100 MBOPD. Hebron and Ben Nevis are assumed to start in 2011, with reserves of 414 million barrels.

Between 1998 and 2005, oil production grew rapidly. It is projected that after 2007, oil production will decline to 134 MBOPD (Figure NL3). Currently, no commercial natural gas production is anticipated prior to 2020.

Figure NL3
Oil Production



Electricity

Electricity demand on the island is expected to grow at an annual rate of 1 percent to 10.9 TWh in 2020 (Table NL1). Electricity consumption in the industrial sector is expected to decline because of the closure of the pulp and paper mills.

The total capacity in the province is almost 7,500 MW, the bulk of which is at Churchill Falls in Labrador. Over the projection period, it is expected that about 100 MW of wind capacity will be built by 2020 (Figure NL4).

Figure NL4
Generating Capacity

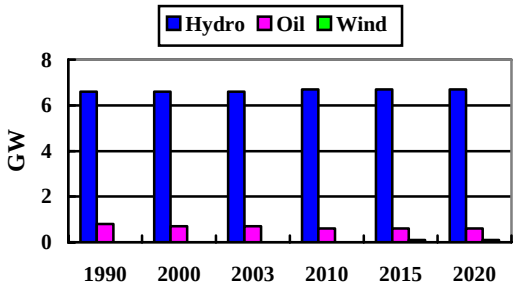


Figure NL5 illustrates generation projections, including Churchill Falls. Wind could represent about 1 percent of generation by 2020.

Anticipated exports to Quebec average about 30 TWh per year over the outlook period.

Figure NL5
Electricity Generation

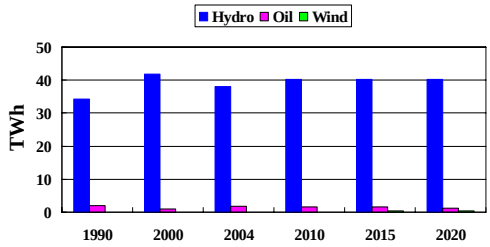


Table NL1
Electricity Demand (TWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	2.8	3.1	3.4	3.6	3.7	0.4
Commercial	1.8	2.0	2.1	2.5	3.2	2.5
Industrial	4.8	4.6	3.5	4.0	4.0	0.4
Transportation	0.0	0.0	0.0	0.0	0.0	0.0
Total	**9.4**	**9.7**	**9.1**	**10.1**	**10.9**	**1.0**

Excluded Items

In the summer of 2005, the Newfoundland and Labrador government selected three potential proponents for the construction of the Lower Churchill Project. Two potential sites have been identified that could generate either 4.8 TWh or 11.9 TWh. However, as a result of uncertainties with the site and the developer, this project has not been included in the Reference Case.

10.1.2 Prince Edward Island

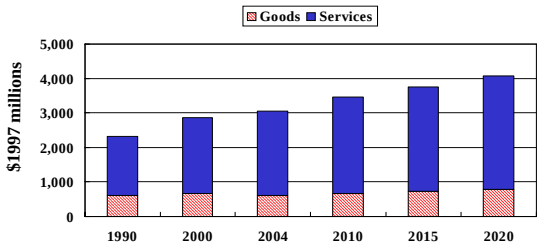
Economy

From 1990 to 2004, the Prince Edward Island (PEI) population grew at about 0.4 percent per year. Up to 2020, this rate is expected to slow to zero. The labour force, meanwhile, is assumed to grow at an annual rate of 0.1 percent, down from the rate of 1.3 percent that occurred from 1990 to 2004.

GDP, in real terms, is projected to grow by 1.7 percent a year from 2005 to 2020. This compares to an annual growth rate of 1.8 percent for the period 1990 to 2004 (Figure PEI1).

The services contribution towards total GDP, in 2005, is higher at 80 percent than the national average of 69 percent, and it is expected to remain at that level.

Figure PEI1
Real Gross Domestic Product



Specific Assumptions

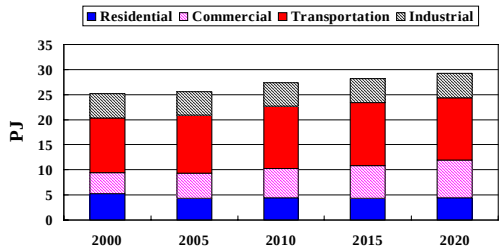
The Renewable Energy Act requires the utilities to access at least 15 percent of their electrical energy from renewable sources by 2010, and have the ability to acquire 100 percent of their power from renewables by 2015.

End-Use Demand

Total end-use demand in PEI will grow at an annual rate of 0.7 percent over the projection period. By comparison, the growth from 1990 to 2004 was almost 1.5 percent per year. By 2020, consumption is expected to be 29 PJ. In that year, electricity is expected to represent 59 percent and petroleum products, 38 percent, of energy consumption.

By 2020, Transportation is expected to account for 43 percent of energy consumption, followed by the Commercial sector at 25 percent, the Industrial sector (for both energy and non-energy uses) at 17 percent, and the Residential sector at 15 percent.

Figure PEI2
End-Use Demand by Sector



Residential Sector

From 1990 to 2004, consumption in the Residential sector decreased from 6.3 to 4.6 PJ, owing to a 3.7 percent per year improvement in energy intensity. During the outlook period, consumption is expected to further decrease to 4.4 PJ by 2020, while the number of households is expected to increase at an annual rate of 0.6 percent to 2020.

In 2004, 77 percent of the Residential consumption was petroleum products, followed by electricity at 13 percent, and wood at 11 percent. By 2020, the share for petroleum products is expected to decrease to 75 percent, while the share for electricity will increase to 15 percent.

Commercial Sector

Energy consumption is projected to increase at an annual rate of 2.7 percent, from 5 PJ in 2005 to 7.5 PJ in 2020. Total floor space is expected to increase by 2.7 percent per year during the same period, reaching 3.5 million square metres in 2020.

In 2004, petroleum products accounted for 70 percent of this sector's energy consumption, followed by electricity with 30 percent. By 2020, the shares are expected to be 65 percent for petroleum fuels and 35 percent for electricity.

Transportation Sector

Energy consumption in the Transportation sector is expected to increase at an annual growth rate of 0.5 percent from 2005 to 2020, slower than the 2 percent rate experienced over the 1990 to 2004 period. This is mainly a result of almost no growth in the province's population. Motor gasoline will remain the dominant fuel, at about 70 percent of consumption, with diesel at about 30 percent.

Industrial Sector

Industrial demand will increase modestly over the next 15 years from 4.7 PJ to 4.9 PJ. Petroleum products and electricity provide all of the energy with shares of 67 and 33 percent, respectively, over the 2005 to 2020 period.

Electricity

Electricity demand increased by about 3.1 percent annually between 1990 and 2004, and is expected to increase somewhat more slowly (1.8 percent) to 1,300 GWh by 2020 (Table PEI1), mainly due to much slower growth in the Industrial sector (0.2 percent).

PEI typically imports a significant amount of its power requirements from New Brunswick; capacity on the island is used to meet peak requirements. From 1990 to 2004, capacity declined from 122 to 118 MW as some units were retired (Figure PEI3). Total capacity is expected to increase due to the addition of about 80 MW of wind by 2010. Thereafter it will remain stable.

Figure PEI3
Generating Capacity

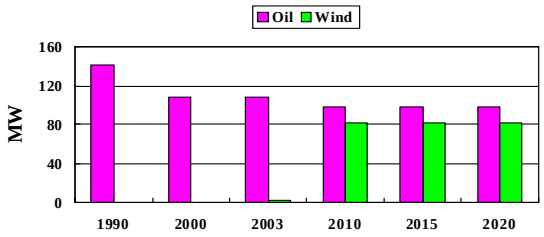
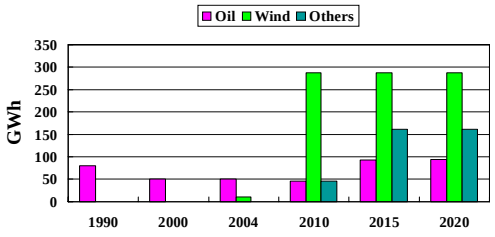


Table PEI1
Electricity Demand (GWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	245	278	159	165	179	0.8
Commercial	289	418	464	558	737	3.1
Industrial	138	261	441	381	398	0.2
Transportation	0.0	0.0	0.0	0.0	0.0	0.0
Total	**671**	**957**	**1,064**	**1,104**	**1,314**	**1.8**

Electricity generation was about 60 GWh in 2004. It is expected to increase to 544 GWh by 2020 (Figure PEI4). All the increase will be from renewables with a share of 84 percent of all generation in 2020, oil will provide the balance. Electricity imports from New Brunswick are expected to decline from about 980 GWh to about 800 GWh.

Figure PEI4
Electricity Generation



10.1.3 Nova Scotia

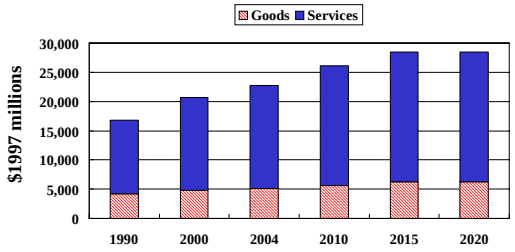
Economy

From 1990 to 2004, the population of Nova Scotia grew at about 0.2 percent per year and is expected to remain stable at about 940,000 for the rest of the projection.

The labour force grew at a rate of 0.8 percent per year from 1990 to 2004; this rate is expected to slow to zero percent annually from 2005 to 2020.

Nova Scotia's GDP, in constant dollars, is projected to grow on average by 1.9 percent a year from 2005 to 2020, below the rate of 2.1 percent for the period 1990 to 2004 (Figure NS1).

Figure NS1
Real Gross Domestic Product



The services contribution towards total GDP, in 2005, is higher at 78 percent than the national average of 69 percent, and it is expected to remain at that level for the remaining years.

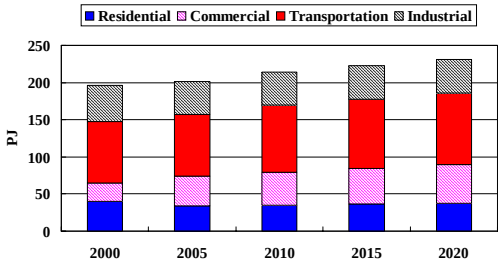
Specific Assumptions

The government of Nova Scotia is pursuing strategies to promote increased use of renewable energy sources, such as wind and solar power.

End-Use Demand

Total end-use demand is projected to increase from 201 PJ in 2005 to 231 PJ by 2020, an annual growth of 0.9 percent (Figure NS2). By 2020, Transportation will account for 42 percent of the energy consumed, followed by the Commercial sector at 23 percent, the Residential sector at 16, and Industry at 19. In that year, petroleum products are expected to make up 67 percent of consumption, followed by electricity at 22 percent.

Figure NS2
End-Use Demand by Sector



Residential Sector

From 1990 to 2004, energy consumption in the Residential sector, mainly as a result of 2.8 percent per year improvement in energy intensity, declined from 44 to 35 PJ. From 2005 to 2020, consumption in this sector is expected to increase modestly to 37 PJ. The number of households is expected to increase at an annual growth rate of 0.6 percent to 2020.

In 2004, 44 percent of consumption was petroleum products, followed by electricity at 43 percent and wood at 13 percent. Natural gas started to penetrate Nova Scotia's households in 2003. By 2020, the shares are expected to be 47 percent for electricity, 37 percent for petroleum products, 13 percent for wood, and 3 percent for natural gas.

Commercial Sector

From 1990 to 2004, energy consumption in the Commercial sector increased at an average annual rate of 4.7 percent, from 21 to 40 PJ. The annual growth rate is expected to be 1.8 percent from 40 PJ in 2005 to 52 PJ in 2020.

In 2004, petroleum accounted for 69 percent of total Commercial energy consumption, followed by electricity with 30 percent of consumption. As with the Residential sector, natural gas was introduced in 2003, accounting for 1 percent of total consumption. By 2020, the shares are expected to be 62 percent for petroleum products, 37 percent for electricity and 1 percent for natural gas.

From 2005 to 2020, total floor space is expected to increase by 2.3 percent per year to reach 22 million square metres in 2020.

Transportation Sector

Energy consumption in the Transportation sector is expected to increase at an annual average rate of almost 1 percent from 2005 to 2020, compared to 0.8 percent per year over the previous decade. Gasoline will maintain its 50 percent share of consumption and diesel will be about 28 percent. In 2020, energy consumption is projected to be 96 PJ.

Industrial Sector

Industrial energy demand is projected to stay constant at approximately 40 PJ through 2020. In 2020, the major sources of energy consumption are expected to be electricity (32 percent), petroleum products (39 percent), and renewables (29 percent).

- Pulp and paper represents about 50 percent of industrial demand. Due to limited growth opportunities in this industry, energy is not expected to increase, as output remains relatively constant. Energy demand will be 23.2 PJ by 2020, consisting of biomass renewables and electricity at 50 and 35 percent respectively.

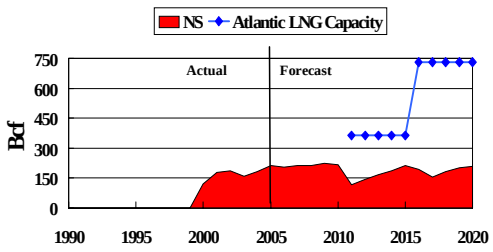
- Demand in the mining sector is also projected to remain fairly constant, at about 1.3 PJ for the projection period, with petroleum products representing three quarters of the total energy mix. This is relatively unchanged from the previous decade.

Upstream Oil and Gas

Natural gas production from Sable Island is expected to remain between 150 and 210 Bcf per year (Figure NS3). Some fluctuations do occur as LNG imports to Atlantic Canada are scheduled to begin in 2011. Most of this gas will be exported to the US markets.

Upstream energy demand is expected to be about 17 PJ annually, comprising mostly natural gas (90 percent) with small quantities of refined petroleum products.

Figure NS3
Natural Gas Production



Electricity

Electricity demand increased by about 1.8 percent annually between 1990 and 2004, and is expected to increase at a slower pace (1.4 percent) to 14 TWh by 2020 (Table NS1). This growth rate reflects almost no growth in industrial demand compared to 2.9 percent from 1990 to 2004.

Electricity capacity is expected to increase from 2.4 to 3.3 GW in 2020 (Figure NS4). In 2004, electricity capacity from coal[21] was 1.1 GW and it is expected to reach 1.6 GW in 2020, about 50 percent of total capacity. Oil capacity will grow to 0.5 GW, hydro will remain at 0.4 GW, and natural gas capacity will reach 0.3 GW by 2020. Wind will represent about 10 percent of generation capacity by 2020.

Figure NS4
Generating Capacity

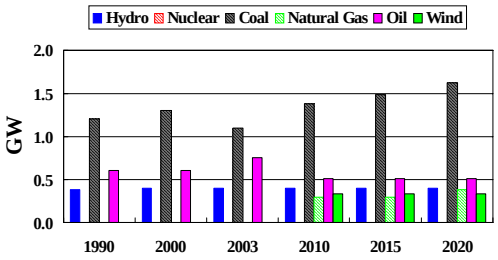


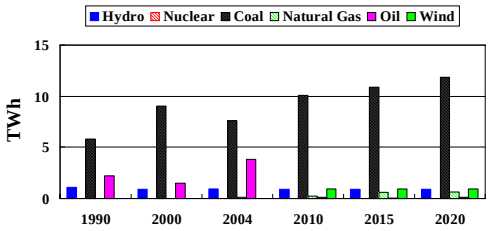
Table NS1
Electricity Demand (GWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	3.4	3.7	4.1	4.4	4.9	1.1
Commercial	2.7	3.1	3.3	4.0	5.3	3.0
Industrial	2.6	3.6	4.0	3.7	3.8	0.1
Transportation	0.0	0.0	0.0	0.0	0.0	0.0
Total	**8.7**	**10.4**	**11.4**	**12.1**	**14.0**	**1.4**

[21] Petroleum coke is often a substitute for coal in Nova Scotia because of its price advantage.

Electricity generation was 12.6 TWh in 2004. It is expected to increase to 14.8 TWh by 2020, an annual growth rate of 1.7 percent (Figure NS5). Coal is the main fuel source for generation, accounting for 61 percent in 2004. By 2020, this share is expected to be 83 percent. Renewables such as hydro, wood and wind, are projected to provide about 14 percent of the generation in 2020. Generation from wind will increase from 0.3 TWh in 2005 to 1.0 TWh by 2020, an annual growth rate of approximately 7.4 percent.

Figure NS5
Electricity Generation



10.1.4 New Brunswick

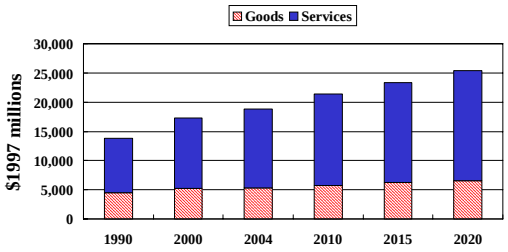
Economy

New Brunswick's population number was virtually stagnant for the 1990-2004 period and now sits at about 752,000. The population is expected to stay at this level for a few more years, before declining to 744,000 by the end of the projection period. Similarly, the labour force will peak at 397,000 by 2010, before declining thereafter.

During the period 1990 to 2004, New Brunswick's economy expanded at an average annual rate of 2.1 percent; this growth rate is expected to slow down to 1.8 percent per year on average over the outlook.

At 72 percent, the services' contribution to GDP in 2005 is slightly higher than the national average of 69 percent; this share for services is expected to continue to increase, reaching 74 percent by 2020.

Figure NB1
Real Gross Domestic Product



Specific Assumptions

Over the last few years, the Government of New Brunswick introduced new policies affecting energy and emissions. The policies that have been retained for this Outlook affect the electricity sector or influence the penetration of natural gas in the Residential and Commercial sectors.

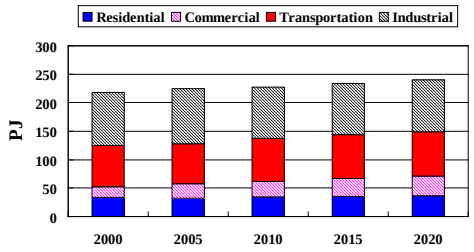
For electricity, the province considers that "*it is in the public interest to preserve NB Power's right to export electricity.*" The province claims that electricity exports in the past have kept power rates within the province lower than they would have been otherwise. NB also introduced the Renewable Portfolio Standards for electricity generation, requiring an additional 10 percent of renewable electricity to be generated by 2016, mainly from wind.

For the Residential and Commercial sectors, natural gas has been made more accessible reflecting the "*more aggressive roll-out of new distribution system pipelines.*" Natural gas, already available in the three largest cities (Moncton, Fredericton and Saint John), is expected to capture a larger share of the market.

End-Use Demand

Total demand for the four end-use sectors is expected to increase from 224 PJ in 2005 to 240 PJ in 2020, an average growth rate of 0.5 percent per year (Figure NB2). Industry is expected to account for 38 percent of fuel demand in 2020, followed by Transportation at 33 percent, the Residential sector at 15 percent, and the Commercial sector at 14 percent. Fuel shares are projected to be 51 percent petroleum products, 23 percent electricity, 18 percent renewables and 6 percent natural gas in 2020.

Figure NB2
End-Use Demand by Sector



Residential Sector

The overall demand for the Residential sector is projected to increase by only 4 PJ, from 33 PJ in 2004 to 37 PJ in 2020. During this period, the number of households is projected to increase at 0.6 percent annually, as the rate at which households form more than offsets stable or declining population levels. In 2020, Electricity will account for about 57 percent of the demand followed by much lower shares for wood and petroleum products, at 19 and 16 percent respectively. Of particular interest to NB, natural gas is expected to steadily penetrate this sector, accounting for about 8 percent of demand by 2020, generally at the expense of petroleum products.

Commercial Sector

In the Commercial sector, demand is projected to grow by 9 PJ between 2005 and 2020, reaching 34 PJ, an annual increase of about 2 percent, based on floor space growth of 1.9 percent per year. Petroleum will be the predominant fuel, followed closely by electricity. By 2020, petroleum products will account for 46 percent and electricity for 43 percent of demand, with natural gas increasing its share from zero to 10 percent, over time, at the expense of petroleum products.

Transportation Sector

For this sector, demand is expected to increase by 0.7 percent per year between 2005 and 2020, compared to 1.6 percent between 1990 and 2004. Demand for gasoline will be almost unchanged after 2010, while diesel fuel will continue its ascent, reflecting the continued need to transport goods. In spite of these trends, gasoline will maintain a share of about 50 percent throughout the outlook, followed by diesel at 44 percent and aviation fuels at 4 percent. Total demand is projected to be 78 PJ by 2020.

Industrial Sector

The Industrial sector (excluding refineries) consumed a total of about 96 PJ in 2005.

This is expected to drop to approximately 90 PJ in 2006. Most of this decline is attributable to a reduction in biomass renewables consumed in the pulp and paper sector. Future energy requirements are not expected to increase, owing to a combination of relatively low growth and anticipated intensity improvements. Demand will reach 91 PJ by 2020, a small increase from the 2006 level.

- The pulp and paper industry currently accounts for 70 percent of industrial energy consumption. Announced capacity rationalization in the province is reflected in the gross output declining 8 percent in 2006. Thereafter, output will grow slowly at 0.5 percent per year through 2020. A 6.7 PJ decrease of biomass renewables is estimated to be associated with the output decline. Combining low growth for the industry with the annual improvement in energy intensity, energy consumption will remain practically unchanged between 2006 and 2020, at about 61 PJ.

- The province's mining and non-ferrous smelting and refining sectors each are estimated to consume approximately 4.3 PJ in 2006. Both sectors will experience low growth rates—below one percent annually over the projection period. As a result, energy consumption in 2020 will be slightly less than 5 PJ.

Upstream Oil and Gas

Natural gas production averaged about 100 million cubic feet per year until the early 1980s. No substantial production is expected from this province for the coming 15 years.

Electricity

Electricity demand within the province is expected to increase from 14.4 TWh in 2004 to 15.6 TWh in 2020, an increase of about 8 percent over 16 years—about 0.5 percent on an annual basis (Table NB1).

In addition to the demand from sources within the province, the NB network also fulfills a very large share of the requirements of the province of Prince Edward Island (about 0.8 TWh per year) as well as exports to the US.

New Brunswick Power Inc. operates one of the most diverse generating systems in the country, with producing capabilities from hydro, coal, oil, orimulsion,[22] diesel, natural gas and nuclear power. Currently, the total network has an installed capacity of 4.0 GW. By 2020, the expected capacity will reach 4.5 GW, reflecting, in part, an increase in export opportunities to the US. Wind capacity is expected to reach 476 MW by 2016.

Electricity generation was 20 TWh in 2004, mainly from oil (42 percent), followed by nuclear at 22 percent, and then coal, at 15 percent (Figure NB4). By 2020, total generation will reach 21.5 TWh. Hydro generation remains at 2.9 TWh throughout the projection, while electricity from wind will increase to about 1.4 TWh by 2020. The share of generation from renewable (including wind) energy will thus increase from 17 percent to 20 percent over the outlook period.

Figure NB3
Generating Capacity

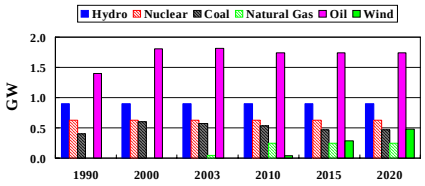


Table NB1
Electricity Demand (TWh)

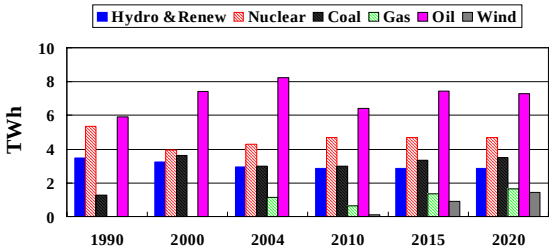
	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	4.5	5.0	5.5	5.7	5.8	0.5
Commercial	2.3	2.8	2.9	3.3	4.1	2.4
Industrial	5.7	5.8	6.0	5.7	5.7	0.0
Transportation	0.0	0.0	0.0	0.0	0.0	0.0
Total	**12.5**	**13.6**	**14.4**	**14.7**	**15.6**	**0.8**

[22] Orimulsion used at the Coleson Cove station (1,200 MW) is assumed to be heavy fuel oil.

By 2020, nuclear power will account for 22 percent of generation, the share of petroleum will decrease to 34 percent, and the share of coal will remain relatively stable at 16 percent.

New Brunswick will remain a net exporter over the projection period, with exports to the US increasing from 0.9 TWh in 2005 to 2.3 TWh in 2020. Inter-regional exports are expected to decrease from 2.4 TWh to 1.2 TWh over the same period.

FigureNB4
Electricity Generation

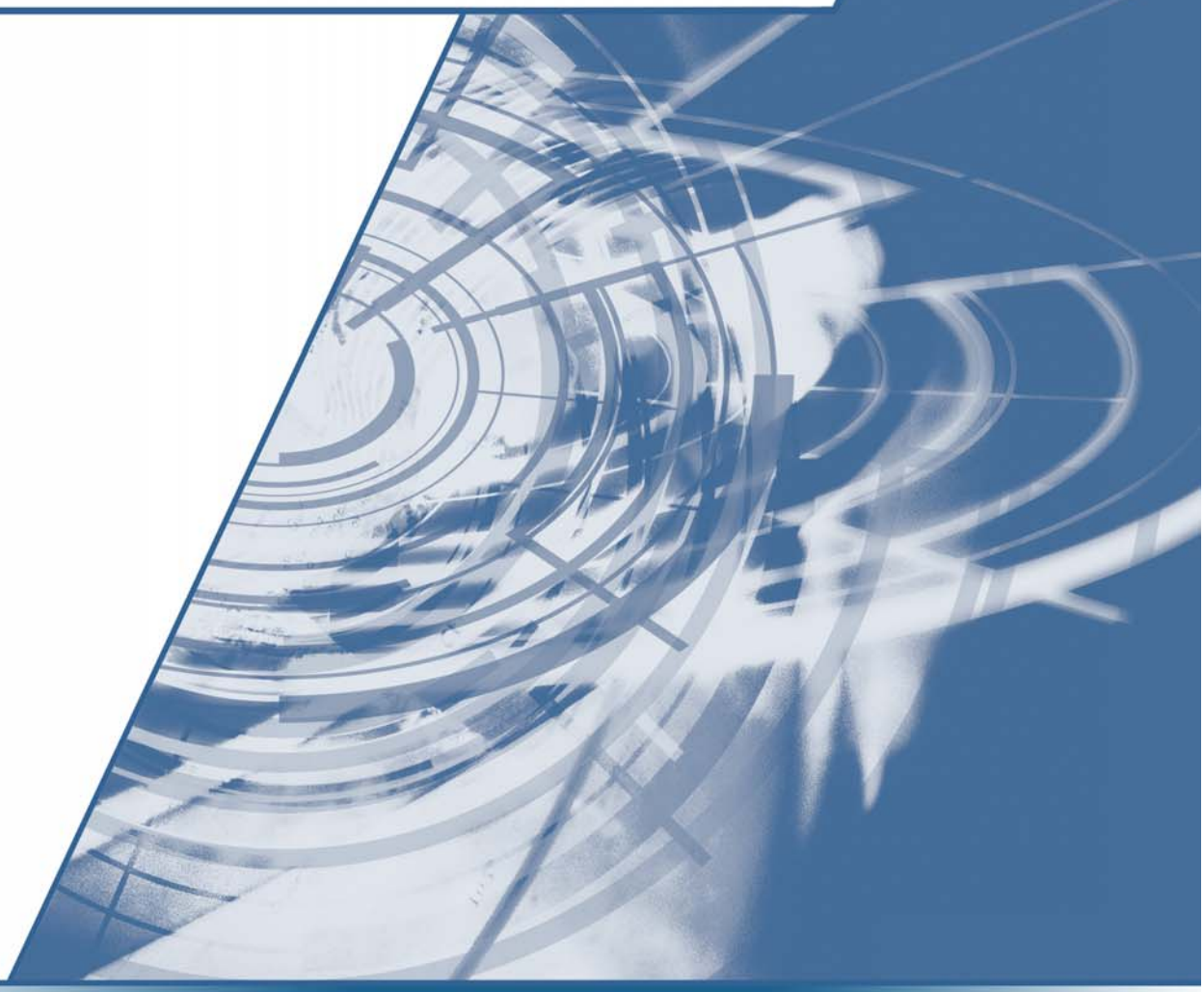


Excluded Items

For the transportation sector, the province discussed policies for accelerated stock turnover and incentives for the penetration of more efficient cars. These assumptions have not been incorporated.

For industry, the province discussed a "*rationalization*" of the pulp and paper industry, with a view towards products with higher value-add. The view of the province is that the growth of the industry could be higher—as a result of rationalization—than the view in this projection. The province also advised that the use of biomass (wood chips and sawdust) as fuel may be competing with feedstock requirements so that future increases in the use of biomass may be limited.

Central Provinces



10.2 Central Provinces

There are a number of highlights in this Outlook for the Central Canadian Provinces:

- Quebec's nuclear plant (Gentilly-2) is expected to be refurbished.
- La Romaine hydro plant is expected to be in service by 2018.
- The estimated share of wind in Quebec's generating capacity will increase to 8 percent.
- Ontario is expected to show above average growth in both the goods-producing and service sectors of the economy.
- Ontario's fuels for electricity generation are assumed to undergo a significant change, especially after 2013, as coal plants retire and nuclear plants are revitalized.

10.2.1 Quebec

Economy

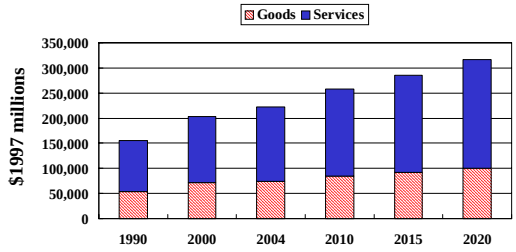
From 1990 to 2004, the Quebec population grew at about 0.5 percent per year on average, and currently represents about 24 percent of the national total. Up to 2020, this rate is expected to slow to about 0.4 percent annually. The labour force is expected to grow at about the same rate as the population.

Quebec is the second largest economy in the country and accounts for about 22 percent of total GDP. Quebec's real GDP is projected to grow on average by 2.1 percent per year over the projection period. This compares to an annual growth rate of 2.3 percent for the period 1990 to 2004 (Figure Q1).

In 2005, the share of services in total GDP was 67 percent, slightly less than the national average of 69 percent. By 2020, this share is expected to increase to 68 percent, but the national share will have increased even more quickly to 71 percent of national GDP.

Manufacturing in Quebec accounts for 22 percent of GDP compared to the national average of 18 percent.

Figure QC1
Real Gross Domestic Product



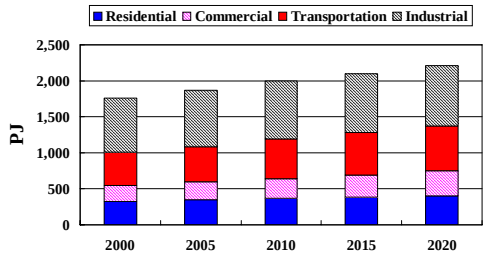
Specific Assumptions

Over the past two years, the Government of Quebec has launched climate change programs, such as an additional 1,000 MW of wind power and 100 MW of biomass-based generation by 2012. Another announced 2,000 MW of wind could also be implemented by 2013.

End-Use Demand

In 2020, total end-use demand is expected to be 2,207 PJ, representing an annual growth of 1.0 percent from 2005 (Figure QC2). This compares to a growth of 1.4 percent per year from 1990 to 2004. By 2020, the principal fuel shares will be: petroleum products at 36 percent, electricity at 36 percent, natural gas at 13 percent, and renewables at 8 percent.

Figure QC2
End-Use Demand by Sector



By 2020, Industry is expected to consume 39 percent of energy products in the end-use sectors, followed by Transportation at 29 percent, Residential at 18 percent and Commercial at 14 percent.

Residential Sector

The number of households increased by about 1.3 percent annually from 1990 to 2004 and is expected to increase by about 1 percent between 2005 and 2020. However, energy consumption in the Residential sector is not expected to increase at the same rate as the number of households. Energy demand grew by an average of 0.9 percent per year between 1990 and 2004, and is expected to grow at 0.9 percent per year between 2005 and 2020.

Total Residential consumption was 347 PJ in 2004. Residential demand is expected to reach 405 PJ in 2020. Electricity will remain the predominant fuel used in homes (over 64 percent). Its growth reflects the penetration of space cooling and electronic devices. Petroleum products will represent the second most important fuel, accounting for nearly 12 percent of this demand.

Commercial Sector

From 1990 to 2004, energy demand grew annually by 2.0 percent, from 184 to 248 PJ. Energy consumption is expected to grow by an average 2.3 percent per year between 2005 and 2020 compared to the floor space increase of 1.8 percent. The projected increase in the growth of energy demand is mainly due to increases in the electricity consumption in space cooling and lighting.

Total demand was 248 PJ in 2004 and is expected to reach 342 PJ in 2020. Commercial energy consumption continues to be dominated by electricity and natural gas, representing 55 and 30 percent respectively.

Transportation Sector

Total Transportation demand increased by 1.5 percent per year from 1990 to 2004 and is expected to show similar growth between 2005 and 2020.

Transportation energy consumption was 500 PJ in 2004. Total demand is projected to be 623 PJ in 2020. Gasoline is expected to remain the predominant fuel (about 55 percent), followed by diesel, with 26 percent of transportation consumption.

Industrial Sector

There are three major industries in Quebec: pulp and paper, and aluminium production each account for 25 percent of industrial energy use; and the iron and steel industry accounts for over 5 percent. Industrial energy demand is expected to grow on average at 0.5 percent per year between 2005 and 2020. In 2005, energy use was 778 PJ and is estimated to increase to 837 PJ in 2020. Electricity is expected to remain the most important source of energy with more than 40 percent of total use. Natural gas will account for 18 percent of the total, followed by renewable energy with 12 percent.

- In gross output terms, the pulp and paper industry is expected to experience a slight decline during 2006 and 2007 to reflect on-going industry rationalization. Thereafter, growth is projected to be modest, expanding at 0.6 percent per year through 2020. In terms of energy use, it is expected to be 219 PJ by 2020, a level similar to that in 2005. In 2005, renewable energy (waste liquor and wood waste) provides about 40 percent of total energy use, followed by electricity (30 percent), and petroleum products and natural gas with 12 percent. This energy mix is expected to remain relatively constant over the projection period.

- As the aluminium industry completes its current phase of smelter capacity addition, output is expected to grow at about 1.3 percent annually throughout the remainder of this decade. In this projection, no

additional investment in smelting capacity is assumed after 2010. In 2005, the aluminium industry was estimated to consume 202 PJ, which is projected to increase to 215 PJ in 2010, an annual growth rate of 1.2 percent. Total consumption in 2020 is estimated to increase by only 1 PJ, to 216 PJ.

The aluminium industry's consumption of non-energy use products (petroleum coke and pitch) is 56 PJ in 2005, which is expected to increase to 60 PJ by 2020. Electricity represents 95 percent of the total, much of which is generated by the industry, followed by natural gas with 4 percent. Due to the specific requirements of aluminium smelting technology, these proportions are not expected to change over time.

- Iron and steel production are projected to grow at 1.7 percent per year, while energy consumption will grow at 1.2 percent per year to reach 44 PJ in 2020. Natural gas is 65 percent of this total, followed by 30 percent electricity. No changes in these proportions are expected in the projection period.

Electricity

Electricity demand increased by about 2.0 percent annually between 1990 and 2004, and is expected to increase more slowly (1.2 percent) to 206 TWh by 2020 (Table QC1), mainly due to slower growth in industrial electricity demand.

The Gentilly-2 nuclear plant, which has been in service since 1983, is assumed to be refurbished in 2008 and will return to service in 2010, with an additional useful life of 25 years. The projection also includes the La Romaine hydro project with a capacity of 1,500 MW, which is scheduled to be in service in 2018. Smaller projects are also included: Eastmain (480 MW in 2006), Outarde Number 3 (254 MW in 2006), Peribonka (385 MW in 2008) and Toulnustouc (526 MW in 2005).

In 1990, generation capacity was 26.3 GW and reached 34.9 GW in 2003, of which 93 percent was hydro. Currently, there is very little excess capacity so that most of the increase in demand will be satisfied by new capacity additions. As a result, generating capacity will increase to 36.3 GW in 2010 and to 43.5 GW by 2020, (Figure QC3). Hydro will continue to have the largest share. However, this will decline from its current share of 93 percent to 79 percent in 2020. This decline is mainly due to the capacity additions of other renewables, especially wind, which will increase its share from 0.6 percent in 2005 to 13 percent in 2020. Natural gas capacity is anticipated to be 2.3 GW by 2020.

Figure QC3
Generating Capacity

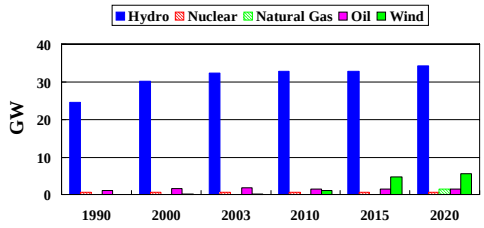


Table QC1
Electricity Demand (TWh)

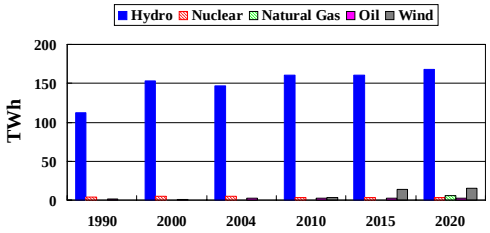
	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	47.3	51.8	58.2	64.2	72.1	1.2
Commercial	30.3	32.8	35.7	41.0	52.6	2.5
Industrial	51.9	70.0	76.5	79.2	81.0	0.5
Transportation	0.3	0.3	0.3	0.2	0.3	2.1
Total	**129.9**	**155.0**	**170.6**	**184.7**	**206.0**	**1.2**

Currently, total hydro capacity is 31.4 GW, which is expected to increase to 34.2 GW by 2020. Wind capacity will reach 5.5 GW by 2020, while biomass is expected to remain stable at 0.1 GW and Municipal Solid Waste (MSW) to reach 0.1 GW by 2020.

In 1990, electricity generation was 118 TWh, reaching 154 TWh in 2004—an annual growth rate of 1.9 percent. Hydro had a share of generation of 95 percent, and nuclear had the second largest share with 3 percent.

For the projection, electricity generation is expected to increase to 196 TWh by 2020, an average annual growth rate of 1.4 percent (Figure QC4). Hydro is expected to reach 168 TWh in 2020. Wind generation will increase from 0.5 TWh in 2005 to 15.3 TWh by 2020, an annual growth rate of approximately 26 percent and accounting for 8 percent of generation.

Figure QC4
Electricity Generation



In 2009, with the anticipated refurbishment of the Gentilly-2 nuclear plant, Quebec is expected to become temporarily a net importer of about 1 TWh from the US. Electricity trade with the US, in general, is expected to remain relatively unchanged, with net annual electricity exports varying between 4.7 and 5.5 TWh.

Excluded Items

Quebec suggested a potential penetration of natural gas in the Residential sector of about 7 percent. This was not specifically included since there is no program to achieve this target. The demand for natural gas is based on the price of competing fuels and the service demand.

New LNG developments have been proposed within the province, but are not included in this outlook since they are still at an early stage of development.

10.2.2 Ontario

Economy

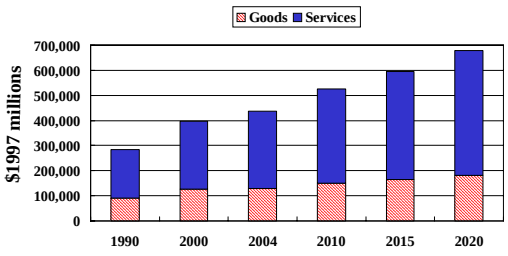
From 1990 to 2004, Ontario's population grew at about 1.2 percent per year, compared to 0.8 percent for the rest of Canada.[23] Over the 2005-2020 period, Ontario is projected to experience continued population growth, slowing to an average annual growth rate of 1.2 percent.

From 1990 to 2004, on average Ontario's labour force grew at about 1.5 percent per year. From 2005 on, this rate is expected to fall to 1 percent.

Ontario is the largest economy in the country, accounting for about 40 percent of national GDP. Ontario's real GDP grew at an annual average of 2.9 percent, compared to 2.4 percent for the rest of Canada, from 1990 to 2004. GDP growth is projected to average 2.8 percent per year from 2005 to 2020 (Figure ON1).

The share of services relative to goods in Ontario's economy reflects the national average. Ontario's goods-producing sector is a bit different, however: in 2005, manufacturing accounted for 21 percent of GDP compared to an average of 17 percent for the rest of Canada.

Figure ON1
Real Gross Domestic Product



Specific Assumptions

The Sir Adam Beck hydroelectric plant is slated to be expanded in 2010. A recently announced Request for Proposal (RFP) includes the Umbata Falls and Glen Miller hydroelectric projects. Five wind projects will be installed by the end of 2006, providing 365 MW of capacity.

According to a recent clean energy transfer initiative, transmission upgrades are expected to be completed by 2009, which will double the existing capacity between Ontario and Manitoba to about 400 MW.

A few small MSW and hydro plants will be added for a total of 40 MW by 2009. In addition, 1,200 MW of new renewables will be added by 2009.

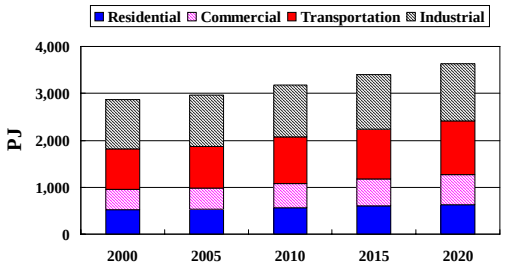
End-Use Demand

End-use demand will increase at an annual rate of 1.3 percent from 2005 to 2020, similar to growth from 1990 to 2004 (Figure ON2). Total demand, in 2020, will be 3,625 PJ, comprised of 35 percent petroleum products, 30 percent natural gas, 18 percent electricity, and 3 percent renewables.

On a sectoral basis, Industry and Transportation are the largest (representing 33 percent and 32 percent of consumption respectively), with Residential and Commercial accounting for 17 and 18 percent respectively.

[23] Ontario is compared to the rest of Canada; otherwise, Ontario's economy would be compared to a national economy about 40 percent of which is made up of Ontario.

Figure ON2
End-Use Demand by Sector



Residential Sector

The number of households is expected to increase by 1.6 percent annually from 2005 to 2020. For the same period, energy demand is expected to increase from 535 to 626 PJ, an average of 1 percent per year, compared to 0.8 percent between 1990 and 2004.

Natural gas is expected to have the highest share of energy consumption by the Residential sector (59 percent), with electricity second at 32 percent.

Commercial Sector

Total floor space is expected to increase by 2.4 percent on average per year from 2005 to 2020. Demand will grow from 447 PJ in 2005 to 638 PJ in 2020, an annual growth of 2.4 percent, compared to the same growth from 1990 to 2004. The increase in energy demand is mainly due to an increase in electricity consumption for space cooling, lighting and office equipment.

Natural gas and electricity are expected to provide most of the energy with a share of about 48 and 43 respectively.

Transportation Sector

Total demand in transportation is projected to increase from 878 PJ in 2004 to 1,154 PJ in 2020, a cumulative growth of 31 percent. The most important transportation fuel, motor gasoline, will represent about 60 percent of all transportation energy; it is expected to grow at 1.6 percent annually. Jet fuel will experience the highest growth, at 2.6 percent annually, and its share of transportation energy consumption will reach 8 percent by 2020. The natural gas pipeline share of this sector will decline modestly from 7 to 6 percent by 2020.

Industrial Sector

Energy demand is expected to grow from 1,091 PJ in 2005 to 1,204 PJ by 2020, an annual rate of 0.7 percent. In 2005, demand for natural gas is about 30 percent of total energy demand (including combustion and non-combustion uses), where it will remain until 2020. The demand for other major fuels such as electricity, and coal and coke—both at about 15 percent—will increase by 0.4 and 0.3 percent per year, respectively. The share of renewables (such as pulp and pulping liquor used by pulp and paper mills) is expected to decline from about 7 percent of total demand in 2005 to 6 percent in 2020.

- Ontario's pulp and paper industry has paralleled the recent developments that are occurring nationally. Looking forward, this projection assumes that a 10 percent drop in gross output will occur in 2006. This level of production will be maintained until 2010, after which slow growth returns at 0.6 percent per year through 2020.

  In 2006, total energy consumption in the pulp and paper industry is expected to be 136 PJ. With anticipated energy intensity improvements, consumption will decline to 133 PJ in 2020. Biomass remains dominant as a source of energy throughout the projection period, representing approximately 50 percent of total consumption. Natural gas (25 percent) and electricity (20 percent) will be the other significant components of the energy mix.

- The output of the iron and steel industry is anticipated to increase by 0.8 percent annually for the projection period. In 2005, total energy consumption is 224 PJ and is expected to reach 232 PJ in 2020, an annual growth rate of 0.2 percent. Coal and coke will represent about 60 percent of total

energy consumption, followed by natural gas with 30 percent and electricity at 10 percent.

- The production of chemicals is expected to increase by 1.5 percent annually to 2020. Energy consumption is expected to increase by 0.8 percent annually, from 35 PJ in 2005 to 40 PJ in 2020. The non-combustion use of energy, as a feedstock, is far more important in this industry, increasing from 145 PJ in 2005 to 181 PJ in 2020, tracking this industry's growth of 1.5 percent annually.

- In 2005, Ontario accounted for about one quarter of Canada's refining capacity, following the closure of Petro-Canada's refinery at Oakville. Refinery capacity is expected to increase by less than 80 percent from 2005 to 2020. Energy consumption is expected to increase by 4 percent per year from 2005 to 2020, from 84 to 149 PJ. This province is expected to use a declining share of foreign crude oil in its crude slate and more domestic oil, especially very heavy crude.

Electricity

In 2004, Ontario's electricity demand by the end-use sectors was 30 percent of Canada's electricity consumption. Ontario's electricity consumption is expected to reach 179 TWh in 2020 (Table ON1). Annual growth in electricity demand over the projection period will be 1 percent higher than the growth experienced during the 1990 to 2004 period. Much of this growth is due to an anticipated steep increase in demand from the Commercial sector, which increases its share from 38 percent in 2005 to 43 percent in 2020.

Electricity purchased by the Industrial sector declined from 43 TWh in 1990 to 38 TWh in 2004, which contributed to the slower growth in electricity consumption over that period. Over the projection period, Industry's share of electricity consumption is expected to decline from 29 percent in 2005 to 27 percent in 2020, while the Residential sector's share is expected to remain flat at 32 percent.

A number of projects are expected to increase Ontario's generating capacity over the projection period, with the expansion of the Sir Adam Beck hydro plant adding 200 MW. In addition, five gas projects awarded by the Ontario Government will commence operation over the period 2005 to 2009 and will account for 2.2 GW of capacity. Wind capacity is expected to increase from 13 MW in 2004 to 1.4 GW by 2020.

The two laid-up nuclear reactors, Bruce Power units A1 and A2, which represent about 1,650 MW of capacity, will be refurbished by 2008. Table ON2 summarises the refurbishment of Ontario's nuclear plants. Pickering units A2 and A3 are assumed not to return to service. Pickering A4 is assumed to retire in 2014.

Table ON1
Electricity Demand (TWh)

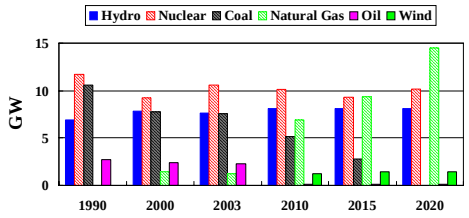
	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	45.3	42.7	45.3	49.2	55.9	1.4
Commercial	40.7	48.6	53.2	62.2	76.2	2.3
Industrial	43.4	44.2	38.0	42.5	45.6	0.5
Transportation	0.6	0.9	0.5	0.8	0.9	1.4
Total	**130.0**	**136.4**	**136.9**	**154.8**	**178.6**	**1.5**

Table ON2
Status of Nuclear Generating Units

	Currently in service	Awaiting re-furbishment
Pickering A (4x542 MW)	2/4	0/4
Pickering B (4x540 MW)	4/4	4/4
Bruce A (4x825 MW)	2/4	2/4
Bruce B (4x840 MW)	4/4	4/4
Darlington (4x935 MW)	4/4	4/4

The net result is an expected increase in generating capacity, reaching 35 GW in 2020 (Figure ON3). Nuclear's share of capacity will remain large, even though it will decline from the current 36 percent in 2005 to almost 30 percent by 2020. Total nuclear capacity was 11.2 GW in 2005 and is expected to decline to 10.1 GW in 2020.

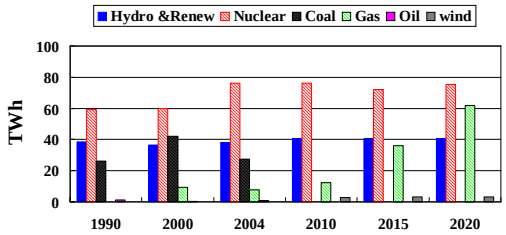
Figure ON3
Electricity Capacity



Natural gas capacity is anticipated to increase to about 12.4 GW by 2020, up from 5.2 GW in 2005. Wind capacity will be 1.4 GW by 2020.

In 2004, electricity generation was 153 TWh, about 50 percent (76 TWh) of which was from nuclear energy. Nuclear generation is expected to decline slightly to 75.3 TWh by 2020 (Figure ON4). Natural gas is anticipated to provide most of the replacement generation for the coal plants as they retire over time, increasing from 7.9 TWh in 2004 to 62 TWh by 2020.

Figure ON4
Electricity Generation



Generation from renewable sources, including large hydro, is expected to increase significantly, from 41 TWh in 2004 to 49 TWh in 2020. Within renewable sources, hydro generation increases from 38 TWh in 2004 to 41 TWh in 2020. By 2020, wind power will account for 3.3 TWh, with another 5.3 TWh being generated by other renewable sources such as wood, other biomass, and municipal solid waste.

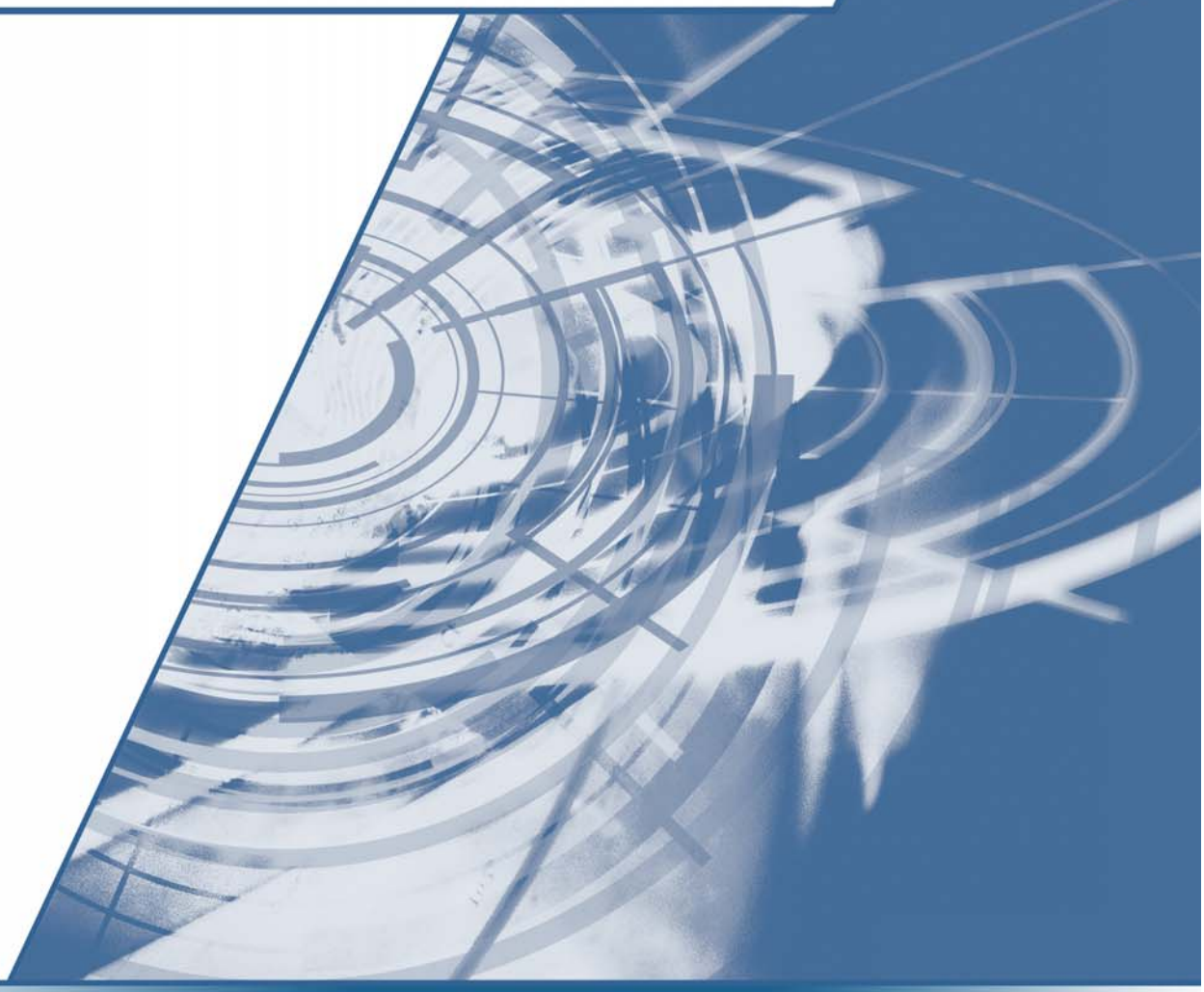
Over the projection period, Ontario's net imports are expected to increase to about 2 TWh by 2020. Purchases from neighbouring provinces are also expected to increase. Net purchases are expected to increase to 4.4 TWh (from Quebec and Manitoba).

Excluded Items

The impact of the plan to densify the Greater Toronto Area has been omitted from the Outlook because of insufficient information, such as the detail on the projected number of trips and travel distances that could be translated into provincial impacts.

The Government of Ontario's announced that Bruce Unit A3 could be refurbished at the end of its operational life. Instead, this Outlook assumes that Bruce Unit A3 will be retired permanently in 2015.

Western Provinces and Territories



10.3 Western Provinces and Territories

The predominant impact over the next 15 years will be the expansion of Alberta's oil sands.

- Conventional oil production is expected to decline in all four Provinces and the Territories.
- Natural gas production will decline in the Western Provinces, but increase sharply in the Territories as the Mackenzie Valley pipeline comes into service.
- Mining shows particular strength in Saskatchewan.

10.3.1 Manitoba

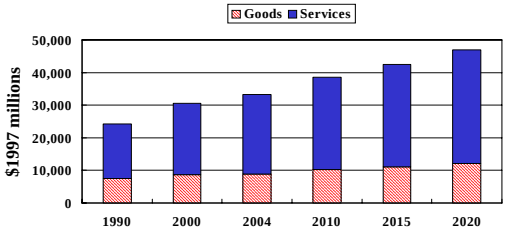
Economy

From 1990 to 2004, Manitoba's population grew at about 0.4 percent per year on average, and is expected to grow by a similar rate during the projection period. The labour force follows similar trends: it grew at a rate of 0.6 percent per year from 1990 to 2004 and is expected to slow down to 0.5 percent annually from 2005 to 2020.

Manitoba's GDP, in real terms, is projected to grow on average by 2.1 percent per year from 2005 to 2020, compared to an annual growth rate of 2.3 percent for the period 1990 to 2004 (Figure MB1).

In 2004, the service sector's share of GDP was 73 percent, somewhat higher than the national average; it is expected to rise slightly by the end of projection period.

Figure MB1
Real Gross Domestic Product



Specific Assumptions

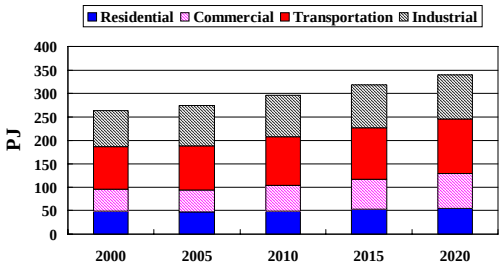
The Government of Manitoba is actively promoting ethanol production and has legislated that 85 percent of gasoline sales must contain 10 percent ethanol. The implementation of this legislation has been delayed pending the construction of more ethanol manufacturing facilities, which are expected to be completed by 2008. Small quantities of biodiesel are also expected to begin in 2007.

As noted in the Ontario section, there is an agreement to transfer power from Manitoba to Ontario. Additionally, a new wind project at St. Leon is being constructed.

End-Use Demand

Total end-use demand will be 340 PJ in 2020, a growth rate of 1.3 percent per year, compared to 0.5 percent from 1990 to 2004 (Figure MB2). The Transportation sector represents the largest share of final-demand energy consumption at 35 percent, Industry consumes 29 percent, and the Commercial and Residential sectors use 20 and 16 percent respectively. Petroleum products are the most important fuel (39 percent), followed by natural gas and electricity at 27 percent each.

Figure MB2
End-Use Demand by Sector



Residential Sector

After a cumulative decline of 4 percent between 1990 and 2004, the number of households is expected to grow 0.9 percent annually. Residential demand is expected to increase 0.9 percent per year from 2005 to 2020, and will reach 55 PJ. The dominant fuels will be natural gas (43 percent) and electricity (51 percent).

Commercial Sector

Total floor space is expected to increase by 2.9 percent on average per year during the 2005-2020 period. The average annual growth rate of energy consumption in the Commercial sector is projected to be 3.2 percent in this period, mainly because of growth in electricity consumption. This compares to growth in energy consumption of less than 0.9 percent annually for the 1990-2004 period. Total demand in 2020 is expected to be 75 PJ, comprised of 42 percent electricity, 54 percent natural gas and small quantities of petroleum products.

Transportation Sector

From 1990 to 2004, transportation had virtually no demand growth, as the expected increase in road transportation will be offset by reduced demand by natural gas pipelines. Transportation energy demand will reach 115 PJ by 2020, an average growth rate of 1.3 percent per year. Motor gasoline is the principal fuel (48 percent), followed by diesel (26 percent). Natural gas for pipeline fuel comprises about 12 percent of transportation demand.

Industrial Sector

Total industrial demand is expected to grow at 0.7 percent annually and will reach 95 PJ in 2020. Electricity will account for the largest share of demand at 33 percent, followed by natural gas and refined petroleum products at 25 percent each. Renewables consumed in the pulp and paper sector will continue to represent 6 percent of the energy mix.

- Agriculture is a significant industry in Manitoba, where it represents about 4 percent of the provincial GDP, compared to 2 percent for the whole country. While it is not considered energy-intensive, agricultural energy consumption accounts for about one third of industrial energy use in the province. This energy demand is projected to increase at 1.2 percent annually, and will reach 30 PJ by 2020, of which 75 percent is petroleum products.

- Mining is also an important industry; its output is expected to increase 0.5 percent annually over the outlook. Energy demand is assumed to be relatively flat. Consumption will be 3.5 PJ in 2020, consisting of 45 percent petroleum products, and 55 percent electricity.

Upstream Oil and Gas

Manitoba is a relatively small producer of crude oil. From 1990 to 2004, production ranged from 11 MBOPD to 13 MBOPD. With no more reserve additions, other than the Sinclair field, production is expected to decline from its current level of 11 MBOPD to 2 MBOPD by 2020.

Electricity

Electricity demand increased by about 1.4 percent annually between 1990 and 2004, and will increase 1.9 percent per year to 25.8 TWh by 2020 (Table MB1).

During the projection period, electricity generating capacity is expected to increase at an annual rate of 1.3 percent, from 5.5 GW in 2005 to 6.6 GW in 2020. This average annual growth rate is lower (0.6 percent) than from 1990 to 2004. Most of the new capacity will be hydro-based, with small quantities of natural gas-fired generation.

Table MB1
Electricity Demand (TWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	5.2	5.4	6.0	6.6	7.8	1.6
Commercial	3.8	4.0	4.4	5.8	8.7	4.3
Industrial	5.9	6.9	7.4	8.2	8.6	0.5
Transportation	0.4	0.8	0.8	0.7	0.7	0.1
Total	**15.2**	**17.1**	**18.6**	**21.3**	**25.8**	**1.9**

Generating capacity from hydro is expected to continue to have the largest share (about 90 percent), followed by a small amount of oil (Figure MB3). By the end of the outlook period, wind is expected to represent 4 percent of the electricity capacity in Manitoba.

Historically, Manitoba has exported significant quantities of electricity to the US Midwest and Ontario; this pattern is expected to continue. Exports are projected to remain at about 11 TWh up to 2020. Sales to Ontario will increase from 1.7 TWh in 2005 to over 3 TWh, driven by the expansion of transmission capacity to 400 MW.

Figure MB3
Generating Capacity

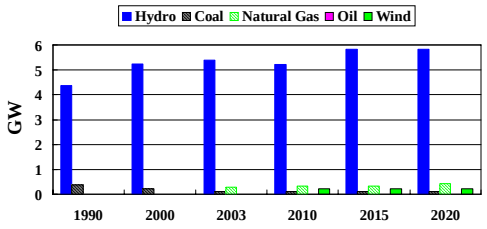
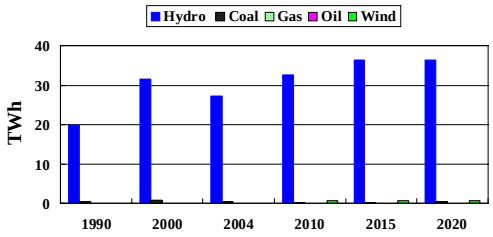


Figure MB4
Electricity Generation



Electricity generation was 28 TWh in 2004. With the addition of Gull Lake and the Wuskwatim, it is expected to increase to 37 TWh by 2020, an annual growth rate of 1.2 percent (Figure MB4). As noted above, hydro provides the dominant source for electricity (97 percent). Wind is projected to account for almost 2 percent of the generation in 2020.

Excluded Items

The Conawapa hydro project has not been included.

10.3.2 Saskatchewan

Economy

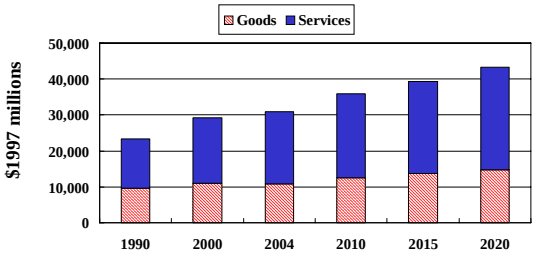
The population of Saskatchewan stayed relatively constant from 1990 to 2004. Going forward, it is expected to increase at an average annual rate of 0.3 percent per year to 2020. The labour force grew at an average annual rate of 0.4 percent over the 1990 to 2004 period, and is expected to grow at 0.3 percent annually thereafter.

Saskatchewan's economy is traditionally associated with agriculture; however, increasing diversification has meant that now this sector makes up about 7 percent of the province's GDP, a significant decline from the share of 13 percent in the early 1990s. Saskatchewan is the second largest oil-producing province and the third largest natural gas-producing province in Canada. Mining is also a major contributor to the provincial economy, with Saskatchewan being the world leader in potash and uranium production.

Over the period 1990 to 2004, real GDP in Saskatchewan grew at an average rate of about 2 percent per year, which is expected to accelerate to 2.1 percent per year for the period 2005-2020 (Figure SK1).

The services sector increased in importance, with its contribution to the economy growing from 59 percent in 1990 to 66 percent in 2004. There will be little change to the overall shares over the outlook.

Figure SK1
Real Gross Domestic Product



Specific Assumptions

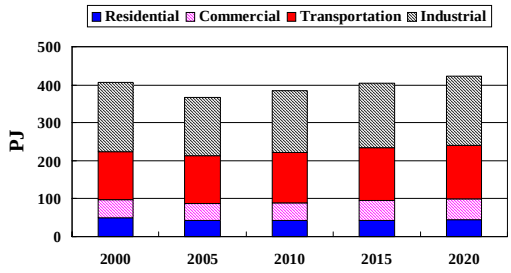
Provincial legislation mandates a 7.5 percent ethanol gasoline blend by 2010; the provincial fuel tax is exempted for Saskatchewan-produced and -consumed ethanol. Currently, there is only one small ethanol plant in Lanigan, with a capacity of 12 million litres a year. Future construction of several ethanol plants in Saskatchewan is assumed, increasing ethanol production to 310 million litres per year by 2010.

Provincial government policy will encourage the expansion of electric power generation from renewables. Several wind projects are incorporated in this Outlook to meet SaskPower's commitment to purchase Environmentally Preferred Power.

End-Use Demand

Total end-use energy demand in Saskatchewan is projected to increase from 362 PJ in 2005 to 423 PJ in 2020, representing an average growth rate of about 1 percent per year (Figure SK2). This is a slower rate than the historical growth of 1.2 percent per year from 1990 to 2004. The Industrial sector is the largest end-use sector (45 percent), followed by Transportation (32 percent). Petroleum is the main energy consumed, with its share remaining stable at slightly less than 40 percent. Natural gas will provide about one third of Saskatchewan's energy requirements.

Figure SK2
End-use Demand by Sector



Residential Sector

The number of households will increase at 0.7 percent per year over the next 15 years, compared to 0.3 percent for the previous 15 years. Residential energy demand declined from 51 PJ in 1990 to 45 PJ in 2004. It is expected to increase to 44 PJ over the projection period. Natural gas and electricity will continue to be the dominant fuels, with shares of about 68 percent and 27 percent respectively.

Commercial Sector

Over the period 1990 to 2004, energy demand in the Commercial sector increased by 2.4 percent per year to 47 PJ in 2004. Because of the increase in commercial floor space (1.6 percent annually), energy use is expected to continue to grow over the next 15 years, at about 1.6 percent per year. Demand will be 56 PJ in 2020, of which 57 percent will be natural gas and 33 percent electricity

Transportation Sector

Energy use in the Transportation sector grew at 1.7 percent per year from 1990 to 2004, at a similar pace to the economy. Diesel was the fastest growing fuel, at 4.6 percent per year, more than double the rate of motor gasoline. As a result, the share of diesel increased from 19 percent to 29 percent, while the share of motor gasoline grew from 42 percent to 45 percent.

Growth in transportation energy use is expected to slow to 0.7 percent per year from 2005 to 2020, and will be 141 PJ in 2020. This slowdown is due to the assumption of improving fuel efficiency of light-duty vehicles and trucks, as well as the reduction in energy requirements for pipeline use. Motor gasoline and diesel are expected to grow at slightly over 1 percent per year. From 2005 to 2020, natural gas pipeline fuel will continue to fall, consistent with the expected drop in natural gas production.

Industrial Sector

- The major industries in Saskatchewan are agriculture and mining. Energy use by the industrial sector (excluding oil and gas extraction) is projected to increase from 153 PJ in 2005 to 182 PJ in 2020. Natural gas is the most widely used fuel with a share of about 30 percent in 2005. Petroleum products, mostly used in the agriculture industry, maintain a similar share over the outlook period.

- The mining industry consists primarily of potash and uranium mining and is expected to show a relatively high growth rate, averaging 2.8 percent per year to 2020. Total consumption will increase from 37 PJ to 50 PJ, an annual rate of 2.0 percent. Natural gas will be the predominant fuel at 70 percent; electricity will account for about 25 percent.

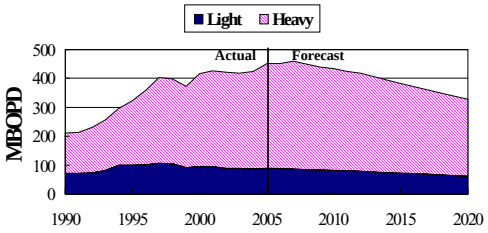
- Agriculture is the largest industrial energy user—consuming about 30 percent of industrial energy. Petroleum products will account for almost 75 percent of energy used. From 2005 to 2020, agricultural output is expected to grow at 1.3 percent per year and energy use, at 0.7 percent per year, to reach 52 PJ in 2020.

- Energy use by the Coop refinery is estimated to be 18 PJ in 2005. It is expected that, with the expansion of this refinery from 55 thousand barrels per day (MBPD) to 80 MBPD, energy use will increase to 29 PJ in 2020.

Upstream Oil and Gas

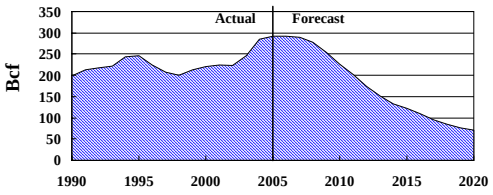
In 2004, crude oil production was 424 thousand barrels of oil per day (MBOPD), of which 80 percent was heavy crude. Growth in oil production was rapid in the past, doubling from 1990 to 2004. However, from 2005 to 2020, oil production is expected to decline at a rate of about 2 percent per year, from 451 MBOPD to 327 MBOPD (Figure SK3). These estimates are based on the assumption that the remaining resource potential is 1.1 billion barrels for light crude and 2.7 billion barrels for heavy crude.

Figure SK3
Crude Oil Production



Natural gas production will also experience a significant change, declining from the current level of 261 billion cubic feet (Bcf) per year to 70 Bcf per year by 2020 (Figure SK4). It is assumed that the remaining natural gas resources potential for Saskatchewan is 3 trillion cubic feet.

Figure SK4
Natural Gas Production



Upstream oil and gas energy requirements are expected to decline from 93 PJ in 2005 to 82 PJ in 2020. This reduction reflects the projections of declining oil and natural gas production volumes offset, in part, by the expansion of the Husky Upgrader from 75 MBPD in 2005 to 110 MBPD by 2012.

Electricity

Electricity demand will increase by 1 percent annually to 19.3 TWh by 2020 (Table SK1), slower than the past decade of 1.9 percent. The Commercial sector leads the demand growth at 1.8 percent. Industry represents about 50 percent and will grow somewhat slower than the other sectors. The Residential sector will continue to account for about 17 percent of electricity demand.

Figure SK5 shows electricity capacity by fuel in Saskatchewan, which was 3.4 GW in 2003. About 52 percent of Saskatchewan's electricity generating capacity came from coal, followed by hydro and other renewables (25 percent), and natural gas (22 percent).

Figure SK5
Generating Capacity

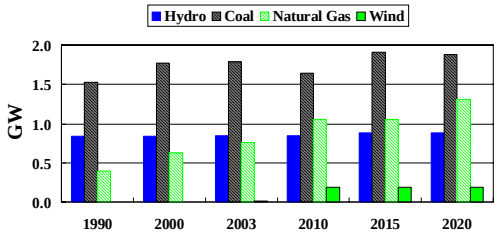


Table SK1
Electricity Demand (TWh)

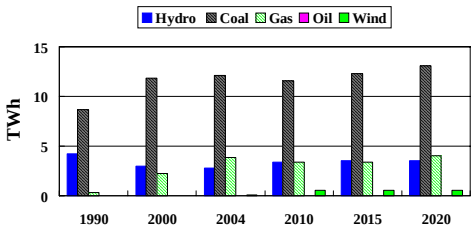
	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	2.5	2.7	2.9	3.0	3.3	1.0
Commercial	3.9	4.4	3.8	4.2	5.1	1.8
Industrial	6.1	8.0	9.1	9.1	9.6	0.7
Transportation	0.7	1.3	1.5	1.4	1.4	0.0
Total	**13.2**	**16.3**	**17.2**	**17.6**	**19.4**	**1.0**

It is expected that Saskatchewan's capacity will increase to 4.3 GW by 2020. Coal will continue to account for the major share of capacity, but will lose some share to natural gas and renewables. The largest change will occur in wind capacity, which will grow tenfold from 0.02 GW to 0.2 GW with the completion of several wind generation projects, such as the 150 MW Rushlake Creek wind project in 2006. By 2020, wind will account for over 4 percent of Saskatchewan's electric power capacity.

Total electricity generation is projected to increase from 18.9 TWh in 2004 to 21.2 TWh in 2020 (Figure SK6). In 2020, coal-fired generation will represent the largest share at 62 percent, with natural gas at 19 percent. Wind and hydro together will account for about 19 percent.

For the projection period, net imports from the US are assumed to average 0.3 TWh per year. Saskatchewan's interprovincial net sales will vary between 0.1 and 1 TWh over the next 15 years.

Figure SK6
Electricity Generation



Excluded Items

No major issues were identified by Saskatchewan that could not be included.

10.3.3 Alberta

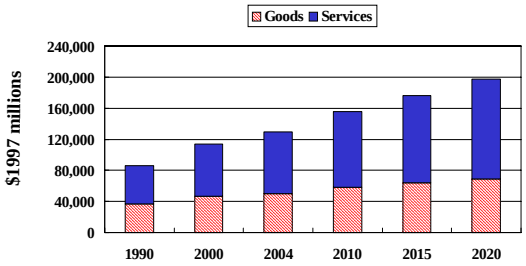
Economy

Over the 1990-2004 period, Alberta's population grew on average by 1.6 percent per year—compared to 1 percent nationally—driven by strong migration from other Provinces. Over the next 15 years, the increase in population is expected to be 1 percent annually.

From 1990 to 2004, the labour force grew at 2.2 percent annually on average, and is projected to slow to 0.9 percent over the outlook period.

Alberta is the third largest economy in Canada, accounting for over 12 percent of total GDP. Over the 1990-2004 period, Alberta was the strongest performer in Canada with a growth rate of 2.7 percent annually (Figure AB1). This growth rate is expected to remain at 2.7 percent for the period 2005 to 2020. The share of services in GDP will increase from 62 percent in 2005 to 65 percent in 2020.

Figure AB1
Real Gross Domestic Product



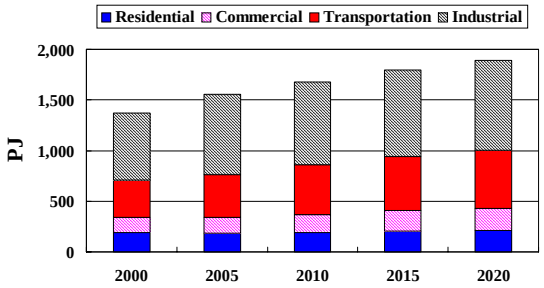
Specific Assumptions

All existing and approved oil sands projects, up to 2010, are included in the Outlook.

End-Use Demand

End-use energy demand grew rapidly from 1990 to 2004, at 2.6 percent per year. From 2005 to 2020 this growth is expected to slow to 1.3 percent, resulting in total demand of 1,888 PJ by 2020 (Figure AB2). Excluding non-energy uses, petroleum products will be the dominant energy product, with a share of 33 percent, followed by natural gas (27 percent) and electricity (9 percent). The Industrial sector will be the largest consumer of energy, primarily as a result of consuming large volumes for non-energy use.

Figure AB2
End-Use Demand by Sector



Residential Sector

In 2004, with a share of 84 percent, natural gas dominated demand in this sector. Its share is projected to fall to 82 percent by 2020. Over the outlook, the energy demand growth rate is expected to be 0.9 percent, while the number of households will grow at 1.6 percent. By 2020, electricity demand is expected to increase by 22 percent, mainly because of greater use of household appliances, to 35 PJ. The total energy demand is projected to increase from 185 PJ to 211 PJ.

Commercial Sector

Energy demand is projected to increase by 2.3 percent per year, from 155 PJ in 2005 to 219 PJ in 2020. Natural gas also dominates in the Commercial sector at 64 percent. Over the period of 2005 to 2020, electricity demand is projected to grow from 52 PJ to 72 PJ, with its share in energy demand increasing just 3 percent, from 30 to 33 percent, as commercial buildings become more energy-intensive.

Transportation Sector

Energy demand in the transportation sector is expected to grow from 425 PJ in 2005 to 576 PJ in 2020. In Transportation, the share of gasoline is foreseen to grow slightly from 41 percent in 2000 to 43 percent by 2020, whereas diesel is expected to increase its share from 38 to 41 percent. The pipeline share of transportation fuels will decline as natural gas production declines; by 2020, its share will fall from 12 to 6 percent.

Industrial Sector

Industrial demand is projected to grow at an annual rate of 1.2 percent. By 2020, total demand will be 561 PJ. Natural gas will account for 60 percent and electricity, 10 percent. Other fuels, namely petroleum products and renewables, will represent 12 and 11 percent respectively, of the energy used by the Industrial sector.

- The chemical industry is the largest in terms of demand for energy products. Including feedstock, it accounts for about 45 percent of total demand in the sector. From 2005 to 2020, gross output is expected to grow at 2.1 percent annually. Meanwhile, growth in the demand for energy products, excluding feedstock, is projected to be 1.3 percent per year, while the demand for feedstock is expected to grow at about 2 percent.

  Including feedstock, natural gas will account for 80 percent of sector energy use, the rest being electricity. The energy portion of natural gas demand will grow from 80 PJ in 2000 to 100 PJ in 2020. Total natural gas consumption, including feedstock, is expected to grow from 210 PJ in 2005 to about 270 PJ in 2020.

- The pulp and paper industry is the second largest energy consumer in Alberta's industrial sector; it represents about 15 percent of total industrial energy demand and is expected to maintain this level. Although no plant capacity reductions are assumed, growth is expected to be slow, averaging 0.4 percent per year through 2020. Renewables will remain important and account for between 70 and 75 percent of the energy mix over the projection period.

Upstream Oil and Gas

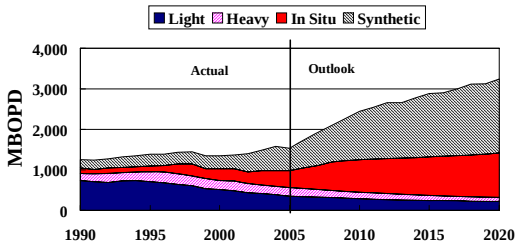
The province is endowed with large hydrocarbon resources. Alberta accounts for 80 percent of the Western Canada Sedimentary Basin (WCSB) ultimate recoverable resources of light oil, and for 40 percent of heavy oil (Table AB1). The WCSB is mature, and production of conventional hydrocarbons is declining. In the projection period, both conventional light and heavy crude production will continue to decline, at a rate of 5 percent per year for heavy oil and 3.5 percent for light oil (Figure AB3). By 2020, production will be 220 thousand barrels per day (MBOPD) for light crude and 95 MBOPD for heavy.

Table AB1
Remaining Resources (Oil - billion barrels, Natural gas - trillion cubic feet)

Conventional Light	5.7
Conventional Heavy	1.3
Oil sands in-situ	244.1
Oil sands Mining	66.7
Conventional natural gas	94.6
Coalbed methane – gas in place	500.0

While conventional crude oil is declining, the oil sands are becoming the major source of crude oil. The oil sands share of production is anticipated to increase from 53 percent today, to roughly 90 percent by 2020. Oil sands production is expected to triple from current levels to 2.9 million barrels per day (MMBOPD) in 2020, when synthetic production is expected to be 60 percent.

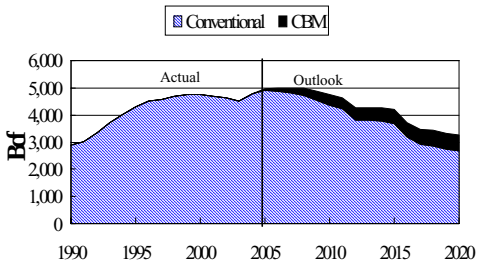
Figure AB3
Crude Oil Production



Total crude production in Alberta will be about 3.2 MMBOPD by 2020, of which about 2.5 MMBOPD is expected to be exported, principally to US markets.

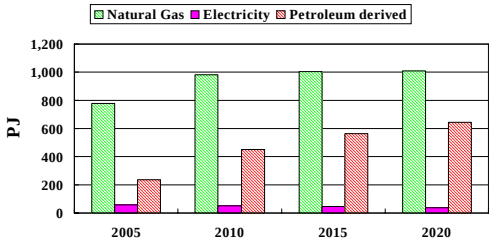
Alberta holds 81 percent of the conventional natural gas resource in the WCSB, and almost all of the coalbed methane. Figure AB4 shows marketable natural gas production in Alberta. Conventional natural gas production peaked in 2005 at 4,900 billion cubic feet (Bcf) and is declining; it is projected to fall to 2,700 Bcf by 2020. Coalbed methane is poised for strong growth; it is assumed to reach 600 Bcf by 2020.

Figure AB4
Natural Gas Production



Based on the production projections above, total energy demand is projected to increase from 1,100 PJ in 2005 to 1,700 PJ in 2020 (Figure AB5).

Figure AB5
Upstream Energy Demand



Natural gas requirements are expected to increase from 780 PJ in 2005 to 1,010 PJ in 2020, with its share diminishing from 73 percent in 2004 to 60 percent by 2020. The demand for petroleum products is expected to triple from 240 PJ to 640 PJ in 2020. The anticipated increase in demand for petroleum products is mainly due to higher consumption of still gas and petroleum coke for the production of synthetic crude oil.

Electricity

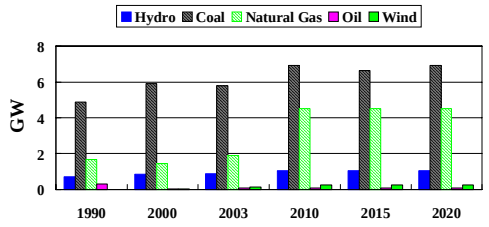
Demand for electricity in Alberta is expected to increase by less than one percent per year, from 50.2 TWh in 2004 to 56.8 TWh in 2020 (Table AB2). The main sources for the increase in demand are in the Commercial and Residential sectors.

Currently, Alberta's electricity capacity is principally derived from coal, which accounts for 66 percent, followed by natural gas (21 percent), hydro and wind (11 percent). Total capacity in 2003 was 8.9 GW (Figure AB6). By 2020, coal and natural gas are expected to increase by 1.1 and 2.6 GW respectively, for a total capacity of 12.9 GW.

Table AB2
Electricity Demand (TWh)

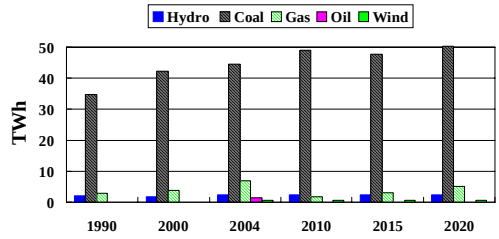
	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	5.8	7.1	7.7	8.5	9.7	1.3
Commercial	10.8	13.3	14.0	16.2	19.9	2.1
Industrial	17.7	27.0	27.8	27.9	26.2	-0.7
Transportation	1.0	1.2	0.7	0.9	1.0	1.4
Total	**35.4**	**48.6**	**50.2**	**53.6**	**56.8**	**0.5**

Figure AB6
Generating Capacity



In 2004, electricity generation from coal accounted for 80 percent, natural gas 12 percent and hydro for 5 percent (Figure AB7). Electricity generation is anticipated to increase from 53 TWh in 2005 to 59.3 TWh in 2020. Coal will remain the predominant fuel at 85 percent of total generation.

Figure AB7
Electricity Generation



Alberta has been a small net importer of electricity from the US. Net interprovincial purchases vary from 0.5 to 3.5 TWh. This trade pattern may change, depending on the development of cogeneration facilities and the construction of transmission capacity to Montana.

It should be noted that the growth of power generation shown here assumes no contribution from the cogeneration facilities in the oil sands. The oil sands provides its own power; therefore, as the oil sands expands, its cogeneration capacity increases as well. This industry is assumed to be in balance regarding electricity supply and demand.

Excluded Items

The Alberta government has a natural gas rebate program that reduces natural gas prices in the Residential sector, which is not represented in the analysis. This program is renewed on an annual basis; therefore, its continuity is not certain. Additionally, since natural gas represents over 80 percent of Residential energy demand, increased penetration was considered unlikely.

10.3.4 British Columbia

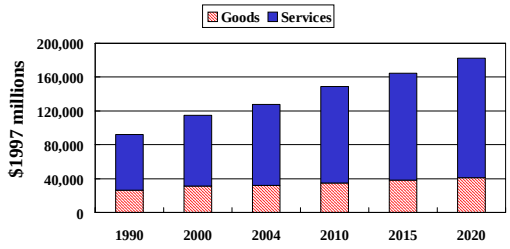
Economy

British Columbia is Canada's third largest province in population, representing about 13 percent of the national total. From 1990 to 2004, the population increased at an average rate of 1.7 percent per year, which is expected to slow down to 0.5 percent per year for the next fifteen years.

BC contributes about 12 percent to national GDP, fourth largest in Canada and slightly smaller than Alberta's share. Between 1990 and 2004, its growth rate averaged 2.3 percent per year, which is expected to decelerate slightly to 2.2 percent annually from 2005 through 2020.

BC's economy is service-oriented. The share of the service sector increased from 71 percent in 1990 to 75 percent in 2004, and is expected to reach 77 percent by 2020, substantially higher than the national average.

Figure BC1
Real Gross Domestic Product



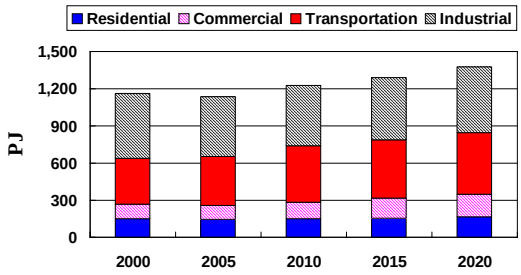
Specific Assumptions

There are no specific assumptions for this province.

End-Use Demand

The four end-use sectors are projected to consume 1,376 PJ by 2020, growing at a rate of 1.3 percent annually from 2005, compared with 1.5 percent per year between 1990 and 2004 (Figure BC2). By 2020, Industry is expected to be the major energy user with a share of 39 percent, followed very closely by Transportation with a share of 36 percent. Residential and Commercial will each account for about 12 percent. Petroleum is projected to continue to be the predominant type of energy product consumed, with a 38 percent share, followed by natural gas (23 percent) and electricity (20 percent).

Figure BC2
End-use Demand by Sector



Residential Sector

This sector consumed 145 PJ in 2004, an average increase of 0.8 percent per year from 1990. From 2005 through 2020, average annual growth rate of energy demand is expected to be 1 percent. The number of households is projected to grow at 1.2 percent per year, which implies an energy efficiency improvement of 0.2 percent per year. Currently, the major fuel used for the sector is natural gas, with a 50 percent share, followed by electricity at 44 percent. The balance is represented by wood and petroleum products. Looking forward, a fuel shift from natural gas to electricity is expected due to projected high natural gas prices and the impact of regulations for equipment using natural gas. By 2020, electricity will be the major energy product consumed at 48 percent, while natural gas' share will decline to 47 percent.

Commercial Sector

Energy demand for the Commercial sector increased 1.3 percent per year between 1990 and 2004. Demand is anticipated to increase at 3.2 percent annually, while commercial floor space, is expected to increase at about 2.7 percent annually. As in the Residential sector, the

shares of energy products are expected to change. Natural gas' share will decline from its current 48 percent to 40 percent by 2020, while electricity will increase its share from 43 percent to 55 percent.

Transportation Sector

Transportation energy demand increased by over 2.5 percent per year from 1990 to 2004, faster than other end-use sectors, reflecting the strong population growth during this period. From 2005 to 2020, demand is expected to increase at 1.5 percent per year to reach 498 PJ by 2020.

Motor gasoline, which accounts for over 40 percent of demand, is projected to increase by 1.2 percent per year from 2005 to 2020, compared to 2.3 percent per year between 1990 and 2004. The demand for diesel, which has a share of over 25 percent, is expected to increase by 1.5 percent per year, compared to 2.4 percent per year since 1990. The ethanol program has been included in the projection. By 2010, 28 percent of gasoline in BC is expected to be ethanol-blended.[24]

Industrial Sector

The industrial sector is the largest energy consumer in BC. From 2005 to 2020, total demand is projected to grow at 0.6 percent annually to 530 PJ, compared to 1 percent experienced in the 1990s. Biomass renewable energy (wood waste and spent pulping liquor) in the pulp and paper sector represents 40 percent of total demand. Other components of the energy mix include natural gas (25 percent) and electricity (19 percent). These fuel shares are not expected to change substantially over the projection period.

- The pulp and paper industry accounts for approximately 55 percent of total Industrial energy use. Production growth over the projection period is expected to be slow, averaging 0.4 percent per year. No significant improvement in energy intensity is expected for this industry. Renewable energy is the major fuel used and accounts for about 70 percent of the sector's energy mix.

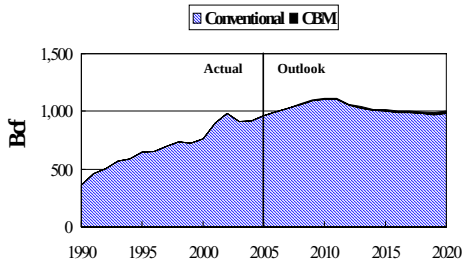
- Mining represents about 6 percent of BC's total Industrial energy use. BC's coal production, mostly metallurgical coal, has been relatively steady since the late 1980s. Between 2005 and 2020, the sector output is projected to increase 0.5 percent per year, resulting in a demand of 27 PJ, of which petroleum products and electricity should account for 30 percent each.

Upstream Oil and Gas

BC's ultimate crude oil resource potential is assumed to be about 1.2 billion barrels. It is expected that crude oil production will fall from 51 thousand barrels per day (MBOPD) in 2005 to 38 MBOPD in 2020, a decline rate of 1.9 percent per year.

In 2004, BC contributed about 15 percent of Canada's total gas production. The production had experienced strong growth between 1990 and 2004. For the outlook period, production will increase modestly to 1.1 trillion cubic feet (Tcf) by 2011 and then decline to slightly less than 1 Tcf. By 2020, BC will provide about 19 percent of Canadian gas production (Figure BC3). This projection is based on BC's ultimate gas resource potential, which is assumed to be 50 Tcf.

Figure BC3
Natural Gas Production



[24] By 2010, BC is expected to produce about 130 million litres of ethanol to make ethanol-blended gasoline at the ratio of 10 percent.

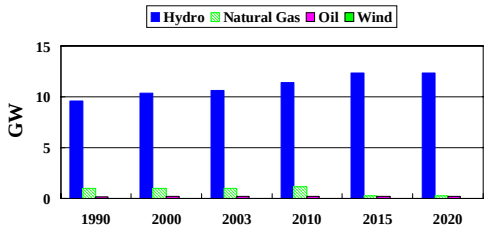
In BC, coalbed methane is in its early stages of development and is considered to have a large potential (35 Tcf). It is assumed that commercial production will start in 2007 and will increase to 20 Bcf by 2020.

Electricity

Between 2005 and 2020, electricity demand is expected to increase by 1.9 percent per year to 63.9 TWh. The Commercial sector will experience the strongest growth at 4.2 percent per year, while electricity demand in the Industrial sector is expected to decline (Table BC1).

BC power generation is dominated by hydro, with a capacity of 11.0 GW in 2004 accounting for 90 percent of total capacity. New hydro projects include a 500 MW expansion of the Revelstoke project (2013) and 450 MW expansion of the Mica project, scheduled to be in service in 2015 (Figure BC4). Total generating capacity will reach 12.9 GW by 2020.

Figure BC4
Generating Capacity



Currently, gas-fired capacity stands at 1 GW. Gas-fired generation plays a backup role in BC, mainly to meet peak electricity demand. The Burrard plant, with capacity of 0.9 GW, is expected to be retired in 2014.

Electricity generation, predominantly hydro, was 48 TWh in 2004. Over the next 15 years, a growth of 0.8 percent per year is expected to meet end-use demand, reaching 72 TWh by 2020. Generation from hydro will provide most of the increase, offsetting the decline in gas-fired generation (Figure BC5).

With the exception of a few years, BC was a net exporter of electricity to the US, about 3 TWh in 2004. By 2020, net exports are expected to decline to 1.1 TWh. BC also has net sales to Alberta, which vary between 0.2 and 3.3 TWh annually.

Figure BC5
Electricity Generation

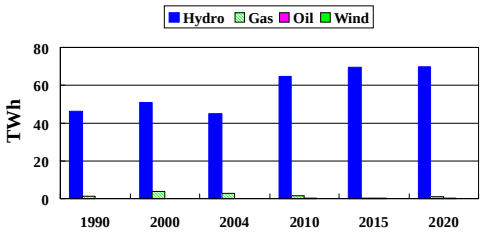


Table BC1
Electricity Demand (TWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	12.6	16.2	17.5	18.8	22.0	1.5
Commercial	11.5	14.0	13.5	17.7	26.0	4.2
Industrial	25.8	16.6	16.6	15.4	15.7	-0.4
Transportation	0.2	0.2	0.2	0.2	0.2	1.6
Total	**50.0**	**47.0**	**47.8**	**52.1**	**63.8**	**1.9**

Excluded Items

The BC government provides several energy efficiency programs such as the Energy Efficiency Market Transformation Program for Building and Equipment. The Program aims to permanently improve the energy performance of new and existing buildings in BC by 2010. This program is not considered in the Reference case.

The Peace River Site C project is not included since the timing is uncertain.

10.3.5 The Territories

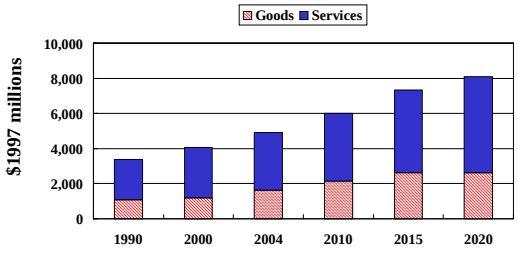
Due to lack of consistent data for each of the three territories, it is not possible to create reliable demand projections for these jurisdictions separately. Therefore, the Yukon, the Northwest Territories and Nunavut have been analyzed as one entity.

Economy

From 1990 to 2004, the Territories population grew at about 1.3 percent per year. Up to 2020, this rate is expected to be 1.2 percent. Migration is not a factor influencing population growth.

The Territories real GDP is projected to grow by 3.1 percent a year from 2005 to 2020. This compares to an annual growth rate of 2.7 percent for the period 1990 to 2004 (Figure TERR1).

Figure TERR1
Real Gross Domestic Product



The contribution of services towards total GDP, in 2004, is lower, at 66 percent, than the national average of 69 percent; it is expected to reach 68 percent by 2020.

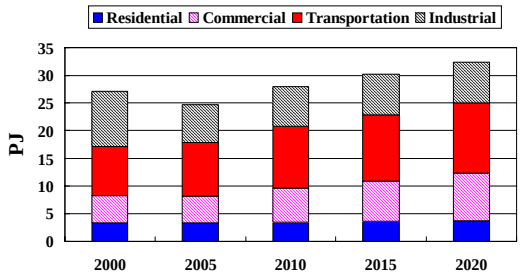
Specific Assumptions

No specific proposals were provided by the Territories.

End-Use Demand

Total end-use demand in the Territories will grow at an annual rate of 1.7 percent. By 2020, consumption is projected to be 32 PJ. Petroleum products will contribute over 80 percent and electricity 11 percent.

Figure TERR2
End-Use Demand by Sector



Residential Sector

From 1990 to 2004, consumption in the Residential sector decreased from 4 to 3.2 PJ, as households adopted a more efficient heating system During the outlook period, consumption is expected to increase to 3.7 PJ by 2020.

In 2004, 61 percent of the Residential consumption was of petroleum products, followed by electricity at 33 percent. By 2020, the share for petroleum products is expected to decrease to 54 percent, while the share of electricity will increase to 36 percent. The number of households is expected to increase at an annual rate of 1.6 percent.

Commercial Sector

Energy consumption is projected to increase at an annual rate of 4 percent, from 4.8 PJ in 2005 to almost 8.6 PJ in 2020. Total floor space is expected to increase by 4.6 percent per year during the same period.

In 2004, petroleum products accounted for 47 percent of this sector's energy consumption, followed by electricity with 32 percent. By 2020, the shares are expected to be 50 percent for petroleum fuels and 25 percent for electricity. Natural gas is expected to penetrate this sector and have a 24 percent share by 2020.

Transportation Sector

Energy consumption in the transportation sector is expected to increase, with an annual growth rate of 1.8 percent from 2005 to 2020 to reach 12.7 PJ in the last year of the outlook. Motor gasoline is about 26 percent of consumption, diesel about 38 percent and aviation fuel about 33 percent.

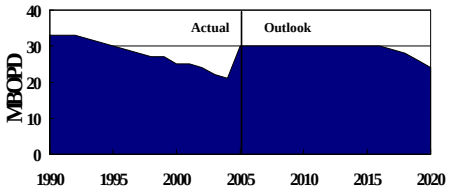
Industry Sector

Industrial demand, dominated by mining, will increase modestly over the next 15 years from 6.8 PJ to 7.2 PJ. Petroleum products will continue to provide the largest share of energy at 96 percent.

Upstream Oil and Gas

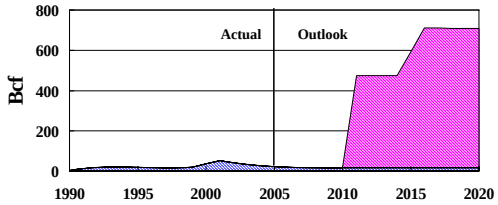
No additional crude oil discoveries have been included (Figure TERR3). Given the crude oil price assumption in this Outlook, the only anticipated constraint to production will be pipeline capacity—30 thousand barrels per day (MBPD)—until about 2016. After that, production is expected to decline owing to resource depletion.

Figue TERR3
Crude Oil Production



There are small quantities of natural gas production in the southern Territories (25 Bcf per year), which are expected to fall to 16 Bcf by 2020 (Figure TERR4). In 2011, it is assumed that the Mackenzie Valley pipeline will come into service at 1.2 Bcf per day. This production is expected to reach 1.9 Bcf per day by 2016.

Figure TERR4
Natural Gas Production



Electricity

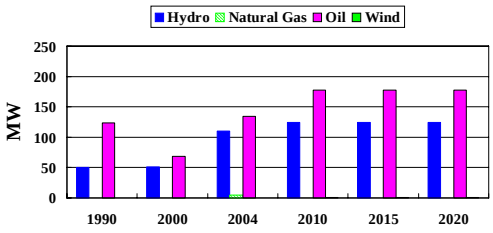
Table TERR1
Electricity Demand (GWh)

	1990	2000	2004	2010	2020	AAGR 2005-2020
Residential	269	270	290	301	373	1.5
Commercial	312	381	425	521	608	2.2
Industrial	289	172	38	19	19	1.6
Transportation	0	0	0	0	0	0.0
Total	**870**	**823**	**754**	**841**	**1,000**	**1.9**

Electricity demand increased by about 0.6 percent annually between 1990 and 2004, and is expected to increase by 1.9 percent per year to about 1,000 GWh by 2020 (Table TERR1), mainly due to strong growth in the Residential and Commercial sectors. The major factor underlying the historical slow growth rate of electricity consumption is the emergence of new industries that are remote from the grid and that rely on their own generation, and the closure of industries that were formerly on the grid.

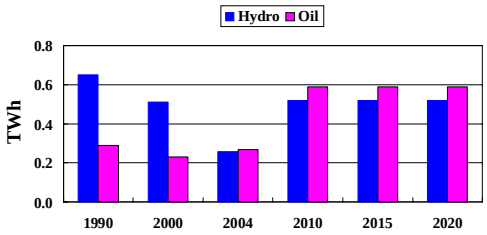
From 1990 to 2004, capacity increased from 247 on average by 0.7 percent per year (Figure TERR5). Total capacity is expected to be 313 MW by 2020.

Figure TERR5
Generating Capacity

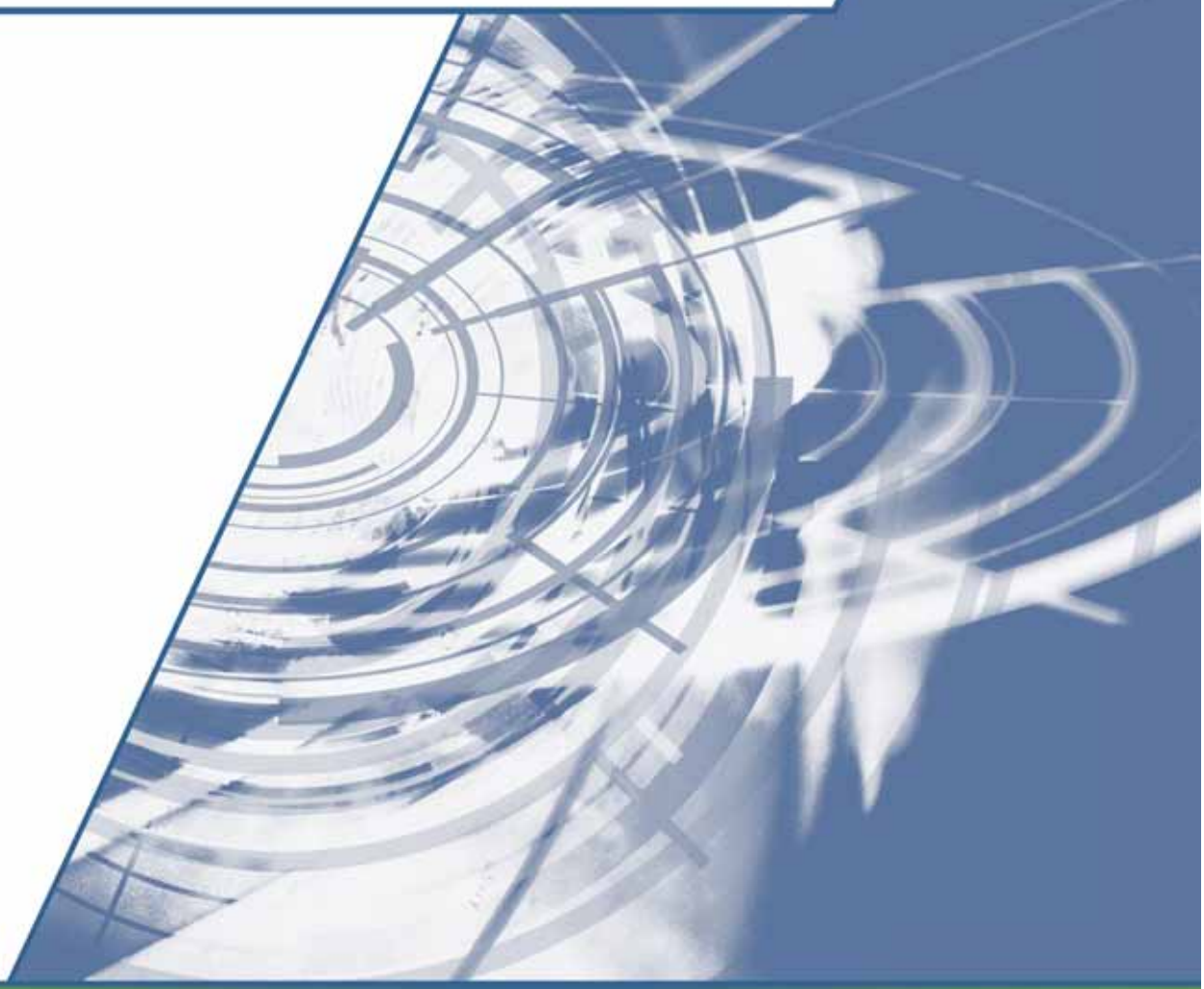


Electricity generation was 833 GWh in 2004. It is expected to increase to 1,116 GWh by 2020 (Figure TERR6). By 2020, hydro will account for 47 percent and petroleum products 53 percent. Natural gas is not expected to be used for electricity generation.

Figure TERR6
Electricity Generation



Risks and Uncertainties



11 Risks and Uncertainties

This reference case provides one view of Canada's energy future, which is dependent on the assumptions used. Some assumptions, such as the future of wind power generation, vehicle efficiency and appliance efficiency, although important relative to their respective markets, will have small impacts overall. Other assumptions, such as the size of the economy, crude oil prices and production, and the fuels for electricity generation, have much more influence on the results. Moreover, it has been assumed that financing for energy projects will be forthcoming. The analysis below is largely qualitative.

The Economy

The energy impacts of different economic growth rates are generally linear. That is, percent change to economic activity would produce a similar change to energy demand. However, if it were assumed that the service sector of the economy was to grow faster than the more energy-intensive goods-producing sector, then a decline in primary energy intensity would likely result, since the goods-producing sector is five times more energy-intensive than the service sector.

Crude Oil Price

A change in crude oil prices would have small effects on the Residential and Commercial sectors, since there are limited short-term solutions; in the longer term, a switch to other fuels could occur, depending on relative prices. With increased oil prices, the Transportation sector would experience a relative decline in demand over time, as this sector is sensitive to price and more efficient vehicles would be demanded. The Industrial sector response is somewhat mixed, but certain sub-sectors such as chemicals could be adversely affected.

In the upstream sector, higher prices stimulate higher production. However, there are dampening affects that may limit the growth of the oil sands, such as access to skilled labour and potentially higher natural gas prices. Also, as oil sands becomes a larger share of total production, energy requirements increase accordingly. The energy intensity of oil sands is about three times that of conventional production.

Crude oil exports would likely increase as there would be a tendency to lower demand in Canada and to higher production.

Electricity Generation

Should the nuclear refurbishment plans not evolve as assumed, alternate forms of generation would be required. The principal option would likely be natural gas, since plants could be commissioned relatively quickly. This would have implications for potentially higher electricity prices and reduced exports of natural gas. Alternatively, the closure of the coal plants could be deferred beyond their economic life.

Additionally, should the assumptions regarding the exclusion of two large hydro projects (Lower Churchill Falls and Conawapa) be changed, then different generation patterns in Ontario could be expected, likely less natural gas, and more power purchases from Quebec and Manitoba.

Investment

In the Reference Case, it has been estimated that approximately $400 billion will be required for energy investments over the next 10 years. While the increased investments for oil and gas production facilities, pipelines, electricity generating and transmission assets are required to pass an economic threshold test before being included in the projections, the funding is assumed to be available. It is possible that these investments may not be forthcoming, which would then change the energy outcome.

Exchange Rate

Should the Canadian dollar appreciate more strongly, relative to the US dollar, the following counterbalancing impacts on energy demand may be expected:

- Some loss of competitiveness for Canada's exporting industries, perhaps leading to lower economic growth, resulting in lower energy demand.

- Energy prices, expressed in Canadian dollars, will be lower, potentially resulting in higher energy demand.

- Lower returns for the upstream oil and gas sector, possibly less exploration activities and less energy demand.

Appendixes

Appendix I: MAPLE-C Overview

The projections for *Canada's Energy Outlook: The Reference Case 2006* are generated from the *Model to Analyze Policies Linked to Energy in Canada* (MAPLE-C). To develop MAPLE-C, NRCan has spent the past three years modifying the US National Energy Modeling System (NEMS) to reflect the Canadian economy and its provincial components. MAPLE-C is maintained by the Analysis and Modelling Division of Natural Resources Canada.

The projections in MAPLE-C are developed with the use of a market-based approach to energy analysis. For each fuel and consuming sector, MAPLE-C balances energy supply and demand, accounting for economic competition among the various energy sources. The current time horizon of MAPLE-C is until 2020. In order to represent the regional differences in energy markets, most of the modules of MAPLE-C function at the provincial/territorial level: the ten provinces and one aggregated region for the three territories. Energy markets are represented by end-use demand, oil, gas and coal supply, and electricity generation. Petroleum refining has three regions: Western Canada, Ontario and Eastern Canada.

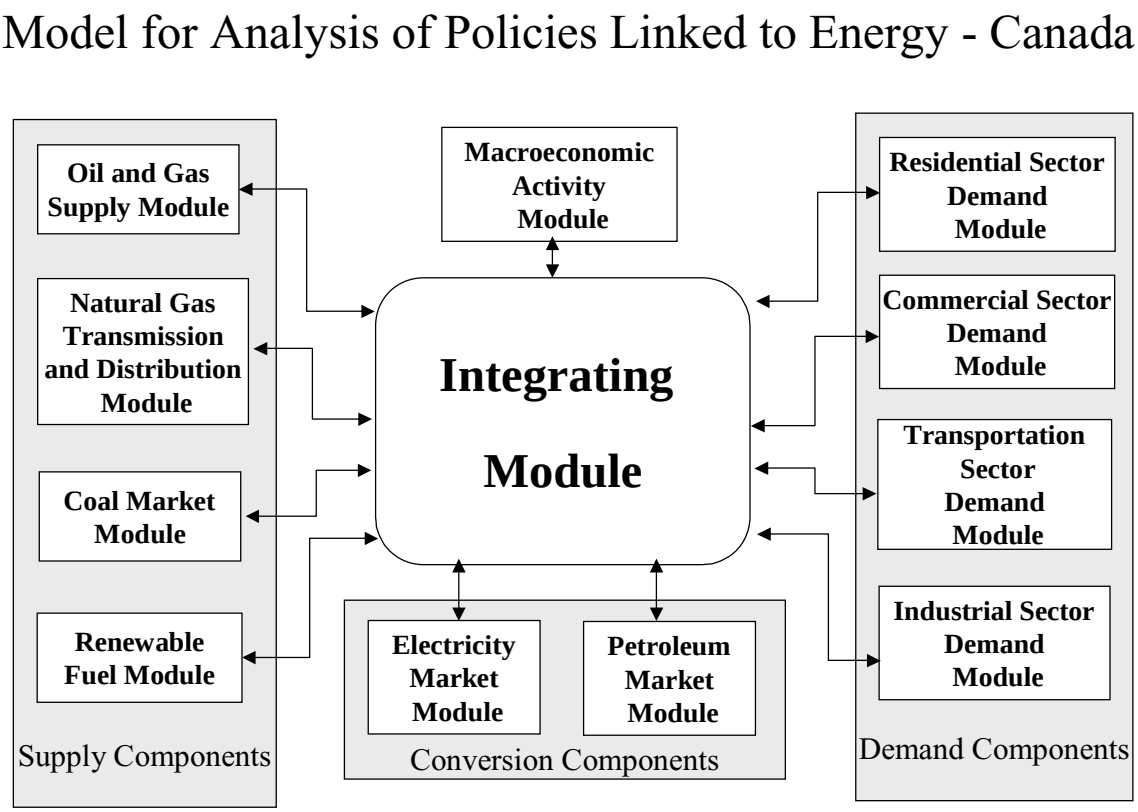
MAPLE-C is organized and implemented as a modular system. The modules represent each of the energy supply markets, conversion sectors and end-use consuming sectors of the energy system. MAPLE-C also includes a macroeconomic module. The primary flows of information between each of these modules are the delivered prices of energy to the end-user and the quantities consumed by product, region and sector. The delivered prices of energy encompass all the activities necessary to produce, import and transport fuels to the end-user. The information flows also include other data, such as economic activity, domestic production and exports.

The integrating module controls the execution of each of the component modules. To facilitate modularity, the components do not pass information to each other directly but communicate through the integrating module. This modular design provides the capability to execute modules individually, thus allowing decentralized development of the system and independent analysis and testing of individual modules, permitting the use of the methodology and level of detail most appropriate for each energy sector. The integrating module calls each supply, conversion and end-use demand module in sequence until the delivered prices of energy and the quantities demanded have converged within a predetermined tolerance, thus achieving an equilibrium of supply and demand in the energy markets. Solution is reached annually through the projected horizon. Other variables are also evaluated for convergence, such as petroleum product imports, crude oil imports, and several macroeconomic indicators.

MAPLE-C can be used to assess the energy and economic implications of new policy proposals.

In general, the historical data used for the projections are based on Statistics Canada's annual *Report on Energy Supply and Demand in Canada.* However, data are also taken from other sources, such as the Environment Canada report, *Canada's Greenhouse Gas Inventory*, to estimate carbon dioxide emissions coefficients.

Component Modules



The structure of MAPLE-C is displayed in the chart. The component modules of MAPLE-C represent the individual supply, demand, and conversion sectors of domestic energy markets and include the macroeconomic module. In general, the modules interact through values representing the prices of energy delivered to the consuming sectors and the quantities of end-use energy consumption.

Macroeconomic Activity Module

The Macroeconomic Activity Module (MAM) is an annual dynamic econometric model of the Canadian economy. MAM provides a set of essential macroeconomic drivers to the energy modules within MAPLE-C. Key macroeconomic variables include gross domestic product (GDP), industrial output, interest rates, disposable income, prices, and employment.

This module projects regional economic drivers for housing stock, commercial floor space and vehicle sales. With these inputs, MAPLE-C determines the prices, demands and supplies of the major energy sources.

MAM is driven in the first instance by final demand, whose components are household consumption, investment, government expenditures, changes in inventory, and trade. Empirical equations have been estimated for a number of goods and services making up these components of final demand. These equations can include any number of a large range of explanatory variables, including price indices, various commodity prices, income, interest rates, etc.

MAM translates these final demand components into output of non-energy industrial commodities, using the 1997 input-output

structure of the Canadian economy. The accounting framework for industrial output uses the North American Industry Classification System (NAICS).

There are a number of other submodules within MAM that describe labour markets, capital stock, wages, price formation, income, stocks of wealth, financial markets and linkages to foreign economies.

Many macroeconomic variables are determined within MAM, the major exceptions being components of US final demand, the price of oil and demographic variables.

Residential and Commercial Demand Modules

The Residential Demand Module (RDM) projects consumption of Residential sector energy by end-use services, based on delivered energy prices, the menu of equipment available, the availability of renewable sources of energy and housing starts. The RDM projects the average area of both new construction and existing structures, based on trends in the sector.

The Commercial Demand Module (CDM) projects consumption of Commercial sector energy by category of end-use, based on delivered prices of energy. The CDM uses macroeconomic variables such as interest rates and floor space. The module has the option to incorporate combined heat and power (CHP) technology.

Both modules estimate the equipment stock for the major end-use services, incorporating assessments of advanced technologies, including representations of renewable energy technologies and effects of both building shell and appliance standards. Both modules assume normal temperatures using the 30-year average heating and cooling degree-days for each region.

Industrial Demand Module

The Industrial Demand Module (IDM) projects the consumption of energy for heat and power as well as for feedstock and raw materials. It is subdivided into 12 industry groups, using the NAICS code. Industrial demand responds to the delivered prices of energy and macroeconomic variables representing the gross output for each industry. The industries are classified into three groups: energy-intensive manufacturing, non-energy-intensive manufacturing and non-manufacturing. All industries are modelled with components for boiler/steam, buildings, and process/assembly use of energy. A representation of cogeneration is also included based on steam demand.

Transportation Demand Module

The Transportation Demand Module (TDM) projects consumption of transportation sector fuels, which include petroleum products, electricity, methanol, ethanol and compressed natural gas. Additionally, demand is projected by transportation mode, vehicle vintage and size class. The demand responds to the delivered prices of energy and macroeconomic variables such as disposable income, GDP, driving-age population, interest rates and the value of output for industries in the freight component. Fuel efficiency is influenced by future fuel prices. TDM also provides for the assessment of the penetration of alternative fuel vehicles.

Electricity Market Module

The Electricity Market Module (EMM) represents capacity planning, generation, transmission and pricing of electricity for each province and the one territory. There are four primary submodules: capacity planning, fuel dispatching, finance and pricing, and load demand-side management. EMM uses the fuel prices for coal, petroleum products, natural gas and biofuels, which are determined in those supply modules. This module also incorporates costs of generation by all generation plants, including capital and operating costs; macroeconomic variables for costs of capital; environmental emissions regulations;

electricity load shapes; and end-use demand. Non-utility generation from combined heat and power (CHP) and other facilities whose primary business is not electricity generation is represented in those specific modules. All other non-utility generation, distributed generation and electricity trade are represented in the module. The EMM includes a full suite of generating technologies, including advanced coal and nuclear options.

Renewable Fuels Module

The Renewable Fuels Module (RFM) includes submodules representing supply and technology input information for central-station and grid-connected technologies, such as conventional hydroelectricity, biomass (wood, energy crops, and biomass co-firing), geothermal, landfill gas, solar thermal electricity, solar photovoltaics and wind energy. The RFM only interacts with the Electricity Market Module.

Production tax credits for wind and some types of biomass-fueled plants can be incorporated.

Coal Market Module

The Coal Market Module (CMM) simulates mining, transportation and pricing of coal, subject to the end-use demand in other modules, especially EMM and IDM. Coal production is represented in the CMM using separate supply curves, differentiated by region. The coal supply curves are produced by the coal production submodule and input to the coal distribution submodule. Given the coal supply curves, distribution costs and coal demands, the coal distribution submodule projects delivered coal prices. Coal imports are determined in CMM for bituminous coal only, based on assumptions of coal import prices.

Oil and Gas Supply Module

The Oil and Gas Supply Module (OGSM) represents domestic crude oil and natural gas supply within an integrated framework including the links to US supply basins. OGSM captures the interrelationships among the various sources of supply: onshore and off-shore, by both conventional and non-conventional techniques. Conventional supply includes light and heavy oil and natural gas. Non-conventional supply includes gas recovery from coalbeds and bitumen from oil sands. Bitumen extraction from oil sands is subdivided into two categories: in situ and mining. In situ bitumen is blended with diluent such as condensate; the mining production is upgraded to an equivalent of light sweet crude. This framework analyzes cash flow and profitability to compute investment and drilling for each of the supply sources, based on the prices for crude oil and natural gas, the recoverable resource base and the state of technology. The OGSM is computed for nine supply regions, including two offshore regions.

Crude oil production quantities are inputs to the Petroleum Market Module in MAPLE-C for blending and conversion into refined petroleum products. Supply curves for natural gas are inputs to the Natural Gas Transmission and Distribution Module for use in determining natural gas prices and quantities.

The energy required by this industry is based on the level of each type of production for both oil and natural gas using unit energy consumption coefficients.

Natural Gas Transmission and Distribution Module

The Natural Gas Transmission and Distribution Module (NGTDM) represents the transmission, distribution and pricing of natural gas, subject to end-use demand for natural gas, and the availability of domestic natural gas and natural gas traded in the US market. The module tracks the flows of natural gas in the pipeline network, connecting the domestic supply with 11 demand regions and with exports to the US. This capability allows the analysis of impacts of regional capacity constraints in the natural gas pipeline network and the identification of pipeline capacity expansion requirements. Core and non-core markets are represented at the burner tip. Key components of pipeline and distribution tariffs are included in the pricing algorithms.

Liquefied Natural Gas (LNG) is represented through supply cost curves, and can be imported into Atlantic Canada.

Petroleum Market Module

The Petroleum Market Module (PMM) represents domestic refinery operations and the marketing of petroleum products to consuming regions. PMM provides petroleum product prices, crude oil and product export and import activities, domestic refinery capacity and refinery fuel consumption. The solution is derived, satisfying the demand for petroleum products and accounting for the prices of raw material inputs and imported petroleum products, the cost of investment, and the domestic production of crude oil and natural gas liquids. The module represents refining activities in three regions (Western Canada, Ontario and Eastern Canada). Each region is considered as a single entity where more than 40 distinct refinery processes are defined. Refinery fuel consumption is reallocated to specific provinces.

Bio-fuels such as ethanol are included in PMM. The production and disposition of ethanol is determined by the programs or initiatives on a provincial basis. Ethanol is produced primarily from corn; it is expected that, in the future, some cellulosic material will be used as feedstock.

Integrating Module

The Integrating Module controls the entire MAPLE-C solution process as it iterates to determine a general market equilibrium across all the MAPLE-C modules. It has the functions of: managing the MAPLE-C global data structure; executing all or any of the user-selected modules in an iterative convergence algorithm; checking for convergence and reporting variables that remain out of convergence; and updating the expected values of key MAPLE-C variables.

The integrating module executes the demand, conversion and supply modules iteratively until it achieves equilibrium between supply and demand in all the consuming and producing sectors. Each module is called in sequence and solved. The modules are called iteratively until the end-use prices and quantities remain constant within a specified tolerance, a condition defined as convergence. Any single module can be executed independently.

The Integrating Module also estimates GHG emissions associated with the combustion and non-combustion use of energy. Emissions factors as provided in the Environment Canada report, *Canada's Greenhouse Gas Inventory,* are used for the emission calculations. The Integrating Module includes an Emissions Policy Submodule, which has options of emission policy evaluation such as Carbon Tax, Permit Auction and Market for Permits. This submodule is continually being enhanced for new policies.

Appendix II: Policy Assumptions

During 2000-2004, the Government of Canada introduced approximately 150 individual programs. Only those programs with spending authority from Treasury Board as of May 2006 are reflected in this Outlook.

The impacts of these programs other than those embodied in consumer behavior are assumed to cease when the approved funding terminates. There will be, however, some carryover effects, especially with equipment regulations.

The Large Final Emitters (a proposed program to reduce emissions in energy-intensive industries), any programs proposed during 2005 and all the programs that were terminated or cancelled by May 2006 are not reflected in this Outlook.

Methodology

To account for the emissions reductions estimated for each program, its market outcome was used. The market outcome was determined in consultation with the individual program managers.

A summary of the measures included in the Outlook is provided below.

Residential and Commercial Equipment Standards

- Accelerated Standards Action Program (ASAP) and Equipment Labelling

The expected market outcomes are:

- Equipment regulations and standards will require that new gas furnace efficiency be 90 percent in 2009 and that new gas boilers be 85 percent efficient by 2010. For other equipment, energy efficiency was assumed to improve from 5 to 40 percent by a particular year, depending on the equipment. For example:
  - Gas Water Heaters are assumed to be 5 percent more efficient in 2007.
  - Heat Pumps are assumed to be 10 percent more efficient in 2006.
  - Clothes washer/dryers are assumed to be 20 percent more efficient in 2007.

Transportation

- Light-Duty Vehicles
  - In April 2005, the Canadian Automotive Industry,[25] through a Memorandum of Understanding, agreed to voluntary commitments to reduce emissions through the introduction of new technologies, such as advanced emissions controls, advanced diesel, alternative fuels, hybrids and fuel efficiency.
  - Advanced Technology Vehicles Program (ATVP) to evaluate advanced vehicles and technologies.
  - Marketing of efficient vehicles and driving/maintaining vehicles for efficiency.

- Freight Efficiency and Technology Initiative (FETI)
  - Training and awareness among freight operators is expected to increase adoption of innovative environmental technologies, best practices and voluntary performance agreements.

- Freight Efficiency Program (FEP)
  - Support to companies in the rail, marine and aviation freight transportation sectors is assumed to result in purchase of emission reduction technology and equipment.

[25] Memorandum of Understanding between the Government of Canada and the Canadian Automotive Industry Respecting Automobile Greenhouse Gas Emissions – 5 April 2005.

Alternative Transportation Fuels

- Establishment of the Canadian Transportation Fuel Cell Alliance (CTFCA) is expected to evaluate various options for providing the hydrogen to power fuel-cell vehicles.

- Future Fuels and Ethanol Expansion Program supplies 1.3 billion litres of ethanol per year.

The expected market outcomes are:

- Vehicle manufacturers are assumed to achieve a 15 percent improvement target for light-duty vehicles under the memorandum of understanding. The vehicle manufacturer determines the technology choice.

- N_20 emissions will be reduced by about one Mt of CO_2e by 2010

- An assumed annual improvement of 1.1 percent in aviation efficiency, which includes 0.1 percent due to the freight programs FETI and FEP.

- An assumed annual average improvement of 0.35 percent in marine efficiency, which includes 0.05 percent from FEP.

- An assumed annual average improvement of 1.5 percent in rail efficiency, which includes 0.03 percent from FEP.

- Increased ethanol production assumed to reach 1.3 billion litres per year (29 PJ).

Industry

The projected energy intensity reductions for energy intensive industries are based on publicly available information by industries as reported in various editions of the annual reports of the Canadian Industry Program for Energy Conservation (CIPEC), a group of ongoing voluntary energy management undertaken by these industries. The expected rate of improvement varies from industry to industry. The Aluminium industry is assumed to have a rate of improvement of 0.1 percent per year, whereas that for the other energy intensive industries are assumed to be 1 percent per year. The non-energy-intensive industries are assumed to achieve intensity reductions of 2 percent per year.

Electricity

The Wind Power Production Incentive (WPPI) is included. This program provides a financial incentive of 1.2 cents per kilowatt-hour from 2002 to 2005, and in 2006 it declines to 0.8 cents. Eligible production receives the incentive for up to 10 years from the date of initial production, until 2017. Note that the expansion of WPPI announced in Budget 2005 is not reflected in this Outlook.

The effects of other programs, such as the Market Incentive Program and Consumer Information are assumed to be captured by WPPI incentive.

Upstream

There are five projects under the CO_2 Capture and Storage program. A key research project is the IEA Weyburn CO_2 Monitoring and Storage project, which measures and monitors CO_2 injected into the Weyburn field. Other funded demonstration projects include three enhanced oil recovery (EOR) projects and an enhanced coal bed methane recovery project, all of which use industrial CO_2 sourced in Canada.

Since these are principally demonstration projects, the emissions reductions and changes to oil and gas production are small and were not specifically reflected in this Outlook.

Appendix III: Upstream Oil and Gas Energy Methodology

Large quantities of natural gas and smaller quantities of other fuels are required to support the oil and gas sectors' activities. The energy is either required for combustion (to run equipment or generate heat or steam) or is being flared (for safety or environmental purposes). The amount of energy reported in Table APP III excludes the methane gases that escape directly into the atmosphere as fugitives (often associated with either natural gas pipeline operations or conventional heavy crude oil production).

Energy requirements were estimated for each category of conventional oil and natural gas production for the year 2004.[26] Where possible, the provincial energy requirements, which are not necessarily proportional to their share of production, were incorporated into the analysis. For example, the ratio of oil and gas production (excluding synthetic) between Saskatchewan and Alberta is about 15:85, while the ratio for energy used is estimated to be 9:91. Consequently, the associated energy requirements do reflect lower energy intensities for Saskatchewan. Table APPIII displays unit energy consumption for the upstream sector.

Table APP III
Energy Requirements for Oil and Gas Production (GJ per PJ)

	Saskatchewan			Alberta		
	2000	**2005**	**2010**	**2000**	**2005**	**2010**
Natural Gas	83	83	83	84	84	80
Light and Medium Crude Oil	79	79	79	108	108	108
Heavy Crude Oil	40	40	41	52	52	53
In situ Bitumen				201	201	201
Synthetic Crude Oil				253	201	201

Note: The associated energy for conventional heavy crude oil, which appears to increase over time, accounts for more flaring, while venting (not reported here) is reduced.

[26] For synthetic production, data for the year 2000 were used.

National Tables

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Note:
Historical data is provided as a reference only.
The color shading is different if the data was estimated by NRCan.

Table 1

Macroeconomic Assumptions

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 millions)	707,147	772,890	945,783	1,044,329	1,083,748	1,237,464	1,383,942	1,552,200
Disposable Personal Income ($1997 millions)	528,022	536,469	607,318	674,780	703,369	819,783	914,251	1,018,779
Disposable Personal Income per capita ($1997 thousands)	19.10	18.30	19.80	21.10	21.90	24.50	26.30	28.40
Unemployment Rate (percent)	8.10	9.40	6.80	7.70	7.70	7.70	7.50	6.60
Gross Domestic Product ($1997 millions)								
Agriculture, hunting, fishing and forestry	21,000	20,993	22,997	23,181	23,681	24,690	26,571	27,993
Mining *	26,921	32,602	34,107	36,314	37,649	44,326	49,011	51,324
Crude oil and natural gas	15,795	21,030	20,309	21,828	22,162	27,067	30,155	31,552
Coal	1,103	1,111	1,227	1,124	1,126	1,197	1,267	1,329
Metal mining	5,739	5,052	5,347	4,484	5,389	5,938	5,961	5,865
Other mining	4,556	5,476	7,225	8,879	8,974	10,125	11,629	12,580
Utilities	22,513	25,011	26,474	26,006	26,579	29,048	31,834	34,408
Construction	48,156	39,310	48,461	57,154	59,535	63,089	69,292	74,957
Manufacturing	117,566	132,124	179,827	179,990	185,708	208,705	228,877	253,683
Pulp & paper	8,356	8,661	10,357	10,510	10,138	9,594	10,019	10,382
Refineries	1,173	1,235	1,264	1,357	1,338	1,550	1,709	1,832
Chemicals	11,368	12,743	14,919	17,150	16,936	18,706	20,172	21,473
Cement	703	566	505	580	544	683	776	845
Iron and steel	4,213	4,637	5,274	4,958	5,090	5,745	6,133	6,592
Aluminium	1,590	1,774	2,692	2,920	3,471	3,740	3,857	3,949
Other manufacturing	90,163	102,508	144,816	142,515	148,191	168,687	186,211	208,610
Other non-ferrous smelting & refining	1,105	1,330	1,911	1,592	1,991	2,314	2,316	2,309
Services	470,991	522,850	633,918	721,685	750,596	867,605	978,356	1,109,834
Total	**707,147**	**772,890**	**945,784**	**1,044,330**	**1,083,748**	**1,237,463**	**1,383,941**	**1,552,199**
Gross Output ($1997 millions) - note 1								
Agriculture, hunting, fishing and forestry	42,985	48,806	53,547	56,931	58,201	60,841	65,575	69,031
Mining	46,338	47,964	71,613	77,342	80,174	95,016	104,692	109,352
Crude oil and natural gas	26,134	27,432	48,037	53,440	54,257	66,267	73,825	77,245
Coal	1,694	1,712	1,816	2,337	2,360	2,433	2,505	2,568
Metal mining	10,508	9,336	9,393	9,157	10,972	12,113	12,179	12,014
Non-metal mining,	8,002	9,483	12,367	12,408	12,585	14,204	16,184	17,525
Utilities	26,708	30,903	32,194	33,822	34,559	37,863	41,611	44,922
Construction	113,255	95,105	113,720	135,855	141,401	148,648	163,460	175,906
Manufacturing	347,336	424,760	585,819	595,748	612,522	695,199	765,460	863,130
Pulp & paper	28,362	35,328	37,192	37,360	36,356	35,455	36,808	38,128
Refineries	20,733	18,927	30,299	32,647	32,194	37,284	41,122	44,076
Chemicals	29,381	34,150	41,204	43,459	42,639	47,236	50,776	53,765
Cement	1,158	1,018	1,327	1,734	1,786	1,946	2,227	2,483
Iron and steel	10,296	12,551	13,176	14,934	15,099	17,097	18,247	19,536
Aluminium	4,052	5,050	6,633	5,275	6,271	6,757	6,968	7,134
Other manufacturing	253,354	317,736	455,988	460,339	478,177	549,424	609,312	698,008
Other non-ferrous smelting & refining	5,404	7,263	9,152	7,678	9,607	11,161	11,171	11,136
Services	794,682	791,361	1,016,797	1,130,845	1,175,258	1,355,282	1,529,701	1,742,322
Total	**1,371,304**	**1,438,899**	**1,873,690**	**2,030,543**	**2,102,115**	**2,392,849**	**2,670,499**	**3,004,663**
Commercial Floorspace								
Comm. Floorspace (million m^2)	466	509	543	580	592	661	735	825
Population and Labour Force (thousands)								
Population	27,698	29,302	30,689	31,905	32,177	33,480	34,700	35,818
Households	10,064	10,922	11,731	12,424	12,634	13,547	14,385	15,161
Labour Force	14,241	14,750	15,999	17,301	17,553	18,393	18,949	19,454
Employment, Non-Agriculture	13,084	13,357	14,910	15,963	16,206	16,983	17,531	18,169
Prices and monetary indicators								
Price Deflator for GDP (1997=1.00)	0.892	0.971	1.057	1.154	1.171	1.244	1.336	1.391
Consumer price index (1992=100)	93.3	104.2	113.5	123.6	126.1	136.8	147.0	157.9
AAA Industrial Bond Rate (percent)	11.9	9.0	7.1	6.5	6.7	8.9	8.0	7.9
International variables								
Nominal exchange rate ($Cdn per $US)	1.17	1.37	1.49	1.3	1.22	1.21	1.23	1.16
US GDP (US$1996 billions)	6,708	7,544	9,191	10,205	10,635	12,248	14,200	16,251

* Prior to 1997, the sum of Mining categories may not add up to Total Mining due to the methodology used by Statistics Canada to rebase the data.

Note 1: The output data in this table refer to sectors defined at the two- and three-digit level in the NAICS whereas the gross output numbers in the Industry section of the document refer to sectors defined in the Statistics Canada publication Report on Energy Supply-Demand

Table 2

Macroeconomic Assumptions - Average Annual Growth Rates

	1990-1995	1995-2000	2000-2005	Forecast 2005-2010	Forecast 2010-2015	Forecast 2015-2020
Macroeconomic Indicators						
Gross Domestic Product	1.8	4.1	2.8	2.7	2.3	2.3
Disposable Personal Income	0.3	2.5	3.0	3.1	2.2	2.2
Disposable Personal Income per capita	-0.9	1.6	2.0	2.3	1.4	1.5
Gross Domestic Product						
Agriculture, hunting, fishing and forestry	0.0	1.8	0.6	0.8	1.5	1.0
Mining	3.9	0.9	2.0	3.3	2.0	0.9
Utilities	2.1	1.1	0.1	1.8	1.8	1.6
Construction	-4.0	4.3	4.2	1.2	1.9	1.6
Manufacturing	2.4	6.4	0.6	2.4	1.9	2.1
Pulp & paper	0.7	3.6	-0.4	-1.1	0.9	0.7
Refineries	1.0	0.5	1.1	3.0	2.0	1.4
Chemicals	2.3	3.2	2.6	2.0	1.5	1.3
Cement	-4.2	-2.3	1.5	4.7	2.6	1.7
Iron and steel	1.9	2.6	-0.7	2.5	1.3	1.5
Aluminium	2.2	8.7	5.2	1.5	0.6	0.5
Other manufacturing	2.6	7.2	0.5	2.6	2.0	2.3
Other non-ferrous smelting & refining	3.8	7.5	0.8	3.1	0.0	-0.1
Services	2.1	3.9	3.4	2.9	2.4	2.6
Total	1.8	4.1	2.8	2.7	2.3	2.3
Gross Output						
Agriculture, hunting, fishing and forestry	2.6	1.9	1.7	0.9	1.5	1.0
Mining	0.7	8.3	2.3	3.5	2.0	0.9
Utilities	3.0	0.8	1.4	1.8	1.9	1.5
Construction	-3.4	3.6	4.5	1.0	1.9	1.5
Manufacturing	4.1	6.6	0.9	2.6	1.9	2.4
Pulp & paper	4.5	1.0	-0.5	-0.5	0.8	0.7
Refineries	-1.8	9.9	1.2	3.0	2.0	1.4
Chemicals	3.1	3.8	0.7	2.1	1.5	1.2
Cement	-2.5	5.4	6.1	1.7	2.7	2.2
Iron and steel	4.0	1.0	2.8	2.5	1.3	1.4
Aluminium	4.5	5.6	-1.1	1.5	0.6	0.5
Other manufacturing	4.6	7.5	1.0	2.8	2.1	2.8
Other non-ferrous smelting & refining	6.1	4.7	1.0	3.0	0.0	-0.1
Services	-0.1	5.1	2.9	2.9	2.5	2.6
Total	1.0	5.4	2.3	2.6	2.2	2.4
Commercial Floorspace						
Comm. Floorspace	1.8	1.3	1.7	2.2	2.1	2.4
Population and Labour Force						
Population	1.1	0.9	1.0	0.8	0.7	0.6
Households	1.6	1.4	1.5	1.4	1.2	1.1
Labour Force	0.7	1.6	1.9	0.9	0.6	0.5
Employment, Non-Agriculture	0.4	2.2	1.7	0.9	0.6	0.7
International variables						
US GDP	2.4	4.0	3.0	2.9	3.0	2.7

Table 3

Crude Oil and Natural Gas Prices

	1990	1995	2000	Forecast 2005	2010	2015	2020
Crude Oil Prices (2003 $/bbl)							
International prices (Cushing OK)							
West Texas Inter. ($2003US/bbl).				60.00	45.00	45.00	45.00
West Texas Inter. ($2003Cdn/bbl) [1]				73.20	54.45	55.35	52.20
Canadian Prices ($2003Cdn/bbl)							
Heavy - Bitumen				52.66	36.11	33.99	31.51
Bitumen Blend				56.76	42.16	41.89	39.71
Light - Synthetic Oil				72.21	53.03	52.68	49.95
Diluents - Pentanes Plus				70.10	52.65	52.30	49.59
Natural Gas Prices ($2003Cdn/GJ) [2]							
Alberta Wellhead				7.98	7.33	6.43	6.48

Notes: 1. Nominal exchange rates were applied.
2. Natural gas prices are endogenous.

Table 4
Residential Sector

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Activity								
Total households (thousands)	10,064	10,922	11,731	12,424	**12,634**	**13,547**	**14,385**	**15,161**
Average Floor Space (m^2 per household)	**121**	**124**	**127**	**132**	**135**	**137**	**139**	**142**
Energy Consumption by Fuel (Petajoules)								
Natural Gas	528.4	630.5	644.8	651.1	632.2	657.6	684.1	710.8
Electricity	467.4	473.8	497.6	543.7	552.9	591.7	633.1	670.5
Heating Oil	186.8	138.9	133.1	106.3	97.6	100.8	102.0	107.5
Wood	84.9	92.5	104.1	108.0	108.6	105.6	105.8	108.0
Propane	19.9	14.5	11.3	11.4	10.6	11.1	11.4	12.5
Total	**1,287.4**	**1,350.1**	**1,391.0**	**1,420.4**	**1,402.0**	**1,466.8**	**1,536.5**	**1,609.4**
Energy Consumption by End-Use (Petajoules)								
Space Heating					678.7	707.9	733.8	766.1
Wood (heating)					108.6	105.6	105.8	108.0
Space Cooling					12.2	13.9	16.2	19.6
Water Heating					314.5	327.9	343.3	355.0
Lighting					74.1	83.0	90.1	94.6
Appliances & Other Uses					213.9	228.6	247.3	266.2
Total					**1,402.0**	**1,466.8**	**1,536.5**	**1,609.4**
Energy Intensity								
Gigajoules per household	128	124	119	114	111	108	107	106

Table 5
Commercial Sector

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Activity								
Floorspace (million m^2)								
Surviving					572.2	639.5	710.9	797.3
New Additions					20.2	21.3	23.9	28.2
Total	**465.9**	**508.8**	**543.4**	**579.7**	**592.3**	**660.9**	**734.8**	**825.5**
Energy Consumption (petajoules)								
Natural Gas	387.1	427.6	503.2	514.1	471.6	542.0	627.3	692.4
Electricity	390.1	421.2	453.0	481.6	493.4	569.1	646.9	729.1
Light Fuel Oil (LFO)	62.0	61.2	60.4	91.5	85.3	92.7	95.3	100.2
Propane	16.1	41.8	36.1	34.5	41.0	40.3	44.4	48.2
Heavy Fuel Oil (HFO)	11.4	8.6	19.8	48.8	45.6	51.5	56.9	64.1
Coal	0.2	0.0	0.1	0.0	0.4	0.5	0.5	0.6
Total	**866.8**	**960.4**	**1,072.5**	**1,170.5**	**1,137.3**	**1,296.0**	**1,471.3**	**1,634.7**
Energy Consumption by End-Use (petajoules)								
Space Heating					490.7	553.2	623.8	680.2
Space Cooling					63.6	70.8	78.5	86.5
Water Heating					101.7	115.6	131.6	145.5
Ventilation					72.9	80.6	86.6	93.0
Lighting					186.2	220.8	255.7	285.0
Other (cooking, refrigeration, office equip., etc.)					222.1	254.9	295.1	344.4
Total					**1,137.3**	**1,296.0**	**1,471.3**	**1,634.7**
Energy Intensity (GJ per m^2)	1.86	1.89	1.97	2.02	1.92	1.96	2.00	1.98

Table 6

Transportation Sector

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Key Indicators								
Disposable Income ($1997 billions)	528.0	536.5	607.3	674.7	703.4	819.8	914.3	1018.8
Driving Population (millions)	21.6	22.9	24.4	25.6	25.9	27.4	28.5	29.5
Level of Travel (billions)								
Light-Duty Veh.<=3855 Kgs (VKT)	242.0			322.0	326.7	387.5	435.8	485.4
Freight Trucks >3855 Kgs (VKT).					51.4	59.7	67.5	76.5
Air (seat km available)					133.7	182.7	211.6	247.0
Rail (tonne km traveled)					329.0	356.7	385.3	410.8
Domestic Shipping (tmt)					139.8	156.5	170.6	180.5
Vehicle Sales (thousands)								
New Car	884.0	670.0	849.0	820.0	868.2	948.6	1027.9	1101.1
New Light Duty Truck	384.0	401.0	636.0	686.0	732.4	783.2	870.3	973.0
New Medium - Heavy Truck	45.0	79.0	101.0	106.0	97.9	100.1	105.5	119.3
Vehicle Stock (millions)								
Car Stock	11.0	11.1	10.8	11.3	11.4	12.0	13.0	14.0
Light Duty Truck	3.7	4.6	6.0	6.8	7.1	8.1	8.8	9.8
Medium & Heavy Truck	0.8	0.9	1.1	1.0	1.2	1.3	1.5	1.6
Total Vehicle Stock	**15.5**	**16.6**	**17.9**	**19.1**	**19.6**	**21.4**	**23.3**	**25.4**
Energy Use by Mode (PJ)								
Highway	**1,440.1**	**1,570.9**	**1,759.8**	**1,926.5**	**1,906.4**	**2,145.6**	**2,292.7**	**2,460.1**
Light-Duty Vehicles					**1,247.2**	**1,406.7**	**1,490.6**	**1,592.6**
- Automobiles					611.1	686.5	737.5	786.5
- Light Trucks					636.0	720.0	753.0	805.9
- Motorcycles					0.1	0.2	0.2	0.2
Freight Trucks					**587.9**	**664.9**	**727.5**	**793.2**
- Medium (3856-14969 Kg)					179.5	208.7	234.7	265.7
- Large (> 14969 Kg)					408.4	456.2	492.8	527.5
Buses	**61.1**	**67.7**	**64.5**	**68.3**	**71.3**	**74.1**	**74.5**	**74.3**
Non-Highway								
Air	**185.0**	**187.3**	**242.5**	**249.1**	**243.7**	**306.7**	**330.8**	**358.2**
- General Aviation					28.8	32.3	33.1	34.7
- Domestic Air Carriers					119.5	158.3	173.3	190.6
- International Air Carriers					48.9	62.2	66.0	70.7
- Freight Carriers					46.5	53.9	58.4	62.2
Marine- freight	**107.3**	**101.7**	**114.0**	**114.2**	**122.5**	**133.6**	**144.2**	**152.8**
- Domestic Shipping					73.4	80.7	86.4	89.8
- International Shipping					49.1	52.9	57.8	63.0
Recreational activities	**53.3**	**62.4**	**80.0**	**97.8**	**105.4**	**116.7**	**120.0**	**121.4**
Rail	**92.5**	**83.9**	**86.2**	**78.5**	**77.0**	**78.6**	**79.9**	**80.4**
- Freight					69.2	69.6	69.8	69.1
- Passenger					7.8	9.0	10.1	11.3
Lubricants	**12.2**	**6.7**	**9.0**	**9.2**	**11.4**	**13.5**	**15.2**	**16.9**
Pipeline Natural gas	**133.1**	**232.9**	**219.0**	**165.4**	**184.7**	**180.8**	**181.5**	**178.1**
Pipeline Electricity	**8.7**	**11.0**	**13.2**	**10.7**	**11.7**	**12.0**	**12.2**	**12.2**
Total Energy Use	**2,032.2**	**2,256.7**	**2,523.6**	**2,651.4**	**2,662.9**	**2,987.5**	**3,176.5**	**3,380.1**
Energy Use by Type (PJ)								
Motor Gasoline	1,120.4	1,174.6	1,290.5	1,378.5	1,370.9	1,513.5	1,601.5	1,706.8
Distillate (diesel)	470.4	549.8	659.1	745.7	747.3	839.0	906.2	971.8
Jet Fuel (kerosene & naptha)	181.9	183.2	235.9	246.2	240.3	303.3	327.5	354.9
Residual Oil	60.1	56.6	67.8	69.1	71.4	77.6	84.0	89.6
Aviation Gasoline	5.5	4.1	3.4	2.9	3.4	3.3	3.3	3.3
Liquid Petroleum Gas	35.4	32.8	15.9	12.7	11.2	10.7	11.0	11.8
Lubricants	12.2	6.7	9.0	9.2	11.4	13.5	15.2	16.9
Oil Subtotal	**1,886.0**	**2,007.7**	**2,281.6**	**2,464.2**	**2,455.8**	**2,760.9**	**2,948.6**	**3,155.1**
Ethanol			**4.6**	**5.8**	**6.0**	**29.0**	**29.0**	**29.0**
Electricity	**3.1**	**3.0**	**3.1**	**3.5**	**3.0**	**3.5**	**3.9**	**4.3**
Pipeline Natural gas	**133.1**	**232.9**	**219.0**	**165.4**	**184.7**	**180.8**	**181.5**	**178.1**
Pipeline Electricity	**8.7**	**11.0**	**13.2**	**10.7**	**11.7**	**12.0**	**12.2**	**12.2**
Compressed Natural Gas	**1.4**	**2.2**	**2.2**	**1.8**	**1.7**	**1.3**	**1.2**	**1.3**
Total Energy Use	**2,032.2**	**2,256.7**	**2,523.6**	**2,651.4**	**2,662.9**	**2,987.5**	**3,176.5**	**3,380.1**
Energy Efficiency Indicators								
New Car L/100 Km	8.2	7.9	7.8	7.8	7.8	7.3	7.2	7.1
New LDT L/100 Km	11.4	11.5	11.1	11.0	11.0	9.7	9.3	9.0
Average On Road Energy Efficiency								
Car L/100 Km	10.7	10.3	9.9	9.2	9.2	8.6	8.3	8.3
Light Duty truck L/100 Km	15.4	14.9	14.9	13.5	13.5	12.0	10.9	10.5
Medium truck L/100 Km	27.3	26.8	26.2	26.0	25.3	24.9	24.7	24.5
Heavy truck L/100 Km	45.0	42.3	40.2	39.0	38.0	37.1	35.6	33.8
Railway TKm/PJ					4.4	4.7	5.1	5.5
Shipping TKm/thou. PJ					1.9	1.9	2.0	2.0
Aircraft Seat-Km/L					23.5	25.2	26.9	28.9
Various indicators								
VKT per LDV	16,434			17,718	17,694	19,290	19,985	20,421
LD Vehicle per driver	0.68	0.68	0.69	0.71	0.71	0.73	0.76	0.81

Table 7

Industrial Demand by Industry

(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Agriculture								
Electricity	31	34	35	36	38	39	41	42
Natural Gas + NGLs	28	30	33	27	25	26	27	27
RPP's	140	145	165	145	172	176	183	189
Total End Use Energy	**199**	**209**	**232**	**209**	**236**	**241**	**250**	**259**
Non-combustion (oils & greases)	1	3	2	1	2	2	2	2
Total Energy & Non-combustion	**201**	**212**	**234**	**210**	**238**	**243**	**252**	**261**
Forestry								
RPP's	8	8	16	23	18	17	18	18
Total End Use Energy	**8**	**8**	**16**	**23**	**18**	**17**	**18**	**18**
Non-combustion (oils & greases)	1	1	1	1	1	1	1	1
Total Energy & Non-combustion	**9**	**9**	**17**	**24**	**19**	**18**	**19**	**19**
Coal Mining (BC, AB, SK)								
Electricity					2	2	2	2
Natural Gas + NGLs					2	2	2	2
RPP's					6	6	6	6
Coal & Coke					6	6	6	6
Total End Use Energy					**16**	**16**	**16**	**16**
Total Energy & Non-combustion					**16**	**16**	**16**	**16**
Other Mining								
Electricity Purchases	57	51	47		53	57	58	58
Electricity Own-Generation - Hydro					1	1	1	1
Natural Gas + NGLs	35	37	36		36	39	42	45
RPP's	43	41	39		44	47	47	46
Coal & Coke	9	7	8		8	9	8	8
Total End Use Energy	**145**	**137**	**129**		**141**	**153**	**156**	**158**
Non-combustion (oils & greases)	3	3	4		5	6	6	7
Total Energy & Non-combustion	**148**	**140**	**133**		**146**	**159**	**162**	**165**
Construction								
Natural Gas + NGLs	27	16	17	22	21	21	22	23
RPP's	40	33	33	38	38	38	41	43
Total End Use Energy	**67**	**49**	**50**	**60**	**59**	**60**	**64**	**67**
Non-combustion (Asphalt)	111	95	109	112	121	127	140	150
Total Energy & Non-combustion	**178**	**144**	**158**	**172**	**180**	**187**	**203**	**217**
Smelting & Refining (BC, ON, QC, NB)								
Electricity Purchases					36	39	37	37
Electricity Own-Generation - Hydro					6	6	6	6
Natural Gas + NGLs					18	19	19	18
RPP's					3	3	3	3
Coal & Coke					11	12	11	11
Total End Use Energy					**73**	**78**	**76**	**75**
Total Energy & Non-combustion					**73**	**78**	**76**	**75**
Aluminium Smelting (QC, BC)								
Electricity Purchases					74	84	85	86
Electricity Own-Generation - Hydro					81	81	81	81
Natural Gas + NGLs					6	7	7	7
RPP's					2	2	2	2
Total End Use Energy					**163**	**174**	**175**	**175**
Non-combustion (petroleum coke)					62	66	67	67
Total Energy & Non-combustion					**226**	**240**	**241**	**242**
Paper (BC, AB, ON, QC, Atl.)								
Electricity Purchases	172	196	216	218	167	156	154	153
Electricity Own-Generation - Hydro					11	11	11	11
Natural Gas + NGLs	109	129	119	78	117	107	105	104
RPP's	107	64	63	67	54	50	48	47
Coal & Coke	3	1	1	2	2	1	1	1
Renewables	351	435	494	507	464	457	477	495
Total End Use Energy	**742**	**826**	**893**	**871**	**815**	**783**	**796**	**811**
Total Energy & Non-combustion	**742**	**826**	**893**	**871**	**815**	**783**	**796**	**811**
Chemicals (BC, AB, ON, QC)								
Electricity	62	63	63	60	56	55	58	60
Natural Gas + NGLs	130	150	140	110	106	112	118	124
RPP's	5	6	5	7	5	5	5	5
Total End Use Energy	**198**	**220**	**208**	**176**	**166**	**173**	**181**	**189**
Non-combustion Use (Feedstocks NGLs)	263	307	304	304	259	294	317	334
Total Energy & Non-combustion	**461**	**527**	**512**	**481**	**425**	**466**	**498**	**523**

Table 7 (cont'd)

Industrial Demand by Industry

(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Cement (BC, AB, ON, QC)								
Electricity	7	7	7	7	8	8	9	10
Natural Gas + NGLs	16	15	12	2	1	1	1	1
RPP's	11	12	11	20	21	22	25	27
Coal & Coke	25	24	31	32	34	36	40	43
Renewables					4	4	4	5
Total End Use Energy	**58**	**58**	**60**	**60**	**67**	**71**	**79**	**86**
Total Energy & Non-combustion	**58**	**58**	**60**	**60**	**67**	**71**	**79**	**86**
Iron & Steel (QC, ON)								
Electricity Purchases	27	28	32	32	35	36	38	39
Electricity Own-Generation - Hydro					1	1	1	1
Natural Gas + NGLs	54	77	81	68	87	89	91	94
RPP's	12	9	8	9	8	8	8	9
Coal & Coke	120	124	126	129	130	127	130	133
Total End Use Energy	**213**	**238**	**247**	**238**	**261**	**262**	**268**	**276**
Total Energy & Non-combustion	**213**	**238**	**247**	**238**	**261**	**262**	**268**	**276**
Other manufacturing								
Electricity Purchases	139	149	176	168	150	157	162	173
Electricity Own-Generation - Hydro					15	15	15	15
Natural Gas + NGLs	412	408	432	441	380	395	407	435
RPP's	44	38	41	36	44	46	47	49
Coal & Coke	10	10	12	16	24	25	26	28
Renewables	15.33	13.76	17.73	19	16	16	16	16
Total End Use Energy	**621**	**619**	**679**	**680**	**630**	**655**	**673**	**717**
Non-combustion (various)	42	55	59	66	82	94	104	117
Total Energy & Non-combustion	**663**	**675**	**738**	**746**	**713**	**749**	**777**	**834**
Total Industry								
Electricity Purchases					619	634	643	659
Electricity Own-Generation - Hydro					115	115	115	115
Natural Gas + NGLs					804	824	847	888
RPP's					408	415	427	438
Coal & Coke					214	215	222	230
Renewables					484	477	497	516
Total End Use Energy					**2,644**	**2,680**	**2,750**	**2,845**
Non-Energy Use					532	590	636	679
Total Energy & Non-Energy					**3,176**	**3,270**	**3,386**	**3,525**

Total Industrial Demand

(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
TOTAL INDUSTRY								
(adjusted for own-electricity generation and non-energy)								
Purchased Electricity	486	535	596	544	619	634	643	659
Natural Gas	812	869	879	772	804	824	847	888
Refined Petroleum Products	426	374	408	382	408	415	427	438
Coal & Coke	179	179	190	186	214	215	222	230
Renewables- hydro	112	118	112	119	115	115	115	115
Renewables- biomass	378	460	531	552	484	477	497	516
Non-combustion	447	501	521	522	532	590	636	679
TOTAL	**2,840**	**3,036**	**3,237**	**3,078**	**3,176**	**3,270**	**3,386**	**3,525**
Other Non-Energy Use (unallocated, see note)	226	251	260	487	400	400	400	400
TOTAL	**3,066**	**3,288**	**3,497**	**3,565**	**3,576**	**3,670**	**3,786**	**3,925**

Notes:

1. Industry excludes refineries and the oil and gas industry.
2. Historical total quantity of non-combustion exceeds the allocation by about 400 PJs
3. Adjustments to industry demand have been made to allocate the related energy for own electricity generation
4. Other Mining 2004 energy use data has not been released
5. Cement historic data is national total; forecast period represents QC, ON, BC, and AB
6. Total Industry historic data does not include energy use in Coal Mining
7. Total Industry 2004 historic data omits Other Mining energy use

Table 8A

Conversion Sectors - Refineries

Supply to refineries - 1000 cubic metre (m^3)/cd

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Foreign crudes								
Condensate			0.4		2.5	0.0	0.0	0.0
Lt Sweet			73.2		84.5	52.9	32.5	41.7
Lt Sour			24.4		21.3	0.0	0.0	0.0
Med Sour			34.6		39.6	65.8	71.7	65.6
Heavy Sour			4.8		0.0	15.7	18.6	19.5
Very Heavy			7.5		7.2	16.6	17.4	18.4
Total	**85.4**	**93.9**	**144.9**	**149.0**	**155.0**	**150.9**	**140.1**	**145.2**
Domestic crudes								
Lt Sweet			52.2		42.6	11.8	10.3	14.3
Lt Sour			11.4		20.7	1.3	0.4	0.3
Med Sour			0.1		0.0	0.0	0.0	0.0
Heavy Sour			2.4		2.2	7.4	6.4	3.9
Very Heavy			26.9		24.7	146.3	181.1	191.3
Synthetic			36.9		19.4	0.0	0.0	0.0
Total	**161.8**	**146.2**	**129.9**	**151.0**	**109.6**	**166.8**	**198.1**	**209.8**
Unfinished products		24.5	21.7	15.0	6.0	6.3	7.1	15.0
Total Supply to Refineries	**247.1**	**264.7**	**296.4**	**315.0**	**270.6**	**324.0**	**345.3**	**370.0**
Refinery Capacity	313.7	283.8	304.8	321.5	324.4	340.0	368.0	408.0
Refinery Unit Utilization (%)	79	85	90	93	82	93	92	87

Table 8B

Conversion Sectors - Refineries

Supply to refineries - Thousands of barrels per day

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Foreign crudes								
Condensate			2		16	0	0	0
Lt Sweet			461		532	333	205	263
Lt Sour			154		134	0	0	0
Med Sour			218		249	414	451	413
Heavy Sour			30		0	99	117	123
Very Heavy			47		45	105	110	116
Total	**538**	**591**	**913**	**939**	**977**	**951**	**883**	**915**
Domestic crudes								
Lt Sweet			329		268	74	65	90
Lt Sour			72		131	8	3	2
Med Sour			1		0	0	0	0
Heavy Sour			15		14	46	40	24
Very Heavy			169		156	922	1,141	1,205
Synthetic			232		122	0	0	0
Total	**1,019**	**921**	**818**	**951**	**690**	**1,051**	**1,248**	**1,322**
Unfinished products		155	136	95	38	40	44	95
Total Supply to Refineries	**1,557**	**1,667**	**1,868**	**1,985**	**1,705**	**2,041**	**2,176**	**2,331**
Refinery Capacity	1,977	1,788	1,920	2,025	2,044	2,142	2,318	2,570
Refinery Unit Utilization (%)	**79**	**85**	**90**	**93**	**82**	**93**	**92**	**87**

Energy requirements

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Petroleum derived products (1)	247.0	213.0	228.0	269.0	174.2	307.7	332.0	404.4
Natural Gas	65.0	55.0	68.0	76.0	136.3	94.0	111.3	76.4
Purchased Electricity (2)	20.0	18.0	20.0	22.0	5.0	7.5	12.0	14.0
Total	**332.0**	**286.0**	**316.0**	**367.0**	**315.5**	**409.2**	**455.2**	**494.9**

Notes: 1. Products include still gas, petroleum coke and various RPPs.
2. Electricity purchases refer to the amount to be generated and supplied by the utilities

Table 9
Conversion Sectors - Electricity

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Sales (TW-h)								
Residential	129.8	131.6	138.2	151.0	153.6	164.4	175.9	185.7
Commercial/Other	108.4	116.8	125.8	133.8	137.1	158.1	179.7	202.5
Industrial net requirements (purchases)	147.9	147.3	163.9	169.4	172.0	176.2	178.6	183.0
Oil and Gas Producers & Refineries	15.0	19.4	23.2	20.0	21.1	19.7	18.7	17.0
Transportation (incl pipelines)	3.3	3.9	4.5	3.9	4.1	4.3	4.5	4.6
Total sales	**404.4**	**419.1**	**455.7**	**478.0**	**487.8**	**522.6**	**557.3**	**592.9**
International Imports	17.8	7.4	15.3	22.8	18.2	18.2	17.6	17.6
International Exports	18.1	43.4	51.0	33.2	35.5	36.1	33.0	31.8
Own-use and Line losses (derived)	22.0	40.7	50.3	44.1	49.6	49.1	46.3	44.7
Required utility generation	**426.7**	**495.8**	**541.7**	**532.5**	**554.7**	**589.6**	**619.1**	**651.8**
Total Capacity (GW)								
Coal	19.0	21.2	17.5	16.9	16.2	15.7	13.4	11.0
Other Fossil Steam	7.9	7.5	7.7	7.6	7.7	7.7	6.9	6.9
Combined Cycle	0.0	0.0	0.3	3.2	4.2	6.1	6.9	11.1
Combustion Turbine	2.4	3.8	4.1	5.6	5.8	5.8	7.5	10.3
Nuclear Power	13.1	16.4	10.6	12.8	12.4	11.4	10.5	11.4
Renewables	54.4	60.8	63.5	67.5	66.7	72.1	78.0	80.3
Hydro	54.4	60.8	63.1	66.4	65.3	67.6	69.1	70.5
Wind	0.0	0.0	0.1	0.4	0.7	3.5	7.6	8.5
Other	0.0	0.0	0.3	0.7	0.7	1.0	1.2	1.2
Total	**96.7**	**109.6**	**103.6**	**113.5**	**113.0**	**118.9**	**123.2**	**131.0**
Generation by Fuel Type (Terawatthours)								
Coal	76.8	81.6	109.9	95.2	92.2	107.8	95.0	79.2
Petroleum	13.6	8.5	11.7	18.8	9.8	11.3	12.3	11.9
Natural Gas	4.6	13.7	24.9	23.0	19.0	20.4	44.7	80.1
Nuclear	68.8	92.3	68.7	85.2	90.2	84.7	79.8	83.5
Renewables	262.9	299.8	326.6	310.3	343.4	365.5	387.3	397.1
Hydro	262.9	299.8	323.7	304.5	336.5	348.8	357.5	364.7
Wind	0.0	0.0	0.3	1.0	1.8	9.1	21.0	23.5
Biomass and other	0.0	0.0	2.5	4.8	5.1	7.5	8.8	8.8
Total Generation	**426.7**	**495.8**	**541.7**	**532.5**	**554.7**	**589.6**	**619.1**	**651.8**
Fuel Requirements (PJ)								
Renewables (Hydro, wind and others (3.6 MJ/KWh))	946.6	1,079.2	1,175.7	1,117.1	1,236.3	1,315.7	1,394.3	1,429.4
Nuclear (11.6 MJ/KWh)	797.6	1,070.7	796.6	988.8	1,046.4	982.3	925.2	969.2
Coal	874.1	908.8	1,187.6	1,092.7	1,012.0	1,163.9	1,023.4	865.7
Natural Gas	51.8	139.0	255.8	250.7	206.2	216.9	405.0	659.0
Oil	147.9	87.9	115.8	200.0	117.8	134.2	146.1	142.0
Total	**2,818.0**	**3,285.6**	**3,531.5**	**3,649.3**	**3,618.6**	**3,813.0**	**3,894.0**	**4,065.3**
Average Thermal Plant Efficiency								
Nuclear	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Coal	0.32	0.32	0.33	0.31	0.33	0.33	0.33	0.33
Natural Gas	0.32	0.35	0.35	0.33	0.33	0.34	0.40	0.44
Oil	0.33	0.35	0.36	0.34	0.30	0.30	0.30	0.30
Average Utilization Rate (%)								
Renewables	55	56	59	53	59	58	57	56
Nuclear	60	64	74	76	83	85	86	84
Coal	46	44	72	64	65	79	81	82
Gas					52	38	74	83

Table 10

Electricity Generation by Region and Source

(Billion KWh)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Nova Scotia								
Coal	5.8	7.0	9.0	7.6	8.7	10.1	10.9	11.8
Petroleum	2.2	1.3	1.5	3.8	1.3	0.1	0.1	0.1
Natural Gas	0.0	0.0	0.0	0.1	0.0	0.2	0.6	0.7
Renewables	1.1	0.9	0.9	1.1	1.4	2.1	2.1	2.1
Total	**9.1**	**9.2**	**11.3**	**12.6**	**11.5**	**12.6**	**13.6**	**14.8**
Prince Edward Island								
Petroleum	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Renewables	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4
Total	**0.1**	**0.0**	**0.0**	**0.1**	**0.1**	**0.4**	**0.5**	**0.5**
New Brunswick								
Coal	1.3	3.4	3.6	3.0	3.0	3.6	3.3	3.5
Petroleum	5.9	4.3	7.4	8.2	6.3	6.4	7.4	7.3
Natural Gas	0.0	0.0	0.0	1.1	0.5	0.6	1.4	1.6
Nuclear	5.3	1.6	4.0	4.3	4.7	4.7	4.7	4.7
Renewables	3.5	2.6	3.2	3.0	2.9	3.1	3.8	4.4
Total	**16.0**	**12.0**	**18.2**	**19.6**	**17.4**	**18.4**	**20.7**	**21.6**
Newfoundland and Labrador								
Petroleum	2.0	1.6	1.0	1.7	0.3	0.9	1.0	1.2
Renewables	34.3	35.8	41.8	38.1	40.3	40.4	40.8	40.8
Total	**36.3**	**37.4**	**42.8**	**39.8**	**40.6**	**41.3**	**41.8**	**42.0**
Quebec								
Petroleum	1.7	0.4	0.8	2.4	0.8	2.7	2.6	2.1
Natural Gas	0.1	0.3	0.3	0.2	0.0	0.0	0.1	5.6
Nuclear	4.1	4.5	4.9	4.9	3.1	3.9	2.9	3.6
Renewables	112.2	148.3	154.3	147.4	155.3	165.4	175.6	184.4
Total	**118.1**	**153.3**	**160.4**	**154.9**	**159.2**	**172.0**	**181.2**	**195.6**
Ontario								
Coal	26.1	16.7	42.4	27.6	22.6	33.4	20.5	0.0
Petroleum	1.4	0.3	0.5	0.8	0.1	0.1	0.1	0.1
Natural Gas	0.0	5.7	9.4	7.9	11.0	12.4	35.9	62.0
Nuclear	59.4	86.2	59.8	76.1	82.4	76.0	72.1	75.3
Renewables	38.7	37.5	37.6	40.8	42.2	47.4	49.1	49.1
Total	**125.5**	**146.3**	**149.7**	**153.1**	**158.3**	**169.4**	**177.8**	**186.6**
Manitoba								
Coal	0.3	0.1	0.9	0.3	0.1	0.2	0.1	0.2
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Renewables	19.8	29.0	31.5	27.2	31.3	33.3	37.0	37.1
Total	**20.2**	**29.2**	**32.4**	**27.6**	**31.5**	**33.5**	**37.1**	**37.4**
Saskatchewan								
Coal	8.6	11.3	11.8	12.2	11.3	11.6	12.3	13.1
Natural Gas	0.3	0.5	2.2	3.8	3.4	3.4	3.4	4.0
Renewables	4.2	4.1	3.0	2.9	3.5	4.0	4.1	4.1
Total	**13.1**	**15.9**	**17.1**	**18.9**	**18.2**	**19.0**	**19.9**	**21.2**
Alberta								
Coal	34.7	43.1	42.2	44.6	46.5	49.0	47.8	50.5
Petroleum	0.0	0.0	0.0	1.5	0.1	0.1	0.1	0.1
Natural Gas	2.9	2.6	9.1	6.8	2.8	1.9	3.0	5.1
Renewables	2.1	2.2	2.2	3.8	3.6	3.7	3.7	3.7
Total	**39.6**	**47.9**	**53.6**	**56.7**	**53.1**	**54.7**	**54.6**	**59.4**
British Columbia								
Petroleum	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Natural Gas	1.3	4.7	3.9	2.9	1.3	1.7	0.4	1.0
Renewables	46.4	38.9	51.3	45.5	62.3	65.2	70.2	70.4
Total	**47.8**	**43.6**	**55.2**	**48.5**	**63.8**	**67.1**	**70.7**	**71.6**
Territories								
Petroleum	0.3	0.4	0.2	0.3	0.6	0.6	0.6	0.6
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5
Total	**0.9**	**0.9**	**0.7**	**0.8**	**1.1**	**1.1**	**1.1**	**1.1**

Table 11

Oil and Gas Industries Energy Consumption by Fuel

(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Natural Gas Producers								
Production								
Natural Gas					230.4	228.2	216.4	181.5
Electricity					0.0	0.0	0.0	0.0
Processing								
Natural Gas					263.1	245.9	228.0	183.4
Electricity					13.6	12.6	10.4	7.7
LPGs					49.0	45.9	42.5	34.2
Flaring								
Natural Gas					14.0	12.5	11.5	9.3
Crude Oil Producers								
Light and Medium								
Diesel					0.0	0.0	0.0	0.0
Natural Gas					60.3	56.6	55.3	49.7
Electricity					41.1	33.6	28.8	24.7
Flaring (Natural Gas)					38.9	31.5	27.3	22.6
Conventional Heavy								
Diesel					0.0	0.0	0.0	0.0
Natural Gas					31.7	29.1	24.7	18.5
Electricity					13.0	11.3	9.2	6.9
Flaring (Natural Gas)					15.1	14.6	12.4	9.3
Bitumen								
Diesel					0.0	0.0	0.0	0.0
Natural Gas					190.5	362.9	430.9	499.0
Electricity					3.1	5.8	6.9	8.0
Flaring (Natural Gas)					6.3	12.0	14.3	16.6
Synthetic (mining)								
Still Gas	82.2	124.6	83.6		110.8	225.7	293.3	339.6
Diesel	5.0	13.2	15.9		21.5	47.2	61.2	71.7
Petroleum Coke	21.3	43.1	48.8		65.9	145.0	187.9	220.1
Natural Gas	23.5	61.5	74.6		77.4	153.1	199.2	229.5
Others (Servicing, adjustments, etc..)								
Diesel					22.4	22.4	22.4	22.4
Flaring (Natural Gas)					16.5	16.5	16.5	16.5

Total Energy Consumption

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Gas Producers								
Natural Gas					507.5	486.6	455.9	374.3
Electricity					13.6	12.6	10.4	7.7
LPGs					49.0	45.9	42.5	34.2
Total Energy					**570.1**	**545.0**	**508.8**	**416.2**
Oil Producers								
Still Gas					110.8	225.7	293.3	339.6
Diesel					21.5	47.2	61.2	71.7
Petroleum Coke					65.9	145.0	187.9	220.1
Natural Gas					420.1	659.9	764.0	845.2
Electricity					57.2	50.8	44.9	39.6
Total Energy					**675.4**	**1,128.6**	**1,351.3**	**1,516.3**
Others								
Diesel					22.4	22.4	22.4	22.4
Natural Gas					16.5	16.5	16.5	16.5
Total Energy					**38.9**	**38.9**	**38.9**	**38.9**

Oil and Gas Industries (incl. synthetic)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Still Gas	82.2	124.6	83.5	121.8	110.8	225.7	293.3	339.6
Petroleum	25.8	30.1	40.2	47.1	43.8	69.6	83.6	94.1
Petroleum Coke	21.3	36.3	48.8	75.8	65.9	145.0	187.9	220.1
Natural Gas	525.9	626.4	890.7	920.5	944.1	1,163.0	1,236.4	1,236.0
Electricity (purchases)	54.2	69.9	83.7	72.1	70.8	63.4	55.3	47.4
LPGs	34.8	23.6	34.2	48.2	49.0	45.9	42.5	34.2
Total Energy	**744.2**	**911.0**	**1,181.0**	**1,285.4**	**1,284.5**	**1,712.6**	**1,899.0**	**1,971.3**

Table 12

Energy demand - End-Use Sectors

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum	187	139	133	106	98	101	102	107
Natural Gas (& propane)	548	645	656	662	643	669	696	723
Renewable Energy	85	93	104	108	109	106	106	108
Purchased Electricity	467	474	498	544	553	592	633	671
Delivered Energy	**1,287**	**1,350**	**1,391**	**1,420**	**1,402**	**1,467**	**1,537**	**1,609**
Commercial								
Petroleum	74	70	80	140	131	144	152	164
Natural Gas (& propane)	403	469	539	549	513	582	672	741
Purchased Electricity	390	421	453	482	493	569	647	729
Delivered Energy	**867**	**960**	**1,072**	**1,171**	**1,137**	**1,296**	**1,471**	**1,635**
Industrial								
Purchased Electricity	486	535	596	544	619	634	643	659
Natural Gas + NGLs	812	869	879	772	804	824	847	888
RPP's	426	374	408	382	408	415	427	438
Coal & Coke	179	179	190	186	214	215	222	230
Renewables - hydro	112	118	112	119	115	115	115	115
Renewables - biomass	378	460	531	552	484	477	497	516
Delivered Energy	**2,393**	**2,536**	**2,716**	**2,556**	**2,644**	**2,680**	**2,750**	**2,845**
Non-combustion	673	752	781	1,009	932	990	1,036	1,079
Total Energy & Non-Energy	**3,066**	**3,288**	**3,497**	**3,565**	**3,576**	**3,670**	**3,786**	**3,925**
Transportation								
Petroleum	1,886	2,008	2,282	2,464	2,456	2,761	2,949	3,155
Natural Gas	135	235	221	167	186	182	183	179
Electricity	12	14	16	14	15	15	16	17
Renewable Energy (Ethanol)					6	29	29	29
Delivered Energy	**2,032**	**2,257**	**2,524**	**2,651**	**2,663**	**2,988**	**3,177**	**3,380**

Total end-use demand

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Petajoules								
Petroleum	2,573	2,590	2,903	3,093	3,092	3,421	3,629	3,865
Natural Gas	1,898	2,219	2,295	2,151	2,146	2,257	2,397	2,532
Renewables - Hydro	112	118	112	119	115	115	115	115
Renewables - Other	463	553	635	660	598	612	632	653
Coal	179	179	190	186	214	215	222	230
Non-Energy Use	673	752	781	1,009	932	990	1,036	1,079
Total (excluding electricity)	**5,897**	**6,411**	**6,916**	**7,218**	**7,098**	**7,610**	**8,031**	**8,474**
Purchased Electricity	1,355	1,444	1,563	1,584	1,680	1,810	1,939	2,075
Total	**7,252**	**7,855**	**8,479**	**8,802**	**8,778**	**9,420**	**9,970**	**10,548**

Table 13

Energy requirements for Energy Conversion Industries

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Biofuels suppliers *								
Natural Gas					6	10	10	10
Electric Generators								
Petroleum	148	88	116	200	118	134	146	142
Natural Gas	52	139	256	251	206	217	405	659
Steam Coal	874	909	1,188	1,093	1,012	1,164	1,023	866
Nuclear Power	798	1,071	797	989	1,046	982	925	969
Renewables (Hydro, wind and others)	947	1,079	1,176	1,117	1,236	1,316	1,394	1,429
Total	**2,818**	**3,286**	**3,532**	**3,649**	**3,619**	**3,813**	**3,894**	**4,065**
Electricity Imports	64	27	55	82	66	66	63	63
Refining Industry								
Coke					80	139	154	183
Still Gas					85	145	168	184
Other Petroleum					8	24	10	38
Petroleum derived products	247	213	228	269	174	308	332	404
Natural Gas	65	55	68	76	136	94	111	76
Electricity	20	18	20	22	5	7	12	14
Total	**332**	**286**	**316**	**367**	**316**	**409**	**455**	**495**
Total conversion industries								
Petroleum	395	301	344	469	292	442	478	546
Natural Gas	117	194	324	327	342	311	516	735
Coal	874	909	1,188	1,093	1,012	1,164	1,023	866
Nuclear Power	798	1,071	797	989	1,046	982	925	969
Renewable Energy	947	1,079	1,176	1,117	1,236	1,316	1,394	1,429
Purchased Electricity by refineries	20	18	20	22	5	7	12	14
Total	**3,150**	**3,572**	**3,848**	**4,016**	**3,934**	**4,222**	**4,349**	**4,560**
Electricity Imports	64	27	55	82	66	66	63	63
Total (with electricity imports)	**3,214**	**3,598**	**3,903**	**4,098**	**4,000**	**4,288**	**4,413**	**4,623**

* The amount of energy associated with the production of biofuels is presented for information only. This amount is included in the total energy consumption by the industrial and/or agriculture sectors.

Table 14

Energy requirements for Oil and Gas Suppliers

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Petroleum	164	215	207	293	270	486	607	688
Natural Gas	526	626	891	921	944	1,163	1,236	1,236
Total Energy	**690**	**841**	**1,097**	**1,213**	**1,214**	**1,649**	**1,844**	**1,924**
Electricity	54	70	84	72	71	63	55	47
Total (with electricity)	**744**	**911**	**1,181**	**1,285**	**1,284**	**1,713**	**1,899**	**1,971**

Oil and Gas Industries (incl. synthetic)

Table 15

Total All Energies

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Total end-use demand								
Petroleum	2,573	2,590	2,903	3,093	3,092	3,421	3,629	3,865
Natural Gas	1,898	2,219	2,295	2,151	2,146	2,257	2,397	2,532
Renewables - Hydro	112	118	112	119	115	115	115	115
Renewables - Other	463	553	635	660	598	612	632	653
Coal	179	179	190	186	214	215	222	230
Non-Energy Use	673	752	781	1,009	932	990	1,036	1,079
Delivered Energy	**5,897**	**6,411**	**6,916**	**7,218**	**7,098**	**7,610**	**8,031**	**8,474**
Purchased Electricity	1,355	1,444	1,563	1,584	1,680	1,810	1,939	2,075
Total conversion industries (Refineries, Electricity generators.)								
Petroleum	395	301	344	469	292	442	478	546
Natural Gas	117	194	324	327	342	311	516	735
Coal	874	909	1,188	1,093	1,012	1,164	1,023	866
Nuclear Power	798	1,071	797	989	1,046	982	925	969
Renewable Energy - hydro	947	1,079	1,165	1,096	1,211	1,256	1,287	1,313
Renewable Energy - other	0	0	10	21	25	60	107	116
Total Energy	**3,130**	**3,554**	**3,828**	**3,994**	**3,929**	**4,215**	**4,337**	**4,546**
Electricity imports	64	27	55	82	66	66	63	63
Purchased Electricity	20	18	20	22	5	7	12	14
Total Oil and Gas Suppliers								
Petroleum	164	215	207	293	270	486	607	688
Natural Gas	526	626	891	921	944	1,163	1,236	1,236
Total Energy	**690**	**841**	**1,097**	**1,213**	**1,214**	**1,649**	**1,844**	**1,924**
Purchased Electricity	54	70	84	72	71	63	55	47

Primary Energy by Type

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Petroleum (energy)	3,132	3,106	3,454	3,855	3,654	4,349	4,715	5,099
(non-combustion)	673	752	781	1,009	932	990	1,036	1,079
Natural Gas	2,540	3,039	3,510	3,398	3,433	3,731	4,150	4,503
Coal	1,053	1,088	1,377	1,279	1,226	1,379	1,245	1,096
Nuclear	798	1,071	797	989	1,046	982	925	969
Renewable - hydro	1,058	1,198	1,277	1,215	1,326	1,371	1,402	1,428
Renewable - other	463	553	646	681	623	672	739	769
Total	**9,717**	**10,806**	**11,841**	**12,426**	**12,240**	**13,473**	**14,212**	**14,944**

Table 16A

Petroleum Production & Supply and Disposition

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
PRODUCTION								
Crude and Condensates								
Conventional Heavy	743	1,106	1,333	1,301	1,343	1,222	1,037	855
Conventional Light	1,998	2,043	1,863	1,924	1,933	1,518	1,311	1,083
Synthetic	476	643	733	1,369	1,246	2,744	3,555	4,164
Insitu bitumen	336	369	718	959	1,043	1,987	2,359	2,732
C5 & condensates	237	328	388	347	443	370	278	240
Total Crude Oil Production	**3,791**	**4,489**	**5,036**	**5,900**	**6,008**	**7,841**	**8,540**	**9,074**
Other NGLs								
Ethane	130	184	225	269	255	214	165	145
Propane	212	280	312	285	291	244	188	166
Butane	141	197	211	197	196	165	127	112
Total Other NGLs	**484**	**660**	**748**	**751**	**742**	**623**	**479**	**423**
Total net production	**4,275**	**5,149**	**5,784**	**6,651**	**6,750**	**8,464**	**9,020**	**9,497**
Upgraders - Energy use	109	181	148	222	198	418	542	631
Total gross production	**4,383**	**5,330**	**5,932**	**6,874**	**6,948**	**8,882**	**9,562**	**10,128**
SUPPLY								
Supplies for Cdn market								
Domestic Crudes	2,184	1,975	1,754	2,148	1,563	2,478	2,949	3,119
Foreign Crudes	1,153	1,268	1,957	2,177	2,182	2,149	2,001	2,073
Product Imports	325	304	341	500	702	356	294	249
LPGs	484	660	748	751	742	623	479	423
Total petroleum available	**4,147**	**4,207**	**4,799**	**5,576**	**5,189**	**5,607**	**5,722**	**5,864**
Ethanol					16	29	29	29
Other inputs (Unfinished)		107	95	75	55	57	64	137
DISPOSITION								
RPP demand								
Residential and Commercial	276	250	249	281	269	285	299	320
Industrial	426	374	408	382	408	415	427	438
Transportation	2,032	2,257	2,524	2,651	2,456	2,761	2,949	3,155
Energy producers (purchases)	20	20	20	20	22	22	22	22
Refineries	247	213	228	269	174	308	332	404
Electric Generators	148	88	116	200	118	134	146	142
Non-combustion	447	501	521	522	532	590	636	679
Other Non-combustion Use (unallocated)	126	151	160	387	300	300	300	300
Net Domestic Demand	**3,723**	**3,854**	**4,226**	**4,712**	**4,280**	**4,815**	**5,110**	**5,461**
Product Exports (derived)	424	352	573	864	909	791	612	403
Total petroleum available	**4,147**	**4,207**	**4,799**	**5,576**	**5,189**	**5,607**	**5,722**	**5,864**

Petroleum Balance

Petajoules

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Crude Oil Balance								
Total crude oil production	3,791	4,489	5,036	5,900	6,008	7,841	8,540	9,074
Domestic Crudes used in Canada	2,184	1,975	1,754	2,148	1,563	2,478	2,949	3,119
Exports of Cdn Crudes	**1,606**	**2,514**	**3,282**	**3,752**	**4,445**	**5,362**	**5,592**	**5,955**
Petroleum Balance								
Total production	4,275	5,149	5,784	6,651	6,750	8,464	9,020	9,497
Net Domestic Demand	3,723	3,854	4,226	4,712	4,280	4,815	5,110	5,461
Net Petroleum Export Position	**552**	**1,295**	**1,558**	**1,939**	**2,470**	**3,649**	**3,909**	**4,036**

Table 16B

Petroleum Production & Supply and Disposition

Thousands of barrels per day

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
PRODUCTION								
Crude and Condensates								
Conventional Heavy	313	466	562	548	566	515	437	360
Conventional Light	894	914	834	861	865	679	587	485
Synthetic	208	281	321	599	545	1,200	1,555	1,821
Insitu bitumen	135	149	289	386	420	800	950	1,100
C5 & condensates	116	161	190	170	217	181	136	118
Total Crude Oil Production	**1,667**	**1,971**	**2,195**	**2,564**	**2,613**	**3,376**	**3,665**	**3,884**
Other NGLs								
Ethane	122	172	211	253	239	201	155	136
Propane	143	189	210	192	197	165	127	112
Butane	85	118	127	119	118	99	76	67
Total Other NGLs	**351**	**480**	**549**	**564**	**554**	**465**	**358**	**316**
Total net production	**2,018**	**2,451**	**2,744**	**3,128**	**3,167**	**3,841**	**4,022**	**4,199**
Upgraders - own use	51	84	69	104	92	195	253	295
Total gross production	**2,069**	**2,535**	**2,813**	**3,231**	**3,259**	**4,036**	**4,275**	**4,494**
SUPPLY								
Supplies for Cdn market								
Domestic Crudes	1,019	921	818	1,002	690	1,051	1,248	1,322
Foreign Crudes	538	591	913	1,016	977	951	883	915
Product Imports	152	142	159	233	328	166	137	116
LPGs	351	480	549	564	554	465	358	316
Total petroleum available	**2,059**	**2,134**	**2,439**	**2,815**	**2,548**	**2,633**	**2,626**	**2,668**
Ethanol				4	11	20	20	20
Other inputs (Unfinished)	0	50	44	43	38	40	44	95
DISPOSITION								
RPP demand								
Residential and Commercial	129	117	116	131	126	133	139	149
Industrial	199	175	190	178	190	193	199	204
Transportation	948	1,053	1,177	1,237	1,146	1,288	1,376	1,472
Energy producers (purchases)	9	9	9	9	10	10	10	10
Refineries	115	99	106	125	81	144	155	189
Electric Generators	69	41	54	93	55	63	68	66
Non-combustion	208	234	243	243	248	275	297	317
Other Non-combustion Use (unallocated)	59	71	74	181	140	140	140	140
Net Domestic Demand	**1,737**	**1,798**	**1,971**	**2,198**	**1,997**	**2,246**	**2,384**	**2,548**
Product Exports (derived)	323	336	467	616	552	386	242	120
Total petroleum available	**2,059**	**2,134**	**2,439**	**2,815**	**2,548**	**2,633**	**2,626**	**2,668**

Petroleum Balance

Thousands of barrels per day

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Crude Oil Balance								
Total crude oil production	1,667	1,971	2,195	2,564	2,613	3,376	3,665	3,884
Domestic Crudes used in Canada	1,019	921	818	1,002	690	1,051	1,248	1,322
Exports of Cdn Crudes	**648**	**1,049**	**1,377**	**1,562**	**1,922**	**2,325**	**2,416**	**2,562**
Petroleum Balance								
Total "net" production	2,018	2,451	2,744	3,128	3,167	3,841	4,022	4,199
Net Domestic Demand	1,737	1,798	1,971	2,198	1,997	2,246	2,384	2,548
Net Petroleum Export Position	**281**	**653**	**773**	**930**	**1,170**	**1,594**	**1,638**	**1,652**

Table 17

Natural Gas Supply and Disposition

Billion of cubic feet (BCF) per year

					Forecast			
	1990	**1995**	**2000**	**2004**	**2005**	**2010**	**2015**	**2020**
Supply								
Estimated gross production (note 1)	3,917	5,689	6,507	6,845	7,099	6,941	6,722	5,759
Own-Use consumption	430	457	584	630	644	616	577	483
Marketable Gas Production	3,487	5,232	5,923	6,215	6,455	6,325	6,145	5,276
Imports of US natural gas and LNG (note 2)	23	24	57	383	236	256	621	727
Total supply	**3,509**	**5,255**	**5,981**	**6,598**	**6,691**	**6,581**	**6,766**	**6,003**
Disposition by Sector								
Residential	522	614	625	631	612	637	662	689
Commercial	384	447	514	522	488	555	640	705
Industrial (energy)	773	828	837	736	766	785	807	846
Industrial non-combustion (Petrochemicals)	25	29	29	29	25	28	30	32
Other Non-combustion Use (unallocated)	95	95	95	95	95	95	95	95
Transportation	1	2	2	2	2	1	1	1
Conversion Industries								
Refineries & Biofuels plants	62	52	65	50	130	90	106	73
Electric Generators	49	132	244	239	196	207	386	628
Oil & gas industry	70	139	181	200	255	491	600	694
Pipeline Fuel	127	222	209	158	176	172	173	170
CDN requirements	**2,109**	**2,562**	**2,799**	**2,661**	**2,745**	**3,060**	**3,500**	**3,932**
Natural Gas Balance								
Total supply	3,509	5,255	5,981	6,598	6,691	6,581	6,766	6,003
CDN requirements	2,109	2,562	2,799	2,661	2,745	3,060	3,500	3,932
Gross Exports	**1,400**	**2,694**	**3,181**	**3,937**	**3,946**	**3,521**	**3,266**	**2,071**
Less Imports	23	24	57	383	236	256	621	727
Net exports	**1,378**	**2,670**	**3,124**	**3,554**	**3,710**	**3,265**	**2,645**	**1,343**

Notes 1: Gross production derived as producer consumption plus marketable natural gas
2: LNG annual imports begin in 2011 at about 200 BCF and increase steadily to reach almost 500 BCF by 2020

Table 18

Coal Supply and Disposition

(Million metric tonnes)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Production								
British Columbia	25	24	26	27	25	25	25	25
Saskatchewan	9	11	11	12	10	10	10	10
Alberta	31	37	31	27	31	32	31	32
Other	4	3	1	0	0	0	0	0
Total	**68**	**75**	**69**	**66**	**65**	**67**	**66**	**67**
Imports	14	10	22	28	22	28	23	15
Exports	31	34	32	27	23	23	23	25
Net Cdn Supply	**52**	**51**	**59**	**67**	**64**	**72**	**65**	**57**
Disposition								
Electric Generators	42	47	55	51	57	65	58	49
Other sectors (Derived)	10	4	5	15	7	7	7	9
Total	**52**	**51**	**59**	**67**	**64**	**72**	**65**	**57**

Note: The factors used for the forecast years are assumed at 21 GJ/tonne for Alberta, 15 for Saskatchewan, 26 for BC and export, 18 for other.

Table 19

Renewable Energy

(Petajoules per year)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Biomass and other								
Pulp Paper industry	400	400	400	400	464	457	477	495
Cement Industry					4	4	4	5
Other Manufacturing					16	16	16	16
Residential	85	93	104	108	109	106	106	108
Total	**485**	**493**	**504**	**508**	**592**	**583**	**603**	**624**
Electricity								
Capacity by Type (GW)								
Hydro (utilities only)	54.4	60.8	63.1	66.4	65.3	67.6	69.1	70.5
Municipal Solid Waste	0.0	0.0	0.1	0.0	0.1	0.2	0.3	0.3
Wood and Other Biomass	0.0	0.0	0.3	0.6	0.6	0.8	0.9	0.9
Wind	0.0	0.0	0.1	0.4	0.7	3.5	7.6	8.5
Total	**54.5**	**60.9**	**63.5**	**67.5**	**66.7**	**72.1**	**78.0**	**80.3**
Generation (Petajoules)								
Hydro utilities	946.6	1,079.2	1,165.4	1,096.2	1,211.4	1,255.6	1,287.0	1,313.0
Municipal Solid Waste			1.7	1.0	1.5	4.9	8.9	9.0
Wood and Other Biomass			7.3	16.3	16.8	22.3	22.7	22.7
Wind			1.4	3.5	6.5	32.9	75.6	84.6
Industry	111.7	118.5	112.0	119.2	114.9	114.9	114.9	114.9
Total	**1,058.3**	**1,197.6**	**1,287.9**	**1,236.1**	**1,351.2**	**1,430.6**	**1,509.2**	**1,544.3**

Table 20

Greenhouse Gas Emissions by Gas and by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
CARBON DIOXIDE (CO_2) EMISSIONS…	**460**	**493**	**566**	**593**	**579**	**660**	**694**	**723**
POWER GENERATION	**95**	**100**	**131**	**129**	**114**	**130**	**127**	**125**
INDUSTRIAL	**110**	**114**	**116**	**124**	**135**	**165**	**182**	**198**
COMBUSTION	80	80	80	84	96	124	139	153
NON-COMBUSTION	22	26	27	30	29	31	32	34
NON-ENERGY (CEM,LIME,SASH)	8	9	10	10	10	10	11	12
RESIDENTIAL & AGRICULTURE	**44**	**45**	**45**	**43**	**41**	**42**	**44**	**46**
COMMERCIAL & PUBLIC ADMIN	**26**	**29**	**33**	**38**	**35**	**40**	**45**	**49**
OIL AND GAS INDUSTRIES	**44**	**50**	**67**	**75**	**71**	**80**	**82**	**77**
COMBUSTION	33	36	51	58	56	63	64	61
FUGITIVES	11	14	16	16	15	18	18	17
TRANSPORTATION	**142**	**155**	**174**	**185**	**182**	**202**	**214**	**227**
OTHERS	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
AGROECOSYSTEMS	0	0	0	0	0	0	0	0
WASTE	0	0	0	0	0	0	0	0
METHANE (CH_4) EMISSIONS…	**82**	**96**	**106**	**110**	**111**	**114**	**114**	**112**
POWER GENERATION	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
INDUSTRIAL	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**
COMBUSTION	0	0	0	0	0	0	0	0
NON-COMBUSTION	2	2	1	1	1	1	1	1
NON-ENERGY	0	0	0	0	0	0	0	0
RESIDENTIAL & AGRICULTURE	**2**	**2**	**2**	**2**	**2**	**2**	**2**	**2**
COMMERCIAL & PUBLIC ADMIN	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OIL AND GAS INDUSTRIES	**32**	**43**	**51**	**52**	**52**	**53**	**51**	**46**
COMBUSTION	2	2	2	3	3	3	3	2
FUGITIVES	31	41	48	49	49	50	48	44
TRANSPORTATION	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
OTHERS	**45**	**49**	**51**	**55**	**55**	**58**	**60**	**62**
AGROECOSYSTEMS	21	24	25	27	27	29	30	30
WASTE	24	25	27	28	28	29	30	32
NITROUS OXIDE (N_2O) EMISSIONS…	**45**	**49**	**41**	**44**	**40**	**42**	**42**	**43**
POWER GENERATION	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
INDUSTRIAL	**12**	**12**	**2**	**5**	**2**	**2**	**2**	**2**
COMBUSTION	1	1	1	1	0	0	0	0
NON-COMBUSTION	0	0	0	0	0	0	0	0
NON-ENERGY (ADIPIC & NITRIC)…	11	12	2	4	2	2	2	2
RESIDENTIAL & AGRICULTURE	**1**	**1**	**1**	**1**	**0**	**0**	**0**	**1**
COMMERCIAL & PUBLIC ADMIN	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
OIL AND GAS INDUSTRIES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
COMBUSTION	0	0	0	0	0	0	0	0
FUGITIVES	0	0	0	0	0	0	0	0
TRANSPORTATION	**6**	**9**	**9**	**8**	**7**	**7**	**7**	**7**
OTHERS	**25**	**27**	**28**	**29**	**29**	**31**	**31**	**32**
AGROECOSYSTEMS	24	25	27	28	28	29	29	30
WASTE	1	1	1	1	1	1	1	1
SOLVENT AND OTHER	0	0	0	0	0	1	1	1
SF_6	**5**	**4**	**4**	**3**	**3**	**1**	**2**	**2**
PFCs	**7**	**5**	**4**	**3**	**3**	**4**	**3**	**3**
HFCs	**0**	**0**	**3**	**5**	**5**	**9**	**10**	**14**

Table 21

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**599**	**649**	**725**	**758**	**741**	**828**	**865**	**897**
POWER GENERATION	**95**	**101**	**132**	**130**	**115**	**131**	**128**	**126**
INDUSTRIAL (Excl. Oil & Gas)	**136**	**137**	**128**	**135**	**144**	**173**	**190**	**206**
COMBUSTION	81	80	80	85	96	124	139	153
NON-COMBUSTION	24	27	28	31	30	32	33	34
NON-ENERGY	31	30	20	20	18	17	18	19
CO_2 (CEMENT,LIME,SODA ASH)	8	9	10	10	10	10	11	12
N_2O (NITRIC & ADIPIC ACID)	11	12	2	4	2	2	2	2
SF_6	5	4	4	3	3	1	2	2
PFCs	7	5	4	3	3	4	3	3
RESIDENTIAL & AGRICULTURE	**46**	**48**	**48**	**45**	**43**	**45**	**46**	**48**
COMMERCIAL & PUBLIC ADMIN	**26**	**29**	**33**	**38**	**36**	**40**	**45**	**49**
OIL AND GAS INDUSTRIES	**76**	**93**	**118**	**127**	**123**	**133**	**133**	**124**
COMBUSTION	35	38	54	61	59	66	67	63
FUGITIVES	41	55	64	65	64	68	66	60
TRANSPORTATION	**149**	**164**	**183**	**193**	**190**	**210**	**222**	**235**
OTHERS	**70**	**77**	**83**	**89**	**90**	**97**	**101**	**108**
AGROECOSYSTEMS	45	49	51	55	55	58	59	60
WASTE	25	26	28	29	29	30	32	33
SOLVENT AND OTHER	0	0	0	0	0	1	1	1
HFCs	0	0	3	5	5	9	10	14

Table 22

Greenhouse Gas Emissions by Province

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Nova Scotia	20	19	22	23	24	25	26	28
Prince Edward Island	2	2	2	2	2	2	2	2
New Brunswick	16	17	21	24	21	23	25	27
Newfoundland & Labrador	10	9	9	11	9	11	11	12
Québec	87	84	88	93	91	99	103	110
Ontario	177	177	204	205	193	216	227	232
Manitoba	18	19	20	20	21	23	24	25
Saskatchewan	43	57	64	69	66	72	71	70
Alberta	168	197	223	235	244	281	293	305
British Columbia	51	60	64	67	67	73	74	77
Territories	2	2	2	2	3	3	8	9
Total Canada	**599**	**649**	**725**	**758**	**741**	**828**	**865**	**897**

Conversion and Emission Factors

	Energy Content	CO_2 t/TJ	CH_4 kg/TJ	N_2O kg/TJ	Composite CO_2 eq. t/TJ
Equivalency Factors for CO_2		**1**	**21**	**310**	
Residential					
Natural Gas	**38.00** MJ/m^3	49.65	0.97	0.92	**49.95**
Light fuel oil	**38.68** GJ/m^3	72.94	0.67	0.16	**73.00**
Kerosene.	**37.68** GJ/m^3	67.68	0.69	0.16	**67.74**
LPGs	**22.00** GJ/m^3	59.93	1.11	0.00	**59.95**
Wood		0.00	833	8.89	**20.26**
Commercial					
Natural Gas	**38.00** MJ/m^3	49.65	0.97	0.92	**49.95**
Light fuel oil	**38.68** GJ/m^3	72.94	0.67	0.16	**73.00**
Kerosene.	**37.68** GJ/m^3	67.68	0.69	0.16	**67.74**
LPGs	**22.00** GJ/m^3	59.93	1.11	0.00	**59.95**
Residual Fuel (HFO)	**42.50** GJ/m^3	72.71	1.40	1.55	**73.22**
Transportation					
Natural Gas (pipelines)	**38.00** MJ/m^3	49.65	49.74	1.31	**51.10**
Natural Gas (other uses)	**38.00** MJ/m^3	49.65	0.58	0.00	**49.66**
Motor Gasoline	**35.00** GJ/m^3	67.43	8.94	9.87	**70.68**
Aviation Gasoline	**33.52** GJ/m^3	67.43	8.94	9.87	**70.68**
Jet Fuel / Turbo fuel	**37.40** GJ/m^3	69.51	2.14	6.68	**71.63**
Diesel fuel	**38.30** GJ/m^3	71.28	2.06	8.00	**73.80**
LPGs	**22.00** GJ/m^3	68.18	23.64	1.27	**69.07**
Residual Fuel (HFO)	**42.50** GJ/m^3	72.71	7.06	1.88	**73.44**
Power generation					
Natural Gas	**38.00** MJ/m^3	49.65	12.86	1.29	**50.31**
Residual Fuel (HFO)	**42.50** GJ/m^3	72.71	0.80	1.51	**73.19**
Petroleum Coke	**46.35** GJ/m^3	90.61	2.59	1.38	**91.09**
Coal	**15 - 29** GJ/t	77 - 96	0.76 - 1.47	1.11 - 2.13	**77 - 97**

Conversion and Emission Factors

	Energy Content		CO_2 t/TJ	CH_4 kg/TJ	N_2O kg/TJ	Composite CO_2 eq. t/TJ
Industry						
Energy						
Natural Gas	**38.00**	MJ/m^3	49.65	0.97	0.87	**49.93**
Motor Gasoline	**35.00**	GJ/m^3	67.43	77.14	1.43	**69.49**
Kerosene.	**37.68**	GJ/m^3	67.68	0.16	0.82	**67.93**
Distillate	**38.68**	GJ/m^3	72.94	0.16	0.80	**73.19**
Residual Fuel (HFO)	**42.50**	GJ/m^3	72.71	2.82	1.51	**73.23**
LPGs	**22.00**	GJ/m^3	68.18	23.64	1.27	**69.07**
Coke Metalurgical	**28.83**	GJ/t	86.02	1.04	0.69	**86.26**
(Coke Oven Gas)	**19.14**	GJ/m^3	83.59	1.93	1.83	**84.20**
Pet. Coke (refineries)	**46.35**	GJ/m^3	81.98	2.59	1.38	**82.47**
Pet. Coke (aluminium)	**46.35**	GJ/m^3	90.61	2.59	1.38	**91.09**
Still gas (refineries)	**36.08**	MJ/m^3	55.43	1.03	0.06	**55.47**
Non-energy / Feedstock						
LPGs	**22.00**	GJ/m^3	12.10	0.00	0.00	**12.10**
Petrochemichal	**35.17**	GJ/m^3	14.18	0.00	0.00	**14.18**
Lubes & greases	**39.16**	GJ/m^3	35.58	0.00	0.00	**35.58**
Oil and gas industries						
Natural Gas (own use)	**+ 38.00**	MJ/m^3	62.54	170.16	1.57	**66.60**
Pet. Coke (Upgraders)	**40.57**	GJ/m^3	103.5	2.96	1.58	**104.08**
Still gas (Upgraders)	**43.24**	MJ/m^3	46.25	0.86	0.05	**46.28**
Other Fuels						
Municipal Solid Waste			85.85	0.02	0.00	**85.85**

Abbreviations

	Prefix	Multiple
K	kilo	10^3
M	mega	10^6
G	giga	10^9
T	tera	10^{12}
P	peta	10^{15}
E	exa	10^{18}

Other useful conversions

Oil	**1 cubic metre (m^3)**	**=**	**6.29 barrels (bbls)**
Natural gas	**1 cubic metre (m^3)**	**=**	**35.3 cubic feet (cf)**
	1 Megajoule	**=**	**948.2 BTUs**
Natural gas	**1 Petajoule**	**=**	**0.95 billion of cf**
	1 KW.h	**=**	**3.6 Megajoule (MJ)**

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	8,733.0	9,082.0	11,392.0	13,437.0	13,908.0	15,821.0	16,844.0	18,001.0
Personal Disposable Income ($1997 millions)	8,429.3	8,405.8	8,371.6	9,466.7	9,782.1	11,028.2	11,549.6	12,113.5
Personal Disposable Income per capita ($1997 thousands)	12.6	14.3	16.6	20.0	20.9	24.9	28.0	32.0
Consumer Price Index (1992=100)	93.2	104.4	113.2	121.5	124.4	134.2	141.3	151.0
Unemployment Rate (percent)	16.9	18.1	16.7	16.7	16.6	16.3	15.8	13.9
Gross Domestic Product by Sector ($1997 millions)								
Industry	2,191	1,943	3,161	4,364	4,548	5,483	5,454	5,610
Manufacturing	575	614	760	716	733	666	812	853
Non-manufacturing	1,616	1,329	2,401	3,648	3,815	4,817	4,642	4,757
Utilities	392	432	465	434	442	469	682	698
Services	6,149	6,705	7,768	8,640	8,918	9,869	10,707	11,693
Total Provincial Economy	**8,732**	**9,080**	**11,394**	**13,438**	**13,908**	**15,821**	**16,843**	**18,001**
Floorspace								
Comm. Floorspace (million m^2)	9	10	10	10	11	12	13	14
Population and Labour Force (thousands)								
Population	578.0	567.4	528.0	520.0	519.9	518.7	514.7	507.3
Households	178.2	188.4	193.0	198.7	200.6	209.0	214.6	217.6
Labour Force	249.5	237.1	245.6	267.0	267.8	270.8	264.7	259.4
Employment, Non-Agriculture	207.4	194.3	204.6	222.2	223.4	226.5	222.9	223.1

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.30	15.06	14.96	14.19
Natural Gas					N/A	N/A	N/A	N/A
Electricity					33.90	33.28	31.63	30.99
Commercial								
Petroleum Products					17.99	14.95	14.84	14.08
Natural Gas					N/A	N/A	N/A	N/A
Electricity					23.16	23.92	23.49	22.96
Industrial								
Petroleum Products					14.24	11.40	11.18	10.59
Natural Gas					N/A	N/A	N/A	N/A
Electricity					22.67	22.75	22.16	21.47
Transportation								
Petroleum Products					26.46	22.31	21.70	20.46
Electricity								
Natural Gas					N/A	N/A	N/A	N/A
Thernal Coal					8.47	8.47	8.47	8.47

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					70.78	58.25	57.87	54.87
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					12.21	11.98	11.39	11.16
Commercial								
Petroleum Products (cents/l)					69.59	57.83	57.38	54.48
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					8.34	8.61	8.46	8.27
Industrial								
Petroleum Products (cents/l)					56.98	45.58	44.73	42.38
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					8.16	8.19	7.98	7.73
Transportation								
Petroleum Products(cents/l)					91.70	77.31	75.22	70.91
Electricity								
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Thernal Coal					8.47	8.47	8.47	8.47

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	8.9	7.5	5.6	4.8	4.4	4.4	4.3	4.1
LPG	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	4.7	4.3	3.6	3.8	3.7	3.5	3.2	2.9
Electricity	9.9	10.9	11.2	12.3	12.5	12.8	13.3	13.4
Delivered Energy	**23.7**	**22.9**	**20.5**	**21.1**	**20.8**	**20.8**	**20.8**	**20.5**
Commercial								
Distillate Fuel	3.7	2.9	2.5	3.3	3.5	3.9	4.2	4.6
Residual Fuel	0.6	1.0	1.6	0.0	2.8	2.8	3.1	3.4
LPG	0.2	0.6	0.4	0.5	0.6	0.5	0.6	0.6
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	6.5	7.3	7.2	6.7	7.8	9.0	10.2	11.6
Delivered Energy	**11.0**	**11.8**	**11.7**	**10.4**	**14.7**	**16.3**	**18.1**	**20.3**
Transportation								
Distillate Fuel (diesel)	17.1	14.7	20.6	21.6	20.9	22.6	22.9	23.2
Jet Fuel	13.0	9.2	10.5	12.3	12.1	15.2	16.4	17.8
Motor Gasoline	20.7	20.0	20.3	20.0	19.6	21.2	21.1	21.1
Residual Fuel	1.0	1.4	0.5	0.7	0.7	0.7	0.8	0.8
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Petroleum	0.2	0.2	0.2	0.1	0.0	0.1	0.1	0.1
Petroleum Subtotal	**51.9**	**45.4**	**51.9**	**54.6**	**53.3**	**59.9**	**61.3**	**63.0**
Pipeline Fuel Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered Energy	**52.0**	**45.5**	**51.9**	**54.6**	**53.3**	**59.9**	**61.3**	**63.0**
Industry								
Total End Use Energy	**44.2**	**40.0**	**42.9**	**41.1**	**43.4**	**46.2**	**46.0**	**45.0**
Electricity purchased	17.3	15.7	16.6	12.7	12.6	13.7	13.7	13.3
Natural Gas + NGLs	0.2	0.3	2.5	2.6	0.1	0.1	0.1	0.1
RPP's	20.0	16.0	14.2	13.6	17.5	19.3	19.1	18.7
Coal & Coke	3.7	3.2	4.6	3.7	4.5	5.5	5.4	5.2
Own generation - Hydro	0.0	1.8	2.0	5.4	4.3	4.3	4.3	4.3
Renewables	3.0	3.0	3.0	3.0	4.4	3.3	3.4	3.5
Non-Energy Use	**2.0**	**2.0**	**2.0**	**2.0**	**2.3**	**2.7**	**2.2**	**2.3**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**46.2**	**42.0**	**44.9**	**43.1**	**45.7**	**48.9**	**48.1**	**47.3**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	85.5	73.6	76.3	76.9	82.2	91.0	92.7	94.5
Natural Gas	0.2	0.3	2.5	2.6	0.1	0.1	0.1	0.1
Coal and Coke	3.7	3.2	4.6	3.7	4.5	5.5	5.4	5.2
Electricity purchased	33.7	33.9	35.0	31.7	32.9	35.5	37.1	38.3
Own generation - Hydro	0.0	1.8	2.0	5.4	4.3	4.3	4.3	4.3
Renewables	7.7	7.3	6.6	6.8	8.1	6.8	6.6	6.4
Total	**130.8**	**120.1**	**127.0**	**127.2**	**132.1**	**143.1**	**146.1**	**148.8**
Total Non-Energy	2.0	2.0	2.0	2.0	2.3	2.7	2.2	2.3
Total End-Use Energy Consumption	**132.8**	**122.1**	**129.0**	**129.2**	**134.5**	**145.8**	**148.3**	**151.1**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Combined Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combustion Turbine	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - hydro	6.6	6.6	6.6	6.7	6.7	6.7	6.7	6.7
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**7.4**	**7.3**	**7.3**	**7.3**	**7.4**	**7.4**	**7.5**	**7.5**
Electricity Sales (bil. Kwh)								
Residential	2.8	3.0	3.1	3.4	3.5	3.6	3.7	3.7
Commercial/Other	1.8	2.0	2.0	2.1	2.2	2.5	2.8	3.2
Industrial	4.8	4.4	4.6	3.5	3.7	4.0	4.0	4.0
Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sales	**9.4**	**9.4**	**9.7**	**9.1**	**9.3**	**10.1**	**10.6**	**10.9**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross International Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Interregional Elec. Imp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Interregional Elec. Exp.	26.2	26.7	31.8	29.8	30.3	30.5	30.3	30.3
Net Import	**-26.2**	**-26.7**	**-31.8**	**-29.8**	**-30.3**	**-30.5**	**-30.3**	**-30.3**
Generation by Fuel Type (bil. Kwh)								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum	2.0	1.6	1.0	1.7	0.3	1.5	1.6	1.1
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	34.3	35.8	41.8	38.1	40.3	40.4	40.8	40.8
- Hydro	34.3	35.8	41.8	38.1	40.3	40.3	40.3	40.3
- Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.3
- Other	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Generation	**36.3**	**37.4**	**42.8**	**39.8**	**40.6**	**41.9**	**42.4**	**41.9**
Implied own use & losses	**0.8**	**1.3**	**1.3**	**0.9**	**0.9**	**1.3**	**1.5**	**0.7**
Fuel Requirements								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	21.7	16.8	10.9	17.4	3.9	17.8	19.0	13.5
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	123.6	128.8	150.4	137.2	145.0	145.5	146.7	146.7
Total	**145.2**	**145.6**	**161.3**	**154.6**	**148.9**	**163.3**	**165.8**	**160.2**

Energy Consumption by Energy Supplying Industries
(Petajoules per year)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption								
Petroleum					26.4	32.7	33.5	36.9
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					0.8	0.9	0.9	1.0
Total					**27.1**	**33.6**	**34.4**	**37.8**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					0.0	0.0	0.0	0.0
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)								
Natural Gas (own use)					18.3	19.8	23.2	21.8
Electricity					0.0	0.0	0.0	0.0
NGLs					0.0	0.0	0.0	0.0
Total Energy					**18.3**	**19.8**	**23.2**	**21.8**
Electricity Generation								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	21.7	16.8	10.9	17.4	3.9	17.8	19.0	13.5
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	123.6	128.8	150.4	137.2	145.0	145.5	146.7	146.7
Total	**145.2**	**145.6**	**161.3**	**154.6**	**148.9**	**163.3**	**165.8**	**160.2**
Total								
Petroleum					30.2	50.5	52.6	50.4
Natural Gas					18.3	0.0	0.0	0.0
Coal					0.0	0.0	0.0	0.0
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					145.0	145.5	146.7	146.7
Electricity					0.8	0.9	0.9	1.0
Total					**194.4**	**196.9**	**200.2**	**198.1**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					703.2	481.5	412.1	300.3
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					314.7	215.5	184.5	134.4
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	Forecast 2010	Forecast 2015	Forecast 2020
GREENHOUSE GAS (GHG) EMISSIONS	**10.1**	**8.8**	**9.2**	**10.6**	**9.2**	**10.8**	**11.3**	**11.7**
POWER GENERATION	**1.6**	**1.3**	**0.9**	**1.4**	**0.3**	**0.8**	**0.9**	**1.1**
INDUSTRIAL (Excl. Oil & Gas)	**2.7**	**2.3**	**1.9**	**1.9**	**2.5**	**3.0**	**3.0**	**3.2**
COMBUSTION	2.6	2.2	1.8	1.9	2.5	3.0	3.0	3.1
NON-COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
NON-ENERGY	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 (CEMENT,LIME,SODA ASH)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**0.8**	**0.7**	**0.6**	**0.5**	**0.4**	**0.4**	**0.4**	**0.4**
COMMERCIAL & PUBLIC ADMIN	**0.3**	**0.3**	**0.3**	**0.5**	**0.5**	**0.5**	**0.6**	**0.6**
OIL AND GAS INDUSTRIES	**0.0**	**0.0**	**0.8**	**1.5**	**1.6**	**1.9**	**2.1**	**2.1**
COMBUSTION	0.0	0.0	0.6	0.7	0.6	0.9	1.2	1.3
FUGITIVES	0.0	0.0	0.3	0.8	1.0	0.9	0.9	0.8
TRANSPORTATION	**3.4**	**3.1**	**3.6**	**3.7**	**3.3**	**3.7**	**3.7**	**3.7**
OTHERS	**1.1**	**1.1**	**1.1**	**1.1**	**0.5**	**0.6**	**0.7**	**0.8**
AGROECOSYSTEMS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WASTE	1.1	1.0	1.0	0.9	0.4	0.4	0.4	0.5
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	2,329.0	2,436.0	2,866.0	3,063.0	3,159.0	3,460.0	3,749.0	4,077.0
Personal Disposable Income ($1997 millions)	2,094.2	2,126.6	2,281.9	2,502.1	2,589.6	2,864.6	3,015.3	3,153.1
Personal Disposable Income per capita ($1997 thousands)	13.9	15.3	17.5	20.0	20.7	24.2	27.3	30.8
Consumer Price Index (1992=100)	92.3	103.3	111.7	120.4	122.2	132.2	140.2	150.2
Unemployment Rate (percent)	14.6	15.0	12.0	11.8	11.9	12.7	12.0	10.5
Gross Domestic Product by Sector ($1997 millions)								
Industry	594	535	627	577	595	634	692	739
Manufacturing	183	194	274	280	290	315	343	367
Non-manufacturing	411	341	353	297	305	319	349	372
Utilities	27	29	35	36	37	39	41	43
Services	1,707	1,871	2,204	2,449	2,527	2,786	3,016	3,295
Total Provincial Economy	**2,328**	**2,435**	**2,866**	**3,062**	**3,159**	**3,459**	**3,749**	**4,077**
Floorspace								
Comm. Floorspace (million m^2)	2	2	2	2	2	3	3	4
Population and Labour Force (thousands)								
Population	130.5	134.4	136.5	138.0	138.2	138.8	139.1	138.6
Households	44.0	48.5	51.8	54.6	55.1	57.4	59.3	60.7
Labour Force	64.2	67.4	73.3	78.0	79.1	80.5	80.4	79.7
Employment, Non-Agriculture	54.8	57.3	64.5	69.0	69.7	70.3	70.7	71.3

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					16.99	13.98	13.89	13.17
Natural Gas					N/A	N/A	N/A	N/A
Electricity					36.81	33.76	32.50	31.97
Commercial								
Petroleum Products					16.18	13.33	13.23	12.56
Natural Gas					N/A	N/A	N/A	N/A
Electricity					34.37	30.36	29.68	29.72
Industrial								
Petroleum Products					13.09	10.44	10.39	9.87
Natural Gas					N/A	N/A	N/A	N/A
Electricity					31.33	27.78	27.32	27.02
Transportation								
Petroleum Products					24.74	20.90	20.32	19.18
Electricity								
Natural Gas					N/A	N/A	N/A	N/A
Thernal Coal					21.21	21.21	21.21	21.21

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					65.73	54.08	53.72	50.93
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					13.25	12.15	11.70	11.51
Commercial								
Petroleum Products (cents/l)					62.59	51.55	51.17	48.59
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					12.37	10.93	10.69	10.70
Industrial								
Petroleum Products (cents/l)					52.37	41.75	41.56	39.50
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Electricity(cents/KWh)					11.28	10.00	9.84	9.73
Transportation								
Petroleum Products(cents/l)					85.76	72.44	70.41	66.49
Electricity								
Natural Gas ($/GJ)					N/A	N/A	N/A	N/A
Thernal Coal					21.21	21.21	21.21	21.21

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	4.7	3.6	3.7	3.3	3.1	3.1	3.1	3.1
LPG	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.4
Electricity	0.9	0.9	1.0	0.6	0.6	0.6	0.6	0.6
Delivered Energy	**6.3**	**5.1**	**5.2**	**4.6**	**4.3**	**4.4**	**4.3**	**4.4**
Commercial								
Distillate Fuel	1.8	2.2	2.4	3.0	2.9	3.4	3.7	4.3
Residual Fuel	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
LPG	0.2	0.2	0.2	0.4	0.5	0.5	0.5	0.6
Natural Gas				0.0	0.0	0.0	0.0	0.0
Coal				0.0	0.0	0.0	0.0	0.0
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	1.0	1.2	1.5	1.5	1.7	2.0	2.3	2.7
Delivered Energy	**3.1**	**3.7**	**4.2**	**4.9**	**5.0**	**5.9**	**6.6**	**7.5**
Transportation								
Distillate Fuel (diesel)	2.5	2.3	3.6	3.6	3.6	3.8	3.9	3.9
Jet Fuel	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2
Motor Gasoline	6.1	6.4	7.1	8.0	7.9	8.4	8.4	8.4
Residual Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum Subtotal	**8.8**	**8.8**	**10.9**	**11.8**	**11.6**	**12.4**	**12.5**	**12.5**
Pipeline Fuel Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered Energy	**8.8**	**8.8**	**10.9**	**11.7**	**11.6**	**12.4**	**12.5**	**12.5**
Industry								
Total End Use Energy	**2.8**	**3.2**	**4.4**	**4.6**	**4.2**	**4.2**	**4.3**	**4.4**
Electricity purchased	0.5	0.6	0.9	1.6	1.4	1.4	1.4	1.4
Natural Gas + NGLs	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0
RPP's	2.2	2.5	3.3	3.0	2.8	2.8	2.9	2.9
Coal & Coke	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non-Energy Use	**0.5**	**0.5**	**0.5**	**0.5**	**0.4**	**0.5**	**0.5**	**0.5**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**3.3**	**3.7**	**4.9**	**5.1**	**4.7**	**4.7**	**4.8**	**4.9**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	9.0	8.7	9.8	9.9	9.4	10.0	10.4	11.1
Natural Gas	0.1	0.1	0.2	0.0	0.0	0.0	0.0	0.0
Coal and Coke	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity purchased	11.2	11.5	14.3	15.4	15.3	16.4	16.9	17.3
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	0.6	0.5	0.4	0.5	0.5	0.5	0.5	0.4
Total	**20.9**	**20.8**	**24.7**	**25.8**	**25.2**	**26.9**	**27.8**	**28.8**
Total Non-Energy	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5
Total End-Use Energy Consumption	**21.4**	**21.3**	**25.2**	**26.3**	**25.7**	**27.3**	**28.3**	**29.4**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Fossil Steam	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06
Combined Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Combustion Turbine	0.07	0.07	0.04	0.04	0.04	0.04	0.04	0.04
Nuclear Power	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewable - hydro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewable - wind	0.00	0.00	0.00	0.01	0.01	0.08	0.08	0.08
Renewable - other	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.02
Total Capability	**0.12**	**0.12**	**0.11**	**0.12**	**0.12**	**0.20**	**0.21**	**0.21**
Electricity Sales (bil. Kwh)								
Residential	0.24	0.26	0.28	0.16	0.16	0.16	0.17	0.18
Commercial/Other	0.29	0.33	0.42	0.46	0.47	0.56	0.64	0.74
Industrial	0.14	0.17	0.26	0.44	0.38	0.38	0.39	0.40
Transportation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Sales	**0.67**	**0.76**	**0.96**	**1.06**	**1.01**	**1.10**	**1.21**	**1.31**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross International Exports	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Interregional Elec. Imp.	0.67	0.82	0.99	1.25	0.97	0.79	0.73	0.85
Gross Interregional Elec. Exp.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Net Import	**0.67**	**0.82**	**0.99**	**1.25**	**0.97**	**0.79**	**0.73**	**0.84**
Generation by Fuel Type (bil. Kwh)								
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Petroleum	0.08	0.02	0.05	0.01	0.05	0.05	0.09	0.09
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewables	0.00	0.00	0.00	0.04	0.06	0.33	0.45	0.45
- Hydro	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
- Wind	0.00	0.00	0.00	0.04	0.04	0.29	0.29	0.29
- Other	0.00	0.00	0.00	0.00	0.01	0.05	0.16	0.16
Total Generation	**0.08**	**0.02**	**0.05**	**0.06**	**0.10**	**0.38**	**0.54**	**0.54**
Implied own use & losses	**0.08**	**0.07**	**0.08**	**0.25**	**0.07**	**0.06**	**0.07**	**0.07**
Fuel Requirements								
Coal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Natural Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Oil	1.35	0.50	0.75	0.24	0.65	0.65	1.19	1.21
Nuclear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Renewable Energy	0.00	0.00	0.00	0.16	0.21	1.20	1.62	1.62
Total	**1.35**	**0.50**	**0.75**	**0.40**	**0.86**	**1.85**	**2.81**	**2.83**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption								
Petroleum								
Natural Gas								
Purchased Electricity								
Total	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas								
Oil and Gas								
Still Gas								
Diesel								
Petroleum Coke								
Natural Gas (purchased)								
Natural Gas (own use)								
Electricity								
NGLs	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Energy								
Electricity Generation								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	1.4	0.5	0.8	0.2	0.7	0.7	1.2	1.2
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.0	0.0	0.0	0.2	0.2	1.2	1.6	1.6
Total	**1.4**	**0.5**	**0.8**	**0.4**	**0.9**	**1.8**	**2.8**	**2.8**
Total								
Petroleum					0.7	0.7	1.2	1.2
Natural Gas					0.0	0.0	0.0	0.0
Coal					0.0	0.0	0.0	0.0
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					0.2	1.2	1.6	1.6
Electricity					0.0	0.0	0.0	0.0
Total					**0.9**	**1.8**	**2.8**	**2.8**

Crude Oil and Natural Gas Production
(Petajoules Per Year)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil								
Heavy Oil								
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas								
Coalbed Methane								

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**2.1**	**2.0**	**2.3**	**2.3**	**2.2**	**2.2**	**2.3**	**2.4**
POWER GENERATION	**0.1**	**0.0**	**0.1**	**0.0**	**0.0**	**0.0**	**0.1**	**0.1**
INDUSTRIAL (Excl. Oil & Gas)	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**
COMBUSTION	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2
NON-COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NON-ENERGY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 (CEMENT,LIME,SODA ASH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**0.4**	**0.4**	**0.4**	**0.3**	**0.2**	**0.2**	**0.2**	**0.2**
COMMERCIAL & PUBLIC ADMIN	**0.2**	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**
OIL AND GAS INDUSTRIES	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVES	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TRANSPORTATION	**0.7**	**0.7**	**0.9**	**0.9**	**0.9**	**0.9**	**1.0**	**1.0**
OTHERS	**0.6**	**0.7**	**0.7**	**0.7**	**0.6**	**0.5**	**0.5**	**0.5**
AGROECOSYSTEMS	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4
WASTE	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	16,762.0	17,698.0	20,730.0	22,769.0	23,542.0	26,074.0	28,475.0	31,137.0
Personal Disposable Income ($1997 millions)	15,301.7	15,384.0	16,563.1	17,711.0	18,394.7	20,574.8	21,971.0	23,267.6
Personal Disposable Income per capita ($1997 thousands)	14.6	16.0	18.8	21.1	22.3	26.4	30.2	34.3
Consumer Price Index (1992=100)	93.6	103.7	114.2	123.5	127.0	138.2	146.1	155.3
Unemployment Rate (percent)	10.5	12.1	9.1	9.7	9.5	9.5	8.5	6.6
Gross Domestic Product by Sector ($1997 millions)								
Industry	3,767	3,514	4,307	4,587	4,733	5,118	5,621	6,078
Manufacturing	1,662	1,782	2,418	2,619	2,709	2,978	3,287	3,587
Non-manufacturing	2,105	1,732	1,889	1,968	2,024	2,140	2,334	2,491
Utilities	403	444	501	505	514	545	576	604
Services	12,592	13,740	15,923	17,677	18,295	20,411	22,278	24,455
Total Provincial Economy	**16,762**	**17,698**	**20,731**	**22,769**	**23,542**	**26,074**	**28,475**	**31,137**
Floorspace								
Comm. Floorspace (million m^2)	13	14	15	16	16	18	20	22
Population and Labour Force (thousands)								
Population	909.6	928.2	933.9	937.0	938.6	942.5	942.7	938.3
Households	317.9	339.0	360.0	371.6	375.0	390.9	403.8	413.2
Labour Force	432.0	428.9	461.6	485.0	489.4	496.8	495.8	491.7
Employment, Non-Agriculture	386.5	377.1	419.5	437.7	442.8	449.6	453.6	459.1

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.93	15.69	15.59	14.78
Natural Gas					13.73	12.68	10.45	11.00
Electricity					34.97	32.63	30.54	30.08
Commercial								
Petroleum Products					16.81	13.68	13.54	12.81
Natural Gas					13.73	12.68	10.45	11.00
Electricity					23.49	22.41	20.89	20.60
Industrial								
Petroleum Products					14.49	11.57	11.49	11.03
Natural Gas					9.86	9.38	7.34	7.87
Electricity					22.04	20.29	18.65	18.19
Transportation								
Petroleum Products					24.63	20.58	19.98	18.84
Electricity								
Natural Gas					9.86	9.38	7.34	7.87
Thernal Coal					2.39	2.39	2.39	2.39
(2003 cdn Dollars)								
Residential								
Petroleum Products (cents/l)					73.21	60.69	60.30	57.17
Natural Gas ($/GJ)					13.73	12.68	10.45	11.00
Electricity(cents/KWh)					12.59	11.75	10.99	10.83
Commercial								
Petroleum Products (cents/l)					65.01	52.90	52.36	49.55
Natural Gas ($/GJ)					13.73	12.68	10.45	11.00
Electricity(cents/KWh)					8.46	8.07	7.52	7.42
Industrial								
Petroleum Products (cents/l)					57.95	46.27	45.96	44.13
Natural Gas ($/GJ)					9.86	9.38	7.34	7.87
Electricity(cents/KWh)					7.93	7.30	6.71	6.55
Transportation								
Petroleum Products(cents/l)					85.37	71.34	69.25	65.30
Electricity								
Natural Gas ($/GJ)					9.86	9.38	7.34	7.87
Thernal Coal					2.39	2.39	2.39	2.39

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	25.9	19.6	21.8	14.7	13.6	13.7	13.2	13.1
LPG	1.0	0.4	0.5	0.7	0.6	0.6	0.6	0.5
Natural Gas	0.0	0.0	0.0	0.0	0.3	0.5	0.8	1.1
Coal	0.9	0.6	0.4	0.0	0.0	0.0	0.0	0.0
Renewable Energy	4.2	4.6	4.5	4.6	4.7	4.7	4.9	5.0
Electricity	12.1	12.6	13.3	14.8	14.8	15.9	16.8	17.6
Delivered Energy	**44.1**	**37.8**	**40.5**	**34.8**	**34.1**	**35.4**	**36.4**	**37.3**
Commercial								
Distillate Fuel	8.1	8.3	8.5	18.5	17.1	18.4	18.6	19.2
Residual Fuel	2.0	2.0	2.9	7.0	7.8	8.2	9.1	10.1
LPG	1.1	1.0	1.4	2.1	2.5	2.5	2.8	3.0
Natural Gas				0.0	0.2	0.4	0.6	0.8
Coal				0.0	0.0	0.0	0.0	0.0
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	9.7	10.1	11.2	12.0	12.3	14.4	16.7	19.2
Delivered Energy	**20.9**	**21.4**	**24.1**	**39.5**	**39.9**	**43.8**	**47.8**	**52.3**
Transportation								
Distillate Fuel (diesel)	20.3	21.3	23.2	24.3	24.2	26.0	26.9	27.4
Jet Fuel	7.1	7.2	7.3	10.2	9.9	12.5	13.5	14.7
Motor Gasoline	39.1	40.2	42.4	43.3	42.7	45.9	46.5	47.1
Residual Fuel	7.8	7.5	10.2	5.7	5.9	6.1	6.5	6.7
Liquefied Petroleum Gas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other Petroleum	0.3	0.4	0.3	0.2	0.1	0.1	0.1	0.1
Petroleum Subtotal	**74.5**	**76.3**	**83.1**	**83.7**	**82.9**	**90.6**	**93.5**	**96.0**
Pipeline Fuel Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered Energy	**74.6**	**76.3**	**83.1**	**83.5**	**82.9**	**90.6**	**93.5**	**96.0**
Industry								
Total End Use Energy	**38.2**	**41.6**	**44.7**	**43.2**	**40.3**	**39.8**	**40.1**	**40.5**
Electricity purchased	9.6	10.5	13.0	14.4	12.9	12.7	12.8	12.9
Natural Gas + NGLs	0.8	0.6	1.0	0.2	0.2	0.2	0.2	0.2
RPP's	14.8	17.3	17.0	15.4	13.0	12.9	13.1	13.3
Coal & Coke	0.9	1.1	1.5	1.2	1.4	1.4	1.5	1.5
Own generation - Hydro	0.0	0.1	0.1	0.1	0.6	0.6	0.6	0.6
Renewables	12.0	12.0	12.0	12.0	12.2	11.9	11.9	11.9
Non-Energy Use	**4.0**	**4.0**	**4.0**	**4.0**	**4.0**	**4.2**	**4.7**	**5.0**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**42.2**	**45.6**	**48.7**	**47.2**	**44.3**	**44.0**	**44.7**	**45.5**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	127.4	125.0	135.2	142.0	137.6	146.9	150.9	155.2
Natural Gas	0.8	0.6	1.0	0.2	0.7	1.1	1.7	2.1
Coal and Coke	1.8	1.7	1.9	1.2	1.4	1.4	1.5	1.5
Electricity purchased	31.4	33.2	37.5	41.2	40.0	43.0	46.3	49.7
Own generation - Hydro	0.0	0.1	0.1	0.1	0.6	0.6	0.6	0.6
Renewables	16.2	16.6	16.5	16.6	16.9	16.6	16.8	16.9
Total	**177.7**	**177.1**	**192.3**	**201.3**	**197.2**	**209.6**	**217.8**	**226.0**
Total Non-Energy	4.0	4.0	4.0	4.0	4.0	4.2	4.7	5.0
Total End-Use Energy Consumption	**181.7**	**181.1**	**196.3**	**205.3**	**201.2**	**213.8**	**222.4**	**231.0**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	1.2	1.5	1.3	1.1	1.2	1.4	1.5	1.6
Other Fossil Steam	0.4	0.4	0.4	0.5	0.3	0.3	0.3	0.3
Combined Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Combustion Turbine	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.4
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Renewable - wind	0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.3
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**2.1**	**2.4**	**2.3**	**2.4**	**2.4**	**2.9**	**3.1**	**3.3**
Electricity Sales (bil. Kwh)								
Residential	3.4	3.5	3.7	4.1	4.1	4.4	4.7	4.9
Commercial/Other	2.7	2.8	3.1	3.3	3.4	4.0	4.6	5.3
Industrial	2.6	2.5	3.6	4.0	3.7	3.7	3.7	3.8
Transportation	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Sales	**8.7**	**8.8**	**10.4**	**11.4**	**11.3**	**12.1**	**13.1**	**14.0**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross International Exports	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Gross Interregional Elec. Imp.	0.2	0.5	0.0	0.0	0.6	0.3	0.2	0.1
Gross Interregional Elec. Exp.	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1
Net Import	**0.2**	**0.5**	**-0.1**	**-0.2**	**0.6**	**0.3**	**0.2**	**0.0**
Generation by Fuel Type (bil. Kwh)								
Coal	5.8	7.0	9.0	7.6	8.7	10.1	10.9	11.8
Petroleum	2.2	1.3	1.5	3.8	1.3	0.1	0.1	0.1
Natural Gas	0.0	0.0	0.0	0.1	0.0	0.2	0.6	0.7
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	1.1	0.9	1.0	1.1	1.4	2.1	2.1	2.1
- Large Hydro	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9
- Wind	0.0	0.0	0.0	0.0	0.3	1.0	1.0	1.0
- Other	0.0	0.0	0.2	0.2	0.2	0.3	0.3	0.3
Total Generation	**9.1**	**9.2**	**11.5**	**12.6**	**11.5**	**12.6**	**13.6**	**14.8**
Implied own use & losses	**0.6**	**0.8**	**1.0**	**1.0**	**0.7**	**0.7**	**0.8**	**0.8**
Fuel Requirements								
Coal	62.2	73.1	98.1	78.2	95.2	107.9	114.9	121.7
Natural Gas	0.0	0.0	0.0	1.0	0.0	1.5	4.7	4.6
Oil	23.6	13.7	16.4	39.3	15.2	1.6	0.6	1.6
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	4.1	3.3	3.7	3.9	5.0	7.6	7.6	7.6
Total	**89.9**	**90.0**	**118.2**	**122.6**	**115.5**	**118.6**	**127.9**	**135.6**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					7.2	11.4	12.5	15.2
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					0.2	0.3	0.3	0.3
Total					**7.5**	**11.7**	**12.7**	**15.5**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					0.0	0.0	0.0	0.0
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)								
Natural Gas (own use)					15.9	16.6	15.6	15.8
Electricity					0.3	0.4	0.3	0.3
NGLs					1.6	1.7	1.6	1.6
Total Energy					**17.9**	**18.6**	**17.5**	**17.7**
Electricity Generation								
Coal	62.2	73.1	98.1	78.2	95.2	107.9	114.9	121.7
Natural Gas	0.0	0.0	0.0	1.0	0.0	1.5	4.7	4.6
Oil	23.6	13.7	16.4	39.3	15.2	1.6	0.6	1.6
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	4.1	3.3	3.7	3.9	5.0	7.6	7.6	7.6
Total	**89.9**	**90.0**	**118.2**	**122.6**	**115.5**	**118.6**	**127.9**	**135.6**
Total								
Petroleum					22.4	13.0	13.1	16.9
Natural Gas					15.9	18.1	20.3	20.4
Coal					95.2	107.9	114.9	121.7
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					5.0	7.6	7.6	7.6
Electricity					0.6	0.6	0.6	0.6
Total					**139.2**	**147.2**	**156.6**	**167.2**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					221.5	227.4	221.3	219.7
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					210.9	216.6	210.7	209.3
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector
(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**19.7**	**19.3**	**21.6**	**23.1**	**24.1**	**25.2**	**26.4**	**27.8**
POWER GENERATION	**6.8**	**6.9**	**8.8**	**9.3**	**9.9**	**10.1**	**10.9**	**11.6**
INDUSTRIAL (Excl. Oil & Gas)	**2.9**	**2.8**	**1.5**	**1.5**	**1.5**	**1.8**	**1.9**	**2.2**
COMBUSTION	1.5	1.6	0.9	0.9	1.3	1.6	1.7	1.9
NON-COMBUSTION	1.3	0.9	0.3	0.3	0.0	0.0	0.0	0.1
NON-ENERGY	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.2
CO_2 (CEMENT,LIME,SODA ASH)	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**2.3**	**1.9**	**2.1**	**1.4**	**1.1**	**1.2**	**1.1**	**1.1**
COMMERCIAL & PUBLIC ADMIN	**0.8**	**0.8**	**0.9**	**2.0**	**2.0**	**2.1**	**2.2**	**2.4**
OIL AND GAS INDUSTRIES	**0.0**	**0.0**	**0.9**	**1.0**	**2.2**	**2.2**	**2.1**	**2.1**
COMBUSTION	0.0	0.0	0.9	1.0	1.2	1.2	1.2	1.2
FUGITIVES	0.0	0.0	0.1	0.1	1.0	1.0	0.9	0.9
TRANSPORTATION	**5.1**	**5.3**	**5.7**	**6.4**	**5.9**	**6.3**	**6.5**	**6.6**
OTHERS	**1.7**	**1.7**	**1.6**	**1.6**	**1.6**	**1.7**	**1.8**	**2.0**
AGROECOSYSTEMS	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5
WASTE	1.2	1.1	1.0	0.9	0.9	0.9	1.0	1.0
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	13,812.0	14,645.0	17,308.0	18,886.0	19,446.0	21,416.0	23,320.0	25,354.0
Personal Disposable Income ($1997 millions)	11,615.3	12,105.3	13,023.2	13,468.2	13,971.0	15,574.1	16,577.8	17,451.3
Personal Disposable Income per capita ($1997 thousands)	13.7	15.6	18.3	20.3	21.4	25.2	28.8	32.9
Consumer Price Index (1992=100)	93.3	103.4	112.8	124.3	127.5	138.0	145.8	156.1
Unemployment Rate (percent)	12.1	11.2	10.0	10.2	10.0	9.2	7.6	5.4
Gross Domestic Product by Sector ($1997 millions)								
Industry	3,914	3,796	4,507	4,595	4,699	5,024	5,448	5,743
Manufacturing	1,964	2,067	2,632	2,757	2,798	3,020	3,274	3,437
Non-manufacturing	1,950	1,729	1,875	1,838	1,901	2,004	2,174	2,306
Utilities	545	600	686	680	692	732	770	804
Services	9,353	10,248	12,115	13,611	14,055	15,660	17,102	18,807
Total Provincial Economy	**13,812**	**14,644**	**17,308**	**18,886**	**19,446**	**21,416**	**23,320**	**25,354**
Floorspace								
Comm. Floorspace (million m^2)	10	11	11	12	12	13	15	16
Population and Labour Force (thousands)								
Population	740.1	751.0	750.5	751.0	752.0	752.9	750.3	743.9
Households	255.8	270.7	283.2	293.9	296.4	307.8	316.4	322.3
Labour Force	341.2	349.1	371.7	390.0	392.7	396.8	393.7	388.3
Employment, Non-Agriculture	299.8	309.9	334.4	349.8	353.6	360.4	363.7	367.4

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					19.51	16.28	16.17	15.31
Natural Gas					13.77	12.73	10.49	11.04
Electricity					28.20	25.06	25.10	25.49
Commercial								
Petroleum Products					15.57	12.61	12.43	11.74
Natural Gas					13.77	12.73	10.49	11.04
Electricity					29.50	26.22	26.25	26.66
Industrial								
Petroleum Products					13.33	10.53	10.48	10.77
Natural Gas					9.90	9.42	7.38	7.91
Electricity					16.80	15.24	16.56	17.09
Transportation								
Petroleum Products					26.13	21.99	21.35	20.16
Electricity								
Natural Gas					9.90	9.42	7.38	7.91
Thermal Coal					2.39	2.39	2.39	2.39
(2003 cdn Dollars)								
Residential								
Petroleum Products (cents/l)					75.47	62.97	62.55	59.23
Natural Gas ($/GJ)					13.77	12.73	10.49	11.04
Electricity(cents/KWh)					10.15	9.02	9.03	9.18
Commercial								
Petroleum Products (cents/l)					60.22	48.76	48.08	45.41
Natural Gas ($/GJ)					13.77	12.73	10.49	11.04
Electricity(cents/KWh)					10.62	9.44	9.45	9.60
Industrial								
Petroleum Products (cents/l)					53.31	42.10	41.93	43.08
Natural Gas ($/GJ)					9.90	9.42	7.38	7.91
Electricity(cents/KWh)					6.05	5.49	5.96	6.15
Transportation								
Petroleum Products(cents/l)					90.58	76.23	74.01	69.86
Electricity								
Natural Gas ($/GJ)					9.90	9.42	7.38	7.91
Thermal Coal					2.39	2.39	2.39	2.39

Note: Electricity prices refletct rates in effect for 2005. Subsequent rates track fluctuations in energy prices.

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	12.3	8.9	7.9	5.8	5.4	5.5	5.3	5.3
LPG	0.7	0.6	1.0	0.4	0.3	0.4	0.4	0.6
Natural Gas	0.0	0.0	0.0	0.8	0.9	1.5	2.4	3.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	5.3	5.5	6.5	6.6	6.6	6.6	7.0	7.1
Electricity	16.2	17.2	17.9	19.9	19.3	20.2	20.7	20.9
Delivered Energy	**34.5**	**32.2**	**33.3**	**33.4**	**32.5**	**34.2**	**35.7**	**37.0**
Commercial								
Distillate Fuel	5.5	4.3	3.3	4.3	3.9	4.2	4.2	4.3
Residual Fuel	1.9	1.9	3.0	6.8	7.6	7.8	8.5	9.3
LPG	0.7	1.6	2.5	1.9	2.2	2.1	2.3	2.5
Natural Gas	0.0	0.0	0.0	1.0	1.0	1.7	2.7	3.5
Coal				0.0	0.0	0.0	0.0	0.0
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	8.3	9.1	10.2	10.5	10.5	12.2	13.5	14.9
Delivered Energy	**16.4**	**16.9**	**19.1**	**24.3**	**25.2**	**27.9**	**31.2**	**34.4**
Transportation								
Distillate Fuel (diesel)	18.2	23.3	31.5	30.9	30.8	32.9	33.9	34.4
Jet Fuel	1.2	1.5	3.0	2.4	2.3	2.9	3.2	3.4
Motor Gasoline	33.1	32.9	35.2	36.6	36.0	38.5	38.9	39.2
Residual Fuel	3.1	2.9	3.0	0.7	0.7	0.7	0.8	0.8
Liquefied Petroleum Gas	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Other Petroleum	0.3	0.3	0.3	0.2	0.1	0.1	0.1	0.1
Petroleum Subtotal	**55.7**	**60.8**	**72.8**	**70.8**	**70.0**	**75.2**	**76.9**	**77.9**
Pipeline Fuel Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered Energy	**55.8**	**60.9**	**72.9**	**70.6**	**70.0**	**75.2**	**76.9**	**78.0**
Industry								
Total End Use Energy	**74.8**	**79.1**	**90.8**	**88.7**	**93.6**	**87.1**	**87.2**	**87.1**
Electricity purchased	17.6	20.5	21.3	22.1	19.3	19.2	19.1	19.0
Natural Gas + NGLs	0.6	0.9	1.8	1.2	7.5	7.6	7.7	7.6
RPP's	24.5	24.0	24.6	21.6	22.1	22.3	22.4	22.4
Coal & Coke	0.7	1.3	1.1	0.5	1.5	1.7	1.6	1.6
Own generation - Hydro	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Renewables	31.1	32.2	41.7	43.1	42.9	36.2	36.2	36.2
Non-Energy Use	**2.4**	**2.4**	**2.4**	**2.4**	**2.8**	**2.9**	**3.2**	**3.4**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**77.2**	**81.5**	**93.2**	**91.1**	**96.4**	**90.0**	**90.4**	**90.5**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	101.3	102.1	115.1	111.4	111.5	117.4	120.0	122.3
Natural Gas	0.6	0.9	1.8	2.9	9.5	10.8	12.8	14.2
Coal and Coke	0.7	1.3	1.1	0.5	1.5	1.7	1.6	1.6
Electricity purchased	42.1	46.8	49.5	52.4	49.1	51.6	53.3	54.8
Own generation - Hydro	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Renewables	36.4	37.7	48.2	49.7	49.5	42.8	43.1	43.3
Total	**181.4**	**189.0**	**215.9**	**217.2**	**221.3**	**224.5**	**231.1**	**236.4**
Total Non-Energy	2.4	2.4	2.4	2.4	2.8	2.9	3.2	3.4
Total End-Use Energy Consumption	**183.8**	**191.4**	**218.3**	**219.6**	**224.0**	**227.4**	**234.3**	**239.9**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.4	0.9	0.6	0.5	0.5	0.5	0.5	0.5
Other Fossil Steam	1.3	1.3	1.4	1.3	1.3	1.3	1.3	1.3
Combined Cycle	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.3
Combustion Turbine	0.1	0.6	0.4	0.5	0.4	0.4	0.4	0.4
Nuclear Power	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Renewable - large hydro	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.5
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**3.4**	**4.7**	**4.0**	**3.9**	**4.1**	**4.1**	**4.3**	**4.5**
Electricity Sales (bil. Kwh)								
Residential	4.5	4.8	5.0	5.5	5.4	5.6	5.8	5.8
Commercial/Other	2.3	2.5	2.8	2.9	2.9	3.4	3.7	4.1
Industrial	5.7	5.4	5.8	6.0	5.7	5.7	5.7	5.7
Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sales	**12.5**	**12.7**	**13.6**	**14.4**	**14.0**	**14.7**	**15.2**	**15.6**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Gross International Exports	4.3	3.7	4.4	2.3	0.9	1.3	1.9	2.3
Gross Interregional Elec. Imp.	0.6	5.2	1.2	0.0	0.5	0.6	0.6	0.6
Gross Interregional Elec. Exp.	0.0	0.0	0.0	2.1	2.4	1.7	2.1	1.2
Net Import	**-3.5**	**1.5**	**-3.2**	**-4.4**	**-2.7**	**-2.4**	**-3.3**	**-2.9**
Generation by Fuel Type (bil. Kwh)								
Coal	1.3	3.4	3.6	3.0	3.0	3.6	3.3	3.5
Petroleum	5.9	4.3	7.4	8.2	6.3	6.4	7.4	7.3
Natural Gas	0.0	0.0	0.0	1.1	0.5	0.6	1.4	1.6
Nuclear	5.3	1.6	4.0	4.3	4.7	4.7	4.7	4.7
Renewables	3.5	2.6	3.2	3.0	2.9	3.1	3.8	4.4
- Hydro	3.5	2.6	3.2	3.0	2.9	2.9	2.9	2.9
- Wind	0.0	0.0	0.0	0.0	0.0	0.1	0.9	1.4
- Other	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Generation	**16.0**	**12.0**	**18.2**	**19.6**	**17.4**	**18.4**	**20.7**	**21.6**
Implied own use & losses	**0.0**	**0.9**	**1.5**	**0.8**	**0.7**	**1.2**	**2.2**	**3.1**
Fuel Requirements								
Coal	13.6	37.3	36.4	35.7	33.4	39.6	37.1	39.1
Natural Gas	0.0	0.0	0.0	13.5	4.0	5.0	11.0	13.2
Oil	62.3	46.7	74.7	98.1	71.5	72.7	84.5	83.0
Nuclear	61.9	18.3	45.9	49.9	54.6	54.6	54.6	54.6
Renewable Energy	12.5	9.5	11.6	10.6	10.4	11.1	13.9	15.8
Total	**150.2**	**111.8**	**168.6**	**207.8**	**173.8**	**183.0**	**201.0**	**205.7**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					27.7	46.1	50.2	62.6
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					1.1	1.4	1.3	1.5
Total					**28.8**	**47.4**	**51.6**	**64.0**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					0.0	0.0	0.0	0.0
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)					0.0	0.0	0.0	0.0
Natural Gas (own use)								
Electricity					0.0	0.0	0.0	0.0
NGLs					0.0	0.0	0.0	0.0
Total Energy					**0.0**	**0.0**	**0.0**	**0.0**
Electricity Generation								
Coal	13.6	37.3	36.4	35.7	33.4	39.6	37.1	39.1
Natural Gas	0.0	0.0	0.0	13.5	4.0	5.0	11.0	13.2
Oil	62.3	46.7	74.7	98.1	71.5	72.7	84.5	83.0
Nuclear	61.9	18.3	45.9	49.9	54.6	54.6	54.6	54.6
Renewable Energy	12.5	9.5	11.6	10.6	10.4	11.1	13.9	15.8
Total	**150.2**	**111.8**	**168.6**	**207.8**	**173.8**	**183.0**	**201.0**	**205.7**
Total								
Petroleum					99.2	118.8	134.7	145.6
Natural Gas					4.0	5.0	11.0	13.2
Coal					33.4	39.6	37.1	39.1
Nuclear Power					54.6	54.6	54.6	54.6
Renewable Energy					10.4	11.1	13.9	15.8
Electricity					1.1	1.4	1.3	1.5
Total					**202.6**	**230.4**	**252.6**	**269.8**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector
(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**16.4**	**17.4**	**20.8**	**24.2**	**20.9**	**23.5**	**25.2**	**26.7**
POWER GENERATION	**6.0**	**6.9**	**8.6**	**10.9**	**8.5**	**9.2**	**10.1**	**10.3**
INDUSTRIAL (Excl. Oil & Gas)	**2.9**	**2.9**	**3.3**	**4.3**	**4.0**	**5.4**	**5.8**	**6.7**
COMBUSTION	2.7	2.6	3.1	4.0	3.8	5.3	5.6	6.6
NON-COMBUSTION	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1
NON-ENERGY	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CO_2 (CEMENT,LIME,SODA ASH)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**1.3**	**1.0**	**0.9**	**0.8**	**0.6**	**0.6**	**0.7**	**0.7**
COMMERCIAL & PUBLIC ADMIN	**0.6**	**0.6**	**0.6**	**1.0**	**1.0**	**1.1**	**1.2**	**1.3**
OIL AND GAS INDUSTRIES	**0.0**	**0.0**	**0.0**	**0.0**	**0.3**	**0.4**	**0.4**	**0.4**
COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVES	0.0	0.0	0.0	0.0	0.3	0.4	0.4	0.4
TRANSPORTATION	**4.1**	**4.5**	**5.6**	**5.6**	**5.3**	**5.6**	**5.7**	**5.8**
OTHERS	**1.6**	**1.6**	**1.8**	**1.6**	**1.3**	**1.3**	**1.4**	**1.6**
AGROECOSYSTEMS	0.5	0.4	0.5	0.5	0.4	0.4	0.4	0.4
WASTE	1.1	1.2	1.2	1.1	0.8	0.8	0.8	0.9
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.3

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	154,769.0	166,131.0	202,922.0	221,874.0	230,156.0	258,482.0	285,727.0	316,398.0
Personal Disposable Income ($1997 millions)	120,523.1	121,234.9	132,107.5	147,953.6	154,079.4	178,957.5	198,121.7	218,030.7
Personal Disposable Income per capita ($1997 thousands)	15.0	16.3	18.9	22.0	23.1	28.1	32.6	37.1
Consumer Price Index (1992=100)	91.5	101.8	110.6	120.1	123.3	135.3	143.1	149.5
Unemployment Rate (percent)	10.4	11.4	8.4	9.6	9.4	9.1	8.5	7.3
Gross Domestic Product by Sector ($1997 millions)								
Industry	46,893	47,403	64,118	66,098	68,746	75,925	83,166	90,366
Manufacturing	32,870	35,115	48,926	48,414	50,364	56,520	62,102	67,827
Non-manufacturing	14,023	12,288	15,192	17,684	18,382	19,405	21,064	22,539
Utilities	6,737	7,446	7,802	7,584	7,741	8,359	9,049	9,644
Services	101,140	111,282	131,002	148,193	153,669	174,199	193,513	216,388
Total Provincial Economy	**154,770**	**166,131**	**202,922**	**221,875**	**230,156**	**258,483**	**285,728**	**316,398**
Floorspace								
Comm. Floorspace (million m^2)	91	99	104	109	111	121	132	146
Population and Labour Force (thousands)								
Population	7,003.9	7,219.4	7,357.0	7,530.0	7,571.5	7,757.4	7,912.2	8,034.5
Households	2,646.4	2,843.8	3,013.9	3,157.1	3,199.1	3,395.8	3,565.9	3,712.6
Labour Force	3,504.3	3,554.5	3,753.2	4,060.3	4,105.4	4,241.6	4,307.9	4,348.3
Employment, Non-Agriculture	3,141.4	3,147.5	3,437.7	3,671.9	3,720.5	3,855.8	3,943.3	4,029.9

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.22	14.98	14.88	14.11
Natural Gas					15.67	14.35	13.00	12.63
Electricity					22.14	22.26	21.85	22.37
Commercial								
Petroleum Products					15.96	12.94	12.79	12.09
Natural Gas					13.63	12.32	11.07	10.88
Electricity					12.94	12.16	10.86	9.95
Industrial								
Petroleum Products					14.48	11.64	11.61	11.13
Natural Gas					10.10	8.95	7.91	8.03
Electricity					11.85	11.10	9.93	9.15
Transportation								
Petroleum Products					24.96	20.85	20.23	19.10
Electricity								
Natural Gas					9.11	8.36	7.76	8.64
Thernal Coal					21.21	21.21	21.21	21.21

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					70.47	57.93	57.55	54.56
Natural Gas ($/GJ)					15.67	14.35	13.00	12.63
Electricity(cents/KWh)					7.97	8.01	7.87	8.05
Commercial								
Petroleum Products (cents/l)					61.75	50.07	49.46	46.76
Natural Gas ($/GJ)					13.63	12.32	11.07	10.88
Electricity(cents/KWh)					4.66	4.38	3.91	3.58
Industrial								
Petroleum Products (cents/l)					57.93	46.58	46.44	44.52
Natural Gas ($/GJ)					10.10	8.95	7.91	8.03
Electricity(cents/KWh)					4.27	4.00	3.58	3.29
Transportation								
Petroleum Products(cents/l)					86.51	72.25	70.12	66.18
Electricity								
Natural Gas ($/GJ)					9.11	8.36	7.76	8.64
Thernal Coal					21.21	21.21	21.21	21.21

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	65.6	56.6	51.5	49.8	45.9	46.8	47.0	49.6
LPG	3.6	1.1	1.0	1.0	0.9	0.9	0.9	1.0
Natural Gas	24.8	26.1	28.2	27.6	27.0	28.0	29.4	31.3
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	41.2	49.0	60.0	59.0	63.3	61.0	61.2	63.0
Electricity	170.3	176.7	186.5	209.4	216.4	231.1	245.8	260.3
Delivered Energy	**305.4**	**309.5**	**327.2**	**346.8**	**353.6**	**367.9**	**384.4**	**405.3**
Commercial								
Distillate Fuel	18.1	19.5	20.1	27.4	25.3	26.7	26.7	27.4
Residual Fuel	3.1	1.3	3.4	12.2	7.8	11.8	13.0	15.5
LPG	2.7	5.6	5.8	6.5	8.1	7.5	8.2	8.7
Natural Gas	50.9	64.4	73.0	73.0	70.4	79.3	90.4	100.9
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	109.0	113.4	118.2	128.4	130.7	147.7	166.7	189.5
Delivered Energy	**183.8**	**204.2**	**220.5**	**247.5**	**242.2**	**273.2**	**305.1**	**341.9**
Transportation								
Distillate Fuel (diesel)	91.9	108.4	122.1	126.3	126.4	140.8	150.8	159.6
Jet Fuel	36.9	30.5	32.4	52.5	51.3	64.7	69.9	75.7
Motor Gasoline	248.4	259.7	276.6	297.2	289.3	316.1	332.6	350.6
Residual Fuel	18.4	13.6	21.9	15.7	16.2	17.6	19.2	20.5
Liquefied Petroleum Gas	1.7	0.8	0.6	0.6	0.6	0.6	0.6	0.6
Other Petroleum	1.8	1.9	1.8	1.8	1.4	1.5	1.7	1.8
Petroleum Subtotal	**397.2**	**413.0**	**453.6**	**494.2**	**485.2**	**541.3**	**574.7**	**609.0**
Pipeline Fuel Natural Gas	0.4	0.5	2.1	5.0	0.8	0.8	0.8	0.8
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					4.6	11.9	11.9	11.9
Electricity	1.2	1.2	1.1	1.0	0.9	1.0	1.2	1.3
Delivered Energy	**398.8**	**414.6**	**456.7**	**500.2**	**491.6**	**555.1**	**588.5**	**623.0**
Industry								
Total End Use Energy	**565.4**	**600.2**	**652.7**	**677.5**	**674.1**	**693.0**	**703.2**	**715.4**
Electricity purchased	183.0	220.9	247.9	270.9	268.5	281.8	284.3	287.9
Natural Gas + NGLs	125.6	133.0	132.8	114.2	143.1	147.7	150.2	153.6
RPP's	98.4	77.8	81.0	99.2	82.6	81.8	82.2	82.7
Coal & Coke	19.9	16.3	19.2	18.2	19.7	20.8	21.2	21.6
Own generation - Hydro	64.0	70.6	70.6	73.5	67.9	67.9	67.9	67.9
Renewables	74.5	81.8	101.2	101.4	92.4	93.0	97.3	101.7
Non-Energy Use	**93.7**	**89.5**	**100.7**	**118.8**	**103.6**	**110.9**	**116.1**	**121.3**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**659.2**	**689.7**	**753.4**	**796.3**	**777.7**	**803.9**	**819.3**	**836.7**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	588.6	574.9	616.4	690.3	655.8	717.0	752.8	793.8
Natural Gas	201.7	224.0	236.1	219.8	241.3	255.8	270.9	286.7
Coal and Coke	19.9	16.3	19.2	18.2	19.7	20.8	21.2	21.6
Electricity purchased	463.5	512.1	553.7	609.8	616.5	661.7	698.0	739.0
Own generation - Hydro	64.0	70.6	70.6	73.5	67.9	67.9	67.9	67.9
Renewables	115.7	130.8	161.2	160.4	160.3	165.9	170.4	176.6
Total Energy	**1,453.4**	**1,528.5**	**1,657.1**	**1,771.9**	**1,761.5**	**1,889.1**	**1,981.2**	**2,085.5**
Total Non-Energy	93.7	89.5	100.7	118.8	103.6	110.9	116.1	121.3
Total End-Use Energy Consumption	**1,547.2**	**1,618.0**	**1,757.8**	**1,890.7**	**1,865.2**	**2,000.0**	**2,097.3**	**2,206.8**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam	0.6	0.6	0.7	0.7	0.6	0.6	0.6	0.6
Combined Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4
Combustion Turbine	0.5	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Nuclear Power	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6
Renewable - hydro	24.5	29.4	30.2	32.4	31.4	32.8	32.8	34.2
Renewable - wind	0.0	0.0	0.1	0.1	0.2	1.1	4.8	5.5
Renewable - other	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Total Capability	**26.3**	**31.9**	**32.7**	**35.1**	**33.9**	**36.3**	**40.0**	**43.5**
Electricity Sales (bil. Kwh)								
Residential	47.3	49.1	51.8	58.2	60.1	64.2	68.3	72.1
Commercial/Other	30.3	31.5	32.8	35.7	36.3	41.0	46.3	52.6
Industrial	51.9	62.5	70.0	76.5	75.4	79.2	79.9	81.0
Transportation	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3
Total Sales	**129.9**	**143.4**	**155.0**	**170.6**	**172.0**	**184.7**	**194.7**	**206.0**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	1.2	0.8	4.0	3.5	3.5	3.5	3.5	3.5
Gross International Exports	3.4	16.9	20.7	9.5	8.6	8.6	8.2	8.2
Gross Interregional Elec. Imp.	24.0	19.8	28.8	34.4	33.6	33.5	33.8	31.4
Gross Interregional Elec. Exp.	0.0	0.0	0.0	0.0	2.8	2.5	2.9	2.9
Net Import	**21.8**	**3.8**	**12.1**	**28.4**	**25.7**	**25.8**	**26.2**	**23.7**
Generation by Fuel Type (bil. Kwh)								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum	1.7	0.4	0.8	2.4	0.8	2.7	2.6	2.1
Natural Gas	0.1	0.3	0.3	0.2	0.0	0.0	0.1	5.6
Nuclear	4.1	4.5	4.9	4.9	3.1	3.9	2.9	3.6
Renewables	112.2	148.3	154.3	147.4	155.3	165.4	175.6	184.4
- Hydro	112.2	148.3	153.6	146.3	153.9	160.8	160.8	167.6
- Wind	0.0	0.0	0.2	0.3	0.5	3.1	13.3	15.3
- Other	0.0	0.0	0.5	0.8	0.9	1.5	1.5	1.5
Total Generation	**118.1**	**153.4**	**160.4**	**154.9**	**159.2**	**172.0**	**181.2**	**195.6**
Implied own use & losses	**10.0**	**13.8**	**17.5**	**12.7**	**12.9**	**13.1**	**12.6**	**13.3**
Fuel Requirements								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	1.4	1.5	1.3	1.3	0.3	0.2	0.9	37.4
Oil	18.2	2.5	4.0	17.2	10.3	31.6	31.1	24.9
Nuclear	47.2	52.3	56.7	56.6	36.4	45.7	33.8	41.4
Renewable Energy	403.8	533.9	555.6	530.6	559.0	595.4	632.2	663.7
Total	**470.6**	**590.2**	**617.6**	**605.6**	**606.0**	**672.9**	**698.0**	**767.5**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					26.5	43.4	47.5	59.0
Natural Gas					54.2	42.0	37.8	26.5
Purchased Electricity					2.9	3.4	3.4	3.7
Total					**83.6**	**88.9**	**88.6**	**89.2**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					1.6	4.2	4.2	4.2
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)					0.0	0.0	0.0	0.0
Natural Gas (own use)					0.0	0.0	0.0	0.0
Electricity					0.0	0.0	0.0	0.0
NGLs					0.0	0.0	0.0	0.0
Total Energy					**0.0**	**0.0**	**0.0**	**0.0**
Electricity Generation								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	1.4	1.5	1.3	1.3	0.3	0.2	0.9	37.4
Oil	18.2	2.5	4.0	17.2	10.3	31.6	31.1	24.9
Nuclear	47.2	52.3	56.7	56.6	36.4	45.7	33.8	41.4
Renewable Energy	403.8	533.9	555.6	530.6	559.0	595.4	632.2	663.7
Total	**470.6**	**590.2**	**617.6**	**605.6**	**606.0**	**672.9**	**698.0**	**767.5**
Total								
Petroleum					36.8	75.0	78.6	84.0
Natural Gas					56.1	46.4	42.9	68.1
Coal					0.0	0.0	0.0	0.0
Nuclear Power					36.4	45.7	33.8	41.4
Renewable Energy					559.0	595.4	632.2	663.7
Electricity					2.9	3.4	3.4	3.7
Total					**691.2**	**766.0**	**790.8**	**860.8**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					0.0	0.0	0.0	0.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**86.6**	**83.8**	**88.3**	**93.0**	**91.5**	**98.8**	**102.6**	**109.6**
POWER GENERATION	**1.5**	**0.4**	**0.6**	**1.6**	**0.8**	**2.3**	**2.3**	**3.7**
INDUSTRIAL (Excl. Oil & Gas)	**29.9**	**26.6**	**26.2**	**25.4**	**28.4**	**29.2**	**29.3**	**30.1**
COMBUSTION	17.0	15.2	15.8	15.6	17.2	18.2	18.4	19.0
NON-COMBUSTION	3.4	4.1	4.6	4.9	4.9	5.3	5.4	5.5
NON-ENERGY	9.6	7.4	5.8	4.9	6.1	5.5	5.4	5.5
CO_2 (CEMENT,LIME,SODA ASH)	1.6	1.7	1.6	1.7	1.8	2.0	2.1	2.2
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	2.4	1.4	1.3	1.0	1.6	0.5	1.0	1.0
PFCs	5.5	4.2	3.0	2.1	1.1	1.2	0.9	0.9
RESIDENTIAL & AGRICULTURE	**7.3**	**6.6**	**6.2**	**6.2**	**6.2**	**6.3**	**6.4**	**6.7**
COMMERCIAL & PUBLIC ADMIN	**4.3**	**5.1**	**5.7**	**6.9**	**6.4**	**7.2**	**7.9**	**8.7**
OIL AND GAS INDUSTRIES	**0.3**	**0.4**	**0.4**	**0.5**	**0.3**	**0.3**	**0.4**	**0.4**
COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVES	0.3	0.4	0.4	0.5	0.3	0.3	0.4	0.4
TRANSPORTATION	**28.4**	**30.0**	**32.5**	**35.5**	**33.8**	**37.6**	**39.7**	**41.7**
OTHERS	**14.9**	**14.8**	**16.6**	**17.0**	**15.7**	**15.9**	**16.7**	**18.4**
AGROECOSYSTEMS	7.2	7.0	6.8	7.3	6.8	6.0	6.1	6.3
WASTE	7.7	7.6	8.9	8.4	7.5	7.7	8.1	8.6
SOLVENT AND OTHER	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HFCs	0.0	0.1	0.7	1.1	1.2	2.0	2.4	3.5

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	285,295.0	312,779.0	397,152.0	438,380.0	455,689.0	526,695.0	595,889.0	678,709.0
Personal Disposable Income ($1997 millions)	213,444.2	216,462.3	250,340.8	277,048.0	287,984.0	332,815.4	373,790.4	421,533.8
Personal Disposable Income per capita ($1997 thousands)	18.2	19.1	22.7	25.4	26.5	31.2	36.0	41.6
Consumer Price Index (1992=100)	94.5	104.3	114.2	125.4	128.9	142.4	152.5	163.1
Unemployment Rate (percent)	6.2	8.7	5.7	7.2	7.2	7.6	7.9	7.3
Gross Domestic Product by Sector ($1997 millions)								
Industry	82,680	87,569	117,561	120,041	123,669	138,284	151,733	168,910
Manufacturing	58,357	66,513	92,212	90,963	93,464	106,237	116,428	130,983
Non-manufacturing	24,323	21,056	25,349	29,078	30,205	32,047	35,305	37,927
Utilities	8,477	9,447	9,891	10,067	10,309	11,429	12,599	13,834
Services	194,138	215,763	269,700	308,272	321,712	376,983	431,556	495,966
Total Provincial Economy	**285,295**	**312,779**	**397,152**	**438,380**	**455,690**	**526,696**	**595,888**	**678,710**
Floorspace								
Comm. Floorspace (million m^2)	175	190	205	221	226	255	286	324
Population and Labour Force (thousands)								
Population	10,297.9	10,950.0	11,685.4	12,390.0	12,541.8	13,286.0	14,013.5	14,714.8
Households	3,683.9	4,001.6	4,329.4	4,647.8	4,733.0	5,160.1	5,576.5	5,981.9
Labour Force	5,533.0	5,619.7	6,227.9	6,804.0	6,921.5	7,371.0	7,741.7	8,093.2
Employment, Non-Agriculture	5,191.3	5,130.6	5,872.1	6,317.7	6,420.0	6,814.2	7,133.6	7,501.1

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ,)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.10	15.11	15.01	14.23
Natural Gas					13.31	12.13	10.99	10.86
Electricity					23.14	23.75	24.48	26.31
Commercial								
Petroleum Products					14.75	11.80	11.64	10.96
Natural Gas					11.75	10.58	9.51	9.48
Electricity					19.78	20.57	22.24	24.41
Industrial								
Petroleum Products					14.53	12.03	11.66	11.39
Natural Gas					10.23	9.25	8.22	8.37
Electricity					16.96	17.32	18.37	18.61
Transportation								
Petroleum Products					23.58	19.74	19.17	18.11
Electricity								
Natural Gas					9.64	8.65	8.29	8.54
Thernal Coal					2.41	2.42	2.41	2.81

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					70.02	58.44	58.06	55.05
Natural Gas ($/GJ)					13.31	12.13	10.99	10.86
Electricity(cents/KWh)					8.33	8.55	8.81	9.47
Commercial								
Petroleum Products (cents/l)					57.04	45.66	45.03	42.39
Natural Gas ($/GJ)					11.75	10.58	9.51	9.48
Electricity(cents/KWh)					7.12	7.41	8.01	8.79
Industrial								
Petroleum Products (cents/l)					58.10	48.11	46.62	45.56
Natural Gas ($/GJ)					10.23	9.25	8.22	8.37
Electricity(cents/KWh)					6.10	6.23	6.61	6.70
Transportation								
Petroleum Products(cents/l)					81.74	68.41	66.45	62.75
Electricity								
Natural Gas ($/GJ)					9.64	8.65	8.29	8.54
Thernal Coal					2.41	2.42	2.41	2.81

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	51.2	33.8	33.3	23.0	21.6	23.5	25.0	27.9
LPG	6.4	7.0	5.0	5.4	5.0	5.3	5.6	6.1
Natural Gas	252.3	318.1	315.3	335.6	325.7	340.1	355.3	371.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	16.2	18.4	17.6	17.2	18.7	18.4	18.5	18.9
Electricity	163.0	150.5	153.7	163.0	164.1	177.2	190.0	201.8
Delivered Energy	**489.1**	**527.8**	**524.9**	**544.1**	**535.1**	**564.5**	**594.4**	**625.7**
Commercial								
Distillate Fuel	15.6	15.5	18.3	26.0	24.2	26.5	27.3	28.8
Residual Fuel	2.5	1.3	3.5	10.0	11.0	11.8	13.2	14.8
LPG	5.8	9.5	9.1	10.3	10.2	11.9	13.3	15.2
Natural Gas	148.9	161.1	220.5	218.6	205.5	236.1	272.8	304.5
Coal	0.0	0.4	0.3	0.0	0.3	0.4	0.4	0.5
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	146.6	159.3	175.0	191.5	195.6	224.1	250.3	274.2
Delivered Energy	**319.4**	**347.1**	**426.7**	**456.3**	**446.8**	**510.7**	**577.3**	**638.0**
Transportation								
Distillate Fuel (diesel)	135.3	154.1	208.1	220.1	219.7	243.9	264.6	287.0
Jet Fuel	51.7	53.2	71.8	65.8	64.2	81.0	87.5	94.8
Motor Gasoline	423.0	434.3	497.6	535.7	525.7	584.9	622.6	668.5
Residual Fuel	13.2	10.3	9.1	8.2	8.4	9.1	10.1	11.1
Liquefied Petroleum Gas	8.6	11.8	4.8	4.2	4.1	3.8	4.0	4.3
Other Petroleum	6.6	2.5	3.5	4.2	5.0	5.6	6.1	6.8
Petroleum Subtotal	**631.7**	**663.7**	**791.3**	**833.9**	**827.1**	**928.4**	**994.9**	**1,072.5**
Pipeline Fuel Natural Gas	43.9	77.5	70.5	40.8	59.7	58.5	65.9	74.2
Compressed Natural Gas	0.5	1.5	1.6	1.4	1.3	1.0	1.0	1.0
Ethanol					3.2	3.2	3.2	6.2
Electricity	2.3	2.0	3.1	1.6	2.7	2.8	3.0	3.2
Delivered Energy	**678.4**	**744.8**	**866.5**	**877.7**	**894.0**	**994.0**	**1,068.0**	**1,157.1**
Industry								
Total End Use Energy	**757.2**	**762.1**	**794.5**	**806.8**	**790.0**	**787.8**	**809.1**	**839.9**
Electricity purchased	148.2	136.9	153.3	130.8	151.4	152.6	155.7	161.3
Natural Gas + NGLs	342.9	345.1	336.9	339.3	308.1	311.5	318.5	333.2
RPP's	81.7	82.1	88.3	104.5	102.0	103.4	107.0	110.2
Coal & Coke	111.1	116.5	121.3	116.8	147.9	146.0	150.3	154.9
Own generation - Hydro	6.8	4.8	4.9	5.3	3.6	3.6	3.6	3.6
Renewables	66.5	76.7	89.8	110.1	77.0	70.7	74.0	76.7
Non-Energy Use	**231.2**	**255.3**	**260.5**	**310.4**	**220.7**	**248.3**	**267.8**	**284.5**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	80.0	80.0	80.0	80.0
Total End Use	**988.4**	**1,017.3**	**1,055.1**	**1,117.2**	**1,090.8**	**1,116.1**	**1,156.8**	**1,204.4**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	794.9	813.0	948.9	1,013.2	1,001.0	1,110.7	1,186.2	1,275.5
Natural Gas	788.5	903.3	944.9	935.6	900.4	947.3	1,013.5	1,084.0
Coal and Coke	111.1	116.5	121.3	116.8	147.9	146.0	150.3	154.9
Electricity purchased	460.1	448.7	485.1	486.8	513.8	556.7	599.0	640.5
Own generation - Hydro	6.8	4.8	4.9	5.3	3.6	3.6	3.6	3.6
Renewables	82.7	95.1	107.4	127.3	98.9	92.3	95.7	101.9
Total Energy	**2,244.1**	**2,381.4**	**2,612.4**	**2,684.9**	**2,665.6**	**2,856.6**	**3,048.3**	**3,260.3**
Total Non-Energy	231.2	255.3	260.5	310.4	300.7	328.3	347.8	364.5
Total End-Use Energy Consumption	**2,475.3**	**2,636.6**	**2,872.9**	**2,995.4**	**2,966.3**	**3,184.9**	**3,396.1**	**3,624.8**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	10.6	10.7	7.8	7.6	6.1	5.1	2.8	0.0
Other Fossil Steam	2.2	2.4	2.7	2.3	2.6	2.6	2.6	2.6
Combined Cycle	0.0	0.0	0.0	1.1	1.1	3.0	3.8	6.2
Combustion Turbine	0.5	0.8	1.1	1.1	1.4	1.4	3.1	5.8
Nuclear Power	11.7	15.0	9.3	11.5	11.2	10.1	9.3	10.1
Renewable - hydro	6.9	7.0	7.8	8.2	7.9	8.1	8.1	8.1
Renewable - wind	0.0	0.0	0.0	0.0	0.1	1.3	1.4	1.4
Renewable - other	0.0	0.0	0.1	0.4	0.4	0.6	0.7	0.7
Total Capability	**31.9**	**35.9**	**28.8**	**32.1**	**30.8**	**32.2**	**31.8**	**35.1**
Electricity Sales (bil. Kwh)								
Residential	45.3	41.8	42.7	45.3	45.6	49.2	52.8	55.9
Commercial/Other	40.7	44.3	48.6	53.2	54.3	62.2	69.5	76.2
Industrial	43.4	39.4	44.2	38.0	42.1	42.5	44.1	45.6
Transportation	0.6	0.6	0.9	0.5	0.7	0.8	0.8	0.9
Total Sales	**130.0**	**126.0**	**136.4**	**136.9**	**142.8**	**154.8**	**167.3**	**178.6**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	13.3	1.7	3.5	7.9	6.0	6.0	6.0	6.0
Gross International Exports	2.1	10.2	5.5	8.4	6.2	5.9	4.7	4.0
Gross Interregional Imports	2.2	1.0	2.4	0.0	4.0	4.4	5.5	5.4
Gross Interregional Exports	0.0	0.0	0.0	0.5	2.8	2.8	2.7	1.0
Net Import	**13.5**	**-7.5**	**0.5**	**-1.0**	**1.0**	**1.7**	**4.2**	**6.4**
Generation by Fuel Type (bil. Kwh)								
Coal	26.1	16.7	42.4	27.6	22.6	33.4	20.5	0.0
Petroleum	1.4	0.3	0.5	0.8	0.1	0.1	0.1	0.1
Natural Gas	0.0	5.7	9.4	7.9	11.0	12.4	35.9	62.0
Nuclear	59.4	86.2	59.8	76.1	82.4	76.0	72.1	75.3
Renewables	38.7	37.5	37.6	40.8	42.2	47.4	49.1	49.1
- Hydro	38.7	37.5	36.6	38.0	39.3	40.5	40.5	40.5
- Wind	0.0	0.0	0.0	0.0	0.2	2.8	3.3	3.3
- Other	0.0	0.0	1.0	2.7	2.7	4.1	5.3	5.3
Total Generation	**125.5**	**146.3**	**149.7**	**153.1**	**158.3**	**169.4**	**177.8**	**186.6**
Implied own use & losses	**9.0**	**12.8**	**13.9**	**15.2**	**16.5**	**16.3**	**14.7**	**14.4**
Fuel Requirements								
Coal	285.7	168.7	426.5	334.1	219.3	330.0	202.5	0.0
Natural Gas	0.0	58.3	91.4	95.8	133.1	145.1	326.9	514.7
Oil	15.1	3.6	5.0	9.3	2.0	2.0	2.0	2.0
Nuclear	688.5	1,000.1	694.0	882.3	955.4	882.0	836.9	873.2
Renewable Energy	139.2	134.8	135.4	146.8	152.1	170.5	176.7	176.8
Total	**1,128.5**	**1,365.5**	**1,352.4**	**1,468.4**	**1,461.9**	**1,529.6**	**1,545.0**	**1,566.7**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					43.7	102.5	108.6	129.3
Natural Gas					40.8	16.3	30.6	18.1
Purchased Electricity					0.0	0.0	2.2	2.0
Total					**84.5**	**118.8**	**141.5**	**149.4**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					1.0	1.0	1.0	1.0
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)					0.0	0.0	0.0	0.0
Natural Gas (own use)					0.8	0.9	0.7	0.7
Electricity					0.3	0.3	0.2	0.3
NGLs					0.0	0.0	0.0	0.0
Total Energy					**1.1**	**1.2**	**1.0**	**1.0**
Electricity Generation								
Coal	285.7	168.7	426.5	334.1	219.3	330.0	202.5	0.0
Natural Gas	0.0	58.3	91.4	95.8	133.1	145.1	326.9	514.7
Oil	15.1	3.6	5.0	9.3	2.0	2.0	2.0	2.0
Nuclear	688.5	1,000.1	694.0	882.3	955.4	882.0	836.9	873.2
Renewable Energy	139.2	134.8	135.4	146.8	152.1	170.5	176.7	176.8
Total	**1,128.5**	**1,365.5**	**1,352.4**	**1,468.4**	**1,461.9**	**1,529.6**	**1,545.0**	**1,566.7**
Total								
Petroleum					45.7	104.4	110.6	131.2
Natural Gas					175.8	162.4	358.5	533.8
Coal					219.3	330.0	202.5	0.0
Nuclear Power					955.4	882.0	836.9	873.2
Renewable Energy					152.1	170.5	176.7	176.8
Electricity					0.3	0.3	2.5	2.3
Total					**1,548.5**	**1,649.7**	**1,687.6**	**1,717.4**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					10.6	11.0	9.1	9.7
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					15.0	13.5	16.4	13.3
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					4.7	4.9	4.1	4.4
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					14.3	12.9	15.6	12.7
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**176.6**	**176.7**	**203.8**	**204.9**	**193.3**	**216.5**	**226.8**	**231.9**
POWER GENERATION	**26.6**	**19.1**	**42.7**	**35.0**	**28.0**	**38.8**	**36.3**	**27.1**
INDUSTRIAL (Excl. Oil & Gas)	**56.6**	**55.7**	**47.2**	**51.3**	**47.0**	**49.6**	**52.6**	**55.3**
COMBUSTION	30.5	28.2	28.3	29.9	26.7	29.4	31.1	32.9
NON-COMBUSTION	11.2	12.1	12.0	12.7	13.7	14.0	14.5	15.0
NON-ENERGY	14.9	15.4	6.8	8.7	6.6	6.1	6.9	7.3
CO_2 (CEMENT,LIME,SODA ASH)	3.4	3.9	4.2	4.3	4.7	5.1	5.3	5.7
N_2O (NITRIC & ADIPIC ACID)	10.8	10.8	1.0	3.2	1.6	1.6	1.5	1.5
SF_6	0.7	0.7	1.6	1.2	1.1	0.4	0.8	0.8
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**18.2**	**20.5**	**20.0**	**20.2**	**19.2**	**20.1**	**21.0**	**22.0**
COMMERCIAL & PUBLIC ADMIN	**9.2**	**9.9**	**13.2**	**14.1**	**13.5**	**15.3**	**17.4**	**19.3**
OIL AND GAS INDUSTRIES	**1.3**	**1.5**	**1.7**	**1.8**	**0.5**	**1.7**	**2.5**	**2.5**
COMBUSTION	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
FUGITIVES	1.3	1.5	1.7	1.8	0.4	1.6	2.5	2.4
TRANSPORTATION	**48.1**	**52.7**	**61.1**	**62.8**	**63.0**	**69.2**	**73.9**	**79.6**
OTHERS	**16.5**	**17.4**	**18.0**	**19.6**	**22.4**	**22.4**	**23.7**	**26.6**
AGROECOSYSTEMS	10.3	10.1	9.5	10.1	10.1	8.6	8.8	9.2
WASTE	6.1	6.9	7.1	7.4	10.1	10.3	10.9	11.5
SOLVENT AND OTHER	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
HFCs	0.0	0.2	1.2	1.8	2.0	3.3	3.8	5.6

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	24,234.0	26,111.0	30,531.0	33,193.0	34,411.0	38,486.0	42,421.0	46,996.0
Personal Disposable Income ($1997 millions)	20,660.1	19,732.0	20,963.9	22,725.1	23,750.9	27,930.3	31,041.0	34,476.6
Personal Disposable Income per capita ($1997 thousands)	15.7	16.7	19.3	21.6	22.8	27.9	32.3	37.2
Consumer Price Index (1992=100)	93.8	106.9	118.1	126.8	130.2	141.2	148.4	155.8
Unemployment Rate (percent)	7.3	7.2	4.9	4.0	3.9	3.9	3.7	3.0
Gross Domestic Product by Sector ($1997 millions)								
Industry	6,536	6,526	7,625	7,879	8,231	9,066	9,900	10,741
Manufacturing	3,186	3,420	4,089	4,307	4,457	5,017	5,481	5,989
Non-manufacturing	3,350	3,106	3,536	3,572	3,774	4,049	4,419	4,752
Utilities	948	1,051	1,073	1,057	1,075	1,151	1,232	1,316
Services	16,751	18,534	21,832	24,258	25,104	28,269	31,288	34,940
Total Provincial Economy	**24,235**	**26,111**	**30,530**	**33,194**	**34,410**	**38,486**	**42,420**	**46,997**
Floorspace								
Comm. Floorspace (million m^2)	21	22	22	25	26	30	34	39
Population and Labour Force (thousands)								
Population	1,105.7	1,129.1	1,147.4	1,168.0	1,173.1	1,197.7	1,221.7	1,244.3
Households	403.2	412.5	425.4	435.1	439.6	462.1	483.6	504.2
Labour Force	555.6	559.0	583.2	605.0	613.6	631.9	643.9	656.3
Employment, Non-Agriculture	515.2	519.0	554.4	581.3	589.7	607.1	619.8	636.4

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.43	15.49	15.39	14.60
Natural Gas					13.91	12.87	11.70	11.58
Electricity					16.97	16.83	13.50	13.05
Commercial								
Petroleum Products					11.24	8.85	8.71	8.30
Natural Gas					11.68	10.60	9.50	9.52
Electricity					11.64	10.96	8.18	7.71
Industrial								
Petroleum Products					16.63	13.69	13.55	12.84
Natural Gas					10.41	9.48	8.45	8.59
Electricity					10.39	9.99	7.52	7.08
Transportation								
Petroleum Products					23.48	19.70	19.20	18.14
Electricity								
Natural Gas					5.98	6.00	8.03	8.22
Thernal Coal					1.81	1.81	1.81	1.81

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					71.30	59.92	59.54	56.46
Natural Gas ($/GJ)					13.91	12.87	11.70	11.58
Electricity(cents/KWh)					6.11	6.06	4.86	4.70
Commercial								
Petroleum Products (cents/l)					43.49	34.25	33.70	32.10
Natural Gas ($/GJ)					11.68	10.60	9.50	9.52
Electricity(cents/KWh)					4.19	3.95	2.95	2.78
Industrial								
Petroleum Products (cents/l)					66.51	54.75	54.18	51.35
Natural Gas ($/GJ)					10.41	9.48	8.45	8.59
Electricity(cents/KWh)					3.74	3.60	2.71	2.55
Transportation								
Petroleum Products(cents/l)					81.40	68.28	66.54	62.87
Electricity								
Natural Gas ($/GJ)					5.98	6.00	8.03	8.22
Thernal Coal					1.81	1.81	1.81	1.81

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	1.9	0.8	0.5	0.1	0.2	0.2	0.2	0.2
LPG	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Natural Gas	28.6	26.9	25.5	23.4	22.6	22.8	23.3	23.6
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	2.4	2.6	2.8	2.6	2.8	2.7	2.6	2.6
Electricity	18.7	19.3	19.4	21.7	22.1	23.6	26.3	28.3
Delivered Energy	**51.9**	**49.8**	**48.5**	**48.1**	**47.9**	**49.6**	**52.8**	**55.0**
Commercial								
Distillate Fuel	0.6	0.5	0.5	0.5	0.4	0.5	0.5	0.6
Residual Fuel	0.0	0.0	0.6	0.3	0.0	0.2	0.2	0.4
LPG	0.1	1.8	2.9	1.5	2.8	2.0	2.3	2.3
Natural Gas	26.9	28.9	28.4	28.9	26.5	30.9	36.2	40.1
Coal	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	13.6	13.8	14.4	15.8	16.7	20.9	25.9	31.4
Delivered Energy	**41.4**	**45.0**	**46.8**	**47.0**	**46.4**	**54.5**	**65.2**	**74.6**
Transportation								
Distillate Fuel (diesel)	20.2	21.7	19.1	23.2	23.2	26.1	28.2	30.2
Jet Fuel	6.9	7.7	8.4	7.9	7.7	9.7	10.5	11.4
Motor Gasoline	42.8	44.9	45.1	46.6	46.0	48.2	51.2	54.7
Residual Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	1.0	1.6	0.6	0.3	0.3	0.3	0.3	0.3
Other Petroleum	0.4	0.2	0.4	0.4	0.6	0.6	0.7	0.8
Petroleum Subtotal	**70.9**	**75.9**	**73.1**	**78.3**	**77.8**	**85.0**	**90.9**	**97.4**
Pipeline Fuel Natural Gas	16.4	25.5	16.2	8.5	13.8	12.3	12.4	12.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					0.2	3.5	3.5	3.5
Electricity	1.5	2.0	2.8	2.9	2.5	2.5	2.5	2.5
Delivered Energy	**88.8**	**103.4**	**92.1**	**89.8**	**94.4**	**103.3**	**109.3**	**115.5**
Industry								
Total End Use Energy	**64.6**	**62.5**	**71.9**	**79.1**	**80.7**	**83.7**	**86.0**	**89.0**
Electricity purchased	21.2	22.6	25.0	26.8	28.2	29.4	29.9	30.9
Natural Gas + NGLs	14.0	12.5	19.6	24.0	22.8	23.6	23.9	24.6
RPP's	22.5	20.3	19.7	21.5	22.4	23.5	25.0	26.3
Coal & Coke	2.1	2.2	2.0	1.2	1.4	1.4	1.4	1.5
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	4.8	5.0	5.6	5.6	5.8	5.8	5.8	5.8
Non-Energy Use	**4.0**	**4.0**	**4.0**	**4.0**	**4.4**	**4.7**	**5.2**	**5.6**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**68.6**	**66.5**	**75.9**	**83.1**	**85.0**	**88.4**	**91.2**	**94.6**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	96.3	99.5	97.7	102.6	104.0	111.7	119.4	127.4
Natural Gas	85.9	93.7	89.6	84.8	85.8	89.7	95.9	100.3
Coal and Coke	2.3	2.2	2.0	1.2	1.4	1.4	1.4	1.5
Electricity purchased	55.0	57.7	61.6	67.2	69.5	76.4	84.7	93.0
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	7.2	7.6	8.4	8.2	8.8	12.0	11.9	11.9
Total Energy	**246.7**	**260.7**	**259.3**	**264.0**	**269.4**	**291.1**	**313.3**	**334.2**
Total Non-Energy	4.0	4.0	4.0	4.0	4.4	4.7	5.2	5.6
Total End-Use Energy Consumption	**250.7**	**264.7**	**263.3**	**268.0**	**273.7**	**295.8**	**318.4**	**339.8**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.4	0.4	0.2	0.1	0.1	0.1	0.1	0.1
Other Fossil Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combined Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combustion Turbine	0.0	0.0	0.0	0.4	0.3	0.3	0.3	0.4
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	4.0	4.9	5.0	5.0	5.0	5.2	5.8	5.8
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**4.4**	**5.3**	**5.2**	**5.5**	**5.5**	**5.9**	**6.5**	**6.6**
Electricity Sales (bil. Kwh)								
Residential	5.2	5.4	5.4	6.0	6.1	6.6	7.3	7.8
Commercial/Other	3.8	3.8	4.0	4.4	4.6	5.8	7.2	8.7
Industrial	5.9	6.2	6.9	7.4	8.0	8.2	8.3	8.6
Transportation	0.4	0.6	0.8	0.8	0.7	0.7	0.7	0.7
Total Sales	**15.2**	**16.0**	**17.1**	**18.6**	**19.5**	**21.3**	**23.6**	**25.9**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	1.0	0.1	1.2	2.6	2.6	2.6	1.9	1.9
Gross International Exports	2.0	9.0	9.9	6.6	11.0	11.2	10.7	10.7
Gross Interregional Elec. Imp.	0.0	0.0	0.0	0.0	0.8	0.8	0.6	1.1
Gross Interregional Elec. Exp.	1.7	0.7	2.8	3.2	2.4	3.1	4.0	3.8
Net Import	**-2.7**	**-9.7**	**-11.4**	**-7.2**	**-10.0**	**-10.9**	**-12.2**	**-11.5**
Generation by Fuel Type (bil. Kwh)								
Coal	0.3	0.1	0.9	0.3	0.1	0.2	0.1	0.2
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	19.8	29.0	31.5	27.2	31.3	33.3	37.0	37.1
- Hydro	19.8	29.0	31.5	27.2	31.3	32.6	36.3	36.4
- Wind	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
- Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Generation	**20.2**	**29.2**	**32.4**	**27.6**	**31.5**	**33.5**	**37.1**	**37.4**
Implied own use & losses	**2.2**	**3.4**	**3.9**	**1.7**	**2.0**	**1.2**	**1.4**	**0.0**
Fuel Requirements								
Coal	4.5	1.8	10.6	5.4	1.2	2.2	1.4	3.3
Natural Gas	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.5
Oil	0.7	0.3	0.1	0.0	0.6	0.6	0.6	0.6
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	71.4	104.4	113.5	98.0	112.8	119.9	133.0	133.4
Total	**76.5**	**106.6**	**124.3**	**104.5**	**114.6**	**122.7**	**135.0**	**137.8**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					0.0	0.0	0.0	0.0
Total					**0.0**	**0.0**	**0.0**	**0.0**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					0.1	1.7	1.7	1.7
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)								
Natural Gas (own use)					0.8	0.5	0.0	0.0
Electricity					0.4	0.3	0.0	0.0
NGLs					0.0	0.0	0.0	0.0
Total Energy					**1.2**	**0.8**	**0.0**	**0.0**
Electricity Generation								
Coal	4.5	1.8	10.6	5.4	1.2	2.2	1.4	3.3
Natural Gas	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.5
Oil	0.7	0.3	0.1	0.0	0.6	0.6	0.6	0.6
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	71.4	104.4	113.5	98.0	112.8	119.9	133.0	133.4
Total	**76.5**	**106.6**	**124.3**	**104.5**	**114.6**	**122.7**	**135.0**	**137.8**
Total								
Petroleum					0.6	0.6	0.6	0.6
Natural Gas					0.9	1.7	1.7	2.2
Coal					1.2	2.2	1.4	3.3
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					112.8	119.9	133.0	133.4
Electricity					0.4	0.3	0.0	0.0
Total					**116.0**	**124.7**	**136.7**	**139.5**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					27.4	17.2	9.1	4.5
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					12.3	7.7	4.1	2.0
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					0.0	0.0	0.0	0.0
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**18.0**	**19.0**	**20.3**	**20.2**	**20.6**	**23.3**	**24.1**	**25.4**
POWER GENERATION	**0.6**	**0.2**	**1.0**	**0.1**	**0.2**	**0.2**	**0.2**	**0.4**
INDUSTRIAL (Excl. Oil & Gas)	**1.7**	**1.2**	**1.8**	**1.9**	**1.9**	**2.0**	**2.1**	**2.2**
COMBUSTION	1.2	0.9	1.2	1.4	1.8	1.8	1.9	1.9
NON-COMBUSTION	0.3	0.2	0.4	0.4	0.1	0.1	0.1	0.1
NON-ENERGY	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CO_2 (CEMENT,LIME,SODA ASH)	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**1.7**	**1.5**	**1.5**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**
COMMERCIAL & PUBLIC ADMIN	**1.4**	**1.6**	**1.7**	**1.6**	**1.5**	**1.7**	**2.0**	**2.2**
OIL AND GAS INDUSTRIES	**0.4**	**0.5**	**0.6**	**0.6**	**0.1**	**0.1**	**0.0**	**0.0**
COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FUGITIVES	0.4	0.5	0.6	0.6	0.1	0.0	0.0	0.0
TRANSPORTATION	**7.2**	**8.0**	**7.2**	**7.3**	**7.5**	**8.1**	**8.6**	**9.0**
OTHERS	**5.0**	**5.9**	**6.6**	**7.5**	**7.9**	**9.0**	**9.3**	**9.6**
AGROECOSYSTEMS	4.4	5.2	5.7	6.4	6.9	7.8	8.0	8.1
WASTE	0.6	0.7	0.8	0.9	0.8	0.8	0.8	0.9
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.6

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	23,400.0	25,646.0	29,162.0	30,920.0	32,061.0	35,833.0	39,390.0	43,248.0
Personal Disposable Income ($1997 millions)	16,813.3	16,318.8	17,156.0	17,782.9	18,441.3	21,257.2	23,110.9	25,026.4
Personal Disposable Income per capita ($1997 thousands)	14.2	15.6	18.0	20.3	21.1	25.6	29.2	33.0
Consumer Price Index (1992=100)	94.1	106.9	116.7	128.5	130.7	142.8	149.6	157.1
Unemployment Rate (percent)	7.0	6.6	5.2	5.1	4.9	5.1	5.3	5.0
Gross Domestic Product by Sector ($1997 millions)								
Industry	8,985	9,559	10,302	10,056	10,519	11,768	12,967	14,019
Manufacturing	1,619	1,770	2,153	2,138	2,210	2,404	2,614	2,835
Non-manufacturing	7,366	7,789	8,149	7,918	8,309	9,364	10,353	11,184
Utilities	656	729	704	694	705	746	789	835
Services	13,760	15,358	18,157	20,169	20,838	23,319	25,635	28,394
Total Provincial Economy	**23,401**	**25,646**	**29,163**	**30,919**	**32,062**	**35,833**	**39,391**	**43,248**
Floorspace								
Comm. Floorspace (million m^2)	18	20	21	21	21	23	25	27
Population and Labour Force (thousands)								
Population	1,007.1	1,014.1	1,007.8	998.0	1,000.5	1,013.6	1,026.6	1,039.0
Households	365.4	372.6	383.9	383.0	386.3	402.9	418.0	431.9
Labour Force	488.6	492.1	511.7	523.0	531.1	539.9	544.3	549.7
Employment, Non-Agriculture	454.3	459.4	485.0	496.8	505.1	512.6	515.6	522.5

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.49	15.53	15.43	14.63
Natural Gas					12.24	11.26	10.17	10.17
Electricity					23.15	21.74	19.91	19.38
Commercial								
Petroleum Products					10.65	8.01	7.92	7.48
Natural Gas					11.01	9.99	8.94	9.01
Electricity					25.32	23.68	21.86	21.05
Industrial								
Petroleum Products					16.19	12.62	13.07	11.74
Natural Gas					9.85	8.93	7.92	8.09
Electricity					16.70	15.88	14.74	14.65
Transportation								
Petroleum Products					24.83	20.98	20.38	19.24
Electricity								
Natural Gas					9.32	8.42	7.44	7.70
Thernal Coal					0.90	0.90	0.90	1.03

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					71.54	60.07	59.68	56.59
Natural Gas ($/GJ)					12.24	11.26	10.17	10.17
Electricity(cents/KWh)					8.33	7.83	7.17	6.98
Commercial								
Petroleum Products (cents/l)					41.20	30.99	30.65	28.95
Natural Gas ($/GJ)					11.01	9.99	8.94	9.01
Electricity(cents/KWh)					9.12	8.52	7.87	7.58
Industrial								
Petroleum Products (cents/l)					64.77	50.49	52.29	46.98
Natural Gas ($/GJ)					9.85	8.93	7.92	8.09
Electricity(cents/KWh)					6.01	5.72	5.31	5.27
Transportation								
Petroleum Products(cents/l)					86.08	72.71	70.63	66.69
Electricity								
Natural Gas ($/GJ)					9.32	8.42	7.44	7.70
Thernal Coal					0.90	0.90	0.90	1.03

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	2.5	0.8	0.4	0.7	0.6	0.7	0.7	0.7
LPG	1.4	0.7	0.5	0.4	0.4	0.4	0.4	0.5
Natural Gas	36.6	39.4	36.6	31.2	29.6	29.4	29.8	29.9
Coal	0.1	0.4	0.6	1.0	0.0	0.0	0.0	0.0
Renewable Energy	1.2	0.9	1.3	1.3	1.1	1.1	1.0	1.0
Electricity	9.1	9.4	9.8	10.3	10.2	10.7	11.2	11.8
Delivered Energy	**50.9**	**51.6**	**49.2**	**44.9**	**41.9**	**42.3**	**43.3**	**43.9**
Commercial								
Distillate Fuel	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Residual Fuel	0.1	0.2	3.0	5.5	5.0	4.0	4.3	4.5
LPG	1.0	1.0	0.8	0.6	0.6	0.7	0.7	0.8
Natural Gas	18.3	22.4	28.3	27.1	24.7	27.0	30.0	32.0
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	14.0	17.0	15.7	13.7	13.7	15.0	16.5	18.2
Delivered Energy	**33.8**	**40.9**	**48.1**	**47.2**	**44.3**	**47.0**	**51.9**	**55.9**
Transportation								
Distillate Fuel (diesel)	18.2	24.9	24.7	34.3	34.2	37.6	39.7	41.4
Jet Fuel	3.3	2.8	2.5	2.2	2.1	2.6	2.8	3.1
Motor Gasoline	40.2	47.6	48.0	53.9	49.5	54.9	57.0	59.2
Residual Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	1.1	0.8	0.4	0.2	0.2	0.2	0.2	0.2
Other Petroleum	0.4	0.2	0.3	0.4	0.4	0.4	0.4	0.4
Petroleum Subtotal	**62.7**	**76.2**	**75.6**	**90.9**	**86.4**	**95.7**	**100.2**	**104.4**
Pipeline Fuel Natural Gas	31.8	50.8	46.9	28.4	32.1	28.8	29.3	28.6
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					3.5	3.5	3.5	3.5
Electricity	2.5	3.4	4.5	5.2	5.0	5.0	5.0	5.0
Delivered Energy	**97.0**	**130.4**	**127.1**	**124.6**	**127.0**	**133.1**	**138.0**	**141.5**
Industry								
Total End Use Energy	**118.6**	**149.8**	**152.4**	**143.4**	**121.3**	**127.0**	**133.1**	**141.0**
Electricity purchased	17.0	23.5	28.9	32.7	23.8	25.1	26.4	28.3
Natural Gas + NGLs	41.4	68.5	65.5	62.9	43.3	46.3	49.4	53.6
RPP's	47.0	47.5	47.8	36.5	42.6	44.0	45.6	47.4
Coal & Coke	2.1	0.9	1.0	1.3	1.1	1.1	1.2	1.2
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	11.0	9.3	9.2	10.0	10.5	10.5	10.5	10.5
Non-Energy Use	30.0	30.0	30.0	31.0	**31.6**	**34.9**	**38.0**	**40.8**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**148.6**	**179.8**	**182.4**	**174.4**	**152.9**	**161.9**	**171.1**	**181.9**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	115.2	126.7	128.4	134.9	135.9	145.7	152.3	158.7
Natural Gas	128.1	181.2	177.3	149.7	129.8	131.6	138.5	144.1
Coal and Coke	2.2	1.3	1.6	2.3	1.1	1.1	1.2	1.2
Electricity purchased	42.7	53.3	58.9	61.9	52.7	55.8	59.2	63.3
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	12.2	10.2	10.5	11.3	15.1	15.0	15.0	15.0
Total Energy	**300.3**	**372.7**	**376.8**	**360.1**	**334.6**	**349.3**	**366.2**	**382.3**
Total Non-Energy	30.0	30.0	30.0	31.0	31.6	34.9	38.0	40.8
Total End-Use Energy Consumption	**330.3**	**402.7**	**406.8**	**391.1**	**366.2**	**384.2**	**404.2**	**423.1**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	1.5	1.8	1.8	1.8	1.6	1.6	1.9	1.9
Other Fossil Steam	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2
Combined Cycle	0.0	0.0	0.1	0.6	0.5	0.5	0.5	0.8
Combustion Turbine	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.2
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**2.8**	**3.0**	**3.2**	**3.7**	**3.6**	**3.7**	**4.0**	**4.3**
Electricity Sales (bil. Kwh)								
Residential	2.5	2.6	2.7	2.9	2.8	3.0	3.1	3.3
Commercial/Other	3.9	4.5	4.4	3.8	3.8	4.2	4.6	5.1
Industrial	6.1	6.5	8.0	9.1	8.7	9.1	9.4	9.6
Transportation	0.7	0.9	1.3	1.5	1.4	1.4	1.4	1.4
Total Sales	**13.2**	**14.6**	**16.3**	**17.2**	**16.7**	**17.6**	**18.5**	**19.4**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.1	0.1	0.9	1.1	0.6	0.6	0.6	0.6
Gross International Exports	0.1	0.1	0.3	0.7	0.3	0.3	0.3	0.3
Gross Interregional Elec. Imp.	0.1	0.0	0.6	0.0	0.6	0.7	0.8	0.6
Gross Interregional Elec. Exp.	0.0	0.4	0.0	0.3	1.1	1.1	1.2	1.4
Net Import	**0.1**	**-0.5**	**1.1**	**0.1**	**-0.1**	**-0.1**	**-0.1**	**-0.5**
Generation by Fuel Type (bil. Kwh)								
Coal	8.6	11.3	11.8	12.2	11.3	11.6	12.3	13.1
Petroleum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.3	0.5	2.2	3.8	3.4	3.4	3.4	4.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	4.2	4.1	3.0	2.9	3.5	4.0	4.1	4.1
- Hydro	4.2	4.1	3.0	2.8	3.4	3.4	3.5	3.5
- Wind	0.0	0.0	0.0	0.1	0.1	0.5	0.5	0.5
- Other	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total Generation	**13.1**	**15.9**	**17.1**	**18.9**	**18.2**	**19.0**	**19.9**	**21.2**
Implied own use & losses	**1.4**	**0.9**	**1.9**	**1.8**	**1.3**	**1.3**	**1.3**	**1.3**
Fuel Requirements								
Coal	111.9	143.1	137.7	149.2	135.8	138.8	140.8	149.2
Natural Gas	3.6	6.5	25.8	47.0	33.4	33.4	33.4	38.2
Oil	0.1	0.2	0.3	0.3	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	15.2	14.8	11.0	10.3	12.4	14.4	14.8	14.8
Total	**130.7**	**164.6**	**174.7**	**206.9**	**181.6**	**186.7**	**189.0**	**202.2**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					4.6	11.2	8.3	13.8
Natural Gas					13.7	12.2	14.3	13.7
Purchased Electricity					0.0	0.4	1.1	1.6
Total					**18.3**	**23.8**	**23.7**	**29.1**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					1.3	2.5	2.5	2.5
Oil and Gas								
Still Gas					16.0	17.0	22.8	22.8
Diesel					4.5	4.5	4.5	4.5
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)					15.2	16.2	21.7	21.7
Natural Gas (own use)					47.7	44.2	36.1	27.8
Electricity					7.4	7.1	6.2	4.8
NGLs					2.2	1.8	1.0	0.5
Total Energy					**93.1**	**90.7**	**92.4**	**82.2**
Electricity Generation								
Coal	111.9	143.1	137.7	149.2	135.8	138.8	140.8	149.2
Natural Gas	3.6	6.5	25.8	47.0	33.4	33.4	33.4	38.2
Oil	0.1	0.2	0.3	0.3	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	15.2	14.8	11.0	10.3	12.4	14.4	14.8	14.8
Total	**130.7**	**164.6**	**174.7**	**206.9**	**181.6**	**186.7**	**189.0**	**202.2**
Total								
Petroleum					25.1	32.7	35.6	41.1
Natural Gas					111.4	108.5	108.1	103.9
Coal					135.8	138.8	140.8	149.2
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					12.4	14.4	14.8	14.8
Electricity					7.4	7.5	7.3	6.4
Total					**292.1**	**301.9**	**306.6**	**315.5**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					199.7	182.4	161.7	138.7
Heavy Oil					858.8	833.0	735.3	629.6
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					306.6	237.4	128.9	73.2
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil					89.4	81.6	72.4	62.1
Heavy Oil					361.9	351.0	309.8	265.3
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					292.0	226.1	122.7	69.7
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector
(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**42.7**	**56.9**	**63.7**	**69.1**	**65.8**	**71.7**	**70.9**	**70.1**
POWER GENERATION	**10.4**	**13.9**	**14.7**	**16.9**	**14.2**	**14.5**	**14.7**	**15.7**
INDUSTRIAL (Excl. Oil & Gas)	**2.5**	**3.7**	**4.4**	**4.4**	**5.7**	**6.4**	**7.0**	**7.7**
COMBUSTION	2.2	3.5	3.1	3.0	5.6	6.3	6.9	7.5
NON-COMBUSTION	0.2	0.2	1.3	1.4	0.2	0.2	0.2	0.2
NON-ENERGY	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 (CEMENT,LIME,SODA ASH)	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**2.5**	**2.5**	**2.3**	**2.0**	**1.9**	**1.9**	**1.9**	**1.9**
COMMERCIAL & PUBLIC ADMIN	**1.0**	**1.2**	**1.7**	**1.8**	**1.7**	**1.7**	**1.9**	**2.0**
OIL AND GAS INDUSTRIES	**9.4**	**14.9**	**19.7**	**22.1**	**20.8**	**19.7**	**17.2**	**13.9**
COMBUSTION	3.4	5.5	5.3	6.0	5.0	4.5	3.7	3.0
FUGITIVES	6.0	9.5	14.5	16.2	15.8	15.2	13.5	10.9
TRANSPORTATION	**9.5**	**11.4**	**11.2**	**10.5**	**11.1**	**11.7**	**12.1**	**12.4**
OTHERS	**7.5**	**9.3**	**9.7**	**11.4**	**10.1**	**14.7**	**15.0**	**15.4**
AGROECOSYSTEMS	6.8	8.6	8.9	10.3	9.2	13.6	13.9	14.0
WASTE	0.6	0.7	0.7	0.9	0.8	0.8	0.8	0.9
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.1	0.1	0.2	0.3	0.3	0.4

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	85,687.0	96,019.0	114,160.0	129,259.0	134,164.0	155,590.0	175,973.0	197,299.0
Personal Disposable Income ($1997 millions)	50,563.3	52,200.9	63,116.8	76,734.6	80,994.6	99,296.3	115,433.9	132,912.0
Personal Disposable Income per capita ($1997 thousands)	16.9	18.3	22.5	27.5	29.2	35.6	41.4	47.6
Consumer Price Index (1992=100)	93.1	104.9	117.4	128.0	132.4	142.2	148.1	154.2
Unemployment Rate (percent)	6.8	7.8	5.0	4.9	4.8	4.4	3.9	3.1
Gross Domestic Product by Sector ($1997 millions)								
Industry	34,856	39,180	43,591	47,042	48,451	54,920	60,544	64,854
Manufacturing	9,069	9,987	12,361	13,254	13,686	15,381	16,811	18,403
Non-manufacturing	25,787	29,193	31,230	33,788	34,765	39,539	43,733	46,451
Utilities	2,214	2,474	2,754	2,675	2,745	3,055	3,370	3,702
Services	48,616	54,365	67,815	79,542	82,968	97,615	112,059	128,744
Total Provincial Economy	**85,686**	**96,019**	**114,160**	**129,259**	**134,164**	**155,590**	**175,973**	**197,300**
Floorspace								
Comm. Floorspace (million m^2)	71	76	80	83	85	91	99	109
Population and Labour Force (thousands)								
Population	2,547.2	2,734.5	3,004.9	3,192.0	3,230.3	3,417.5	3,599.0	3,771.4
Households	903.8	983.4	1,096.5	1,202.8	1,226.7	1,345.1	1,456.8	1,562.1
Labour Force	1,372.1	1,484.7	1,671.4	1,854.0	1,888.1	1,994.2	2,074.0	2,148.0
Employment, Non-Agriculture	1,278.5	1,369.3	1,588.2	1,763.0	1,797.7	1,906.8	1,993.1	2,080.5

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.12	15.19	15.09	14.31
Natural Gas					11.07	10.05	9.01	9.10
Electricity					21.35	23.13	24.20	25.41
Commercial								
Petroleum Products					10.16	7.59	7.54	7.15
Natural Gas					10.24	9.22	8.21	8.36
Electricity					16.36	17.10	17.00	17.89
Industrial								
Petroleum Products					16.62	13.63	13.47	12.76
Natural Gas					8.34	7.50	6.54	6.84
Electricity					15.93	16.49	14.84	14.93
Transportation								
Petroleum Products					22.53	18.82	18.39	17.39
Electricity								
Natural Gas					8.74	7.78	6.96	7.37
Thernal Coal					0.97	1.17	1.14	1.42
(2003 cdn Dollars)								
Residential								
Petroleum Products (cents/l)					70.08	58.74	58.36	55.35
Natural Gas ($/GJ)					11.07	10.05	9.01	9.10
Electricity(cents/KWh)					7.69	8.33	8.71	9.15
Commercial								
Petroleum Products (cents/l)					39.30	29.36	29.17	27.66
Natural Gas ($/GJ)					10.24	9.22	8.21	8.36
Electricity(cents/KWh)					5.89	6.15	6.12	6.44
Industrial								
Petroleum Products (cents/l)					66.47	54.53	53.89	51.05
Natural Gas ($/GJ)					8.34	7.50	6.54	6.84
Electricity(cents/KWh)					5.73	5.93	5.34	5.38
Transportation								
Petroleum Products(cents/l)					78.09	65.24	63.75	60.27
Electricity								
Natural Gas ($/GJ)					8.74	7.78	6.96	7.37
Thernal Coal					0.97	1.17	1.14	1.42

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	1.1	0.7	0.3	0.0	0.0	0.0	0.0	0.1
LPG	3.3	2.3	1.6	1.5	1.5	1.7	1.8	1.9
Natural Gas	122.3	143.8	160.3	159.8	154.8	161.5	168.6	173.5
Coal	0.9	1.3	0.7	0.1	0.0	0.0	0.0	0.0
Renewable Energy	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Electricity	20.9	22.7	25.6	27.5	28.5	30.7	32.8	34.9
Delivered Energy	**149.2**	**171.3**	**189.0**	**189.5**	**185.3**	**194.4**	**203.7**	**211.0**
Commercial								
Distillate Fuel	0.3	0.2	0.3	0.1	0.1	0.2	0.2	0.2
Residual Fuel	0.2	0.4	1.0	1.9	1.8	2.1	2.2	2.5
LPG	2.5	16.3	9.5	9.5	10.4	8.8	9.4	9.6
Natural Gas	94.5	89.9	92.2	110.2	90.4	106.4	127.8	135.1
Coal	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Renewable Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	39.0	42.5	47.9	50.5	52.2	58.4	64.7	71.7
Delivered Energy	**136.5**	**149.3**	**150.9**	**172.3**	**155.0**	**175.9**	**204.4**	**219.1**
Transportation								
Distillate Fuel (diesel)	71.4	82.9	114.0	157.9	160.2	188.5	211.8	234.6
Jet Fuel	24.8	24.1	33.4	32.7	32.0	40.4	43.6	47.2
Motor Gasoline	142.2	141.7	160.4	173.2	173.7	204.8	225.6	248.5
Residual Fuel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	10.4	8.5	4.4	3.0	2.9	2.9	3.1	3.5
Other Petroleum	0.9	0.9	0.9	1.0	3.3	3.9	4.4	5.0
Petroleum Subtotal	**248.8**	**257.2**	**312.2**	**367.8**	**372.1**	**440.4**	**488.6**	**538.8**
Pipeline Fuel Natural Gas	24.6	51.9	51.5	61.1	50.2	48.9	42.5	34.0
Compressed Natural Gas	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Ethanol	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity	3.7	4.6	4.2	2.7	3.0	3.4	3.6	3.7
Delivered Energy	**277.1**	**313.7**	**367.9**	**431.7**	**425.3**	**492.7**	**534.8**	**576.6**
Industry								
Total End Use Energy	**267.4**	**329.2**	**347.7**	**308.7**	**327.2**	**340.4**	**356.0**	**373.2**
Electricity purchased	27.9	43.6	45.0	38.5	47.5	48.8	50.6	52.8
Natural Gas + NGLs	198.3	207.1	200.2	162.4	156.1	163.8	171.0	180.0
RPP's	23.6	25.6	45.9	37.0	56.8	58.7	61.7	64.7
Coal & Coke	0.0	0.3	0.5	5.2	13.0	13.5	14.6	15.7
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	17.6	52.7	56.1	65.6	53.9	55.6	58.1	60.0
Non-Energy Use	**273.9**	**310.9**	**319.7**	**484.0**	**140.8**	**157.6**	**173.0**	**188.6**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	320.0	320.0	320.0	320.0
Total End Use	**541.3**	**640.0**	**667.4**	**792.7**	**788.0**	**818.0**	**849.0**	**881.9**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	256.2	277.4	325.4	386.2	442.7	511.9	564.0	617.8
Natural Gas	265.0	311.2	349.9	368.2	451.5	480.7	509.9	522.6
Coal and Coke	0.9	1.3	0.7	0.1	13.1	13.6	14.7	15.8
Electricity purchased	261.9	276.8	277.9	243.0	131.3	141.2	151.7	163.2
Own generation - Hydro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	18.3	53.2	56.6	66.1	54.4	56.1	58.6	60.5
Total Energy	**802.2**	**919.9**	**1,010.4**	**1,063.6**	**1,092.9**	**1,203.4**	**1,298.9**	**1,379.9**
Total Non-Energy	273.9	310.9	319.7	484.0	460.8	477.6	493.0	508.6
Total End-Use Energy Consumption	**1,076.1**	**1,230.8**	**1,330.1**	**1,547.6**	**1,553.6**	**1,681.0**	**1,791.9**	**1,888.6**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	4.9	6.0	5.9	5.8	6.6	6.9	6.6	6.9
Other Fossil Steam	1.7	1.2	0.8	1.1	1.1	1.1	1.1	1.1
Combined Cycle	0.0	0.0	0.2	1.2	2.0	2.0	2.0	2.0
Combustion Turbine	0.3	0.3	0.5	1.4	1.5	1.5	1.5	1.5
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	0.7	0.8	0.9	0.9	1.1	1.1	1.1	1.1
Renewable - wind	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Renewable - other	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total Capability	**7.6**	**8.3**	**8.3**	**10.8**	**12.6**	**12.9**	**12.6**	**12.9**
Electricity Sales (bil. Kwh)								
Residential	5.8	6.3	7.1	7.7	7.9	8.5	9.1	9.7
Commercial/Other	10.8	11.8	13.3	14.0	14.5	16.2	18.0	19.9
Industrial	17.7	25.4	27.0	27.8	29.3	27.9	27.0	26.2
Transportation	1.0	1.3	1.2	0.7	0.8	0.9	0.9	1.0
Total Sales	**35.4**	**44.8**	**48.6**	**50.2**	**52.5**	**53.6**	**55.0**	**56.8**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.0	0.0	0.2	0.4	0.3	0.3	0.3	0.3
Gross International Exports	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Gross Interregional Elec. Imp.	0.0	0.0	0.8	0.6	3.3	2.6	3.7	1.3
Gross Interregional Elec. Exp.	0.8	1.0	0.0	0.0	0.7	0.8	0.4	1.0
Net Import	**-0.8**	**-1.0**	**0.8**	**0.8**	**2.7**	**2.0**	**3.5**	**0.5**
Generation by Fuel Type (bil. Kwh)								
Coal	34.7	43.1	42.2	44.6	46.5	49.0	47.8	50.5
Petroleum	0.0	0.0	0.0	1.5	0.1	0.1	0.1	0.1
Natural Gas	2.9	2.6	9.1	6.8	2.8	1.9	3.0	5.1
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	2.1	2.2	2.2	3.8	3.6	3.7	3.7	3.7
- Hydro	2.1	2.2	1.8	2.5	2.3	2.4	2.4	2.4
- Wind	0.0	0.0	0.1	0.6	0.7	0.7	0.7	0.7
- Other			0.3	0.7	0.7	0.7	0.6	0.6
Total Generation	**39.6**	**47.9**	**53.6**	**56.7**	**53.1**	**54.7**	**54.6**	**59.4**
Implied own use & losses	**3.4**	**2.1**	**5.8**	**7.3**	**3.3**	**3.2**	**3.1**	**3.1**
Fuel Requirements								
Coal	396.3	484.9	478.2	490.0	527.0	545.4	526.6	552.5
Natural Gas	32.9	29.5	102.5	75.2	23.8	16.1	24.9	42.4
Oil	0.2	0.2	1.6	16.6	1.3	1.3	1.3	1.3
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	7.4	7.9	8.0	13.5	13.1	13.5	13.3	13.3
Total	**436.8**	**522.5**	**590.3**	**595.3**	**565.2**	**576.3**	**566.3**	**609.5**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					31.4	49.9	59.6	64.3
Natural Gas					27.4	24.4	28.5	27.4
Purchased Electricity					0.0	0.9	2.4	3.4
Total					**58.8**	**75.2**	**90.5**	**95.1**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					0.0	0.0	0.0	0.0
Oil and Gas								
Still Gas					94.8	208.7	270.5	316.8
Diesel					38.3	64.0	78.0	88.5
Petroleum Coke					65.9	145.0	187.9	220.1
Natural Gas (purchased)					243.2	481.6	586.8	681.8
Natural Gas (own use)					548.9	509.7	430.1	337.2
Electricity					57.9	50.9	44.3	38.2
NGLs					37.7	33.8	27.1	19.0
Total Energy					**1,086.5**	**1,493.8**	**1,624.7**	**1,701.7**
Electricity Generation								
Coal	396.3	484.9	478.2	490.0	527.0	545.4	526.6	552.5
Natural Gas	32.9	29.5	102.5	75.2	23.8	16.1	24.9	42.4
Oil	0.2	0.2	1.6	16.6	1.3	1.3	1.3	1.3
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	7.4	7.9	8.0	13.5	13.1	13.5	13.3	13.3
Total	**436.8**	**522.5**	**590.3**	**595.3**	**565.2**	**576.3**	**566.3**	**609.5**
Total								
Petroleum					231.7	469.0	597.3	691.0
Natural Gas					843.2	1,031.8	1,070.3	1,088.9
Coal					527.0	545.4	526.6	552.5
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					13.1	13.5	13.3	13.3
Electricity					57.9	51.8	46.7	41.7
Total					**1,672.9**	**2,111.5**	**2,254.4**	**2,387.3**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil					810.4	650.3	552.2	490.7
Heavy Oil					484.0	389.3	301.6	225.4
Oilsands - insitu- bitumen					1,043.1	1,986.9	2,359.5	2,732.1
Oilsands - synthetic					1,246.0	2,743.6	3,555.2	4,164.0
Natural Gas					5,142.9	4,559.4	3,876.6	2,807.8
Coalbed Methane					54.6	419.8	524.8	629.7
(thousands barrels/day)								
Light Oil)					362.6	291.1	247.2	219.6
Heavy Oil					203.9	164.0	127.1	95.0
Oilsands - insitu- bitumen					420.0	800.0	950.0	1,100.0
Oilsands - synthetic					545.0	1,200.0	1,555.0	1,821.2
(Bcf/year)								
Natural Gas					4,898.0	4,342.3	3,692.0	2,674.1
Coalbed Methane					52.0	399.8	499.8	599.7

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**168.2**	**197.2**	**222.7**	**234.8**	**243.6**	**280.6**	**293.2**	**304.7**
POWER GENERATION	**40.2**	**49.2**	**52.1**	**52.7**	**51.3**	**52.6**	**51.4**	**54.7**
INDUSTRIAL (Excl. Oil & Gas)	**28.4**	**31.7**	**35.2**	**37.6**	**39.8**	**61.2**	**74.1**	**83.6**
COMBUSTION	20.1	21.9	24.9	24.8	27.8	48.7	60.6	69.4
NON-COMBUSTION	6.8	8.2	8.6	11.0	10.4	11.1	11.7	12.4
NON-ENERGY	1.5	1.6	1.8	1.9	1.8	1.8	2.0	2.1
CO_2 (CEMENT,LIME,SODA ASH)	0.8	0.9	1.1	1.2	1.2	1.3	1.4	1.5
N_2O (NITRIC & ADIPIC ACID)	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**7.1**	**7.9**	**8.6**	**8.4**	**8.2**	**8.5**	**8.9**	**9.2**
COMMERCIAL & PUBLIC ADMIN	**5.0**	**5.5**	**5.3**	**6.1**	**5.3**	**6.0**	**7.1**	**7.5**
OIL AND GAS INDUSTRIES	**50.8**	**61.6**	**72.4**	**77.5**	**86.0**	**94.5**	**90.4**	**84.8**
COMBUSTION	23.8	27.3	36.2	44.1	45.6	51.5	49.8	47.1
FUGITIVES	27.0	34.4	36.2	33.4	40.5	43.0	40.6	37.7
TRANSPORTATION	**22.6**	**24.8**	**30.1**	**33.1**	**33.0**	**37.4**	**40.5**	**43.6**
OTHERS	**14.1**	**16.4**	**18.9**	**19.4**	**19.7**	**20.1**	**20.7**	**21.4**
AGROECOSYSTEMS	12.5	14.7	16.7	16.7	17.6	17.6	18.0	18.2
WASTE	1.5	1.6	1.9	2.2	1.6	1.6	1.7	1.8
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
HFCs	0.0	0.0	0.3	0.5	0.5	0.9	1.0	1.4

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	92,276.0	98,930.0	115,209.0	127,314.0	131,710.0	149,241.0	164,445.0	182,473.0
Personal Disposable Income ($1997 millions)	66,452.6	70,273.4	78,988.6	86,470.0	90,339.2	106,008.1	115,791.9	126,586.5
Personal Disposable Income per capita ($1997 thousands)	17.0	18.3	20.2	22.5	23.5	28.1	32.0	36.5
Consumer Price Index (1992=100)	92.4	107.9	113.3	122.0	124.4	133.7	141.5	150.4
Unemployment Rate (percent)	8.6	8.4	7.2	8.0	8.0	8.0	7.8	6.7
Gross Domestic Product by Sector ($1997 millions)								
Industry	24,514	23,987	28,480	29,812	30,675	32,521	35,682	38,373
Manufacturing	9,734	10,389	13,995	14,528	14,984	16,152	17,710	19,388
Non-manufacturing	14,780	13,598	14,485	15,284	15,691	16,369	17,972	18,985
Utilities	2,049	2,287	2,493	2,205	2,249	2,443	2,635	2,830
Services	65,713	72,655	84,237	95,297	98,785	114,276	126,127	141,270
Total Provincial Economy	**92,276**	**98,929**	**115,210**	**127,314**	**131,709**	**149,240**	**164,444**	**182,473**
Floorspace								
Comm. Floorspace (million m^2)	53	62	69	75	77	89	101	115
Population and Labour Force (thousands)								
Population	3,290.8	3,777.0	4,039.2	4,177.0	4,206.3	4,342.5	4,461.2	4,559.7
Households	1,240.1	1,431.7	1,561.5	1,645.6	1,669.5	1,785.7	1,890.4	1,982.8
Labour Force	1,700.3	1,957.6	2,099.7	2,233.0	2,264.4	2,370.0	2,402.7	2,439.8
Employment, Non-Agriculture	1,554.9	1,792.3	1,949.1	2,053.7	2,083.4	2,180.1	2,214.7	2,277.4

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					18.75	15.78	15.66	14.86
Natural Gas					14.85	13.96	13.72	13.06
Electricity					19.79	19.70	17.43	17.33
Commercial								
Petroleum Products					15.56	12.49	12.26	11.52
Natural Gas					13.40	12.50	12.29	11.73
Electricity					12.08	11.94	10.88	10.77
Industrial								
Petroleum Products					16.34	13.36	13.21	12.52
Natural Gas					11.44	10.52	10.46	10.01
Electricity					10.90	10.70	9.68	9.42
Transportation								
Petroleum Products					23.11	19.34	18.73	17.66
Electricity								
Natural Gas					10.12	9.31	9.01	8.94
Thernal Coal					8.47	8.47	8.47	8.47

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					72.54	61.02	60.57	57.48
Natural Gas ($/GJ)					14.85	13.96	13.72	13.06
Electricity(cents/KWh)					7.12	7.09	6.28	6.24
Commercial								
Petroleum Products (cents/l)					60.20	48.29	47.41	44.57
Natural Gas ($/GJ)					13.40	12.50	12.29	11.73
Electricity(cents/KWh)					4.35	4.30	3.92	3.88
Industrial								
Petroleum Products (cents/l)					65.37	53.46	52.84	50.08
Natural Gas ($/GJ)					11.44	10.52	10.46	10.01
Electricity(cents/KWh)					3.93	3.85	3.48	3.39
Transportation								
Petroleum Products(cents/l)					80.09	67.05	64.93	61.21
Electricity								
Natural Gas ($/GJ)					10.12	9.31	9.01	8.94
Thernal Coal					8.47	8.47	8.47	8.47

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	10.3	4.4	5.6	1.2	1.2	1.3	1.4	1.6
LPG	2.2	1.9	1.0	1.0	1.0	1.0	1.0	1.1
Natural Gas	63.3	75.2	78.6	72.6	71.2	73.5	74.2	77.1
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	8.3	6.0	6.7	6.9	6.5	6.3	6.3	6.3
Electricity	45.3	52.6	58.3	63.1	63.3	67.9	74.4	79.5
Delivered Energy	**129.4**	**140.1**	**150.2**	**144.9**	**143.1**	**150.0**	**157.3**	**165.7**
Commercial								
Distillate Fuel	4.3	2.2	2.5	6.1	5.8	6.4	6.8	7.2
Residual Fuel	0.7	0.5	0.6	2.6	1.7	2.7	3.1	3.7
LPG	1.5	3.9	2.9	2.6	2.7	3.1	3.5	4.0
Natural Gas	46.9	58.6	59.6	54.3	52.0	58.9	65.0	73.5
Coal				0.0	0.0	0.0	0.0	0.0
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	41.3	46.3	50.4	48.5	50.6	63.6	78.0	93.6
Delivered Energy	**94.6**	**111.5**	**116.0**	**114.2**	**112.9**	**134.7**	**156.3**	**182.0**
Transportation								
Distillate Fuel (diesel)	71.8	90.3	88.3	99.6	99.9	112.4	118.8	125.0
Jet Fuel	34.1	43.4	64.3	57.0	55.7	70.3	75.9	82.2
Motor Gasoline	121.4	143.2	159.3	167.1	165.8	182.4	189.3	198.2
Residual Fuel	16.6	20.9	23.1	38.1	39.5	43.3	46.7	49.7
Liquefied Petroleum Gas	12.2	8.9	4.9	4.2	4.0	3.9	3.9	4.1
Other Petroleum	1.4	0.0	1.3	1.0	3.9	4.4	4.7	5.0
Petroleum Subtotal	**256.1**	**306.7**	**340.0**	**367.0**	**368.7**	**416.6**	**439.2**	**464.1**
Pipeline Fuel Natural Gas	16.0	26.7	31.8	21.8	28.1	31.5	30.7	28.5
Compressed Natural Gas	0.9	0.7	0.6	0.2	0.2	0.1	0.1	0.1
Ethanol					0.0	4.4	4.4	4.4
Electricity	0.6	0.7	0.6	0.7	0.6	0.7	0.7	0.8
Delivered Energy	**273.5**	**334.9**	**372.9**	**389.7**	**397.7**	**453.3**	**475.2**	**497.9**
Industry								
Total End Use Energy	**400.8**	**439.8**	**501.7**	**467.5**	**462.2**	**464.0**	**478.4**	**503.1**
Electricity purchased	92.9	51.5	60.2	60.1	54.9	50.8	50.2	52.2
Natural Gas + NGLs	84.9	115.1	140.1	120.3	123.0	123.2	125.9	135.2
RPP's	61.5	38.9	43.8	45.2	39.7	39.4	40.8	42.5
Coal & Coke	4.1	8.1	9.3	14.3	23.2	23.7	24.8	27.0
Own generation - Hydro	0.0	40.9	33.9	34.7	36.8	36.8	36.8	36.8
Renewables	157.4	185.4	214.4	193.0	184.7	190.1	199.9	209.4
Non-Energy Use	**20.0**	**20.0**	**20.0**	**20.0**	**21.8**	**23.5**	**25.5**	**27.2**
Unallocated Non-Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End Use	**420.8**	**459.8**	**521.7**	**487.5**	**484.1**	**487.5**	**503.9**	**530.2**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	336.5	358.5	396.3	425.8	420.8	470.4	495.8	524.3
Natural Gas	212.0	276.3	310.7	269.1	274.5	287.3	295.9	314.4
Coal and Coke	4.1	8.1	9.3	14.3	23.2	23.7	24.8	27.0
Electricity purchased	180.0	151.1	169.5	172.4	169.5	183.0	203.4	226.1
Own generation - Hydro	0.0	40.9	33.9	34.7	36.8	36.8	36.8	36.8
Renewables	165.7	191.4	221.1	199.9	191.2	200.8	210.5	220.1
Total Energy	**898.4**	**1026.3**	**1140.8**	**1116.2**	**1115.8**	**1202.0**	**1267.2**	**1348.7**
Total Non-Energy	20.0	20.0	20.0	20.0	21.8	23.5	25.5	27.2
Total End-Use Energy Consumption	**918.4**	**1046.3**	**1160.8**	**1136.2**	**1137.7**	**1225.5**	**1292.7**	**1375.9**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam	0.9	0.9	0.9	0.9	0.8	0.8	0.0	0.0
Combined Cycle	0.0	0.0	0.0	0.3	0.3	0.3	0.3	0.3
Combustion Turbine	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	9.5	9.9	10.4	11.0	10.9	11.5	12.3	12.3
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - other	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Total Capability	**10.7**	**11.1**	**11.5**	**12.4**	**12.3**	**12.8**	**12.9**	**12.9**
Electricity Sales (bil. Kwh)								
Residential	12.6	14.6	16.2	17.5	17.6	18.8	20.7	22.0
Commercial/Other	11.5	12.9	14.0	13.5	14.1	17.7	21.7	26.0
Industrial	25.8	14.0	16.6	16.6	16.6	15.4	15.2	15.7
Transportation	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total Sales	**50.0**	**41.7**	**47.0**	**47.8**	**48.4**	**52.1**	**57.8**	**63.9**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	2.0	4.7	5.4	7.3	5.2	5.2	5.2	5.2
Gross International Exports	6.2	3.5	10.0	5.6	8.4	8.6	7.2	6.2
Gross Interregional Elec. Imp.	0.7	1.2	0.0	0.0	0.7	0.7	0.3	1.0
Gross Interregional Elec. Exp.	0.0	0.0	0.0	0.2	2.9	2.2	3.2	0.9
Net Import	**-3.5**	**2.4**	**-4.6**	**1.5**	**-5.4**	**-5.0**	**-4.9**	**-0.9**
Generation by Fuel Type (bil. Kwh)								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum	0.1	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Natural Gas	1.3	4.7	3.9	2.9	1.3	1.7	0.4	1.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	46.4	38.9	51.3	45.5	62.3	65.2	70.2	70.4
- Hydro	46.4	38.9	50.8	45.0	61.7	64.5	69.5	69.8
- Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Other			0.5	0.5	0.7	0.7	0.7	0.7
Total Generation	**47.8**	**43.6**	**55.2**	**48.5**	**63.8**	**67.1**	**70.7**	**71.6**
Implied own use & losses	**-5.7**	**4.3**	**3.6**	**2.3**	**10.0**	**10.1**	**8.1**	**6.9**
Fuel Requirements								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	13.9	43.2	34.8	15.7	11.6	15.6	3.1	8.0
Oil	1.2	0.4	0.5	0.3	3.1	3.1	3.1	3.1
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	167.2	140.0	184.6	163.9	224.4	234.6	252.5	253.6
Total	**182.3**	**183.6**	**219.9**	**179.9**	**239.0**	**253.4**	**258.7**	**264.7**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					6.8	10.3	12.3	13.0
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					0.0	0.1	0.3	0.5
Total					**6.8**	**10.4**	**12.6**	**13.5**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas					1.0	1.0	1.0	1.0
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					1.1	1.1	1.1	1.1
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)								
Natural Gas (own use)					52.2	58.5	57.1	52.2
Electricity					4.4	4.5	4.2	3.7
NGLs					7.4	8.5	8.3	7.6
Total Energy					**65.1**	**72.6**	**70.8**	**64.6**
Electricity Generation								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	13.9	43.2	34.8	15.7	11.6	15.6	3.1	8.0
Oil	1.2	0.4	0.5	0.3	3.1	3.1	3.1	3.1
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	167.2	140.0	184.6	163.9	224.4	234.6	252.5	253.6
Total	**182.3**	**183.6**	**219.9**	**179.9**	**239.0**	**253.4**	**258.7**	**264.7**
Total								
Petroleum					11.0	14.5	16.5	17.3
Natural Gas					64.7	16.6	4.1	9.0
Coal					0.0	0.0	0.0	0.0
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					224.4	234.6	252.5	253.6
Electricity					4.4	4.6	4.5	4.2
Total					**304.5**	**270.4**	**277.7**	**284.0**

Crude Oil and Natural Gas Production
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil)					114.6	108.3	99.2	85.4
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					1012.3	1159.8	1053.2	1029.8
Coalbed Methane					0.0	5.2	12.6	21.0
(thousand barrels/day)								
Light Oil)					51.3	48.5	44.4	38.2
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					964.1	1104.6	1003.0	980.8
Coalbed Methane					0.0	5.0	12.0	20.0

Total Greenhouse Gas Emissions by Sector

(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**51.5**	**59.5**	**64.1**	**67.4**	**67.3**	**73.0**	**74.3**	**77.4**
POWER GENERATION	**1.2**	**2.7**	**2.5**	**1.8**	**1.3**	**1.5**	**0.9**	**1.1**
INDUSTRIAL (Excl. Oil & Gas)	**10.4**	**11.4**	**12.3**	**11.2**	**13.2**	**13.8**	**13.8**	**14.6**
COMBUSTION	6.8	6.8	7.9	7.5	8.9	9.2	9.6	10.3
NON-COMBUSTION	1.8	2.4	1.9	1.5	0.7	0.8	0.8	0.8
NON-ENERGY	1.8	2.2	2.6	2.2	3.5	3.6	3.3	3.4
CO_2 (CEMENT,LIME,SODA ASH)	0.8	0.9	1.3	1.3	1.4	1.5	1.6	1.7
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	1.0	1.2	1.3	0.9	0.8	0.8	0.6	0.6
RESIDENTIAL & AGRICULTURE	**4.6**	**4.6**	**4.9**	**4.0**	**3.9**	**4.1**	**4.1**	**4.3**
COMMERCIAL & PUBLIC ADMIN	**2.8**	**3.4**	**3.4**	**3.5**	**3.3**	**3.8**	**4.2**	**4.7**
OIL AND GAS INDUSTRIES	**6.5**	**7.1**	**8.9**	**11.3**	**10.7**	**12.0**	**11.7**	**10.8**
COMBUSTION	3.7	2.7	4.1	5.8	6.4	7.2	7.1	6.5
FUGITIVES	2.8	4.4	4.8	5.6	4.3	4.7	4.6	4.3
TRANSPORTATION	**18.9**	**22.7**	**24.4**	**26.5**	**25.4**	**28.3**	**29.4**	**30.5**
OTHERS	**7.0**	**7.7**	**7.7**	**9.1**	**9.6**	**10.0**	**10.6**	**11.6**
AGROECOSYSTEMS	2.1	2.3	2.2	2.5	2.4	2.3	2.3	2.3
WASTE	4.9	5.3	5.1	5.9	6.4	6.5	6.9	7.3
SOLVENT AND OTHER	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HFCs	0.0	0.1	0.4	0.6	0.7	1.1	1.3	1.9

Economic Indicators

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Macroeconomic Indicators								
Gross Domestic Product ($1997 Millions)	3,362.0	3,509.0	4,055.0	4,911.0	5,156.0	6,001.0	7,333.0	8,104.0
Personal Disposable Income ($1997 millions)	1,517.0	1,952.0	2,656.0	3,147.0	3,311.2	4,037.3	4,875.8	5,800.2
Personal Disposable Income per capita ($1997 thousands)	17.5	20.2	27.0	30.4	31.5	36.1	41.0	46.2
Consumer Price Index (1992=100)								
Unemployment Rate (percent)								
Gross Domestic Product by Sector ($1997 millions)								
Industry	1,026	956	1,113	1,586	1,705	2,068	2,545	2,526
Manufacturing	10	10	8	10	11	12	13	14
Non-manufacturing	1,016	946	1,105	1,576	1,694	2,056	2,532	2,512
Utilities	64	71	70	68	70	80	89	98
Services	2,272	2,482	2,871	3,256	3,380	3,854	4,700	5,481
Total Provincial Economy	**3,362**	**3,509**	**4,054**	**4,910**	**5,155**	**6,002**	**7,334**	**8,105**
Floorspace								
Comm. Floorspace (million m^2)	3	3	4	5	5	7	8	10
Population and Labour Force (thousands)								
Population	86.7	96.9	98.4	103.6	105.0	111.9	118.8	125.6
Households	19.9	23.1	24.5	33.5	25.7	28.3	30.5	32.4
Labour Force								
Employment, Non-Agriculture								

Energy Prices (taxes included) by Sector and Fuel
(2003 Dollars per GJ)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Petroleum Products					20.92	17.93	17.82	16.90
Natural Gas					11.07	10.05	9.01	9.10
Electricity					109.97	98.33	101.07	96.24
Commercial								
Petroleum Products					16.38	13.44	13.16	12.32
Natural Gas					10.24	9.22	8.21	8.36
Electricity					80.48	57.11	45.18	32.14
Industrial								
Petroleum Products					22.70	19.57	19.22	18.19
Natural Gas					8.34	7.50	6.54	6.84
Electricity					82.40	75.29	55.78	53.36
Transportation								
Petroleum Products					26.23	22.55	22.16	20.96
Electricity								
Natural Gas					8.74	7.78	6.96	7.37
Thernal Coal					8.47	8.47	8.47	8.47

(2003 cdn Dollars)

Residential								
Petroleum Products (cents/l)					80.90	69.36	68.92	65.35
Natural Gas ($/GJ)					11.07	10.05	9.01	9.10
Electricity(cents/KWh)					39.59	35.40	36.39	34.65
Commercial								
Petroleum Products (cents/l)					63.35	51.99	50.89	47.67
Natural Gas ($/GJ)					10.24	9.22	8.21	8.36
Electricity(cents/KWh)					28.97	20.56	16.27	11.57
Industrial								
Petroleum Products (cents/l)					90.80	78.26	76.87	72.74
Natural Gas ($/GJ)					8.34	7.50	6.54	6.84
Electricity(cents/KWh)					29.66	27.11	20.08	19.21
Transportation								
Petroleum Products(cents/l)					90.90	78.16	76.80	72.64
Electricity								
Natural Gas ($/GJ)					8.74	7.78	6.96	7.37
Thernal Coal					8.47	8.47	8.47	8.47

Energy Demand by End-Use Sectors
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Residential								
Distillate Fuel (heating oil)	1.5	0.9	1.8	1.7	1.6	1.7	1.7	1.8
LPG	0.7	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Natural Gas	0.6	1.0	0.2	0.2	0.2	0.2	0.2	0.2
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	0.2	0.2	0.2	0.0	0.3	0.3	0.2	0.2
Electricity	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.3
Delivered Energy	**4.0**	**3.3**	**3.4**	**3.2**	**3.4**	**3.4**	**3.5**	**3.7**
Commercial								
Distillate Fuel	3.7	5.3	1.8	1.8	1.8	2.3	2.8	3.3
Residual Fuel	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LPG	0.4	0.3	0.5	0.5	0.5	0.7	0.9	1.0
Natural Gas	0.6	2.2	1.2	1.0	0.9	1.3	1.8	2.1
Coal				0.0	0.0	0.0	0.0	0.0
Renewable Energy					0.0	0.0	0.0	0.0
Electricity	1.1	1.2	1.4	1.5	1.6	1.9	2.0	2.2
Delivered Energy	**5.9**	**9.1**	**4.8**	**4.8**	**4.8**	**6.1**	**7.4**	**8.6**
Transportation								
Distillate Fuel (diesel)	3.1	4.5	3.1	3.9	3.9	4.3	4.6	4.9
Jet Fuel	2.8	3.3	2.4	3.0	2.9	3.6	3.9	4.3
Motor Gasoline	3.4	3.4	3.2	2.8	2.7	3.0	3.2	3.4
Residual Fuel	0.0	0.9	0.1	0.0	0.0	0.0	0.0	0.0
Liquefied Petroleum Gas	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Other Petroleum	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2
Petroleum Subtotal	**9.4**	**12.2**	**8.9**	**9.7**	**9.7**	**11.2**	**11.9**	**12.7**
Pipeline Fuel Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Compressed Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ethanol					0.0	0.0	0.0	0.0
Electricity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delivered Energy	**9.4**	**12.2**	**8.9**	**9.7**	**9.7**	**11.2**	**11.9**	**12.7**
Industry								
Total End Use Energy	**5.7**	**6.3**	**10.0**	**9.6**	**6.8**	**7.2**	**7.3**	**7.2**
Electricity purchased	0.7	0.9	0.5	0.4	0.1	0.1	0.1	0.0
Natural Gas + NGLs	1.8	1.8	2.1	1.9	0.0	0.0	0.0	0.0
RPP's	3.2	3.5	7.4	7.1	6.5	6.9	7.0	6.9
Coal & Coke	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Own generation - Hydro	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.0
Renewables					0.0	0.0	0.0	0.0
Non-Energy Use					**0.0**	**0.0**	**0.0**	**0.0**
Unallocated Non-Energy Use	5.7	6.3	10.0	9.6	0.0	0.0	0.0	0.0
Total End Use	**11.5**	**6.3**	**10.0**	**9.6**	**6.8**	**7.2**	**7.3**	**7.2**
Historical data may include energy related to oil & gas operations								
Total End-use Energy Consumption								
Petroleum	19.0	22.4	20.6	21.1	20.4	22.9	24.5	26.0
Natural Gas	3.0	5.0	3.5	3.1	1.0	1.4	1.9	2.3
Coal and Coke	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Electricity purchased	2.8	3.2	2.9	3.0	2.7	3.0	3.3	3.5
Own generation - Hydro	0.0	0.1	0.0	0.1	0.2	0.2	0.2	0.0
Renewables	0.2	0.2	0.2	0.0	0.3	0.3	0.2	0.2
Total Energy	**25.1**	**30.9**	**27.1**	**27.3**	**24.7**	**27.9**	**30.2**	**32.0**
Total Non-Energy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total End-Use Energy Consumption	**25.1**	**30.9**	**27.1**	**27.3**	**24.7**	**27.9**	**30.2**	**32.0**

Electric Power

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Electricity Generating Capacity (gigawatts)								
Coal Steam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Fossil Steam	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2
Combined Cycle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Combustion Turbine	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0
Nuclear Power	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - large hydro	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Renewable - wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable - other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Capability	**0.2**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.3**	**0.3**
Electricity Sales (bil. Kwh)								
Residential	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
Commercial/Other	0.3	0.3	0.4	0.4	0.4	0.5	0.6	0.6
Industrial	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.0
Transportation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Sales	**0.9**	**1.0**	**0.8**	**0.8**	**0.8**	**0.8**	**0.9**	**1.0**
Electricity Imports & Exports (bil.kwh)								
Gross International Imports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross International Exports	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Interregional Elec. Imp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gross Interregional Elec. Exp.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Import	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Generation by Fuel Type (bil. Kwh)								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Petroleum	0.3	0.4	0.2	0.3	0.6	0.6	0.6	0.6
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewables	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5
- Hydro	0.6	0.5	0.5	0.6	0.5	0.5	0.5	0.5
- Wind	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
- Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Generation	**0.9**	**0.9**	**0.7**	**0.8**	**1.1**	**1.1**	**1.1**	**1.1**
Implied own use & losses	**0.1**	**-0.1**	**-0.1**	**0.1**	**0.4**	**0.3**	**0.2**	**0.1**
Fuel Requirements								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	3.5	3.0	1.5	1.3	9.3	9.3	9.3	9.3
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	2.3	1.8	1.8	2.0	1.9	1.9	1.9	1.9
Total	**5.9**	**4.7**	**3.4**	**3.3**	**11.2**	**11.2**	**11.2**	**11.2**

Energy Consumption by Energy Supplying Industries
(Petajoules)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Refining Industry								
Refinery Fuel Consumption (PJ)								
Petroleum					0.0	0.0	0.0	0.0
Natural Gas					0.0	0.0	0.0	0.0
Purchased Electricity					0.0	0.0	0.0	0.0
Total					**0.0**	**0.0**	**0.0**	**0.0**
Biofuels suppliers (ethanol/biodiesel)								
Natural Gas								
Oil and Gas								
Still Gas					0.0	0.0	0.0	0.0
Diesel					0.0	0.0	0.0	0.0
Petroleum Coke					0.0	0.0	0.0	0.0
Natural Gas (purchased)								
Natural Gas (own use)					4.3	4.3	30.4	35.0
Electricity					0.0	0.0	0.0	0.0
NGLs					0.1	0.1	4.5	5.4
Total Energy					**4.5**	**4.5**	**34.9**	**40.4**
Electricity Generation								
Coal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Natural Gas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Oil	3.5	3.0	1.5	1.3	9.3	9.3	9.3	9.3
Nuclear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Renewable Energy	2.3	1.8	1.8	2.0	1.9	1.9	1.9	1.9
Total	**5.9**	**4.7**	**3.4**	**3.3**	**11.2**	**11.2**	**11.2**	**11.2**
Total								
Petroleum					9.3	9.3	9.3	9.3
Natural Gas					4.3	0.0	0.0	0.0
Coal					0.0	0.0	0.0	0.0
Nuclear Power					0.0	0.0	0.0	0.0
Renewable Energy					1.9	1.9	1.9	1.9
Electricity					0.0	0.0	0.0	0.0
Total					**15.5**	**11.2**	**11.2**	**11.2**

Crude Oil and Natural Gas Production
(Petajoules Per Year)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
Light Oil)					67.0	67.0	67.0	53.1
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen					0.0	0.0	0.0	0.0
Oilsands - synthetic					0.0	0.0	0.0	0.0
Natural Gas					19.2	18.9	621.5	745.0
Coalbed Methane					0.0	0.0	0.0	0.0
(thousand barrels/day)								
Light Oil)					30.0	30.0	30.0	23.8
Heavy Oil					0.0	0.0	0.0	0.0
Oilsands - insitu- bitumen								
Oilsands - synthetic								
(Bcf/year)								
Natural Gas					18.3	18.0	591.9	709.5
Coalbed Methane					0.0	0.0	0.0	0.0

Total Greenhouse Gas Emissions by Sector
(Megatonnes CO_2 - Equivalent)

	1990	1995	2000	2004	Forecast 2005	2010	2015	2020
GREENHOUSE GAS (GHG) EMISSIONS	**2.0**	**2.2**	**1.9**	**1.9**	**2.8**	**2.9**	**8.1**	**9.2**
POWER GENERATION	**0.3**	**0.4**	**0.3**	**0.3**	**0.7**	**0.7**	**0.7**	**0.7**
INDUSTRIAL (Excl. Oil & Gas)	**0.1**	**0.2**	**0.1**	**0.1**	**0.2**	**0.2**	**0.2**	**0.2**
COMBUSTION	0.1	0.2	0.1	0.1	0.2	0.2	0.2	0.2
NON-COMBUSTION	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NON-ENERGY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 (CEMENT,LIME,SODA ASH)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N_2O (NITRIC & ADIPIC ACID)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SF_6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RESIDENTIAL & AGRICULTURE	**0.2**	**0.1**	**0.1**	**0.2**	**0.1**	**0.2**	**0.2**	**0.2**
COMMERCIAL & PUBLIC ADMIN	**0.3**	**0.5**	**0.2**	**0.2**	**0.2**	**0.3**	**0.3**	**0.4**
OIL AND GAS INDUSTRIES	**0.2**	**0.1**	**0.2**	**0.2**	**0.7**	**0.7**	**5.8**	**6.8**
COMBUSTION	0.2	0.0	0.2	0.2	0.3	0.3	3.6	4.2
FUGITIVES	0.1	0.0	0.0	0.0	0.4	0.4	2.2	2.6
TRANSPORTATION	**0.8**	**0.9**	**0.9**	**1.0**	**0.9**	**1.0**	**1.0**	**1.0**
OTHERS	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
AGROECOSYSTEMS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WASTE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SOLVENT AND OTHER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HFCs	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0