

Canadian Energy Research Institute

Economic Impacts of the Petroleum Industry in Canada

Summary Report

July 2009



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CHAPTER 1 INTRODUCTION

1.1 Background

Last year was a tumultuous year to the say the least. The first half of 2008 saw a global rise in commodity prices, most notably oil and natural gas. The Canadian dollar appreciated against its US counterpart to levels not seen in decades. While certain sectors benefited from the rise of commodity prices and concomitant rise in currency values, others faltered. The second half of the year, however, saw commodity prices plunge dramatically, amidst a global financial crisis.

In the wake of these developments, the Canadian (and American) public is expecting policy-makers to set energy and environmental policies that make appropriate tradeoffs. However, to aid the process of rational decision-making and attitude towards the petroleum industry, policy-makers and business leaders require a clear understanding of the value and contribution of the petroleum industry to the economy. Their decisions will certainly impact the level of private investment and have wide-ranging effects across various, seemingly unrelated, industries. As the petroleum industry is frequently characterized by capital-intensive projects that generate single-purpose facilities, even small changes in policies may well have large impacts on investment levels.

The recent spate of publicity surrounding environmental impacts has overshadowed the fact that Canada's petroleum industry is a significant contributor to the country's GDP. The petroleum industry has widespread economic impacts that extend far beyond the province of Alberta--Canada's largest producer of oil and gas. Investments in new developments and expenditures in ongoing operations provide jobs that generate income-multiplier effects and economic spin-offs, benefiting the provincial and national economies.

1.2 Objectives of the Study

What are the impacts of a certain investment on GDP, employment and government expenditures? More specifically, what are the economic impacts of hydrocarbon developments on key macroeconomic variables such as GDP, employment, and government revenues in a particular province or territory? Is there any way to quantify those impacts? How can we study the impacts of such investments on macroeconomic variables in other provinces? As a result of investment in the Alberta oil sands, how many new jobs will be created in Ontario or Quebec? How big is the impact of these investments on the federal budget? While straightforward, providing answers to these questions requires considerable research.

The Canadian Energy Research Institute (CERI) conducted a comprehensive assessment of the role of the petroleum industry in the provincial and national economies 25 years into the future. Utilizing an Input-Output (I/O) modeling approach, this study fills a knowledge gap that currently exists with respect to the quantification of the economic contribution of the petroleum industry at provincial, territorial, and national levels.

I/O analysis considers relations between industries in an economy and depicts how the output of one industry feeds into another industry as an input, and thereby makes one industry dependent on another. I/O modeling is a very sound approach to investigate the impacts of the investments in an industry on other industries and provinces/territories. Chapter 2 of the main report discusses further the details of the methodology. Although the I/O approach has been widely used around the world for economic impact assessment, there are certain limitations that should be noted. Chapter 3 of the main report discusses further, the details of data sources, assumptions and limitations of the I/O approach.

Using the I/O accounts published by Canada's System of National Economic Accounts (CSNEA), CERI has constructed a Canadian Multi-Regional I/O model for Canada, as an alternative to the I/O models constructed by Statistics Canada. This innovative model consists of 13 provincial and territorial Symmetric I/O Tables (SIOTs) and a trade flow matrix.

CERI's Multi-Regional I/O model reveals the details of the economic linkages in the Canadian economy. For instance, it identifies the GDP impact of one billion dollars of investment in Alberta's oil sands on the economy of Alberta, Ontario and other provinces. Equally, it estimates the job creation in Quebec, British Columbia, New Brunswick and Canadian employment as result of one billion dollars investment in Quebec's dairy industry or Ontario's manufacturing sector. CERI's Multi-Regional I/O model measures the economic impacts of certain investments in a particular industry, in a particular province in Canada. Moreover, it measures the provincial, as well as the national, impacts of the total investments and production of each sector of the economy.

CERI focuses on the petroleum industry in Canada and quantifies the economic impacts of this very important industry on Canada's overall economic condition. It identifies the direct, indirect, and induced impacts of current and future investments in Canada's petroleum industry. The innovative model also measures the contributions of the Canadian petroleum industry on provincial government revenues, even if the provinces are not directly involved with this industry.

This study completed economic impacts on the following types of energy, in the following provinces and territories: Alberta (conventional oil, conventional gas, CBM, oil sands, major capital projects), British Columbia (conventional oil, conventional gas, shale/tight gas, major capital projects), Saskatchewan (conventional oil, conventional gas), Manitoba (conventional oil), Quebec (major capital projects), Nova Scotia (conventional gas) and Northwest Territories (major capital projects). Due to insufficient data analysis was not possible for several sources of energy, such as the Oil Sands in Saskatchewan or the large potential of the shale gas plays in Quebec. That being said, the main report discusses these and other types of energy in detail.

This timely and significant study sheds light on the Canadian petroleum industry and its importance to the Canadian economy, assisting both policy-makers and business leaders to make informed decisions regarding this industry. Furthermore, it informs the public about an important industry that is often misunderstood.

1.3 Structure of this Summary Report

This summary report has been structured as follows. Chapter 2 briefly discusses key observations and conclusions of this study. This chapter discusses economic impacts of the petroleum industry in Canada and is divided into three sections: upstream oil and gas activities, other capital projects and total Canada. Chapter 3 reveals the various highlights and conclusions of this study, on a provincial and source of energy basis (i.e. Alberta conventional gas).

CHAPTER 2 OBSERVATIONS AND CONCLUSIONS

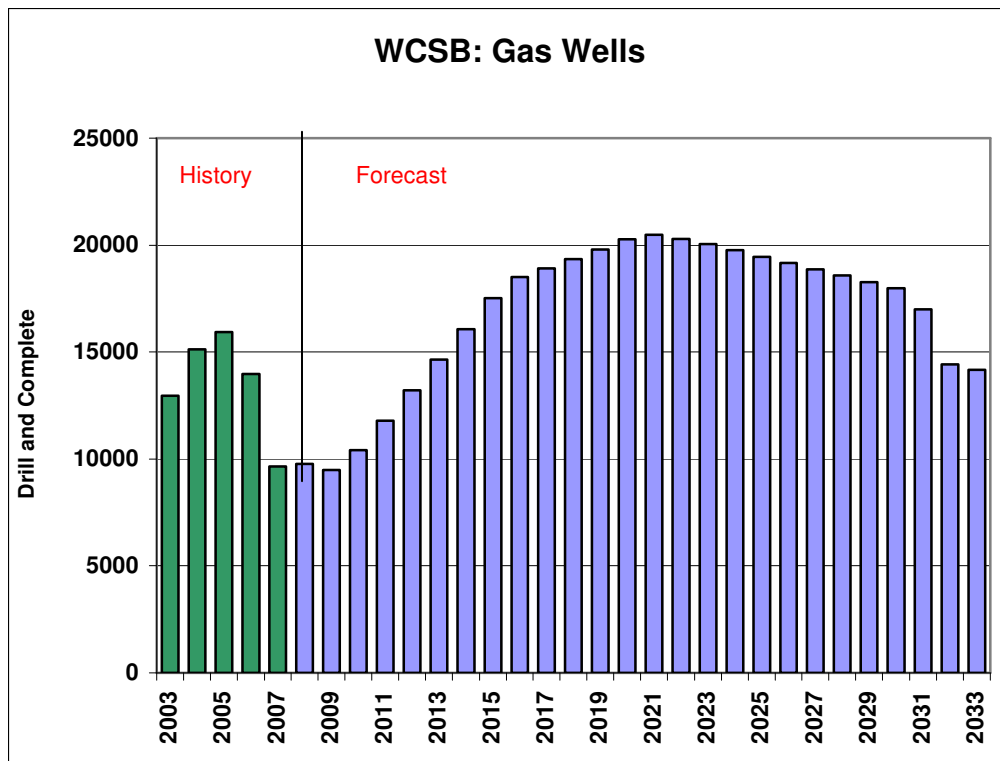
2.1 Forecasts

The oil and gas industry is driven by investing money in the drilling of wells to discover and develop oil and gas reservoirs, and by further investments in gathering systems, gas plants, refineries and transmission pipelines to connect to markets.

Over the past fifteen years, the gas-side of the drilling equation has grown five-fold from drilling and completing 3,353 gas wells in 1995 to 15,931 gas wells in 2005. The economic turmoil over the past 12 months has seen the drilling for gas decline by 40 percent, as a result of soft market prices and tight credit markets. However, it appears that the depth of the recession has been reached with economic indicators suggesting that the world economies have started to recover. For this study, CERI's forecast for completed gas wells, whether from conventional, coalbed methane and tight/shale gas resources, will move upwards, returning to the pre-recession levels by 2014 and continuing to increase towards the 20,000 wells per year level.

The following figure details the total wells forecasted to be drilled and completed in Canada, excluding the shale gas potential in Quebec due to insufficient data and the CBM potential in New Brunswick which is small in comparison.

Western Canada Gas Well Drilling Forecast

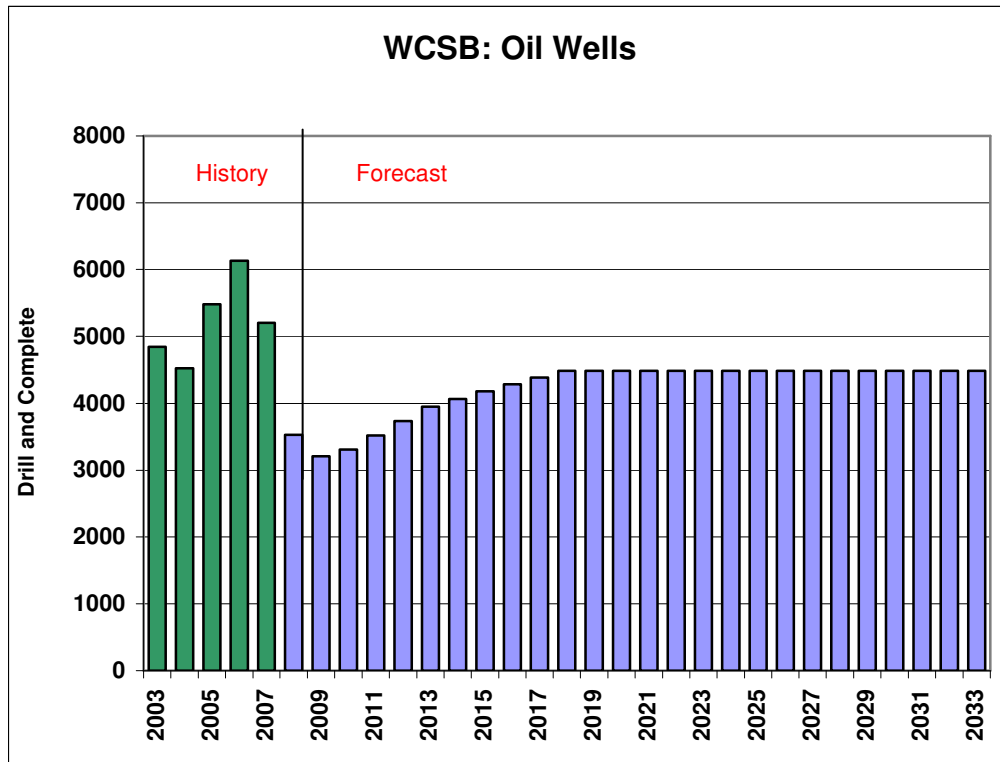


Contribution from the various resource types to this well drilling forecast can be obtained in the main report under the appropriate province and resource type.

On the oil-side of the drilling equation and over the past 10 years, the industry has drilled and completed approximately 4,600 wells per year with the low being 2,459 in 1998 and the most recent peak of 6,134 wells in 2006. The forecast presented in the following figure shares the sentiment as with the gas drilling, that being, the drilling for oil will recover gradually over an eight-year time frame after which the trend will be to follow the historical average. Different from the gas forecast, however, is that oil drilling is assumed not to grow above the average due to the age, maturity and remaining potential.

The following figure details the oil wells forecasted to be drilled and completed in Canada, excluding any east coast offshore wells of Northwest Territories developments.

Western Canada Oil Well Drilling Forecast



2.2 Economic Impacts: Upstream Oil & Gas Activities

The total cost incurred by the industry in exploring and developing hydrocarbon resources is the sum of the drilling cost for the successful wells, as forecasted in the figures above, plus the cost of wells that were not successful, plus the original cost of the mineral leases, plus the cost of the field gathering systems, plus the cost of field plant facilities (metering, plants, compression,

pumps), plus costs for geological and geophysical systems. In addition, the capital costs and operating conditions of the Alberta oil sands projects have been included in these totals.

Accounting for all these costs, the oil and gas companies will invest C\$1.07 trillion (2008 dollars), which will result in incremental growth in gross domestic product (GDP) for the Canadian economy of C\$3.5 trillion. The royalties payable to the province where the development takes place total C\$429 billion, over the time frame of 25 years.

The table below illustrates total GDP impacts from upstream oil and gas activities. The columns show the GDP impacts in all provinces as a result of oil and gas industry investments made in the province indicated by the column title. The rows, on the other hand, show the GDP impacts for a given province (identified by the row title) as a result of oil and gas investments made in any province. For example, the second column illustrates all impacts directly related to oil and gas investment (in this case, all upstream oil and gas activities) in the province of British Columbia (conventional oil + conventional gas + shale/tight gas), and their impacts on the rest of the provinces and territories. In this case, all oil and gas activities create a total GDP impact of C\$3.5 billion in British Columbia, nearly C\$12 billion in Alberta, C\$11 billion in Ontario etc... Conversely, the second row reflects GDP impacts on British Columbia, as a result of investments made in the oil and gas industry in British Columbia and the other provinces. In other words, all upstream oil and gas activities in Alberta create an impact of C\$92.8 billion on British Columbia, while oil and gas activities in Saskatchewan create a total GDP impact of C\$7.6 billion on British Columbia. The *total GDP impacts on British Columbia* as a result of oil and gas activities across Canada totaled C\$461 billion. It is important to note that this table does not include major capital projects—these results are found in Section 2.3.

Total GDP Impacts: Upstream Oil & Gas Activities (\$C million)

	AB	BC	MB	SK	Total
AB	2,526,235	11,869	346	14,305	2,552,755
BC	92,787	361,135	271	7,557	461,750
MB	18,625	1,682	10,152	5,611	36,071
NB	3,619	538	27	374	4,559
NL	3,378	335	19	280	4,012
NT	2,640	209	6	204	3,059
NS	5,883	741	29	433	7,086
NU	569	50	2	34	655
ON	115,800	11,057	612	16,369	143,839
PE	733	106	5	64	908
QC	36,506	5,345	277	3,178	45,306
SK	44,225	2,276	173	198,305	244,979
YT	669	188	2	33	892
Total	2,851,670	395,532	11,920	246,747	3,505,869

As it relates to the individual provinces, the GDP impacts as a result of upstream oil and gas developments are shared as follows:

- Alberta 72.81%
- British Columbia 13.17%
- Manitoba 1.03%
- New Brunswick 0.13%
- Newfoundland & Labrador 0.11%
- Northwest Territories 0.09%
- Nova Scotia 0.20%
- Nunavut 0.02%
- Ontario 4.10%
- Prince Edward Island 0.03%
- Quebec 1.29%
- Saskatchewan 6.99%
- Yukon Territory 0.03%

2.3 Economic Impacts: Other Capital Projects

In addition to the impacts associated with upstream oil and gas activities there are several other capital projects that also contribute to the Canadian economy. The list of other capital projects is listed in the main report by province. This study examines only representative projects and includes the following: the Enbridge Gateway pipeline project, the Kitimat LNG liquefaction project, the Quebec LNG re-gasification terminal, the Mackenzie Valley pipeline project and the Nova Scotia's Deep Panuke offshore project.

Total GDP Impacts: Other Capital Projects (\$C million)

	AB	BC	NT	NS	QC	Total
AB	4,421	1,167	1,753	351	44	7,736
BC	306	14,944	1,603	255	45	17,153
MB	80	219	462	17	15	792
NB	15	61	115	69	20	280
NL	12	36	95	59	10	213
NT	10	21	17,146	111	1	17,289
NS	21	83	192	6,146	18	6,459
NU	3	7	406	2	1	419
ON	368	1,375	3,010	320	228	5,301
PE	3	12	30	32	3	80
QC	146	589	1,163	122	1,640	3,661
SK	121	252	478	37	12	900
YT	3	22	29	1	0	56
Total	5,508	18,786	26,483	7,522	2,038	60,337

Accounting for all these costs, the oil and gas companies will invest C\$23.5 billion (2008 dollars), which will result in incremental growth in gross domestic product (GDP) for the Canadian economy of C\$60 billion.

The provincial share of GDP impacts are as follows:

• Alberta	12.82%
• British Columbia	28.43%
• Manitoba	1.31%
• New Brunswick	0.46%
• Newfoundland & Labrador	0.35%
• Northwest Territories	28.65%
• Nova Scotia	10.70%
• Nunavut	0.69%
• Ontario	8.79%
• Prince Edward Island	0.13%
• Quebec	6.07%
• Saskatchewan	1.49%
• Yukon Territory	0.09%

2.4 Total Economic Impacts: Canada

This section discusses several important tables summarizing total economic impacts in Canada: total GDP impacts, total federal taxes, total provincial taxes, total employment impacts and total royalties (by province).

The following table presents total GDP Impacts. As previously indicated, The columns show the GDP impacts in all provinces as a result of oil and gas industry investments made in the province indicated by the column title. The rows, on the other hand, show the GDP impacts for a given province (identified by the row title) as a result of oil and gas investments made in any province.

Utilizing an example, the first column illustrates all impacts directly related to oil and gas investment in the province of Alberta (conventional oil + conventional gas + CBM + oil sands + capital projects) and their impacts on the rest of the provinces and territories. In this case all oil and gas activities in Alberta create a total GDP impact of C\$2.5 trillion in Alberta, C\$116 billion in Ontario, and C\$93 billion in British Columbia. All oil and gas activities in Alberta have a total national impact of C\$2.9 trillion. Conversely, the first row reflects GDP impacts on Alberta, as a result of investments made in the oil and gas industry in Alberta and the other provinces and territories. In other words, all upstream oil and gas activities in Saskatchewan create an impact of C\$14 billion on Alberta, while oil and gas activities in British Columbia create a total GDP impact of C\$13 billion on Alberta.

Total national GDP impacts from all investments analyzed by this study are \$C3.6 trillion.

Total GDP Impacts (\$C million)

	AB	BC	MB	NT	NS	QC	SK	Total
AB	2,530,656	13,036	346	1,753	351	44	14,305	2,560,491
BC	93,093	376,078	271	1,603	255	45	7,557	478,903
MB	18,705	1,901	10,152	462	17	15	5,611	36,863
NB	3,634	599	27	115	69	20	374	4,839
NL	3,390	371	19	95	59	10	280	4,224
NT	2,650	230	6	17,146	111	1	204	20,348
NS	5,903	824	29	192	6,146	18	433	13,544
NU	572	57	2	406	2	1	34	1,073
ON	116,168	12,432	612	3,010	320	228	16,369	149,140
PE	736	118	5	30	32	3	64	987
QC	36,652	5,934	277	1,163	122	1,640	3,178	48,966
SK	44,346	2,528	173	478	37	12	198,305	245,879
YT	672	211	2	29	1	0	33	948
Total	2,857,178	414,318	11,920	26,483	7,522	2,038	246,747	3,566,206

The provincial share of GDP impacts are as follows:

- Alberta 71.80%
- British Columbia 13.43%
- Manitoba 1.03%
- New Brunswick 0.14%
- Newfoundland & Labrador 0.12%
- Northwest Territories 0.57%
- Nova Scotia 0.38%
- Nunavut 0.02%
- Ontario 4.18%
- Prince Edward Island 0.03%
- Quebec 1.37%
- Saskatchewan 6.89%
- Yukon Territory 0.03%

Total federal and provincial tax impacts are presented in the following two tables. The largest tax impact, on a federal basis, comes from Alberta's oil and gas activities. All oil and gas activities in Alberta have a total federal tax impact of C\$311 billion, or nearly two-thirds of federal tax impacts. This is followed by British Columbia and Saskatchewan at C\$58 and C\$32 billion, respectively.

Total Federal Taxes (\$C million)

	AB	BC	MB	NT	NS	QC	SK	Total
AB	266,886	1,375	37	185	37	5	1,509	270,033
BC	13,101	52,924	38	226	36	6	1,063	67,394
MB	2,848	290	1,546	70	3	2	854	5,613
NB	625	103	5	20	12	3	64	832
NL	450	49	2	13	8	1	37	561
NT	449	39	1	2,906	19	0	35	3,449
NS	977	136	5	32	1,018	3	72	2,243
NU	222	22	1	158	1	0	13	417
ON	14,768	1,580	78	383	41	29	2,081	18,960
PE	143	23	1	6	6	1	12	192
QC	4,900	793	37	155	16	219	425	6,546
SK	5,785	330	23	62	5	2	25,870	32,076
YT	208	65	1	9	0	0	10	293
Total	311,364	57,730	1,773	4,224	1,201	272	32,046	408,609

The provincial share of federal tax impacts are as follows:

- Alberta 66.09%
- British Columbia 16.50%
- Manitoba 1.37%
- New Brunswick 0.20%
- Newfoundland & Labrador 0.14%
- Northwest Territories 0.84%
- Nova Scotia 0.55%
- Nunavut 0.10%
- Ontario 4.64%
- Prince Edward Island 0.05%
- Quebec 1.60%
- Saskatchewan 7.85%
- Yukon Territory 0.07%

The largest tax impact, on a provincial basis, also comes from Alberta's oil and gas activities. All oil and gas activities in Alberta have a total provincial tax impact of C\$189 billion, or nearly 55 percent of all provincial tax impacts. This is followed by British Columbia and Saskatchewan at C\$54 and C\$33 billion, respectively.

Total Provincial Taxes (\$C million)

	AB	BC	MB	NT	NS	QC	SK	Total
AB	152,257	784	21	105	21	3	861	154,052
BC	12,358	49,924	36	213	34	6	1,003	63,574
MB	3,119	317	1,693	77	3	2	936	6,147
NB	633	104	5	20	12	3	65	843
NL	598	65	3	17	10	2	49	745
NT	222	19	0	1,437	9	0	17	1,705
NS	1,109	155	5	36	1,154	3	81	2,544
NU	68	7	0	48	0	0	4	127
ON	15,317	1,639	81	397	42	30	2,158	19,665
PE	155	25	1	6	7	1	13	208
QC	6,459	1,046	49	205	22	289	560	8,629
SK	5,986	341	23	64	5	2	26,767	33,188
YT	94	30	0	4	0	0	5	133
Total	189,226	54,457	1,918	2,630	1,320	341	32,519	282,411

The provincial share of provincial tax impacts are as follows:

- Alberta 54.55%
- British Columbia 22.51%
- Manitoba 2.18%
- New Brunswick 0.30%
- Newfoundland & Labrador 0.26%
- Northwest Territories 0.60%
- Nova Scotia 0.90%
- Nunavut 0.04%
- Ontario 6.96%
- Prince Edward Island 0.07%
- Quebec 3.06%
- Saskatchewan 11.75%
- Yukon Territory 0.05%

The following table reflects the incremental employment as a result of the investments in the upstream and other capital projects, analyzed by this study. It includes direct employment due to construction and operation of the assets, indirect employment and induced employment in the support and manufacturing industries.

As an example, investments in the province of Alberta will generate incremental employment of 13,750 thousand person years, within the province, and generates an additional 4,780 thousand person years across the country (reaching a total of 18,530 per thousand person years).

In total, the oil and gas industry contributes 24,522 thousand person years in Canada.

Total Employment (thousand person years)

	AB	BC	MB	NT	NS	QC	SK	Total
AB	13,750	166	4	25	2	1	117	14,065
BC	1,265	2,778	4	27	2	1	90	4,166
MB	342	35	106	9	0	0	81	574
NB	71	12	1	3	2	0	8	95
NL	69	7	0	2	1	0	5	85
NT	26	3	0	215	0	0	1	245
NS	106	16	1	4	45	0	8	180
NU	10	1	0	7	0	0	1	19
ON	1,689	196	10	54	5	4	236	2,193
PE	15	2	0	1	1	0	1	21
QC	600	99	4	23	2	30	54	812
SK	579	41	3	8	0	0	1,421	2,052
YT	9	3	0	0	0	0	0	13
Total	18,530	3,359	132	379	60	36	2,024	24,522

The following table presents total provincial royalties, both total and annual. The royalties payable to the province where the development takes place total C\$429 billion over the time frame of 25-years, or approximately C\$17 billion /year.

Provincial Royalties: Total and Annual (\$C million)

	\$ million	
	Royalties	Royalties/year
Alberta Total	295,194	11,808
British Columbia Total	89,730	3,589
Saskatchewan Total	43,471	1,739
Manitoba Total	543	22

Contribution from the various resource types to this table (i.e. Alberta oil sands) can be obtained in the main report under the appropriate province and resource type.

CHAPTER 3 ECONOMIC IMPACT HIGHLIGHTS

One of the challenges in using multi-regional I/O model is to present the complex, and often surprising, results in a simple, understandable fashion. This chapter presents the various highlights and conclusions of this study, by province and territory and by type of energy. As outlined previously in this summary report, this study completed economic impacts on the following types of energy, in the following provinces and territories:

- Alberta (conventional oil, conventional gas, CBM, oil sands, major capital projects),
- British Columbia (conventional oil, conventional gas, shale/tight gas, major capital projects),
- Saskatchewan (conventional oil, conventional gas),
- Manitoba (conventional oil),
- Quebec (major capital projects),
- Nova Scotia (conventional gas), and
- Northwest Territories (major capital projects)

As such, this chapter will present various highlights of the aforementioned in a standard template, for easy and straightforward reference. To best illustrate this template, it is most straightforward to use an example: Alberta conventional oil.

For each type of energy, in this case Alberta conventional oil, the following information is presented. The left-hand side of the page includes two important tables: impacts associated with investment in Alberta and impacts associated with operation in Alberta.

The right-hand side of the page, on the other hand, highlights information regarding total GDP impacts, total employment impacts, and total federal and provincial taxes. Within each type of energy, the 'top-five' impacts, by percentage and province, are ranked in an easy-to-read format.

Alberta: Conventional Oil Resources

Impacts Associated with Investment in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	71,404	366	11,826	7,530	4,296
British Columbia	3,562	41	974	501	473
Manitoba	1,110	15	354	169	185
New Brunswick	103	2	36	18	18
Newfoundland & Labrador	152	2	47	20	27
Northwest Territories	110	1	28	19	9
Nova Scotia	148	3	52	25	28
Nunavut	15	0	8	6	2
Ontario	4,607	66	1,193	586	607
Prince Edward Island	21	0	8	4	4
Quebec	1,016	17	315	136	179
Saskatchewan	1,925	21	511	251	260
Yukon Territory	19	0	8	6	3
Canada	84,192	535	15,361	9,270	6,091

Impacts Associated with Operation in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	35,851	184	5,938	3,781	2,157
British Columbia	1,789	21	489	252	237
Manitoba	557	8	178	85	93
New Brunswick	52	1	18	9	9
Newfoundland & Labrador	77	1	24	10	14
Northwest Territories	55	0	14	9	5
Nova Scotia	74	1	26	12	14
Nunavut	8	0	4	3	1
Ontario	2,313	33	599	294	305
Prince Edward Island	10	0	4	2	2
Quebec	510	8	158	68	90
Saskatchewan	966	10	257	126	130
Yukon Territory	9	0	4	3	1
Canada	42,271	269	7,713	4,654	3,058

Alberta: Conventional Oil Resources

Total GDP Impacts

1. 84.8 percent of GDP to Alberta (\$107.3 billion)
2. 5.5 percent of GDP to Ontario (\$6.9 billion)
3. 4.2 percent of GDP to British Columbia (\$5.4 billion)
4. 2.3 percent of GDP to Saskatchewan (\$2.9 billion)
5. 1.3 percent of GDP to Manitoba (\$1.7 billion)

Total Employment Impacts

1. 68.4 percent of employment benefit to Alberta
2. 12.3 percent of employment benefit to Ontario
3. 7.7 percent of employment benefit to British Columbia
4. 3.9 percent of employment benefit to Saskatchewan
5. 3.2 percent of employment benefit to Quebec

Total Federal Taxes

1. Alberta \$11.3 billion
2. Ontario \$880 million
3. British Columbia \$753 million
4. Saskatchewan \$377 million
5. Manitoba \$254 million

Total Provincial Taxes

1. Alberta \$6.5 billion
2. Ontario \$912 million
3. British Columbia \$710 million
4. Saskatchewan \$390 million
5. Manitoba \$278 million

Other Highlights (over 25-years of activity)

- Drilling cost \$51 billion
- Infrastructure cost \$20 billion
- 59,983 drilled wells
- Provincial royalties 3.5 billion

Alberta: Conventional Gas Resources

Impacts Associated with Investment in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	450,118	2,306	74,551	47,470	27,081
British Columbia	22,367	259	6,117	3,148	2,969
Manitoba	2,884	54	920	439	481
New Brunswick	641	13	222	110	112
Newfoundland & Labrador	583	12	180	77	103
Northwest Territories	696	5	176	118	58
Nova Scotia	1,282	21	453	212	241
Nunavut	96	2	49	37	11
Ontario	28,800	412	7,459	3,661	3,797
Prince Edward Island	131	3	53	25	28
Quebec	6,295	105	1,951	842	1,109
Saskatchewan	12,068	130	3,203	1,574	1,629
Yukon Territory	116	2	52	36	16
Canada	526,075	3,322	95,386	57,750	37,636

Impacts Associated with Operation in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	295,882	1,516	49,006	31,204	17,802
British Columbia	14,703	170	4,021	2,069	1,952
Manitoba	1,896	36	605	289	316
New Brunswick	421	8	146	72	73
Newfoundland & Labrador	383	8	119	51	68
Northwest Territories	458	4	116	78	38
Nova Scotia	843	14	298	140	158
Nunavut	63	1	32	25	7
Ontario	18,931	271	4,903	2,407	2,496
Prince Edward Island	86	2	35	17	18
Quebec	4,138	69	1,282	553	729
Saskatchewan	7,933	85	2,106	1,035	1,071
Yukon Territory	76	1	34	24	11
Canada	345,812	2,183	62,701	37,962	24,740

Alberta: Conventional Gas Resources

Total GDP Impacts

1. 85.6 percent of GDP to Alberta (\$746.0 billion)
2. 5.5 percent of GDP to Ontario (\$47.7 billion)
3. 4.3 percent of GDP to British Columbia (\$37.1 billion)
4. 2.3 percent of GDP to Saskatchewan (\$20.0 billion)
5. 1.2 percent of GDP to Quebec (\$10.4 billion)

Total Employment Impacts

1. 69.4 percent of employment benefit to Alberta
2. 12.4 percent of employment benefit to Ontario
3. 7.8 percent of employment benefit to British Columbia
4. 3.9 percent of employment benefit to Saskatchewan
5. 3.1 percent of employment benefit to Quebec

Total Federal Taxes

1. Alberta \$78.7 billion
2. Ontario \$6.1 billion
3. British Columbia \$5.2 billion
4. Saskatchewan \$2.6 billion
5. Quebec \$1.4 billion

Total Provincial Taxes

1. Alberta \$44.9 billion
2. Ontario \$6.3 billion
3. British Columbia \$4.9 billion
4. Saskatchewan \$2.7 billion
5. Quebec \$1.8 billion

Other Highlights (over 25-years of activity)

- Drilling cost \$321 billion
- Infrastructure cost \$129 billion
- 374,405 drilled wells
- Provincial royalties 100 billion

Alberta: CBM Gas Resources

Impacts Associated with Investment in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	56,607	290	9,376	5,970	3,406
British Columbia	2,813	33	769	396	373
Manitoba	363	7	116	55	60
New Brunswick	81	2	28	14	14
Newfoundland & Labrador	73	2	23	10	13
Northwest Territories	88	1	22	15	7
Nova Scotia	161	3	57	27	30
Nunavut	12	0	6	5	1
Ontario	3,622	52	938	460	478
Prince Edward Island	16	0	7	3	3
Quebec	792	13	245	106	139
Saskatchewan	1,518	16	403	198	205
Yukon Territory	15	0	7	5	2
Canada	66,159	418	11,996	7,263	4,733

Impacts Associated with Operation in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	41,844	214	6,930	4,413	2,518
British Columbia	2,079	24	569	293	276
Manitoba	268	5	86	41	45
New Brunswick	60	1	21	10	10
Newfoundland & Labrador	54	1	17	7	10
Northwest Territories	65	0	16	11	5
Nova Scotia	119	2	42	20	22
Nunavut	9	0	5	3	1
Ontario	2,677	38	693	340	353
Prince Edward Island	12	0	5	2	3
Quebec	585	10	181	78	103
Saskatchewan	1,122	12	298	146	151
Yukon Territory	11	0	5	3	2
Canada	48,905	309	8,867	5,369	3,499

Alberta: CBM Gas Resources

Total GDP Impacts

1. 85.6 percent of GDP to Alberta (\$98.1 billion)
2. 5.5 percent of GDP to Ontario (\$6.3 billion)
3. 4.3 percent of GDP to British Columbia (\$4.9 billion)
4. 2.3 percent of GDP to Saskatchewan (\$2.6 billion)
5. 1.2 percent of GDP to Quebec (\$1.4 billion)

Total Employment Impacts

1. 69.4 percent of employment benefit to Alberta
2. 12.4 percent of employment benefit to Ontario
3. 7.8 percent of employment benefit to British Columbia
4. 3.9 percent of employment benefit to Saskatchewan
5. 3.1 percent of employment benefit to Quebec

Total Federal Taxes

1. Alberta \$10.4 billion
2. Ontario \$801 million
3. British Columbia \$688 million
4. Saskatchewan \$344 million
5. Quebec \$184 million

Total Provincial Taxes

1. Alberta \$5.9 billion
2. Ontario \$831 million
3. British Columbia \$649 million
4. Saskatchewan \$356 million
5. Quebec \$243 million

Other Highlights for Horseshoe Canyon (over 25-years of activity)

- Drilling cost \$20 billion
- Infrastructure cost \$28 billion
- 60,384 drilled wells
- Provincial royalties 5.6 billion

Other Highlights Mannville (over 25-years of activity)

- Drilling cost \$3.5 billion
- Infrastructure cost \$3.3 billion
- 7,073 drilled wells
- Provincial royalties \$1.6 billion

Alberta: Oil Sands Resources

Impacts Associated with Investment in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	156,395	1,352	25,903	16,494	9,410
British Columbia	8,631	138	2,360	1,215	1,146
Manitoba	2,715	52	866	413	453
New Brunswick	477	9	165	82	83
Newfoundland & Labrador	366	8	113	49	65
Northwest Territories	202	2	51	34	17
Nova Scotia	630	13	223	104	118
Nunavut	54	1	27	21	6
Ontario	11,406	172	2,954	1,450	1,504
Prince Edward Island	89	2	36	17	19
Quebec	5,221	84	1,618	698	920
Saskatchewan	3,552	56	943	463	479
Yukon Territory	64	1	29	20	9
Canada	189,801	1,889	35,288	21,060	14,228

Impacts Associated with Operation in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,418,135	7,465	234,881	149,558	85,322
British Columbia	36,843	575	10,076	5,185	4,891
Manitoba	8,833	163	2,818	1,345	1,473
New Brunswick	1,786	34	618	307	311
Newfoundland & Labrador	1,689	35	522	224	298
Northwest Territories	966	12	245	164	81
Nova Scotia	2,626	50	928	435	493
Nunavut	312	5	158	121	37
Ontario	43,444	640	11,251	5,523	5,728
Prince Edward Island	368	7	149	72	78
Quebec	17,951	292	5,563	2,400	3,163
Saskatchewan	15,142	246	4,019	1,975	2,044
Yukon Territory	359	5	162	111	50
Canada	1,548,452	9,530	271,389	167,420	103,969

Alberta: Oil Sands Resources

Total GDP Impacts

1. 90.6 percent of GDP to Alberta (\$1.6 trillion)
2. 3.2 percent of GDP to Ontario (\$54.9 billion)
3. 2.6 percent of GDP to British Columbia (\$45.5 billion)
4. 1.3 percent of GDP to Quebec (\$23.2 billion)
5. 1.1 percent of GDP to Saskatchewan (\$18.7 billion)

Total Employment Impacts

1. 77.2 percent of employment benefit to Alberta
2. 7.1 percent of employment benefit to Ontario
3. 6.2 percent of employment benefit to British Columbia
4. 3.3 percent of employment benefit to Quebec
5. 2.6 percent of employment benefit to Saskatchewan

Total Federal Taxes

1. Alberta \$166 billion
2. Ontario \$7.0 billion
3. British Columbia \$6.4 billion
4. Quebec \$3.1 billion
5. Saskatchewan \$2.4 billion

Total Provincial Taxes

1. Alberta \$94.8 billion
2. Ontario \$7.2 billion
3. British Columbia \$6.0 billion
4. Quebec \$4.1 billion
5. Saskatchewan \$2.5 billion

Other Highlights (over 25-years of activity)

- Capital cost \$218 billion
- Provincial royalties \$184 billion

Alberta: Major Capital Projects**Impacts Associated with Investment in Alberta**

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,932	25	320	204	116
British Columbia	108	2	29	15	14
Manitoba	28	1	9	4	5
New Brunswick	5	0	2	1	1
Newfoundland & Labrador	5	0	1	1	1
Northwest Territories	3	0	1	0	0
Nova Scotia	8	0	3	1	1
Nunavut	1	0	0	0	0
Ontario	122	2	32	16	16
Prince Edward Island	1	0	0	0	0
Quebec	53	1	17	7	9
Saskatchewan	45	1	12	6	6
Yukon Territory	1	0	0	0	0
Canada	2,312	31	426	256	171

Impacts Associated with Operation in Alberta

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	2,489	32	412	263	150
British Columbia	198	3	54	28	26
Manitoba	52	1	16	8	9
New Brunswick	10	0	3	2	2
Newfoundland & Labrador	7	0	2	1	1
Northwest Territories	7	0	2	1	1
Nova Scotia	13	0	5	2	2
Nunavut	2	0	1	1	0
Ontario	246	4	64	31	32
Prince Edward Island	2	0	1	0	0
Quebec	92	2	29	12	16
Saskatchewan	77	1	20	10	10
Yukon Territory	2	0	1	1	0
Canada	3,197	45	610	360	251

Alberta: Major Capital Projects

Total GDP Impacts

1. 80.3 percent of GDP to Alberta (\$4.4 billion)
2. 6.7 percent of GDP to Ontario (\$368 million)
3. 5.6 percent of GDP to British Columbia (\$306 million)
4. 2.6 percent of GDP to Quebec (\$146 million)
5. 2.2 percent of GDP to Saskatchewan (\$121 million)

Total Employment Impacts

1. 75.4 percent of employment benefit to Alberta
2. 8.0 percent of employment benefit to Ontario
3. 6.7 percent of employment benefit to British Columbia
4. 3.4 percent of employment benefit to Quebec
5. 2.6 percent of employment benefit to Saskatchewan

Total Federal Taxes

1. Alberta \$466 million
2. Ontario \$47 million
3. British Columbia \$43 million
4. Quebec \$19 million
5. Saskatchewan \$16 million

Total Provincial Taxes

1. Alberta \$266 million
2. Ontario \$48 million
3. British Columbia \$41 million
4. Quebec \$26 million
5. Saskatchewan \$16 million

Other Highlights (over 25-years of activity)

- Alberta Gateway Pipeline capital cost \$2.3 billion

British Columbia: Conventional Oil Resources

Impacts Associated with Investment in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	188	2	31	20	11
British Columbia	5,718	40	1,564	805	759
Manitoba	27	0	9	4	5
New Brunswick	9	0	3	1	1
Newfoundland & Labrador	5	0	2	1	1
Northwest Territories	3	0	1	1	0
Nova Scotia	11	0	4	2	2
Nunavut	1	0	0	0	0
Ontario	175	3	45	22	23
Prince Edward Island	2	0	1	0	0
Quebec	85	1	26	11	15
Saskatchewan	36	1	10	5	5
Yukon Territory	3	0	1	1	0
Canada	6,263	48	1,697	873	824

Impacts Associated with Operation in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	86	1	14	9	5
British Columbia	2,610	18	714	367	346
Manitoba	13	0	4	2	2
New Brunswick	4	0	1	1	1
Newfoundland & Labrador	2	0	1	0	0
Northwest Territories	2	0	0	0	0
Nova Scotia	5	0	2	1	1
Nunavut	0	0	0	0	0
Ontario	80	1	21	10	11
Prince Edward Island	1	0	0	0	0
Quebec	39	1	12	5	7
Saskatchewan	16	0	4	2	2
Yukon Territory	1	0	1	0	0
Canada	2,859	22	774	399	376

British Columbia: Conventional Oil Resources

Total GDP Impacts

1. **91.3 percent of GDP to British Columbia (\$4.6 billion)**
2. **3.0 percent of GDP to Alberta (\$150 million)**
3. **2.8 percent of GDP to Ontario (\$139 million)**
4. **1.4 percent of GDP to Quebec (\$67 million)**
5. **0.6 percent of GDP to Saskatchewan (\$29 million)**

Total Employment Impacts

1. **83.0 percent of employment benefit to British Columbia**
2. **5.7 percent of employment benefit to Ontario**
3. **4.9 percent of employment benefit to Alberta**
4. **2.9 percent of employment benefit to Quebec**
5. **1.2 percent of employment benefit to Saskatchewan**

Total Federal Taxes

1. **British Columbia \$641 million**
2. **Ontario \$18 million**
3. **Alberta \$16 million**
4. **Quebec \$9 million**
5. **Saskatchewan \$4 million**

Total Provincial Taxes

1. **British Columbia \$604 million**
2. **Ontario \$18 million**
3. **Quebec \$12 million**
4. **Alberta \$9 million**
5. **Sask. & Manitoba \$4 million**

Other Highlights (over 25-years of activity)

- **Drilling cost \$3.5 billion**
- **Infrastructure cost \$2.4 billion**
- **3,601 drilled wells**
- **Provincial royalties \$897 million**

British Columbia: Conventional Gas Resources**Impacts Associated with Investment in British Columbia**

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,619	20	268	171	97
British Columbia	49,261	345	13,472	6,932	6,539
Manitoba	229	4	73	35	38
New Brunswick	73	1	25	13	13
Newfoundland & Labrador	46	1	14	6	8
Northwest Territories	29	0	7	5	2
Nova Scotia	101	2	36	17	19
Nunavut	7	0	3	3	1
Ontario	1,508	23	391	192	199
Prince Edward Island	14	0	6	3	3
Quebec	729	12	226	97	128
Saskatchewan	310	5	82	41	42
Yukon Territory	26	0	12	8	4
Canada	53,953	415	14,615	7,521	7,094

Impacts Associated with Operation in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	2,084	26	345	220	125
British Columbia	63,405	444	17,340	8,923	8,417
Manitoba	295	5	94	45	49
New Brunswick	95	2	33	16	16
Newfoundland & Labrador	59	1	18	8	10
Northwest Territories	37	0	9	6	3
Nova Scotia	130	2	46	22	24
Nunavut	9	0	4	3	1
Ontario	1,941	30	503	247	256
Prince Edward Island	19	0	8	4	4
Quebec	938	16	291	125	165
Saskatchewan	400	6	106	52	54
Yukon Territory	33	0	15	10	5
Canada	69,444	534	18,812	9,681	9,131

British Columbia: Conventional Gas Resources

Total GDP Impacts

1. **91.3 percent of GDP to British Columbia (\$113 billion)**
2. **3.0 percent of GDP to Alberta (\$3.7 billion)**
3. **2.8 percent of GDP to Ontario (\$3.5 billion)**
4. **1.4 percent of GDP to Quebec (\$1.7 billion)**
5. **0.6 percent of GDP to Saskatchewan (\$710 million)**

Total Employment Impacts

1. **83.0 percent of employment benefit to British Columbia**
2. **5.6 percent of employment benefit to Ontario**
3. **4.9 percent of employment benefit to Alberta**
4. **2.9 percent of employment benefit to Quebec**
5. **1.2 percent of employment benefit to Saskatchewan**

Total Federal Taxes

1. **British Columbia \$15.9 billion**
2. **Ontario \$439 million**
3. **Alberta \$391 million**
4. **Quebec \$223 million**
5. **Saskatchewan \$93 million**

Total Provincial Taxes

1. **British Columbia \$15.0 billion**
2. **Ontario \$455 million**
3. **Quebec \$294 million**
4. **Alberta \$223 million**
5. **Saskatchewan \$96 million**

Other Highlights (over 25-years of activity)

- **Drilling cost \$36.9 billion**
- **Infrastructure cost \$11.8 billion**
- **36,360 drilled wells**
- **Provincial royalties \$21.0 billion**

British Columbia: Shale/Tight Gas Resources

Impacts Associated with Investment in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	1,542	19	255	163	93
British Columbia	46,927	328	12,834	6,604	6,230
Manitoba	218	4	70	33	36
New Brunswick	70	1	24	12	12
Newfoundland & Labrador	43	1	13	6	8
Northwest Territories	27	0	7	5	2
Nova Scotia	96	2	34	16	18
Nunavut	6	0	3	3	1
Ontario	1,437	22	372	183	189
Prince Edward Island	14	0	6	3	3
Quebec	695	12	215	93	122
Saskatchewan	296	5	79	39	40
Yukon Territory	24	0	11	8	3
Canada	51,397	395	13,923	7,165	6,758

Impacts Associated with Operation in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
GDP	Employment				
Alberta	6,350	80	1,052	670	382
British Columbia	193,213	1,352	52,839	27,190	25,649
Manitoba	899	16	287	137	150
New Brunswick	288	6	100	49	50
Newfoundland & Labrador	179	4	55	24	32
Northwest Territories	112	1	28	19	9
Nova Scotia	397	8	140	66	75
Nunavut	27	0	14	10	3
Ontario	5,916	92	1,532	752	780
Prince Edward Island	57	1	23	11	12
Quebec	2,860	47	886	382	504
Saskatchewan	1,218	20	323	159	164
Yukon Territory	101	1	45	31	14
Canada	211,616	1,628	57,325	29,501	27,824

British Columbia: Shale/Tight Gas Resources

Total GDP Impacts

1. 91.3 percent of GDP to British Columbia (\$240 billion)
2. 3.0 percent of GDP to Alberta (\$7.9 billion)
3. 2.8 percent of GDP to Ontario (\$7.4 billion)
4. 1.4 percent of GDP to Quebec (\$3.6 billion)
5. 0.6 percent of GDP to Saskatchewan (\$1.5 billion)

Total Employment Impacts

1. 83.0 percent of employment benefit to British Columbia
2. 5.6 percent of employment benefit to Ontario
3. 4.9 percent of employment benefit to Alberta
4. 2.9 percent of employment benefit to Quebec
5. 1.2 percent of employment benefit to Saskatchewan

Total Federal Taxes

1. British Columbia \$33.8 billion
2. Ontario \$935 million
3. Alberta \$832 million
4. Quebec \$475 million
5. Saskatchewan \$197 million

Total Provincial Taxes

1. British Columbia \$31.9 billion
2. Ontario \$969 million
3. Quebec \$626 million
4. Alberta \$475 million
5. Saskatchewan \$204 million

Other Highlights Horn River (over 25-years of activity)

- Drilling cost \$24.6 billion
- Infrastructure cost \$1.7 billion
- 3,684 drilled wells
- Provincial royalties \$35.8 billion

Other Highlights Montney (over 25-years of activity)

- Drilling cost \$20.9 billion
- Infrastructure cost \$2.9 billion
- 6,269 drilled wells
- Provincial royalties \$32.0 billion

British Columbia: Major Capital Projects (Pipeline)**Impacts Associated with Investment in British Columbia**

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	115	2	19	12	7
British Columbia	2,155	37	589	303	286
Manitoba	19	0	6	3	3
New Brunswick	6	0	2	1	1
Newfoundland & Labrador	4	0	1	0	1
Northwest Territories	2	0	1	0	0
Nova Scotia	8	0	3	1	2
Nunavut	1	0	0	0	0
Ontario	119	2	31	15	16
Prince Edward Island	1	0	0	0	0
Quebec	60	1	19	8	11
Saskatchewan	24	0	6	3	3
Yukon Territory	2	0	1	1	0
Canada	2,516	43	679	349	330

Impacts Associated with Operation in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	288	4	48	30	17
British Columbia	3,062	51	837	431	407
Manitoba	57	1	18	9	9
New Brunswick	15	0	5	3	3
Newfoundland & Labrador	9	0	3	1	2
Northwest Territories	5	0	1	1	0
Nova Scotia	20	0	7	3	4
Nunavut	2	0	1	1	0
Ontario	355	6	92	45	47
Prince Edward Island	3	0	1	1	1
Quebec	144	3	45	19	25
Saskatchewan	63	1	17	8	9
Yukon Territory	6	0	2	2	1
Canada	4,029	67	1,078	554	524

British Columbia: Major Capital Projects (Pipeline)

Total GDP Impacts

1. 79.7 percent of GDP to British Columbia (\$5.2 billion)
2. 7.2 percent of GDP to Ontario (\$474 million)
3. 6.2 percent of GDP to Alberta (\$404 million)
4. 3.1 percent of GDP to Quebec (\$204 million)
5. 1.3 percent of GDP to Saskatchewan (\$87 million)

Total Employment Impacts

1. 79.5 percent of employment benefit to British Columbia
2. 7.4 percent of employment benefit to Ontario
3. 5.2 percent of employment benefit to Alberta
4. 3.4 percent of employment benefit to Quebec
5. 1.3 percent of employment benefit to Saskatchewan & Manitoba

Total Federal Taxes

1. British Columbia \$734 million
2. Ontario \$60 million
3. Alberta \$43 million
4. Quebec \$27 million
5. Manitoba \$12 million

Total Provincial Taxes

1. British Columbia \$693 million
2. Ontario \$63 million
3. Quebec \$36 million
4. Alberta \$24 million
5. Manitoba \$13 million

Other Highlights (over 25-years of activity)

- British Columbia capital cost \$2.3 billion

British Columbia: Major Capital Projects (LNG)

Impacts Associated with Investment in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	201	3	33	21	12
British Columbia	3,756	64	1,027	529	499
Manitoba	33	1	11	5	6
New Brunswick	11	0	4	2	2
Newfoundland & Labrador	6	0	2	1	1
Northwest Territories	4	0	1	1	0
Nova Scotia	14	0	5	2	3
Nunavut	1	0	0	0	0
Ontario	207	3	54	26	27
Prince Edward Island	2	0	1	0	0
Quebec	105	2	33	14	18
Saskatchewan	41	1	11	5	6
Yukon Territory	4	0	2	1	1
Canada	4,385	74	1,183	608	575

Impacts Associated with Operation in British Columbia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	562	8	93	59	34
British Columbia	5,971	99	1,633	840	793
Manitoba	110	2	35	17	18
New Brunswick	29	1	10	5	5
Newfoundland & Labrador	17	0	5	2	3
Northwest Territories	10	0	2	2	1
Nova Scotia	40	1	14	7	7
Nunavut	3	0	2	1	0
Ontario	693	12	179	88	91
Prince Edward Island	6	0	2	1	1
Quebec	280	5	87	37	49
Saskatchewan	124	2	33	16	17
Yukon Territory	11	0	5	3	2
Canada	7,856	131	2,101	1,079	1,022

British Columbia: Major Capital Projects (LNG)

Total GDP Impacts

1. 79.5 percent of GDP to British Columbia (\$9.7 billion)
2. 7.4 percent of GDP to Ontario (\$900 million)
3. 6.2 percent of GDP to Alberta (\$763 million)
4. 3.1 percent of GDP to Quebec (\$385 million)
5. 1.3 percent of GDP to Saskatchewan (\$165 million)

Total Employment Impacts

1. 79.5 percent of employment benefit to British Columbia
2. 7.5 percent of employment benefit to Ontario
3. 5.3 percent of employment benefit to Alberta
4. 3.4 percent of employment benefit to Quebec
5. 1.4 percent of employment benefit to Saskatchewan & Manitoba

Total Federal Taxes

1. British Columbia \$1.4 billion
2. Ontario \$114 million
3. Alberta \$80 million
4. Quebec \$51 million
5. Sask. & Manitoba \$22 million

Total Provincial Taxes

1. British Columbia \$1.3 billion
2. Ontario \$119 million
3. Quebec \$68 million
4. Alberta \$46 million
5. Manitoba \$24 million

Other Highlights (over 25-years of activity)

- Kitimat LNG capital cost \$4 billion

Saskatchewan: Conventional Oil Resources

Impacts Associated with Investment in Saskatchewan

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	4,694	39	778	495	282
British Columbia	2,483	30	679	349	330
Manitoba	2,146	30	685	327	358
New Brunswick	123	3	43	21	21
Newfoundland & Labrador	98	2	30	13	17
Northwest Territories	67	0	17	11	6
Nova Scotia	130	3	46	21	24
Nunavut	11	0	6	4	1
Ontario	5,379	78	1,393	684	709
Prince Edward Island	21	0	8	4	4
Quebec	1,049	18	325	140	185
Saskatchewan	64,948	465	17,239	8,473	8,766
Yukon Territory	11	0	5	3	2
Canada	81,161	667	21,254	10,547	10,707

Impacts Associated with Operation in Saskatchewan

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	6,114	50	1,013	645	368
British Columbia	3,233	39	884	455	429
Manitoba	2,795	39	892	426	466
New Brunswick	161	3	56	28	28
Newfoundland & Labrador	128	2	40	17	23
Northwest Territories	87	1	22	15	7
Nova Scotia	169	3	60	28	32
Nunavut	14	0	7	6	2
Ontario	7,006	101	1,814	891	924
Prince Edward Island	27	1	11	5	6
Quebec	1,366	23	423	183	241
Saskatchewan	84,594	606	22,454	11,036	11,418
Yukon Territory	14	0	6	4	2
Canada	105,710	869	27,682	13,737	13,945

Saskatchewan: Conventional Oil Resources

Total GDP Impacts

1. 80.0 percent of GDP to Saskatchewan (\$149.5 billion)
2. 6.6 percent of GDP to Ontario (\$12.4 billion)
3. 5.8 percent of GDP to Alberta (\$10.8 billion)
4. 3.1 percent of GDP to British Columbia (\$5.7 billion)
5. 2.6 percent of GDP to Manitoba (\$4.9 billion)

Total Employment Impacts

1. 69.8 percent of employment benefits to Saskatchewan
2. 11.6 percent of employment benefits to Ontario
3. 5.8 percent of employment benefits to Alberta
4. 4.5 percent of employment benefits to Manitoba
5. 4.4 percent of employment benefits to British Columbia

Total Federal Taxes

1. Saskatchewan \$19.5 billion
2. Ontario \$1.6 billion
3. Alberta \$1.1 billion
4. British Columbia \$804 million
5. Manitoba \$752 million

Total Provincial Taxes

1. Saskatchewan \$20.2 billion
2. Ontario \$1.6 billion
3. Manitoba \$824 million
4. British Columbia \$759 million
5. Alberta \$650 million

Other Highlights (over 25-years of activity)

- Drilling cost \$51.8 billion
- Infrastructure cost \$11.5 billion
- 73,529 drilled wells
- Provincial royalties \$39.8 billion

Saskatchewan: Conventional Gas Resources

Impacts Associated with Investment in Saskatchewan

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,872	15	310	197	113
British Columbia	986	12	270	139	131
Manitoba	358	7	114	55	60
New Brunswick	48	1	17	8	8
Newfoundland & Labrador	29	1	9	4	5
Northwest Territories	27	0	7	5	2
Nova Scotia	72	1	25	12	13
Nunavut	4	0	2	2	1
Ontario	2,133	31	552	271	281
Prince Edward Island	8	0	3	2	2
Quebec	408	7	127	55	72
Saskatchewan	26,111	187	6,931	3,406	3,524
Yukon Territory	4	0	2	1	1
Canada	32,061	262	8,369	4,156	4,213

Impacts Associated with Operation in Saskatchewan

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,624	13	269	171	98
British Columbia	855	10	234	120	114
Manitoba	311	6	99	47	52
New Brunswick	42	1	15	7	7
Newfoundland & Labrador	25	1	8	3	4
Northwest Territories	23	0	6	4	2
Nova Scotia	62	1	22	10	12
Nunavut	4	0	2	1	0
Ontario	1,851	27	479	235	244
Prince Edward Island	7	0	3	1	2
Quebec	354	6	110	47	62
Saskatchewan	22,653	162	6,013	2,955	3,058
Yukon Territory	4	0	2	1	1
Canada	27,815	227	7,261	3,606	3,655

Saskatchewan: Conventional Gas Resources

Total GDP Impacts

1. 81.4 percent of GDP to Saskatchewan (\$48.8 billion)
2. 6.7 percent of GDP to Ontario (\$4.0 billion)
3. 5.8 percent of GDP to Alberta (\$3.5 billion)
4. 3.1 percent of GDP to British Columbia (\$1.8 billion)
5. 1.3 percent of GDP to Quebec (\$763 million)

Total Employment Impacts

1. 71.5 percent of employment benefit to Saskatchewan
2. 11.7 percent of employment benefit to Ontario
3. 5.9 percent of employment benefit to Alberta
4. 4.5 percent of employment benefit to British Columbia
5. 2.7 percent of employment benefit to Quebec

Total Federal Taxes

1. Saskatchewan \$6.4 billion
2. Ontario \$506 million
3. Alberta \$369 million
4. British Columbia \$259 million
5. Man. & Quebec \$102 million

Total Provincial Taxes

1. Saskatchewan \$6.6 billion
2. Ontario \$525 million
3. British Columbia \$244 million
4. Alberta \$210 million
5. Quebec \$134 million

Other Highlights (over 25-years of activity)

- Drilling cost \$25.5 billion
- Infrastructure cost \$7.0 billion
- 54,919 drilled wells
- Provincial royalties \$3.7 billion

Manitoba: Conventional Oil Resources**Impacts Associated with Investment in Manitoba**

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	159	2	26	17	10
British Columbia	124	2	34	18	17
Manitoba	4,656	49	1,485	709	776
New Brunswick	12	0	4	2	2
Newfoundland & Labrador	9	0	3	1	2
Northwest Territories	3	0	1	0	0
Nova Scotia	13	0	5	2	2
Nunavut	1	0	0	0	0
Ontario	281	4	73	36	37
Prince Edward Island	2	0	1	0	0
Quebec	127	2	39	17	22
Saskatchewan	79	1	21	10	11
Yukon Territory	1	0	0	0	0
Canada	5,467	61	1,693	813	880

Impacts Associated with Operation in Manitoba

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	187	2	31	20	11
British Columbia	147	2	40	21	20
Manitoba	5,496	58	1,753	837	916
New Brunswick	14	0	5	2	3
Newfoundland & Labrador	10	0	3	1	2
Northwest Territories	3	0	1	1	0
Nova Scotia	16	0	5	3	3
Nunavut	1	0	1	0	0
Ontario	331	5	86	42	44
Prince Edward Island	3	0	1	1	1
Quebec	150	2	46	20	26
Saskatchewan	94	1	25	12	13
Yukon Territory	1	0	0	0	0
Canada	6,453	72	1,998	960	1,038

Manitoba: Conventional Oil Resources

Total GDP Impacts

1. 85.2 percent of GDP to Manitoba (\$10.1 billion)
2. 5.1 percent of GDP to Ontario (\$612 million)
3. 2.9 percent of GDP to Alberta (\$346 million)
4. 2.3 percent of GDP to Quebec (\$277 million)
5. 2.3 percent of GDP to British Columbia (\$271 million)

Total Employment Impacts

1. 80.3 percent of employment benefit to Manitoba
2. 7.4 percent of employment benefit to Ontario
3. 3.4 percent of employment benefit to Quebec
4. 2.9 percent of employment benefit to Alberta
5. 2.8 percent of employment benefit to British Columbia

Total Federal Taxes

1. Manitoba \$1.5 billion
2. Ontario \$78 million
3. British Columbia \$38 million
4. Alberta \$37 million
5. Quebec \$37 million

Total Provincial Taxes

1. Manitoba \$1.7 billion
2. Ontario \$81 million
3. Quebec \$49 million
4. British Columbia \$36 million
5. Saskatchewan \$23 million

Other Highlights (over 25-years of activity)

- Drilling cost \$4.6 billion
- Infrastructure cost \$2.4 billion
- 7,431 drilled wells
- Provincial royalties \$543 million

Quebec: Major Capital Projects

Impacts Associated with Investment in Quebec

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	19	0	3	2	1
British Columbia	20	0	5	3	3
Manitoba	6	0	2	1	1
New Brunswick	9	0	3	2	2
Newfoundland & Labrador	4	0	1	1	1
Northwest Territories	0	0	0	0	0
Nova Scotia	8	0	3	1	1
Nunavut	0	0	0	0	0
Ontario	93	2	24	12	12
Prince Edward Island	1	0	0	0	0
Quebec	882	15	273	118	156
Saskatchewan	5	0	1	1	1
Yukon Territory	0	0	0	0	0
Canada	1,048	17	317	140	177

Impacts Associated with Operation in Quebec

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	25	0	4	3	2
British Columbia	25	0	7	4	3
Manitoba	9	0	3	1	2
New Brunswick	11	0	4	2	2
Newfoundland & Labrador	6	0	2	1	1
Northwest Territories	1	0	0	0	0
Nova Scotia	10	0	4	2	2
Nunavut	1	0	0	0	0
Ontario	135	2	35	17	18
Prince Edward Island	2	0	1	0	0
Quebec	758	15	235	101	134
Saskatchewan	7	0	2	1	1
Yukon Territory	0	0	0	0	0
Canada	990	19	296	132	164

Quebec: Major Capital Projects

Total GDP Impacts

1. 80.5 percent of GDP to Quebec (\$1.6 billion)
2. 11.2 percent of GDP to Ontario (\$228 million)
3. 2.2 percent of GDP to British Columbia (\$45 million)
4. 2.2 percent of GDP to Alberta (\$44 million)
5. 1.0 percent of GDP to New Brunswick (\$20 million)

Total Employment Impacts

1. 81.5 percent of employment benefit to Quebec
2. 10.7 percent of employment benefit to Ontario
3. 1.9 percent of employment benefit to British Columbia
4. 1.5 percent of employment benefit to Alberta
5. 1.2 percent of employment benefit to New Brunswick

Total Federal Taxes

1. Quebec \$219 million
2. Ontario \$29 million
3. British Columbia \$6 million
4. Alberta \$5 million
5. Nova Scotia & New Brunswick \$3 million

Total Provincial Taxes

1. Quebec \$289 million
2. Ontario \$30 million
3. British Columbia \$6 million
4. Alberta/Nova Scotia/New Brunswick \$3 million

Other Highlights (over 25-years of activity)

- Quebec LNG capital cost \$950 million

Nova Scotia: Offshore Gas Resources

Impacts Associated with Investment in Nova Scotia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	44	0	7	5	3
British Columbia	32	0	9	5	4
Manitoba	2	0	1	0	0
New Brunswick	9	0	3	2	2
Newfoundland & Labrador	7	0	2	1	1
Northwest Territories	14	0	4	2	1
Nova Scotia	777	6	275	129	146
Nunavut	0	0	0	0	0
Ontario	40	1	10	5	5
Prince Edward Island	4	0	2	1	1
Quebec	15	0	5	2	3
Saskatchewan	5	0	1	1	1
Yukon Territory	0	0	0	0	0
Canada	951	8	319	152	167

Impacts Associated with Operation in Nova Scotia

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	307	2	51	32	18
British Columbia	223	2	61	31	30
Manitoba	15	0	5	2	2
New Brunswick	60	1	21	10	11
Newfoundland & Labrador	52	1	16	7	9
Northwest Territories	97	0	25	16	8
Nova Scotia	5,368	39	1,897	889	1,008
Nunavut	2	0	1	1	0
Ontario	280	4	72	36	37
Prince Edward Island	28	1	11	5	6
Quebec	107	2	33	14	19
Saskatchewan	32	0	9	4	4
Yukon Territory	1	0	0	0	0
Canada	6,571	53	2,202	1,049	1,153

Nova Scotia: Offshore Gas Resources

Total GDP Impacts

1. 81.7 percent of GDP to Nova Scotia (\$6.1 billion)
2. 4.7 percent of GDP to Alberta (\$351 million)
3. 4.3 percent of GDP to Ontario (\$320 million)
4. 3.4 percent of GDP to British Columbia (\$255 billion)
5. 1.6 percent of GDP to Saskatchewan (\$122 million)

Total Employment Impacts

1. 74.2 percent of employment benefit to Nova Scotia
2. 7.9 percent of employment benefit to Ontario
3. 3.6 percent of employment benefit to British Columbia
4. 3.5 percent of employment benefit to Alberta
5. 3.2 percent of employment benefit to Quebec

Total Federal Taxes

1. Nova Scotia \$1.0 billion
2. Ontario \$41 million
3. Alberta \$37 million
4. British Columbia \$36 million
5. Northwest Territories \$19 million

Total Provincial Taxes

1. Nova Scotia \$1.2 billion
2. Ontario \$42 million
3. British Columbia \$34 million
4. Quebec \$22 million
5. Alberta \$21 million

Other Highlights (over 25-years of activity)

- Capital cost of Deep Panuke \$735 million

Northwest Territories: Major Capital Projects

Impacts Associated with Investment in the Northwest Territories

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	400	6	66	42	24
British Columbia	457	7	125	64	61
Manitoba	70	1	22	11	12
New Brunswick	20	0	7	3	3
Newfoundland & Labrador	15	0	5	2	3
Northwest Territories	9,071	104	2,297	1,537	760
Nova Scotia	35	1	12	6	7
Nunavut	104	2	53	40	12
Ontario	563	10	146	72	74
Prince Edward Island	4	0	2	1	1
Quebec	264	5	82	35	47
Saskatchewan	69	1	18	9	9
Yukon Territory	12	0	5	4	2
Canada	11,084	139	2,840	1,826	1,014

Impacts Associated with Operation in the Northwest Territories

	Thousand		\$ million		
	\$ million	Person Years	Total Net Tax	Federal	Provincial
	GDP	Employment			
Alberta	1,353	19	224	143	81
British Columbia	1,146	19	313	161	152
Manitoba	392	8	125	60	65
New Brunswick	96	2	33	16	17
Newfoundland & Labrador	80	2	25	11	14
Northwest Territories	8,075	111	2,045	1,369	677
Nova Scotia	156	4	55	26	29
Nunavut	302	5	153	117	36
Ontario	2,448	44	634	311	323
Prince Edward Island	26	1	11	5	6
Quebec	899	18	279	120	158
Saskatchewan	409	7	108	53	55
Yukon Territory	17	0	8	5	2
Canada	15,399	240	4,013	2,398	1,616

Northwest Territories: Major Capital Projects

Total GDP Impacts

1. 64.7 percent of GDP to Northwest Territories (\$17.1 billion)
2. 11.4 percent of GDP to Ontario (\$3.0 billion)
3. 6.6 percent of GDP to Alberta (\$1.8 billion)
4. 6.1 percent of GDP to British Columbia (\$1.6 billion)
5. 4.4 percent of GDP to Quebec (\$1.2 billion)

Total Employment Impacts

1. 56.7 percent of employment benefit to Northwest Territories
2. 14.3 percent of employment benefit to Ontario
3. 7.0 percent of employment benefit to British Columbia
4. 6.7 percent of employment benefit to Alberta
5. 6.1 percent of employment benefit to Quebec

Total Federal Taxes

1. Northwest Territories \$2.9 billion
2. Ontario \$383 million
3. British Columbia \$226 million
4. Alberta \$185 million
5. Nunavut \$158 million

Total Provincial Taxes

1. Northwest Territories \$1.4 billion
2. Ontario \$397 million
3. British Columbia \$213 million
4. Quebec \$205 million
5. Alberta \$105 million

Other Highlights (over 25-years of activity)

- NWT Mackenzie Valley Pipeline capital cost \$13.2 billion

About CERI

The Canadian Energy Research Institute (CERI) is a co-operative research organization established through an initiative of government, academia, and industry in 1975. The Institute's mission is to provide relevant, independent, objective economic research and education in energy and related environmental issues. Related objectives include reviewing emerging energy issues and policies as well as developing expertise in the analysis of questions related to energy and the environment.

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