Fossil Fuels – At What Cost?

Government support for upstream oil activities in three Canadian provinces: Alberta, Saskatchewan, and Newfoundland and Labrador

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NOVEMBER 2010

Prepared by:

EnviroEconomics Inc.
Dave Sawyer
Seton Stiebert

For the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development (IISD)
Geneva, Switzerland

GSI Global Subsidies Initiative
www.globalsubsidies.org

iisd International Institute for Sustainable Development / Institut international du développement durable

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International Institute for Sustainable Development

Head Office
161 Portage Avenue East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4
Tel: +1 (204) 958-7700
Fax: +1 (204) 958-7710
Web site: www.iisd.org

International Institute for Sustainable Development
Global Subsidies Initiative

International Environment House 2
9 chemin de Balexert
1219 Châtelaine
Geneva, Switzerland
Tel: +41 22 917-8373
Fax: +41 22 917-8054
Web site: www.globalsubsidies.org

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ACRONYMS AND ABBREVIATIONS

AB	Alberta
ACCA	Accelerated Capital Cost Allowance
AITC	Atlantic Canada Investment Tax Credit
ARTC	Alberta Royalty Tax Credit
ASCM	Agreement on Subsidies and Countervailing Measures
BC	British Columbia
BRIK	Bitumen Royalty In Kind
BTD	balance of trade deficit
CAPP	Canadian Association of Petroleum Producers
CCA	capital cost allowance
CCDE	Cumulative Canadian Development Expense
CCEE	Cumulative Canadian Exploration Expense
CCPC	Canadian-controlled private corporations
CCS	carbon capture and storage
CCT	Corporation Capital Tax
CDE	Canadian Development Expense
CEE	Canadian Exploration Expense
CGE	computable general equilibrium
CHOPS	Cold Heavy Oil Production with Sand
C-NLOPB	Canada-Newfoundland and Labrador Offshore Petroleum Board
CO_2	carbon dioxide
COGPE	Canadian Oil and Gas Property Expense
CPI	Consumer Price Index
CRA	Canada Revenue Agency
CRCE	Canadian Renewable and Conservation Expense
EOR	enhanced oil recovery
EUB	Energy Utility Board
FTS	flow-through shares
GAMS	General Algebraic Modeling System
GDP	gross domestic product
GEEM	General Equilibrium and Emissions Model
GHG	greenhouse gas
GSI	Global Subsidies Initiative
IETP	Innovative Energy Technologies Program
IOSTAC	Industry Oil Sands Tenure Advisory Committee
ISEEE	Institute for Sustainable Energy, Environment and Economy (University of Calgary)
ITC	income tax credit
m^3	cubic metres
MOP	monthly oil production
MT	million tonnes
NFL	Newfoundland and Labrador
NRCan	Natural Resources Canada

NRF	New Royalty Framework
OAG	Office of the Auditor General of Canada
OECD	Organisation for Economic Co-Operation and Development
OERD	Office of Energy Research and Development
OPEC	Organization of Petroleum Exporting Countries
PEEP	Petroleum Exploration Enhancement Program
PERD	Program of Energy Research and Development
PIP	Petroleum Incentive Payments
PRTC	Petroleum Technology Research Centre
PST	Provincial Sales Tax
PTF	Production Tax Factor
R&D	research and development
RCIT	Royalty Credit for Individuals and Trusts
RTR	Royalty Tax Rebate
SCO	synthetic crude oil
SK	Saskatchewan
SPRI	Saskatchewan Petroleum Research Incentive
SRC	Saskatchewan Resource Credit
SR&ED	Scientific Research and Experimental Development
StatCan	Statistics Canada
TRA	Tax and Revenue Administration
TO	Transitional Offer
US	United States
WTI	West Texas Intermediate
WTO	World Trade Organization

1. EXECUTIVE SUMMARY

EnviroEconomics, under contract to the International Institute for Sustainable Development, presents in this report up-to-date estimates of Canada's subsidies to the oil sector in three Canadian provinces, namely Alberta, Saskatchewan and Newfoundland and Labrador, and the federal government. The focus of the study is on production, and more specifically on oil exploration, development and extraction, including upgraders. The report is organized around three core questions:

1. What are the subsidy policies for oil production in Alberta, Saskatchewan and Newfoundland, including federal subsidies? This first question required an in-depth review of the subsidy regimes in place in the four jurisdictions.
2. Who is benefiting from these subsidies, including the value transfer between producers and government? To address this second question, we value the subsidies and aggregate the various policies into an estimate of subsidy.
3. What are the environmental and economic outcomes of these subsidies? To answer this question, we adopt two approaches: (1) facility-level modelling to determine the impact on financial performance; and (2) macroeconomic modelling to estimate economic, environmental and social outcomes.

This report does not provide recommendations for subsidy reform, nor does it seek to judge whether some subsidies are "good" or if other subsidies are "bad." Instead, through exploring the three questions above, we reveal the extent of oil subsidies to production in the majority of production in Canada (97 per cent) and then explore what these subsidies imply for a range of economic and emission outcomes.

Of course many will not be happy with our results. And indeed we expect some push-back from industry, governments and the environmental community. This will likely stem from differences in the definition of subsidy. Generally, existence and extent of subsidies varies according to viewpoint, with two competing extremes defining the spectrum:

- An environmental view treats any benefit to the oil sector as a subsidy, *regardless* of whether or not they are available to other economic sectors. Under this view, taxes are low or not collected, royalty and land lease payments are set well below the value of the oil in the ground, and environmental services are provided for free. Oil prices therefore misrepresent the societal cost of a barrel of oil extracted, leading to higher activity levels and more environmental degradation. Here, any subsidy is unacceptable, and through subsidy reform, the costs of oil extraction need to rise to reflect the social cost.
- A development view by contrast, favoured by industry and to some extent governments, is one where competitiveness is maintained through keeping taxes and royalty payments low to keep investment activity levels high. Under this view there are no subsidies. Instead, incentives and programs are designed to make the sector more competitive relative to other jurisdictions thereby attracting investment and keeping activity levels high.

Much of the debate and conjecture on the existence of oil subsidies to producers in Canada can be traced to these two views. It is no wonder the debate continues when bounded by two such extremes.

In this review, we adopt a definition of subsidy that to some extent balances the two extremes outlined above. This study uses a definition of "subsidy" based on the World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures (ASCM), which is agreed by 153 countries, including Canada. Under *Article 1: Definition of a Subsidy*, the ASCM determines that four types of subsidies exist, where government:

1. Provides direct transfer of funds or potential direct transfer of funds or liabilities,
2. Revenue is foregone or not collected,
3. Provides goods or services or purchases goods,
4. Provides income or price support.

The ASCM definition excludes environmental externalities such as air or water pollution.

The ASCM also requires that a subsidy be specific to an enterprise, industry, or group of enterprises or industries under Article 2. So although in some cases government support is offered to more than one sector, it can still be considered a subsidy for the purposes of this study if, for example, it is offered only to the oil and gas sectors, or if the oil sector disproportionately benefits from the support. The Atlantic Investment Tax Credit is an example of a disproportionate benefit, as it is available to resource sectors, but is overwhelmingly utilized by the oil and gas sector. The scope of the study also includes subsidies for carbon capture and storage.

Based on the ACSM list above, GSI developed sub-categories of subsidies that form the framework for identifying subsidies in the oil sector in Canada (Table ES-1). These are not all necessarily relevant to the oil sector in Canada, as this study will reveal, but rather forms a comprehensive framework for identifying and analyzing subsidies in any country. This framework provides the basis for the GSI's series of country case studies to identify and quantify subsidies to upstream oil and gas activities.

Royalties and lease payments are an interesting case within this definition. These are important mechanisms to share the value (economic rent) of the Crown oil resource value with industry. In theory, royalties and land leases should reflect the value of the oil in the ground, less returns to investment capital and risk, but in practice there is no benchmark value for which to set the appropriate level of royalty and there remain many uncertainties to this value (for example, what volume will be produced and what the oil price will be). To the extent that the royalty and land-lease mechanisms do not capture for government the full "economic rent" of the resource, then a subsidy is most likely conferred. The challenge with this approach, that of defining a subsidy based on a benchmark resource rent value, is establishing just what that benchmark should be, and then determining how the royalty payment differs from that benchmark. We have not, in this report, gone down this road due to issues of project scope and methodological challenge. Future work could look at this issue as the value of resource rent is large compared to the current incentive programs offered.

What we have done, however, is identify royalty relief programs that reduce the quantity of royalties paid. These incentives are differentiated at sub-segments of the oil production sector to either incentivize new drilling or make high-cost oil recovery more economic. As such, they are not generally available and therefore meet our subsidy definition. One could also argue that the royalty levels have been set by governments to meet their objectives on sharing resource rents, and to the extent royalty relief exists, it represents an implicit subsidy to the sector. Of course, the development view would argue that royalty relief is a reaction to economic circumstances and a necessary adjustment to maintain the competitiveness of the sector.

TABLE ES-1: TYPOLOGY OF SUBSIDIES

Direct and indirect transfer of funds and liabilities	**Direct spending**	**Earmarks:** Special disbursements targeted at the sector. **Agency appropriations and contracts:** Targets spending on the sector through government budgets. **Research and development support:** Funding for research and development programs
	Government ownership of energy-related enterprises	**Security-related enterprises:** Strategic petroleum reserve; some Homeland Security Administration; securing foreign energy shipments or key assets. **Municipal utilities and public power:** Significant public ownership of coal- and natural gas-fired electricity stations; some transmission and distribution systems for both natural gas and electric power
	Credit support	**Government loans and loan guarantees:** market or below-market lending to energy-related enterprises, or to energy-intensive enterprises such as primary metals industries **Subsidized credit to domestic infrastructure and power plants** **Subsidized credit to oil and gas related exports**
	Insurance and indemnification	**Government insurance/indemnification:** market or below-market risk management/risk shifting services **Statutory caps on commercial liability:** can confer substantial subsidies if set well below plausible damage scenarios
	Occupational health & accidents	**Assumption of occupational health and accident liabilities**
	Environmental costs	**Responsibility for closure and post-closure risks:** facility decommissioning and cleanup; long-term monitoring; remediation of contaminated sites; natural resource restoration; litigation **Waste management:** avoidance of fees payable to deal with waste. **Environmental damages:** avoidance of liability and remediation to make the environment whole.
Government revenue foregone	**Tax breaks and special taxes**	**Tax expenditures:** Tax expenditures are foregone tax revenues, due to special exemptions, deductions, rate reductions, rebates, credits and deferrals, that reduce the amount of tax that would otherwise be payable. **Overall tax burden by industry:** Marginal tax rates are lower than other industry. **Exemptions from excise taxes/special taxes:** excise taxes on fuels; special targeted taxes on energy industry (e.g., based on environmental concerns or "windfall" profits)

TABLE ES-1: TYPOLOGY OF SUBSIDIES (CONTINUED)

Provision of goods or services below market value	**Government-owned energy minerals**	**Process for mineral leasing:** auctions for larger sites; sole-source for many smaller sites **Royalty relief or reductions in other taxes due on extraction:** reduced, delayed or eliminated royalties are common at both national and sub-national levels. Royalties targeted based on type of energy, type of formation, geography or location of reserve (e.g., deep water). **Process of paying royalties due:** allowable methods to estimate and pay public owners for energy minerals extracted from public lands
	Government-owned natural resources or land	**Access to government-owned natural resources land:** at no charge or for below fair-market rate
	Government-owned infrastructure	**Use of government-provided infrastructure:** at no charge or below fair-market rate
	Government procurement	**Government purchase of goods or services for above-market rates**
	Government-provided goods or services	**Government-provided goods or services at below-market rates**
Income or price support	**Market price support and regulation**	**Consumption mandates:** fixed consumption shares for total energy use. **Border protection or restrictions:** controls on imports or exports leading to unfair advantages. **Regulatory loopholes:** any legal loopholes, either in the wording of the statute or in its enforcement, that transfers significant market advantage and financial return to particular energy market participants **Regulated prices set at below-market rates:** for consumers (including where there is no financial contribution by government) **Regulated prices set at above-market rates:** including government regulations or import barriers

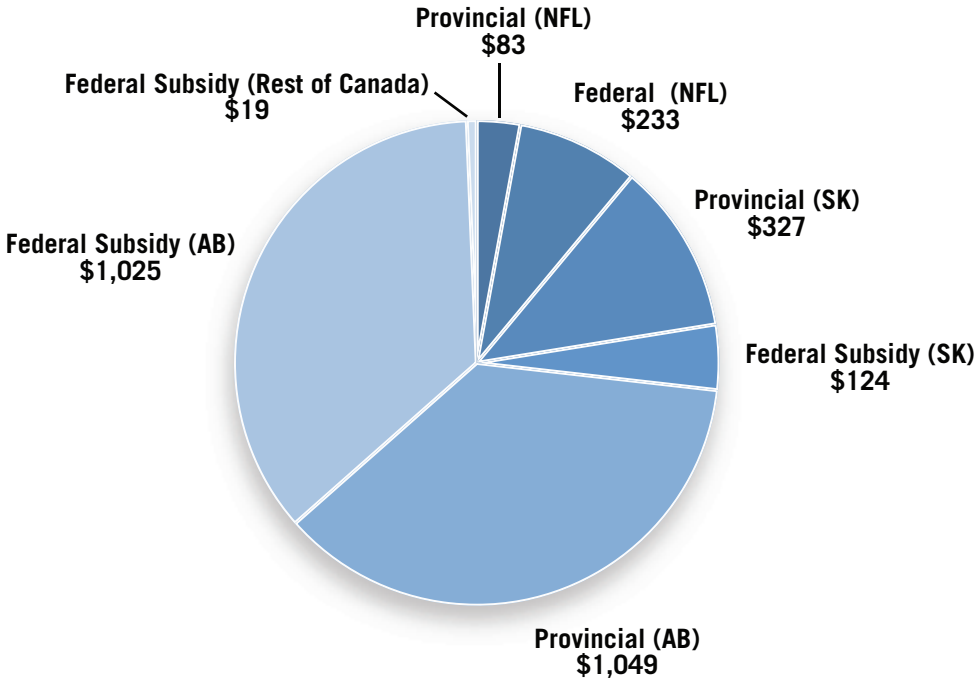
Results

Both federal and provincial governments have made some progress in phasing out subsidies such as accelerated capital costs allowances; however, new subsidies have also emerged in an attempt to provide incentive to access more oil from high-cost resources. In total, this study estimates that provincial and federal governments are providing over $2.8 billion in subsidies to the oil sector in Alberta, Saskatchewan and offshore Newfoundland and Labrador. These three jurisdictions account for more than 97 per cent of oil production within Canada and so this study provides a comprehensive subsidy estimate.

This study identified a total of 63 subsidy programs targeted at the oil industry in the jurisdictions; 18 in Alberta, 19 in Saskatchewan, nine in Newfoundland and Labrador and 17 at the federal level. Most of these subsidies seek to increase exploration and development activity, with a focus on reducing the costs of exploration, drilling and development through a mix of tax breaks and royalty reductions. Development subsidies primarily directed at encouraging companies to bring new oil resources into production comprised 59 per cent of total subsidies ($1.68 billion). These subsidies typically reduce capital expenditures through accelerated write-offs, tax credits, royalty reductions or allowances. Subsidies to support exploration, drilling, operations and research and technology comprised the remaining share of subsidies in about equal proportion.

Figure ES-1 shows the relative proportion of subsidies for the three provinces and the breakout of federal subsidies provided to the provinces. Federal subsidies total $1.38 billion or 49 per cent of total subsidies we estimated. The province of Alberta receives the vast share of total federal and provincial subsidies (73 per cent), which is larger than Alberta's share of crude oil production (67 per cent).

FIGURE ES-1: ANNUAL SUBSIDY VALUE OF TOTAL $2.8 BILLION ($MILLIONS)



In terms of the types of subsidies that are prevalent, the federal government and Government of Newfoundland and Labrador favour tax expenditures (83 per cent of federal subsidies, 63 per cent of Newfoundland and Labrador), while Saskatchewan favours royalty relief or reductions in other taxes (78 per cent of Saskatchewan subsidies). Alberta has a larger mix of different types of subsidies with royalty relief (46 per cent) and tax breaks (25 per cent) comprising the largest proportion of total subsidies.

On average, across Canada, the subsidy as a share of average production value is estimated to be about 5.2 per cent. The subsidy as a share of production is highest in Alberta (5.7 per cent) and lowest in Newfoundland and Labrador (3.7 per cent). This is consistent with the cost of production, which is also highest in Alberta and lowest in Newfoundland and Labrador. Subsidies as a percentage of the total transfers to government, including taxes, royalties and Crown land sales, were 5.3 per cent on average across Canada, with a high of 7 per cent in Alberta and a low of 5.2 per cent in Saskatchewan.

An analysis of the financial implications of subsidies to well drilling in Saskatchewan found that subsidies to encourage the development of new oil wells were significant. The average subsidy level to produce new wells was found to be $139,000 per well or $143 per m^3 produced. This subsidy level represents approximately 27 per cent of the estimated future value of production from these wells, although the full tax implications of these subsidies were not estimated. Subsidies provided for production in Saskatchewan were found to be much smaller and estimated to be only $0.22 per m^3 produced.

Unique relative to past subsidy work in Canada is the exploration of the impacts of oil sector subsidies on emission and economic outcomes. We use an economy-wide macroeconomic model with royalty and corporate tax interactions to determine the impact of the subsidies on production and emissions. We forecast economic activity and emissions nationally and by region as well as oil production to 2020, and then estimate how the $2.8 billion of subsidies identified in this report alter oil production, the associated linked economic activity and emissions. This future-looking analysis allows us to capture the longer-term impacts of the subsidies on new capital deployment and production. Note, that our modelling is stylized and provides indicative results. Nevertheless the analysis helps one think about the policy trade-offs of the current practice of subsidizing the sector.

With the equivalent of $2.8 billion in current dollars incentivizing future oil production, we identify the following implications attributable to the subsidy:

- **The current subsidies have a slight positive impact on economic activity.** The largest impacts are found in Alberta where the size of the total economy (i.e., GDP) is about 0.16 per cent larger in 2020 because of the subsidies identified in this report. This in effect increases the annual GDP growth rate in 2020 from about 1.64 per cent to 1.8 per cent. This has a marginal effect on the size of the total Alberta economy, which is projected to be 27 per cent bigger in 2020 than it is today.
- **Subsidies to the oil sector are increasing the level of production.** The impact of the subsidies on the marginal producer of oil is important. With subsidies in place, oil production nationally is projected to be in the order of 5 per cent larger in 2020, with a range of 0.3 per cent increase in Newfoundland and Labrador and a high of 6 per cent in Alberta. In 2020 the sector will be about twice as large as it was in 2005 with or without subsidies, which implies the subsidies influence growth in the sector but are not a major determinant.

- **Net exports are fuelled by subsidies.** Subsidies are contributing to oil exports, which in turn generate foreign exchange. Our results indicate that net exports in oil (or the oil trade surplus) increases about 14 per cent nationally with the subsidies in place.
- **The employment benefit of the subsidies is questionable.** While the economy does expand with the oil subsidies in place, most of this happens in the capital-intensive oil sector. The impacts on total employment are therefore negligible.
- **Government balances are lower even with higher corporate taxes and royalty payments.** While the increased economic activity due to the subsidies does increase corporate taxes and royalties paid, labour taxes are likely lower due to the spending in the capital intensive oil sector. More significantly, major subsidy outlays are relatively large. Government balances therefore are worse off with the subsidies: the federal government is lower by 1 per cent, Alberta by 5 per cent, and Saskatchewan by 4 per cent. A small increase is observed in Newfoundland and Labrador budget, where the federal subsidy infusion creates more activity and revenue while not being offset by provincial subsidies paid.
- **Subsidies drive production and hence more emissions.** Nationally, emissions are about 2 per cent higher in 2020 with the subsidies. In Alberta, the likely increase in emissions attributable to the subsidies is large, with about 5 per cent more provincial emissions than if the subsidies were removed.
- **Non-conventional production is experiencing the greatest benefit from the subsidies, followed by new drilling.** With targeted programs for the oil sands, as well as a large share of total production, the oil sands are disproportionally benefiting. Our assessment indicates that the subsidies are adding 6 per cent to 7 per cent more production to the sector and about 12 per cent more emissions. Most of the targeted programs are for more exploration activity and drilling in the provinces.

Perhaps most interesting is the risk of a growing subsidy obligation on governments. With oil production predicted to more than double between now and 2020, with or without the subsidies in place, the share of subsidy relative to overall government expenditures could grow. In our simple modelling, scaling up current subsidies to future production more than doubles the subsidy as a share of government expenditures. As mentioned above, government balances are then worse off as the tax and royalty increases are more than offset by the subsidies paid. This points to a government balances risk through providing incentive programs to a rapidly expanding sector.

Finally, an important area for future work is to examine how the subsidy revenue could be recycled. Given the size of current government spending on subsidies to the oil sector, redirecting subsidy revenue to reduce corporate and income taxes, pay off debt, or increase the size of government spending, would all have very different efficiency implications.

1.1 SCOPE OF THE STUDY

This report has a fairly narrow scope:

- We focus on upstream oil production, and do not look at natural gas or coal, or other forms of energy such as biomass or renewables;
- Upstream activities are defined as exploration, development, production, upgrading, thereby excluding refining, storage, transportation, distribution and retail;
- This means we do not focus on subsidies to consumption; and
- The study is focused on four jurisdictions in Canada: the federal government, Alberta, Saskatchewan, and Newfoundland and Labrador, thereby excluding the rest of Canada.

International comparisons are not made, and benchmarking of subsidy levels is not conducted. Instead, this report identifies, monetizes and then discusses the implications of the subsidies on a number of important outcomes, such as economic activity and emissions.

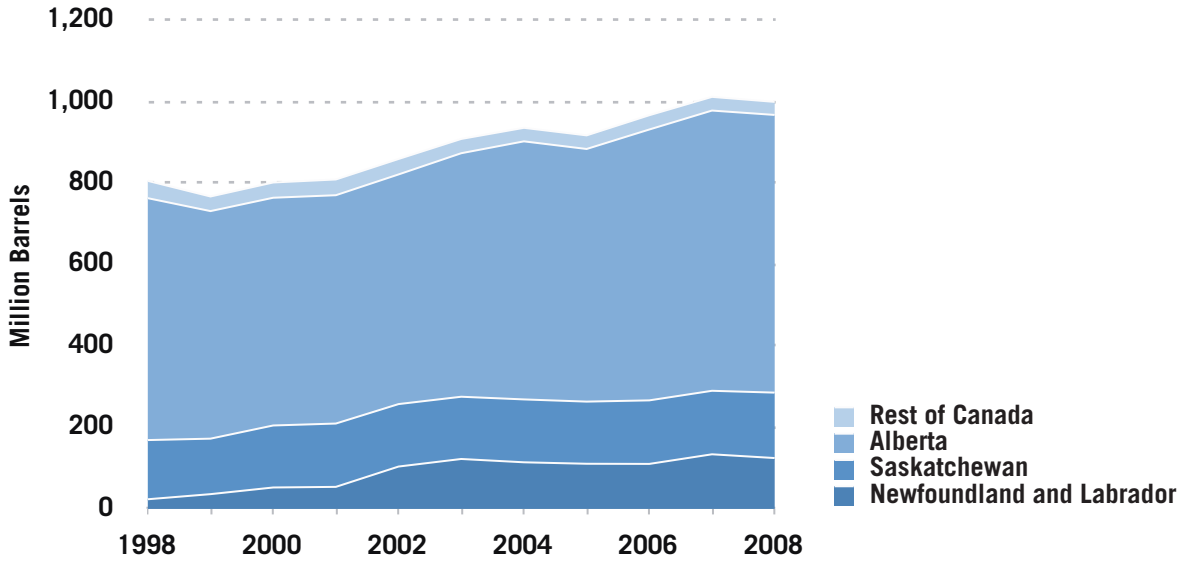
Finally, the report is focused on current subsidies provided by the four jurisdictions, and does not look to the past to quantify the level of subsidy. All values are in 2009 dollars, and where possible, attributed to the subsidy in 2008 on an annualized basis.

2. OVERVIEW OF THE OIL SUPPLY SECTOR

2.1 PHYSICAL CHARACTERISTICS IN CANADA

The three provincial jurisdictions under review account for about 97 per cent of all oil production in Canada. By far the largest producer is Alberta (67 per cent), followed by Saskatchewan (17 per cent) and then Newfoundland and Labrador (13 per cent). Figure 1 shows the historical shares. Overall Canadian production has been increasing at a rate of about 2.5 per cent annually over the last 10 years (Statistics Canada, 2009).

FIGURE 1: HISTORICAL SHARES OF OIL PRODUCTION IN CANADA (1998–2008)



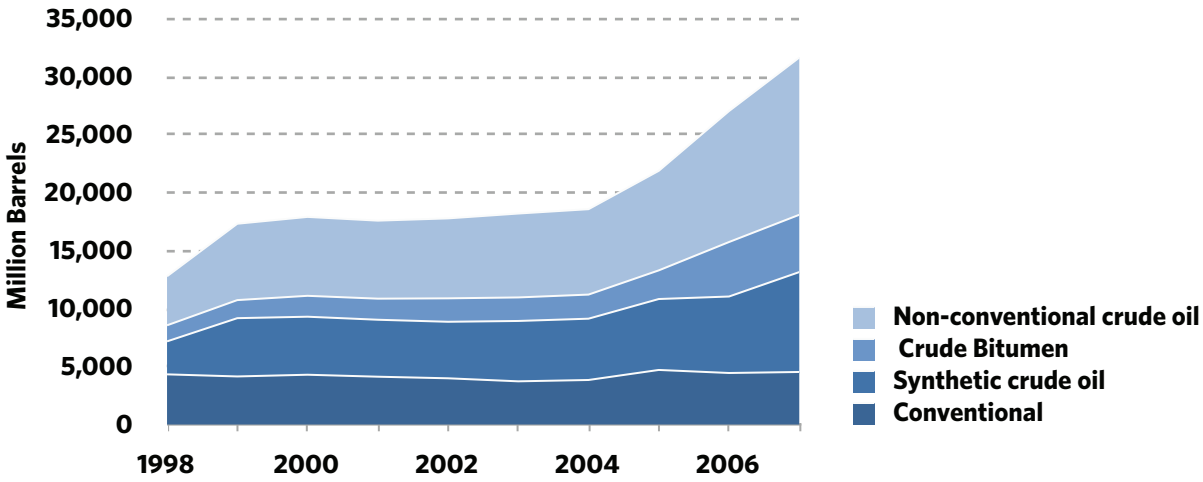
Source: Statistics Canada, 2009

Most of this growth has come through a major realignment of production away from conventional sources towards non-conventional[1] from "oil sands." The share of oil sands-produced oil now stands at about 45 per cent of all oil in the three jurisdictions, which is more than double in 10 years. Of course, almost all of this comes from Alberta, with some starting to come from Saskatchewan.

Recently, estimated oil reserves have transformed Canada into the second largest holder of oil in the world, with a total of about 178 billion barrels of remaining established reserves, which are recoverable using current technology and under present anticipated conditions (CAPP, 2009). This increase has come as technology for oil sands extraction has progressed, making large quantities of reserves economical. In the last 10 years, established oil reserves, which are by definition proved by drilling, testing or production and therefore a subset of remaining established reserves, have almost tripled. The vast majority of these reserves are in some form of oil sands, either crude bitumen or synthetic crude, both of which are "non-conventional."

[1] Non-conventional oil is petroleum produced or extracted using techniques other than the traditional oil well method.

FIGURE 2: CANADA'S ESTABLISHED OIL RESERVES, 1998 – 2007



Source: CAPP, 2009

Production forecasts show significant regional variation (National Energy Board, 2009a):

- The three major producing offshore fields in Newfoundland and Labrador are in decline, but this decline is moderated by the addition of several satellite fields, starting in 2010, as well as the larger Hebron field slated for production for 2017.
- Conventional oil production, located in the Western Canadian Sedimentary Basin that traditionally has benefited Alberta and Saskatchewan, continues a historical decline of about 3 per cent per year. This trend is likely to be moderated, however, by significant new opportunities in Saskatchewan (Bakken) as well as the use of CO_2 enhanced oil recovery (EOR) projects.
- Oil sands production is likely to top 1 billion barrels by 2020, more than doubling current levels in 10 years. Most of this growth is located in Alberta and to a lesser extent Saskatchewan.

The section below provides an overview of the structure of the industry by jurisdiction.

2.2 INDUSTRY STRUCTURE BY JURISDICTION

Given the differing supply chain structures contained in each of the jurisdictions covered in this review, this section is organized by jurisdiction. Table 1 below provides an overview of key characteristics of the oil-producing sector in the jurisdictions covered under this review, as well as their importance to the remaining oil production in Canada. The three jurisdictions account for about 97 per cent of the Canadian production of oil, both conventional and non-conventional. More detail on the jurisdictions is provided in the sections below.

TABLE 1: OIL SECTOR CHARACTERISTICS IN CANADA (2008)

	Expenditures[a]	Royalties[a]	Land sales[a]	Production value	Production	Established remaining reserves[b]
	Billion ($2008)				(000's m^3)	
Alberta conventional	$7.81	$2.66	$0.23	$17.48	29,254	252,561
Alberta oil sands	$29.22	$3.55	$0.29	$37.77	70,344	2,507,794
Saskatchewan	$4.73	$2.11	$0.99	$13.39	25,574	195,214
Newfoundland and Labrador	$1.68	$2.13	$0.12	$12.28	19,912	233,366

Source: Canadian Association of Petroleum Producers (2010a)

[a] Prorated by value of production

[b] The total end-of-year volume of economically viable oil, after cumulative production. It is generally much less that the initial volume in-place, which is a measure of what feasibly could be extracted. Volume in-place is a multiple of about 10 times greater than established remaining reserves.

2.2.1 ALBERTA

Oil production in Alberta was 100 million cubic meters in 2008 with a value of shipments of about $55 billion (Statistics Canada, 2009).[2] Production has been increasing at an annual rate of about 1.5 per cent per year over the last 10 years, but this masks a steady decline in conventional oil and a rapid increase in non-conventional oil. Established reserves in Alberta have more than doubled since 1998 with enough oil proven to be economically recoverable to support current production levels for about 23 years (Statistics Canada, 2009). Proven reserves for which production is not currently tied are much larger than this. About 81 per cent of mineral rights, including oil and natural gas resources, are owned by Albertans through the provincial government, while the federal government owns a total of 10.6 per cent, partially held in trust on behalf of First Nations, and partially within National Parks. The remaining 8.4 per cent is privately owned by corporations and individuals (Alberta Royalty Review, 2007).

Oil sector royalties were about $7 billion[3] in 2008, with land sales of about $500 million (Table 1). This is down significantly from 2006 where there was a record $2.4 billion in land sales (CAPP, 2010b).

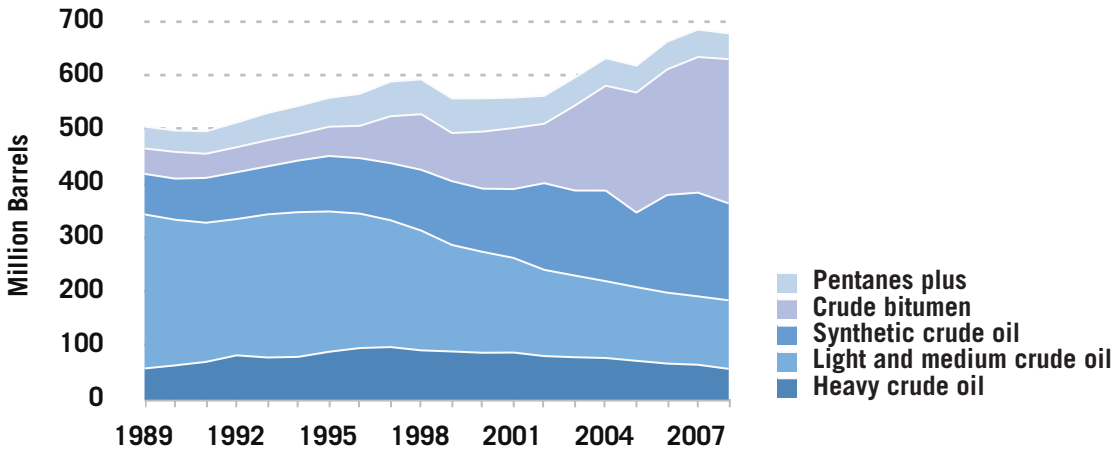
The oil sector in Alberta consists of four main types of activity: oil exploration and development; conventional oil production; non-conventional, including oil sands mining and in situ operations; and oil sands upgraders:

- **Oil exploration and development.** About 560 oil rigs currently are operating in the province, with less than half of these operating on any single day (or a utilization rate of about 43 per cent)(Canadian Association of Oilwell Drilling Contractors). In 2008, there were about 2,304 oil well completions. Total expenditures on drilling exploration and development were $5.07 billion in 2008, the latest detailed data available (Statistics Canada, 2007).
- **Conventional oil production.** Conventional reserves (initial established) have been declining from an initial resource of about 4.2 billion barrels of established reserves in 1980 down to about 1.5 billion in 2008 (CAPP, 2010a). Production in 2008 was about 183 million barrels, with a total value of about $17.5 billion. Net cash expenditures were about $7.8 billion in 2008 (CAPP, 2010a).

[2] Average oil price was about $US 100/barrel in 2008.

[3] All funds refer to Canadian currency unless otherwise noted.

FIGURE 3: OIL PRODUCTION IN ALBERTA, 1989–2007



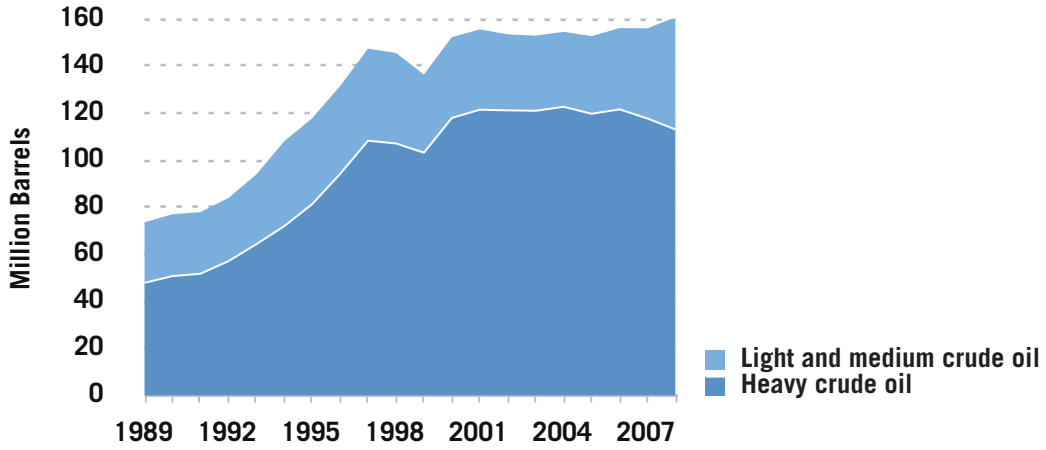
Source: Statistics Canada, 2009

- **Oil sands.** An "oil sands facility" means a facility that engages in the extraction of bitumen through either surface mining (which includes the processing of bitumen to remove sand and water), or the extraction of bitumen though in situ methods (which includes the processing of bitumen to remove sand and water). For mining, huge open-pit mines are constructed and large extraction facilities are used to separate the bitumen from the sand. In situ thermal recovery resembles conventional oil production where bitumen extraction starts with drilling wells and then is followed by injecting steam to enable the bitumen to flow to the surface.

  The vast majority of Alberta's established remaining oil reserves (15.8 billion barrels) are found in Alberta's oil sands, with about 80 per cent likely recoverable by in situ methods and 20 per cent by surface mining. Production from oil sands was about 442 million barrels in 2008, or about 42 per cent of all oil produced in Canada (CAPP, 2010a). Of this oil sands total, about 51 per cent came from surface mining (four operations) and 49 per cent from in situ (91 operations). Production is expected to more than double by 2018 (CAPP, 2010b). The value of oil sands shipments was $37 billion in 2008 (CAPP, 2010b).

- **Upgraders.** A modern bitumen upgrader is a highly complex and integrated industrial processing plant where diluted bitumen is processed and upgraded into more useful refinery feedstock or petroleum products, such as synthetic crude, diesel, marketable bitumen and sulphur (synthetic crude). Current upgrading capacity in Alberta is approximately 438 million barrels per day of bitumen with synthetic crude oil output at approximately 365 million barrels. About 10 upgraders were operational in 2008, with another 29 slated for operation before 2015.

FIGURE 4: OIL PRODUCTION IN SASKATCHEWAN, 1989–2007



Source: Statistics Canada, 2007

2.3 SASKATCHEWAN

As the second largest oil-producing province, with about 17 per cent of all Canadian crude oil production, Saskatchewan has seen a boom in recent oil activity (Statistics Canada, 2007). A record 159 million barrels of oil were produced in 2008 with a historically high value of shipments of $13.4 billion (CAPP, 2010b). An estimated 26,000 oil wells were productive, with estimated established recoverable reserves of 1.2 billion barrels (Government of Saskatchewan, 2008). Crown royalties from the oil sector were up significantly in 2008 from previous years due to high oil prices, and represented approximately 16 per cent of industry revenue (Table 1). Land sales were a record $990 million in 2008.

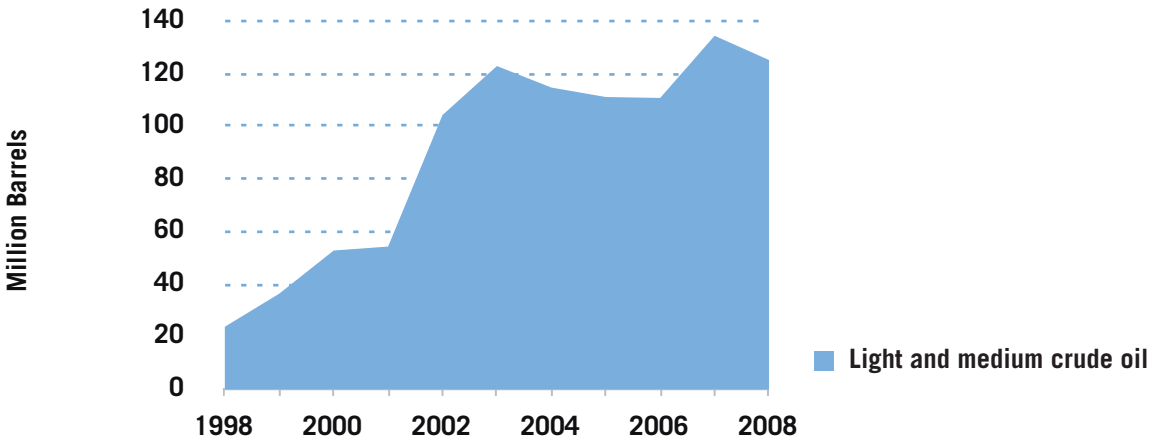
There are primarily three types of operations in Saskatchewan:

- **Oil exploration and development.** Drilling rigs operating in the province were 112 in 2009–10, with a utilization rate of 45 per cent. These rigs released about 2,000 wells, and approximately another 500 wells were suspended or abandoned. Industry spending by the conventional oil sector for drilling was about $2.2 billion in 2008 (Statistic Canada, 2007).
- **Conventional oil production.** All of the 159 million barrels of oil produced in 2008 came from conventional sources, with heavy oil accounting for about 58 per cent of this, with two heavy oil upgraders operating in the province (CAPP, 2010b).

2.3.1 NEWFOUNDLAND AND LABRADOR

Light crude oil is produced by three offshore fields, namely Hibernia, Terra Nova and White Rose, with production in 2008 of 125 million barrels. This was about 45 per cent of Canada's medium and light crude production. Established reserves are about 1.5 billion barrels of oil, with the Hebron field, estimated to hold about 700 million recoverable barrels of oil, slated for operation after 2015 (Statistics Canada, 2009).

FIGURE 5: OIL PRODUCTION IN NEWFOUNDLAND AND LABRADOR (1998– 2008)



Source: Statistics Canada, 2009

GDP from the oil sector was about $2.8 billion in 2008, with shipments valued at $12.2 billion. The sector's GDP was about 15 per cent of the total economy. Royalty contributions were about 30 per cent of all government revenue, or $2.1 billion in 2008 (CAPP, 2010). Land or lease sales were small (Table 1).

Production by field includes (Newfoundland and Labrador Department of Natural Resources, 2008):

- Hibernia produced 50 million barrels of oil in 2008, an increase of 1.5 million barrels or 3.1 per cent over 2007.
- The White Rose field produced 37 million barrels in 2008, down 5.9 million barrels or 13.7 per cent from 2007. As a new field at peak production, White Rose is expected to average 32 million barrels annually, with proven and probable reserves estimated at 214 million barrels.
- Terra Nova produced 37 million barrels in 2008, a decrease of 4.9 million barrels or 11.5 per cent over 2007.

There was very little drilling activity in the province, with just two releases from development wells reported by Statistics Canada in 2007 and another five abandoned.

3. SUBSIDY DEFINITION AND APPROACH

This section presents the results of an in-depth review of the subsidy regimes in place in the four jurisdictions. This section will first present a standardized subsidy definition and approach to valuation. A standardized information collection template is then used to collect and present the information. Methods of data collection include investigating public accounts, literature review of both peer-reviewed and grey, and conducting interviews.

3.1 DEFINITION OF SUBSIDY

The Global Subsidies Initiative adopts a three-step approach to: *define, measure* and *evaluate* subsidies (GSI, 2010). This approach starts with a broad definition of "subsidy" with the purpose of identifying all existing subsidies in a sector, whether those subsidies are considered "good" or "bad." This provides a comprehensive starting point for the analysis to follow. Then, as the study proceeds through the steps, the focus will narrow to those subsidies that are measurable and able to be fully assessed. Therefore, it should not be assumed, that because a subsidy is identified at the beginning of the study that it is necessarily in need of reform.

The GSI's approach is based on the view that a subsidy exists where preferential treatment—financial and otherwise—is provided to producers (in this case study, oil producers). Preferential treatment can be provided in three forms:

- To selected companies;
- To one sector or product when compared with other sectors;
- To sectors or products in one country when compared internationally (GSI, 2010).

It is useful to keep these three broad types of preferential treatment in mind when determining whether a specific subsidy is granted. The GSI uses a definition of "subsidy" based on the World Trade Organization's (WTO) Agreement on Subsidies and Countervailing Measures (ASCM), which is agreed by 153 countries, including Canada. Under Article 1: Definition of a Subsidy, the ASCM determines that four types of subsidies exist, where:

1. Government provides direct transfer of funds or potential direct transfer of funds or liabilities,
2. Revenue is foregone or not collected,
3. Government provides goods or services or purchases goods,
4. Government provides income or price support.

The ASCM also requires that a subsidy be specific to an enterprise, industry, or group of enterprises or industries under Article 2. So although in some cases government support is offered to more than one sector, it can still be considered a subsidy for the purposes of this study if, for example, it is offered only to the oil, gas and mining sectors, or if the oil sector disproportionately benefits from the support. The Atlantic Investment Tax Credit is an example of a disproportionate benefit, as it is available to resource sectors, but is overwhelmingly utilized by the oil and gas sector.

Based on the ACSM list above, GSI has developed sub-categories of subsidies that form the framework identifying subsidies in the oil sector in Canada (Table 2). These are not all necessarily relevant to the oil sector in Canada, as this study will reveal, but rather forms a comprehensive framework for identifying and analyzing subsidies in any country. This framework provides the basis for the GSI's series of country case studies to identify and quantify subsidies to upstream oil and gas activities.

Although the GSI adopts a broad definition of "subsidy," the definition excludes environmental externalities (such as carbon emissions and pollution), which are better considered in the environmental impact assessments in the third step of the GSI process (i.e., evaluating subsidies).

In the next sections, we report on what we found with respect to each of these categories. Appendix A provides the detailed programs organized by jurisdiction and the typology presented in the table below.

3.2 APPROACH

The approach we adopt for this review consists of four steps:

1. We identify programs in the oil sector that are otherwise not available to other sectors.
2. We sort the programs by jurisdiction into the four high-level subsidy categories identified above.
3. We quantify the number of subsidies and their value. We use a variety of quantification methods here, from adopting outright published subsidy levels by the target jurisdictions, to estimating the subsidy based on sector information.
4. Finally, we estimate the environmental and economic outcomes of these subsidies. A variety of methods are used here, including original modelling at the macroeconomic level and at the facility level.

All values are annualized in 2009 Canadian dollars. All conversions to Canadian dollars are first adjusted based on the closing exchange rate for the year in which the currency is reported, and then converted to present dollars using the Canadian consumer price index.

TABLE 2: TYPOLOGY OF SUBSIDIES

Direct and indirect transfer of funds and liabilities	**Direct spending**	**Earmarks:** Special disbursements targeted at the sector. **Agency appropriations and contracts:** Targets spending on the sector through government budgets. **Research and development support:** Funding for research and development programs
	Government ownership of energy-related enterprises	**Security-related enterprises:** Strategic petroleum reserve; securing foreign energy shipments or key assets. **Municipal utilities and public power:** Significant public ownership of coal- and natural gas-fired electricity stations; some transmission and distribution systems for both natural gas and electric power
	Credit support	**Government loans and loan guarantees:** market or below-market lending to energy-related enterprises, or to energy-intensive enterprises such as primary metals industries **Subsidized credit to domestic infrastructure and power plants** **Subsidized credit to oil and gas related exports**
	Insurance and indemnification	**Government insurance/indemnification:** market or below-market risk management/risk shifting services **Statutory caps on commercial liability:** can confer substantial subsidies if set well below plausible damage scenarios
	Occupational health and accidents	**Assumption of occupational health and accident liabilities**
	Environmental costs	**Responsibility for closure and post-closure risks:** facility decommissioning and cleanup; long-term monitoring; remediation of contaminated sites; natural resource restoration; litigation **Waste management:** avoidance of fees payable to deal with waste. **Environmental damages:** avoidance of liability and remediation to make the environment whole.
Government revenue foregone	**Tax breaks and special taxes**	**Tax expenditures:** Tax expenditures are foregone tax revenues, due to special exemptions, deductions, rate reductions, rebates, credits and deferrals that reduce the amount of tax that would otherwise be payable. **Overall tax burden by industry:** Marginal tax rates are lower than other industry. **Exemptions from excise taxes/special taxes:** excise taxes on fuels; special targeted taxes on energy industry (e.g., based on environmental concerns or "windfall" profits)

TABLE 2: TYPOLOGY OF SUBSIDIES (CONTINUED)

Provision of goods or services below market value	**Government-owned energy minerals**	**Process for mineral leasing:** auctions for larger sites; sole-source for many smaller sites **Royalty relief or reductions in other taxes due on extraction:** reduced, delayed or eliminated royalties are common at both federal and provincial levels. Royalties targeted based on type of energy, type of formation, geography or location of reserve (e.g., deep water). **Process of paying royalties due:** allowable methods to estimate and pay public owners for energy minerals extracted from public lands
	Government-owned natural resources or land	**Access to government-owned natural resources land:** at no charge or for below fair-market rate
	Government-owned infrastructure	**Use of government-provided infrastructure:** at no charge or below fair-market rate
	Government procurement	**Government purchase of goods or services for above-market rates**
	Government-provided goods or services	**Government-provided goods or services at below-market rates**
Income or price support	**Market price support and regulation**	**Consumption mandates:** fixed consumption shares for total energy use. **Border protection or restrictions:** controls on imports or exports leading to unfair advantages. **Regulatory loopholes:** any legal loopholes, either in the wording of the statute or in its enforcement, that transfers significant market advantage and financial return to particular energy market participants **Regulated prices set at below-market rates:** for consumers (including where there is no financial contribution by government) **Regulated prices set at above-market rates:** including government regulations or import barriers

4. SUMMARY OF THE VALUE OF THE SUBSIDIES

Both federal and provincial governments have made some progress in reducing the subsidies and incentives provided to the oil industry. Some rationalization has occurred, notably the phase-out of the federal and Alberta accelerated capital cost allowance to oil sands projects. However, the number of targeted subsidies remains significant, and has proliferated recently in an attempt to access more oil from high cost sources. Recent programs seek to provide incentives for both new technologies accessing high cost oil, as in the case of vertical wells, or to increase oil from declining conventional sources as in the case of enhanced oil recovery. By our count, at the federal and provincial levels (Alberta, Saskatchewan and Newfoundland), more than 63 targeted programs have been identified as otherwise not available to other sectors or primarily directed at the oil sector. Of these 63, we were able to quantify the value of the subsidies for 46 programs totalling about $2.84 billion annually. The programs represent expenditures for individual programs either in the calendar year of 2008 or provincial or federal expenditures in the fiscal year 2008/09. Of this total, the majority of subsidies are from the federal government ($1.38 billion) and Alberta ($1.05 billion). The 17 programs that were not quantified are likely to be small compared to the total subsidy value.

Most of these subsidies seek to increase exploration and development activity with a focus on reducing the costs of exploration, drilling and development through a mix of tax breaks and royalty reductions. Generally, these incentives are designed to achieve four outcomes:

1. Encourage companies to conduct more exploration to build on future reserves,
2. Develop new fields to produce greater quantities of oil,
3. Reduce operational costs to encourage long-term investment in the oil sector, or
4. Conduct research and develop technology to increase the oil recovery potential and protect the environment.

FIGURE 6: ANNUAL SUBSIDY VALUE ($MILLIONS)

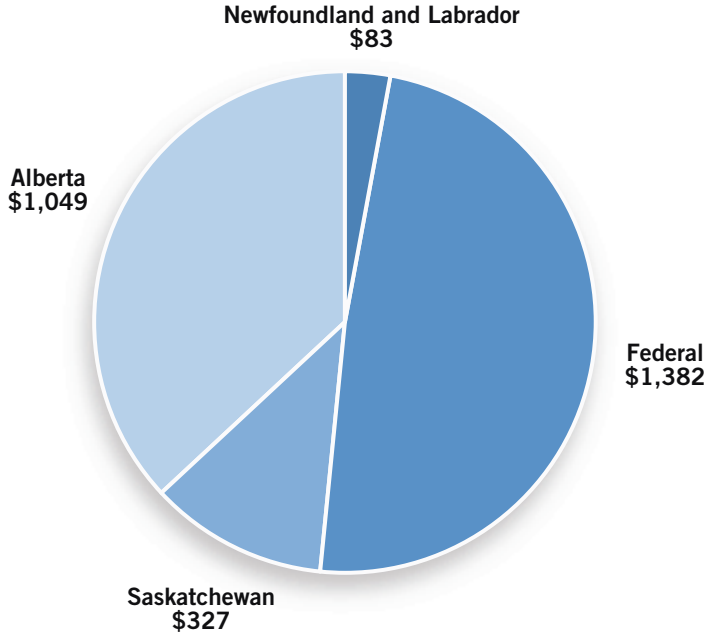
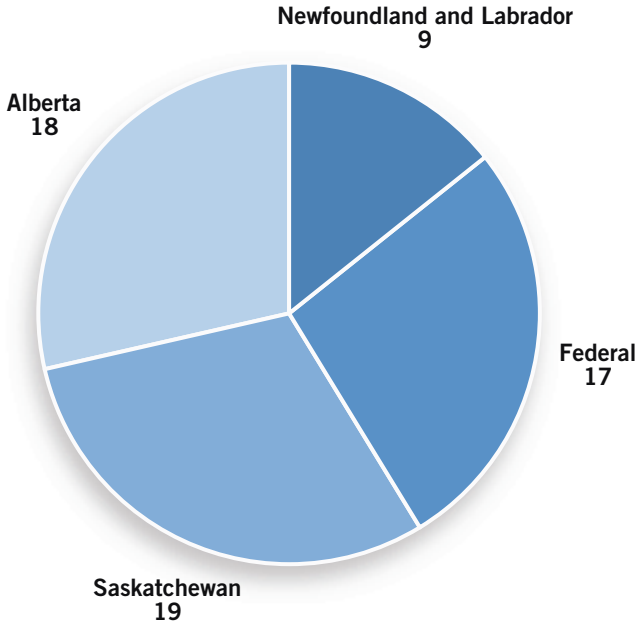


FIGURE 7: NUMBER OF PROGRAMS

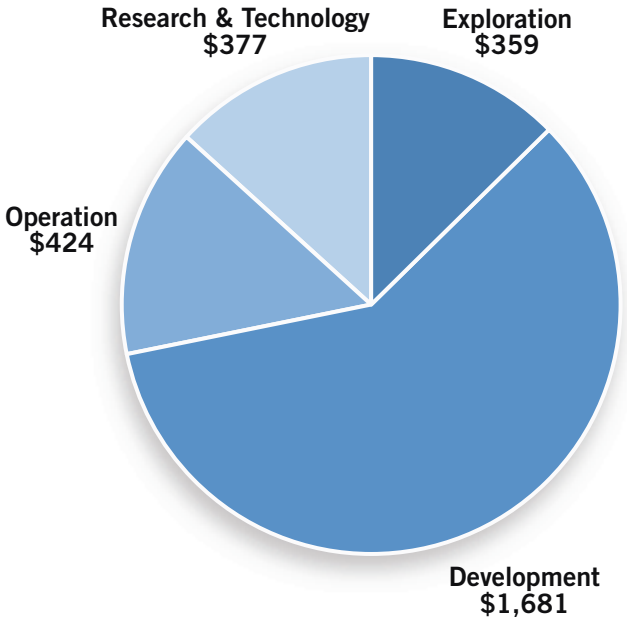


We do not use these criteria to assess the programs, but rather present them to provide a view of why governments may subsidize the oil sector.

Generally, it is development activities that benefit the most from the programs:

- **Exploration:** subsidies primarily directed at encouraging companies to search for and identify new sources of oil. These subsidies typically reduce exploration costs through accelerated capital write-offs, tax exemptions and rebates. These account for 14 per cent of all programs (of the 63 we identified), and a total value of $359 million annually (Figure 7).
- **Development:** subsidies primarily directed at encouraging companies to bring new oil resources into production. These subsidies typically reduce capital expenditures through accelerated write-offs, tax credits, royalty reductions or allowances. Total development subsidies were about $1.68 billion annually, or 32 per cent of the programs implemented.
- **Operation:** Companies may choose not to develop an oil resource based on the long-term operational and capital costs of producing the resource. Subsidies that primarily reduce these long-term operational costs are termed "operation subsidies" in this study. These subsidies typically provide tax breaks or exemptions for long-term operating and capital costs. Support to ongoing operations was about $424 million annually, but a large number of programs were identified (29 per cent of the 63).
- **Research and Technology:** subsidies that are primarily intended to develop or implement new oil recovery technologies that have the capability to increase overall productivity or reduce environmental effects such as the greenhouse gas or water usage intensity of production. Research and technology subsidies had the lowest value, but account for a relatively large share of all programs implemented (25 per cent of 63).

FIGURE 8: ANNUAL SUBSIDY VALUE ($MILLIONS)



How the subsidies are implemented show a heavy reliance on both tax reductions and royalty relief, with direct expenditures small in comparison (Figure 8). Tax breaks are dominated by the federal accelerated capital write-offs for exploration and development activity, and to a lesser extent, the phasing out of a break to oil sands capital. At the provincial level, royalty reductions for new wells dominate, with large programs to provide incentives for more drilling in both Alberta and Saskatchewan.

Tax expenditures accounted for 82 per cent of the $1,266 million in government revenue foregone. Royalty relief accounted for 88 per cent of the $840 million in goods or services provided at below-market value. Direct program spending accounted for 93 per cent of all direct and indirect transfer of funds and liabilities.

FIGURE 9: ANNUAL SUBSIDY VALUE ($MILLIONS)

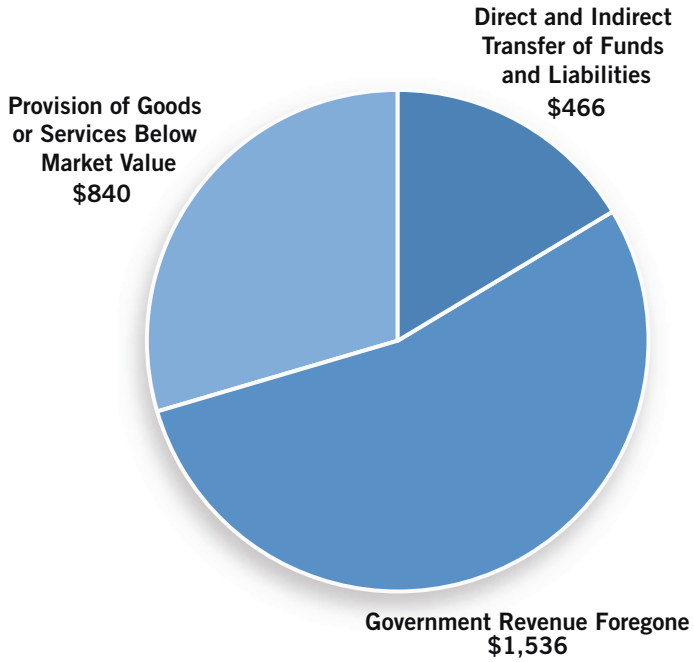


Figure 9 indicates that 54 per cent of total subsidies are provided for tax breaks and special taxes, 30 per cent for royalty relief of government-owned energy minerals and 15 per cent for direct spending. Less than 2 per cent of all subsidies are spent to provide credit support or for environmental costs.

FIGURE 10: ANNUAL SUBSIDY VALUE ($MILLIONS)

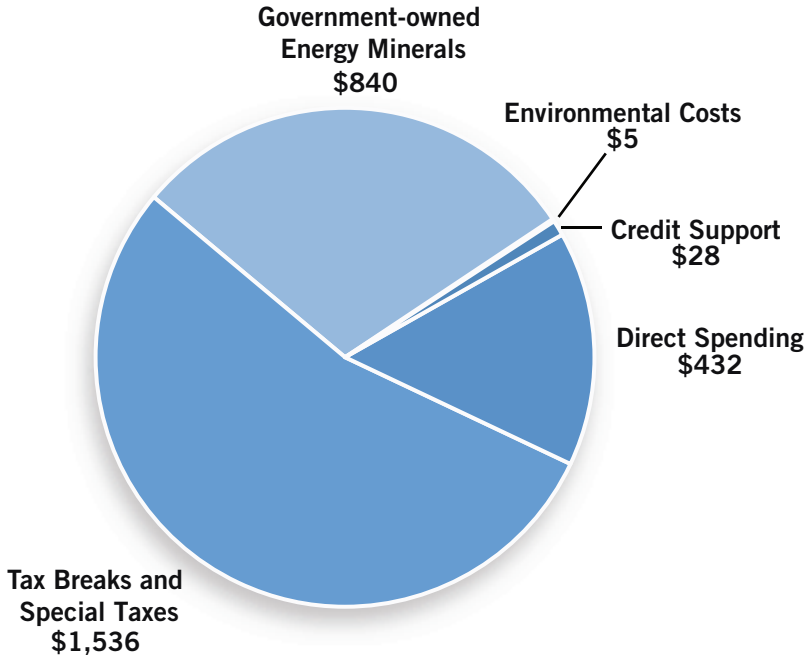


Table 3 provides a more detailed breakdown by jurisdiction and type of subsidy. Some important observations by jurisdiction include:

- The federal government is phasing out the accelerated capital cost allowance for oil sands, which is currently costing taxpayers $300 million annually. The remaining six targeted federal subsidies are costing about $840 billion annually in foregone tax revenue. The majority of these are designed to reduce the costs of exploration and development. While some have suggested that tax breaks for well drilling costs are justified since they are akin to research and development (Mintz & Chen, 2010), where the firms cannot apportion all of the gains from discovering new resources and not all drilling efforts are successful, we question this for two reasons. First, about 40 per cent of all oil wells drilled nationally in 2007 were abandoned or suspended, while the remaining rigs released oil (Statistics Canada, 2009). But the tax break does not make this distinction and thus is likely over-compensating those successful operations. Next, about 57 per cent of all wells drilled were development wells, while only 30 per cent were the more risky exploratory wells. But federal tax breaks exist for exploration and development, where the Canadian exploration expense (the CEE is discussed in the next section) confers a tax benefit of about $226 million annually whereas the larger Canadian development expense (CDE) confers a benefit of $466 million. Conferring the larger benefit on development does not seem to align with the argument that the tax breaks are designed to address firms' inability to apportion the full value from searching for oil.
- Alberta's 14 programs that were quantified (18 programs total) provide both tax breaks and royalty reductions to drilling activity, with an annual value of $1.05 billion in 2009. With royalties forecast to be $4.43 billion[4] in 2009, the reduction in royalties of $485 million is about 11 per cent of the royalty take. These are primarily focused on increasing drilling activity in the province, although the bitumen royalty-in-kind program, where bitumen is provided in lieu of royalty payments, is providing a $100 million subsidy. The federal accelerated write-offs for exploration and development reduce taxable income and so reduce the corporate tax take in the province by about $253 million. What is interesting is that the drilling activity is getting a federal break on capital spending while the province is reducing the royalty obligation once operation commences. This essentially provides a double incentive, making development much less risky.
- Saskatchewan is supporting exploration and development, primarily in conventional oil, through 19 targeted programs. Seventeen of these programs are quantified in this study. The largest of these is designed to increase drilling activity, with a $248 million program for drilling. As with Alberta, this interacts with the federal tax breaks on capital spending for exploration and development. Because of the federal tax breaks, corporate income tax is reduced by $64 million annually.
- Newfoundland and Labrador has nine targeted programs. Seven of these programs were quantified and are worth approximately $83 million annually. The main focus of these programs is on direct spending for exploration and for operating a regulatory agency, while some tax breaks are on capital in the form of rebated sales tax. Finally, the province has historically benefited from investments in Hibernia from the federal government.

Are these subsidies significant? Corporate income tax and royalty payments to the federal government and the three provinces were $12 billion in 2008.[5] The subsidies we have identified represent a value of about 31 per cent of the total revenue take. This seems significant indeed.

[4] Oil and gas royalties were $6.77 billion for 2009, reduced by the 74 per cent share of oil (Government of Alberta, 2010).

[5] Corporate taxes from Statistics Canada (2008) and royalty payments for oil by province are pro-rated for oil production in the jurisdictions.

TABLE 3: SUMMARY OVERVIEW OF SUBSIDIES TO OIL IN CANADA (ANNUALLY, IN MILLIONS, 2009)

Typology of Subsidies			Estimate of Annual Value of Subsidies ($millions)				
Major Category	**Secondary Category**	**Type**	**Federal**	**AB**	**SK**	**NFL**	**TOTAL**
Direct and indirect transfer of funds and liabilities	Direct Spending	Agency appropriations and contracts	$7	$133	$2	$6	$148
		Research and development support	$205	$68	$1	–	$273
		Earmarks	–	–	–	$11	$11
	Credit Support	Government loans and loan guarantees	$28	–	–	–	$28
	Environmental Costs	Environmental damages	–	–	$2	–	$2
		Responsibility for closure and post-closure risks	–	$3	–	–	$3
Government revenue foregone	Tax Breaks and Special Taxes	Tax expenditures	$1,142	$8	$64	$53	$1,266
		Provincial tax reductions due to federal programs	–	$254	–	–	$254
		Exemptions from excise taxes/special taxes	–	–	$3	$13	$16
Provide goods or services below market value	Government-owned energy minerals	Royalty relief or reductions in other taxes	–	$485	$255	–	$740
		Process of paying royalties due	–	$100	–	–	$100
		TOTAL	**$1,382**	**$1,049**	**$327**	**$83**	**$2,841**

Note: Individual estimates may not add up to totals due to rounding.

Are these values significant? Most simply this question can be answered by comparing the subsidy values to production value or the total transfers to government. Table 4 presents the data necessary to express the subsidy as a percentage of total production value and total transfers to government. Average annual oil production, royalties and crown land sales over a five year period (2004–2008) are compared to the estimated 2008 subsidy levels. While the value of subsidies changes from year to year, the 2008 subsidy level is broadly applicable. On average, across Canada, the subsidy as a share of average production value between 2004 and 2008 is about 5.2 per cent, with a high in Alberta of 5.7 per cent and a low in Newfoundland and Labrador of 3.7 per cent. This is consistent with the cost of production which is highest in Alberta and lowest in Newfoundland and Labrador. Subsidies as a percentage of the total transfers to government, including taxes, royalties and Crown land sales, comprises on average across Canada 5.3 per cent, with a high of 7 per cent in Alberta and a low of 5.2 per cent in Saskatchewan. These values include both the federal and provincial subsidies.

TABLE 4: SUMMARY OF SUBSIDY LEVEL ON AN OVERALL PRODUCTION BASIS (2004–2009)

Province	Newfoundland and Labrador	Saskatchewan	Alberta	Canada
Annual Subsidies in 2008				
Provincial Subsidy ($ millions)	$83	$327	$1,049	$1,468
Federal Subsidy ($ millions)	$233	$124	$1,025	$1,401
Total Subsidy ($ millions)[a]	$315	$451	$2,074	$2,869
Annual Average Production (2004-2008)				
Oil Production (1000 m^3)	18,971	24,823	95,910	143,869
Production Value ($ millions)	$8,524	$8,269	$36,377	$54,987
Production Value ($/$m^3$)	$449.31	$333.12	$379.28	$382.20
Calculation of Rate of Subsidy Relative to Production				
Subsidy Rate ($/$m^3$)	$83.14	$90.81	$108.14	$99.73
Subsidy as % of Production Value ($ millions)	3.7%	5.5%	5.7%	5.2%
Annual Average Transfers to Government (2004-2008)				
Provincial and Federal Taxes[b,c]	$341	$341	$1,533	$2,311
Royalties Collected ($ millions)[b]	$4,640	$6,754	$23,046	$39,103
Crown Land Sales ($ millions)[b]	$463	$1,527	$4,979	$12,567
Calculation of Subsidies as a Percentage of Total Transfers to Government				
Subsidies as % of Total Payable ($ millions)	5.8%	5.2%	7.0%	5.3%

Source: Canadian Association of Petroleum Producers, 2010

[a] Subsidy level is equal to that determined for 2008 in this study.

[b] Pro-rated by value of production

[c] Statistics Canada, 2008

Note: Federal subsidies are estimated in Section 5 (Table 7) and Alberta subsidies in Section 6 (Table 9), Saskatchewan subsidies in Section 7 (Table 11) and Newfoundland and Labrador in Section 8 (Table 13).

5. OIL SUBSIDIES PROVIDED BY THE FEDERAL GOVERNMENT

The federal government does not collect royalties in Canada, and instead levies corporate income tax on the oil sector. Historically, the taxation of income earned in the oil sector has been subject to preferential treatment in the pursuit of three policy objectives: mobilize key economic assets through increasing economic activity; address risks in resource exploration and extraction; and address international competitive pressures (Department of Finance, 2008). Regardless of the motive, these special provisions are tax expenditures, which are foregone tax revenue due to special exemptions, deductions, rate reductions, rebates and credits and deferrals that reduce the amount of tax otherwise payable (Office of the Auditor General of Canada, 2008). A summary of key tax developments related to the current tax treatment of the oil sector can be traced back decades.[6]

5.1 HISTORICAL CONTEXT OF SUBSIDY PROGRAMS

During the early development phase before 1970 or so, tax holidays were used, but were phased out due to efficiency concerns in the early 1970s. These were replaced with accelerated capital cost allowances under the *Income Tax Act*. Royalties to the provinces were also fully deductible. During this period, the *percentage depletion* was one of the most important deductions allowed, where oil and gas well operators could fully deduct 33.5 per cent of well profits, and other companies with an interest in the well could deduct 25 per cent. This was designed to encourage more exploration, and was in addition to the actual expenses incurred that were fully deductible. This meant that taxes were paid at a much reduced rate (Office of the Auditor General of Canada, 2000).

Starting in the mid-1970s, the federal government made important changes to the tax system for oil and other non-renewable resource sectors. Development expenses, or money spent to bring wells into production, were allowed to be written off at an accelerated rate of 30 per cent, which is now the *Canadian development expense* (CDE). Exploration expenses could still be written down at 100 per cent in the year they were incurred, which is now referred to as the *Canadian exploration expense* (CEE).

The deductibility of royalty payments gave way to a deductible resource allowance, set at 25 per cent. To the extent the deducible amount exceeded actual royalty payments paid there was a reduction in the federal tax payable. This provision was phased out between 2003 and 2006 in favour of actual royalties paid (Office of the Auditor General of Canada, 2008). Finally, the percentage depletion was replaced with earned depletion, meaning that actual expenses needed to be incurred to "earn" the deduction (Office of the Auditor General of Canada, 2008). This provision was phased-out in 1987, but accumulated amounts are still reducing tax rates for some (Ketchum, Lavigne & Plummer, 2001).

In 1996, in situ oil sands projects (using wells) were granted an accelerated capital cost allowance similar to that available to oil sands mines. Prior to this, capital was written off at the same rate as conventional oil. Budget 2007 announced a phase-out schedule to 2015 for this preferential treatment, but significant tax expenditures remain.

Flow-through shares were first introduced by the federal government in the 1950s to allow transfer or "flow-through" of tax credits between corporations. Since 1972, the Tax Act has allowed exploration companies to transfer or flow-through specific type of exploration expenses on Canadian properties to individual investors. An important change in 1996 added a one year "look back" rule, where a company can issue flow-through

[6] Note: We do not benchmark subsidy levels with other jurisdictions internationally.

shares and transfer CEE to an investor in the same year of purchase (MineralFields.com). This tax expenditure is a financing mechanism to assist oil companies, mostly small scale or "juniors" to raise capital for exploration and development. Essentially, unused exploration and development tax deductions are sold as shares to investors. Historically, there have been direct transfers of funds with the objective of funding research and making appropriations to support the sector. Currently, there are a number of targeted programs for just the oil sector, including the CanmetENERGY at the Devon (Alberta) research centre; the Clean Energy Fund designed to co-fund 3–5 large-scale carbon capture and storage projects; and the University of Calgary Institute for Sustainable Energy, Environment and Economy (ISEEE).

But generally, the federal government programs that transfer funds directly are provided to oil as well as other industry sectors, and are thus not subsidies under our "otherwise not available" test. Four major programs fund oil activities as well as other sectors:

- Agency appropriations to the Office of Energy Research and Development (OERD); and,
- Research and development support initiatives include the Green Mining Initiative (NRCan); the Program of Energy Research and Development (PERD); and the ecoENERGY Technology Initiative.

Finally, significant federal support was provided for the development of the Newfoundland and Labrador offshore. With the development of the Hibernia offshore field, the Government of Canada entered into a series of direct equity investments and credit support. An overview of the Hibernia project is provided in the section on Newfoundland (Section 8).

5.2 NUMBER OF SUBSIDY PROGRAMS

As the historical review above indicates, two main types of oil and gas subsidies are provided by the Government of Canada: foregone tax revenue and direct and indirect transfer of funds and liabilities. In all, we identified ten programs that result in direct and indirect transfer of funds and liabilities and another seven programs that result in foregone tax revenue.

There are numerous other incentive programs available to the oil sector, but these are also available to other sectors. This would include, for example, export insurance provided by Export Development Canada. While the oil and gas sector is the single largest user of this government program, and there is clearly a benefit to be gained through lower insurance costs, the insurance is generally available to all economic sectors. The benefit enjoyed by the oil sector is therefore not classified as a subsidy under our definition. Subsidies that are otherwise not available to other sectors are discussed in detail below.

Direct and indirect transfer of funds and liabilities through government loans and loan guarantees and credit support.

- ***Credit Support*** *The Canada-Newfoundland Offshore Development Fund (Annex 1, Section 15.1.2)* provided well over a billion dollars in loan guarantees to the first offshore project (the Hibernia project). The Hibernia Interest Assistance Loan Agreement was an original provision of the November 1990 Agreements between several oil companies and the Government of Canada. Payments commenced in March 2001 and were expected to continue until 2008. Repayment was expected to begin in 2009 and total repayment is anticipated by 2010. As of February 2002, $22.7 million had been paid to the owners. Also outstanding are loans made under the Hibernia Development Project (loan) for the Bull Arm facility. In addition, the *Canada-Newfoundland Offshore Development Fund* provided grants for

the construction of facilities to build offshore drilling equipment. As part of the *Canada-Newfoundland Offshore Development Fund*, the federal government also spent $290 million on an 8.5 per cent stake in the Hibernia project and the provincial government has spent approximately $200 million for equity stake in Hebron, White Rose and Hibernia South Field Expansion projects. While the investments are large, historical returns for Hibernia have proven to be significant. For example, the federal government has earned over a $1 billion from its 8.5 per cent stake over the last 5 years. This study does not consider these investments to be subsidies.

There are two main types of **government foregone revenue** provided to the oil sector through the federal *Income Tax Act*: deductions for intangible capital expenses and deductions for tangible capital expenses:

1. **Intangible capital expenses** are those that cannot be recovered by selling assets or products (e.g., drilling muds, drilled wells, etc.) and are often related to exploration and development. A subsidy arises in the form of foregone tax revenue where there is a difference in the way the industry writes off the capital for book purposes, reflecting the life span of the capital, and the way it is treated for tax purposes (Office of the Auditor General of Canada, 2000). The value of the subsidy is then the difference over the life of the capital between what is booked and what the tax system allows. Subsidies identified in our review include (see Annex 1, Section 14.1.3):
    - *Canadian Exploration Expense* (CEE) includes geological, geophysical, geochemical, drilling and completion expenses, cost of building a temporary access road or preparing a site for the well. It is deductible at a rate of 100 per cent. The CEE balance of exploration expenditures must be fully deducted against income with any unclaimed portion carried forward indefinitely.
    - *Canadian Development Expense* (CDE) includes expenses incurred in drilling or converting a well for the disposal of waste liquids, injection of water, gas or other substances, monitoring fluid levels or pressure changes, drilling for water or gas for injection, drilling and completing a well after the commencement of production or drilling and completing a well, building a temporary access road or preparing a site for the well to the extent that the expense is not a Canadian exploration expense. These expenses can be deducted at a rate of 30 per cent annually.
    - *Canadian Oil and Gas Property Expenses* includes the cost of any right, license or privilege to explore or drill for petroleum, natural gas or related hydrocarbons, the cost of any oil or gas well, and any rental or royalty. This capital intangible expense is deductible at a rate of 10 per cent and includes the costs of acquiring an oil or gas well in Canada, an interest or right to explore, drill, or extract petroleum or natural gas, or a qualifying interest or right in oil or gas production.
    - *Flow-Through Shares* (FTS). The FTS program provides tax incentives to investors who acquire FTS by allowing deductions for resource expenses renounced by eligible corporations, and investment tax credits for individuals on resource expenses. The type of expenses a firm can renounce are Canadian exploration expenses (CEEs), which are added to the cumulative CEE (CCEE) pool and can be deducted up to the maximum of 100 per cent; or Canadian development expenses (CDEs), which are added to the cumulative CDE (CCDE) pool and can be deducted up to the maximum of 30 per cent (Canada Revenue Agency).
    - *CCA oil sands leases and building mines.* Depreciation rates for oil sands intangible assets such as leases and building oil sands mines enjoy more generous capital cost allowances than the rest of the oil sector (Canadian Department of Finance, 2010).

2. **Tangible capital expenses** are the costs of physical assets such as buildings and equipment. These costs are typically written off by companies at the rate of depletion of the capital. For tax purposes there are a series of classes in which capital is pooled in which the capital depreciation rates are set. To the extent the book and tax values differ, a subsidy may be present. Federal tax expenditures focused on tangible capital expenses include:
    - *Accelerated Capital Cost Allowance (ACCA) for oil sands (See Annex 1, Section 14.1.2)*. This allows individual oil sands projects, though not the parent company itself, to write off all of their capital costs before they start to pay income tax. If the project's revenue is $1 billion and the capital expenditures are the same amount, the ACCA deduction can be $1 billion. With 100 per cent ACCA on all project costs, the company only pays income tax on the income from the project once it has written off all capital costs. Eleven oil sands projects currently under construction will receive the full 100 per cent ACCA under grandfathering clauses. A further 45 planned projects will receive substantial ACCA because they will be completed before 2015. As a result, over 90 per cent of oil sands projects currently announced will receive substantial subsidies. Budget 2007 announced the phase-out of the existing ACCA for general investment in oil sands projects, leaving in place the regular 25 per cent ACCA rate for these assets (Office of the Auditor General of Canada, 2008).
    - The Atlantic Canada Investment Tax Credit is estimated to be more than $100 million annually for the oil and gas sector in Newfoundland. The Atlantic Investment Tax Credit aims to develop the economy of the Atlantic provinces by granting a 10 per cent tax credit on investments in manufacturing and energy production. Offshore oil and gas companies currently receive a large share of the total amount claimed for this credit (Office of the Auditor General of Canada, 2000; 2008). While not strictly falling under the category of "otherwise not available,"[7] this tax credit is disproportionately accessed by the oil sector in Newfoundland and Labrador. We have therefore included the program.

As discussed above, there are at least three programs that provide direct funds to support oil sector activity: the CanmetENERGY at the Devon research centre; the Clean Energy Fund designed to co-fund 3–5 large-scale carbon capture and storage projects; and the University of Calgary Institute for Sustainable Energy, Environment and Economy (ISEEE). Finally, the Canada-Newfoundland and Labrador Offshore Petroleum Board regulates industry, and is partly funded by the federal government (this contribution is included as a subsidy).

5.3 VALUE OF SUBSIDY PROGRAMS

The federal government has made adjustments in recent years to reduce direct oil subsidies through tax expenditures. The federal ACCA for oil sands projects is being phased out and should reduce costs after 2015. But, this will still cost $300 million per year, with about 90 per cent of facilities gaining benefit (Office of the Auditor General of Canada, 2008). Still in place are accelerated write-offs for some oils sands intangible costs, resulting in about a $50 million annual benefit. However, exploration and development subsidies remain in place (CDE and CEE), totalling over $692 million in annual tax savings through generous tax provisions on development and exploration expenses. Finally, much smaller allocations are available to two research groups totalling about $7 million annually.

Newer subsidies through the direct transfer of funds are aimed at reducing climate change impacts in the oil sands sector have also been announced and, in total, federal and provincial governments have committed

[7] The incentive is somewhat limited in scope, with availability to resource extraction industries and manufacturing.

approximately $200 million annually in funding for carbon capture and storage, most of which will benefit the oil sector.

Our conservative estimate of the subsidy to the oil sector in the three provinces by the federal government is $1.38 billion annually (Table 5).

TABLE 5: OVERVIEW AND VALUE OF FEDERAL SUBSIDIES TO OIL IN ALBERTA, SASKATCHEWAN AND NEWFOUNDLAND AND LABRADOR (ANNUALLY, IN MILLIONS, 2009)

Typology of Subsidies		Subsidy	Estimate of Annual Value
Direct and Indirect Transfer of Funds and Liabilities	**Credit Support**	**Government loans and loan guarantees**	
		• Hibernia Start-up grant	$22.5 million[a]
		• Canada-Newfoundland Offshore Development Fund	$2.0 million[b]
		• Hibernia Interest Assistance Loan	$3.2 million[c]
		• Hibernia Development Project (loan)	$0.7 million[d]
	Direct spending	**Agency appropriations and contracts**	
		• The University of Calgary Institute for Sustainable Energy, Environment and Economy (ISEEE)	$0.5 million[e]
		• Petroleum Technology Research Centre Contribution for Enhanced Oil Recovery (EOR) Research Activities	$0.5 million[f]
		• The Canada-Newfoundland Offshore Petroleum Board	6.0 million[g]
		Research and Development support	
		• CanmetENERGY (Devon research centre)	Likely small
		• The Clean Energy Fund	$200 million[h]
		• Petroleum Technology Research Centre (Saskatchewan)	$4.7 million[i]
Government Revenue Foregone	**Tax breaks and special taxes**	**Tax expenditures**	
		Intangible capital expenses	
		• Canadian Exploration Expense	$233 million[j]
		• Canadian Development Expense	$478 million[k]
		• Canadian Oil and Gas Property Expenses (COGPE)	Likely included above
		• Flow-Through Shares	Likely Small
		• CCA Oil sands leases and building mines	$50 million
		Tangible capital expenses	
		• Accelerated capital cost allowance for oil sand	$300 million[l]
		• Atlantic Canada Investment Tax Credit	$100 million
		TOTAL	1,382 million

[a] $1.04 billion grant in 1998 divided by 50 years of production life (assuming a straight line depreciation), plus financing costs at 8 per cent that otherwise would have to be in place to substitute for the grant.
[b] $95 million grant for Bull Arm facility, divided by useful life, multiplied by the interest rate (0.8 per cent).
[c] Interest payments would be about $3.2 million in 2009 on an outstanding balance of $40 million (at 8 per cent), ignoring any compounding of interest (Treasury Board of Canada, 2008).
[d] Ibid. Interest free loans with current outstanding values of outstanding $9.2 million, or $736,000 in annual foregone interest.
[e] Treasury Board of Canada, 2009.
[f] NRCan, 2010
[g] C-NLOPB, 2009.
[h] Department of Finance, 2009
[i] PRTC, 2009.
[j] See Annex 2 for details.
[k] Ibid.
[l] Office of the Auditor General of Canada, 2008

6. OIL SUBSIDIES IN ALBERTA

Significantly declining conventional oil production in the last decade, combined with decreasing capital investment in conventional oil drilling, has led the provincial government to introduce a host of new subsidies to encourage new conventional exploration, drilling and re-activating old wells. A related development is the pull back from the 2007 oil royalty review recommendations that have been accompanied by new drilling incentives of a significant value.

The preferred mechanism to provide subsidies in Alberta is through royalty relief. The number of direct spending programs and tax expenditure programs is limited and are generally used to help develop improved oil recovery technologies that will increase the total recovery of oil resources and to reduce harm to the environment such as carbon capture and storage projects.

6.1 HISTORICAL CONTEXT OF SUBSIDY PROGRAMS

For most of the history of oil development in Alberta between 1935 and 1971, the provincial government pursued a hands-off management approach and provided little in terms of subsidies other than competitive royalty rates. Oil and gas companies paid the full costs of exploration and development and paid royalties to the province for oil produced. In response to the OPEC crisis in 1973, the Alberta government moved to capture additional profits associated with rising oil prices. The government raised royalties on oil and gas and established technical public ownership of resources. The federal government also moved to secure energy supplies and control of oil resources. The National Energy Program introduced by the federal government in 1980 established policies to develop non-conventional oil extraction methods and shifted the share of income at the wellhead to the federal government. The net effect of the program was to increase the federal government's share to 36 per cent from 10 per cent, and decrease the provincial share and the industry share from 45 per cent each to 36 per cent and 28 per cent respectively. Royalties are now the exclusive purview of the provinces, which set their own royalty rates.

Between 1980 and 1985 the federal government spent billions of dollars on Petroleum Incentive Payments (PIPs), under which Ottawa paid up to 35 per cent of wildcats (wells) drilled in the West, the amount depending on the degree of Canadian ownership of the exploring company. However, dropping oil prices meant that the federal government did not recover the subsidies that it paid out, and the National Energy Program which was unpopular in Alberta for shifting resource control to the federal government, was fully eliminated by 1986. The Western Accord signed in 1984 eliminated some federal taxes and also removed the PIPs. Tax incentives, to some extent, replaced the PIP grants and ended discrimination against foreign investment and exploration expenditures in Alberta.

In 1995 a generic royalty regime for new oil sands projects was structured to provide a smaller royalty share at the beginning of a development and a larger share for the government after the developers have recovered their costs. In 1999, the Oil Sands Generic Royalty Regime set rates and established the provincial accelerated capital cost allowance for oil sands projects to encourage development. This mirrored the federal accelerated capital cost allowance.

In recent years, the Alberta government has adjusted subsidies and royalty rates in response to oil prices and trends. In February, 2007 the government appointed an Alberta Royalty Review Panel to provide advice on how to restructure Alberta's royalty system. The panel delivered a report that informed the creation of a new Alberta Royalty regime that was implemented as of January 1, 2009 (Alberta Royalty Review Panel, 2007). This royalty regime raised the maximum royalty rates to 50 per cent up from 35 per cent. The Alberta government also announced the elimination of the Alberta Royalty Tax Credit Program (ARTC).

However, in early 2009 the government announced that it would conduct a competitiveness review in consultation with industry to determine whether the developed framework was suitable, given lower energy prices and a credit-starved industry (due to the global economic slowdown). Unlike the initial panel that guided the framework, the competitiveness review was more influenced by industry. The review concluded that Alberta's royalty regime was no longer competitive compared to other Canadian and U.S. jurisdictions. Using this review as justification, the government subsequently reduced the maximum royalty rates on oil from 50 per cent back down to 40 per cent. New royalty curves were finalized in June 2010 at below the 2009 levels, while at the same time, significant incentive programs were instituted.

In addition, the Alberta government has recently announced numerous subsidies intended to help develop oil recovery technologies that will increase the total recovery of oil resources and reduce harm to the environment. In July 2008, the government announced a $2 billion fund to advance carbon capture and storage projects and research in Alberta to help reduce emissions by up to five million tonnes annually by 2015.

As of 2010, there were about 45,000 abandoned wells in the province, plus additional pipelines and facilities (Alberta Environment, 2009; Alberta Orphan Well Association, 2009). While this represents an ongoing liability for the province, it is truly a sunk cost, and therefore not a subsidy for existing operations. However, to the extent the new orphan well levy on industry does not address future liabilities, it can be considered a subsidy.

6.2 NUMBER OF SUBSIDY PROGRAMS

Three main types of oil and gas subsidies in Alberta were noted in our review. The review includes both historical subsidies that have been or are being phased out, as well as subsidies that are currently in effect. Table 6 indicates the distribution of subsidy by type and identifies whether the granting agency was federal or provincial.

TABLE 6: TYPES OF SUBSIDIES AND GRANTING AGENCIES IDENTIFIED IN LITERATURE FOR ALBERTA

Typology of Oil and Gas Subsidy		Federal Level*		Provincial Level		TOTAL
		Historic	Current	Historic	Current	
Direct and Indirect Transfer of Funds and Liabilities	Direct Spending	1	3	–	3	7
	Environmental Costs	–	–	–	1	1
Provision of Goods or Services Below Market Value	Government-Owned Energy	–	–	1	10	11
Government Revenue Foregone	Tax Breaks and Special Taxes	–	–	–	4	4
TOTAL		**1**	**3**	**1**	**18**	**23**

* There is no double counting here.

The vast majority of subsidies to the oil sector have been to provide stimulus for new activity, including exploration and development, and to a lesser extent to make new investments in both conventional and oil sand infrastructure and development.

Goods and services are provided below market value through a series of allowable royalty relief deductions and an orphan well fund where the provincial government reclaims orphaned oil wells.

- *Drilling royalty relief deductions* are provided to companies to encourage new drilling in the form of drilling incentives or to re-activate old wells. The royalty tax rate is reduced for an initial volume of production. The value of the subsidy is the difference in the royalty tax rate that would have otherwise been paid. Subsidies identified in our review include the *Drilling Royalty Credit (Annex 1, Section 12.2.1), New Well Royalty Reduction (Annex 1, Section 12.2.4), the Enhanced Recovery of Oil Royalty Reduction (Annex 1, Section 12.2.4)* and the *Reactivated Well Royalty Exemption (Annex 1, Section 12.2.10)*.
- *Technology Royalty Relief Deductions* are provided for projects that advance environmentally sound technologies. *The CO_2 Projects Royalty Credit (Annex 1, Section 12.2.8)* provides royalty relief for projects that implement carbon capture and storage technology and the *Experimental Project Petroleum Royalty Reduction (Annex 1, Section 12.2.9)* provides royalty relief for projects that use innovative technologies to increase energy or resource efficiency in the recovery of oil.
- *Low Productivity Well Royalty Reduction (Annex 1, Section 12.2.11)* encourages additional production from low-producing wells by reducing royalty rates based on historical production.
- *Alberta Royalty Tax Credit (Annex 1, Section 12.2.3)* was a royalty program administered through the income tax system and allowed a credit as a percentage of the amount of crown royalties paid in the year on qualifying wells. While the program was discontinued in 2006, the program will still allow some oil and gas companies to receive a credit on their income tax over the next few years.
- *The CO_2 Enhanced Oil Recovery (Annex 1, Section 12.2.7)* is a royalty credit that seeks to encourage the development of commercial carbon dioxide (CO_2) enhanced oil recovery projects. Royalty relief is applied only to that portion of the oil production that would not have been realized from base recovery operations.
- *The Innovative Energy Technologies Program (Annex 1, Section 12.2.12)* promotes the use of innovative technologies to increase environmentally sound recovery of oil and includes a $200 million commitment over 5 years to provide royalty adjustments to pilot and demonstration projects. Successful applicants in the program are provided with royalty adjustments up to a maximum of 30 per cent of approved project costs.

There are direct and indirect transfers of funds and liabilities through direct spending on technology and innovation funds and an orphan well fund where the provincial government reclaims orphaned oil wells.

- *Orphan Well Fund.* The province has set aside a $30 million fund to invest in the Orphan Well Association to focus on the reclamation of approximately 600 high-priority abandoned sites. There are many more abandoned wells where the province may assume ultimate responsibility.

There are two main types of **government foregone tax revenue** provided to the oil sector in Alberta: deductions for intangible and tangible capital expenses.

1. **Intangible capital expenses** are related to exploration and development. A subsidy arises in the form of foregone tax revenue where there is a difference in the way the industry writes off the capital for book purposes, reflecting the life span of the capital, and the way it is treated for tax purposes (Office of the Auditor General of Canada, 2000). The value of the subsidy is then the difference over the life of the capital between what is booked and what the tax system allows. Subsidies identified in our review include:
    - *Flow-Through Shares (Annex 1, Section 14.2.2).* The FTS program provides tax incentives to investors who acquire FTS by allowing deductions for resource expenses renounced by eligible

corporations, and investment tax credits for individuals on resource expenses. Expenses can be deducted up to the maximum of 100 per cent.

2. **Tangible capital expenses** are the costs of physical assets such as buildings and equipment. These costs are typically written off by companies at the rate of depletion of the capital above normal allowable levels generally available to others:
   - *Accelerated Capital Cost Allowance for Oil Sands (Annex 1, Section 14.2.3).* This allows individual oil sands projects, though not the parent company itself, to write off all of their capital costs before they start to pay provincial income tax. This was eliminated in 2007 in conjunction with the federal government, but still provides some ongoing benefit due to accumulated write offs.

6.3 VALUE OF SUBSIDY PROGRAMS

Section 4.2 indicates that the preferred mechanism to provide subsidies in Alberta is through royalty relief. Our review indicates that the number of direct spending and tax expenditure programs is limited. Our estimate of subsidies to the oil sector in Alberta by the provincial government is approximately $1 billion per year. It is likely that this estimate is conservative as several smaller subsidy programs are not valued and included in the estimate.

TABLE 7: OVERVIEW AND ESTIMATE OF VALUE OF ALBERTA SUBSIDIES

Typology of Subsidy		Subsidy	Estimate of Annual Value
Provision of Goods or Services Below Market Value	**Government-Owned Energy Minerals**	**Royalty relief or reductions in other taxes**	
		• CO_2 Enhanced Recovery of Oil Royalty Credit	$51 million[a]
		• CO_2 Project Royalty Credit	$3 million[b]
		• Experimental Project Petroleum Royalty Reduction	Likely small
		• Reactivated Well Royalty Exemption	Likely small
		• Low Productivity Well Royalty Reduction	Likely small
		• Drilling Royalty Credit	$69 million[c]
		• Alberta Royalty Tax Credit	$6.5 million[d]
		• New Well Royalty Reduction	$315 million[e]
		• Innovative Energy Technologies Program	$40.0 million[f]
		Process of paying royalties due	
		• Bitumen Royalty in Kind	$100 million[g]

[a] Expenditures reported for 2008 (Alberta Energy, 2003).

[b] A maximum of $15 million will be provided over five years in the form of oil and/or natural gas royalty credits to offset up to 30 per cent of companies' approved costs in approved CO_2 projects (Alberta Energy, 2006).

[c] Value of $466 million is estimated for both oil and gas sector over two years. (AB OAG, 2009). The proportion that is estimated for the oil sector (15 per cent of total) was based on the 2007 share of total metres drilled of oil and gas wells and then divided by two to achieve an annualized value. This is also representative of the share of total value of crude oil produced compared to natural gas.

[d] Value of $44 million in 2008 applies to both oil and gas sector. The proportion that is estimated for the oil sector (30 per cent of total) was based on the share of total value of crude oil produced compared to natural gas.

[e] Value of $1,060 million is for both oil and gas sector (AB OAG, 2009). The proportion that is estimated for the oil sector (30 per cent of total) was based on the 2007 share of total metres drilled of oil and gas wells. This also representative of the share of total value of crude oil produced compared to natural gas.

[f] $200 million dollar commitments over 5 years annualized to $40 million per year (Government of Alberta, 2010).

[g] Alberta Office of the Auditor General, 2009

TABLE 7: OVERVIEW AND ESTIMATE OF VALUE OF ALBERTA SUBSIDIES (CONTINUED)

Typology of Subsidy		Subsidy	Estimate of Annual Value
Direct or Indirect Transfer of Funds and Liabilities	**Direct spending**	**Agency appropriations and contracts**	
		• Oil sands infrastructure spending	$133 million[h]
		Research and Development support:	
		• Energy Environment Technology Fund	$0.5 million[i]
		• Energy Innovation Fund	$67 million[j]
	Environmental costs	**Responsibility for closure and post-closure risks**	
		• Orphan Well Fund (applies to gas and oil)	$3 million[k]
Government revenue foregone	**Tax breaks and special taxes**	**Tax expenditures:**	
		• Accelerated Capital Cost Allowance	$7.5 million[l]
		• Flow-Through Shares	unknown
		Provincial Tax Reductions due to Federal programs	
		• Canadian Exploration Expense	$83 million[m]
		• Canadian Development Expense	$170 million[n]
		TOTAL	1,049 million

[h] Government of Alberta, 2010.

[i] Support to Alberta Energy Research Institute (http://www.albertainnovates.ca/energy/funding/funding-programs)

[j] Heavily focused on oil. "To receive funding, projects must increase the efficiency and effectiveness of energy exploration, extraction or development in Alberta. They must also focus on energy and/or environmental research; technology; innovation and efficiency; and they can involve renewable or non-renewable energy resources. (Government of Alberta, n.d.).

[k] A $30 million fund was annualized by assuming expenditures over 10 years (Government of Alberta, 2009).

[l] Value of $25 million annualized for three years (Alberta Energy, 2006).

[m] See Annex 2. Alberta Corporate Tax rate is 10 per cent (Tax and Revenue Administration, 2010).

[n] See Annex 2.

7. OIL SUBSIDIES IN SASKATCHEWAN

An increase in oil production in Saskatchewan over the last few decades can be attributed to advances in drilling technology, particularly the adoption of horizontal drilling techniques, continued strong development and exploration activity, and the production of greater amounts of heavy oil. To encourage these developments, the provincial government has introduced subsidies aimed at increasing investment and activity. The preferred mechanism to provide subsidies in Saskatchewan is through royalty relief and tax expenditures.

7.1 HISTORICAL CONTEXT OF SUBSIDY PROGRAMS

Saskatchewan's first commercial crude oil discovery was made in 1944, although large-scale production did not begin for several decades. Major oil fields were discovered in the province after intensive exploration in the 1950s and 1960s. Heavy crude oil is generally produced in the southwest part of the province (Lloydminister and Kindersely areas) and light crude oil is produced mainly in the southeast part of the province. In the 1980s and 1990s oil production increased dramatically as new drilling technologies such as horizontal drilling were developed. In recent years, overall oil production has remained relatively stable and conventional oil production is not expected to increase significantly in the future. Saskatchewan does have oil sand deposits that are being explored but no projects have been announced.

In 2002 the province adjusted its royalty regime. The most significant change was that they lowered royalty rates on oil and gas wells drilled on or after October 1, 2002 and introduced a new system of volume incentives. The royalty paid on these volumes was fixed at 2.5 per cent for all wells, a change from prior regimes where horizontal wells had maintained 8 per cent or 4 per cent royalty rates depending on the type of horizontal well drilled. Royalty rates in Saskatchewan are price-sensitive. Below a threshold price, a base royalty rate applies. Above that threshold, royalty rates increase with oil prices.

In recent years, the Saskatchewan government has introduced several subsidies to encourage new exploration, new production, as well as technologies that can enhance oil recovery. Lower royalty rates are offered for initial volumes of oil produced from horizontal, exploratory and deep oil wells. Since 2005, incremental production from an enhanced oil recovery (EOR) project are subject to a separate cost-sensitive royalty/tax structure that incorporates lower royalty and freehold production tax rates. Prior to payout of investment and operating expenditures, EOR projects are subject to a Crown royalty rate of 1 per cent of gross revenue and a freehold production tax rate of zero. After payout, the Crown royalty rate is 20 per cent of operating revenues and the freehold production tax rate is 8 per cent of operating revenues.

The newly introduced Saskatchewan Petroleum Research Incentive (SPRI) provides a royalty credit equal to 30 per cent of expenditures, to a maximum of $3 million in credits, towards qualifying EOR pilots and research, and development and demonstration projects involving the application of new technologies in the oil and natural gas sector.

Finally, there are about 650 orphan wells (i.e., abandoned without clear ownership for liability purposes) and 180 orphan facilities in Saskatchewan. This represents a significant unfunded liability for the province (Saskatchewan Ministry of Energy and Resources, 2009b). These are essentially subsidies to past production since the avoided decommissioning costs do no benefit current production. As with Alberta, to the extent current operations are not responsible for future decommissioning, a subsidy is likely conferred.

7.2 NUMBER OF SUBSIDY PROGRAMS

Two main types of oil and gas subsidies in Saskatchewan were noted in a review of the literature. The review included both historical subsidies that have been or are being phased out, as well as subsidies that are currently in effect. Table 8 indicates the distribution of subsidy types and indicates whether the granting agency was federal or provincial.

TABLE 8: TYPES OF SUBSIDIES AND GRANTING AGENCIES IDENTIFIED IN LITERATURE FOR SASKATCHEWAN

Typology of Oil and Gas Subsidy		Federal Level*		Provincial Level		TOTAL
		Historic	Current	Historic	Current	
Direct and Indirect Transfer of Funds and Liabilities	Direct Spending	–	1	–	2	3
	Environmental Costs	–	–	–	2	2
Goods and Services Provided Below Market Value	Government-Owned Energy	–	–	–	8	8
Government Revenue Foregone	Tax Expenditures	–	2	1	4	7
	Excise and Special Taxes	–	–	–	3	3
TOTAL		**–**	**3**	**1**	**19**	**2**

* No double counting between federal and provincial programs.

The majority of subsidies to the oil sector have been to provide stimulus for oil companies to make new investments in drilling and development.

Goods and services are provided at below-market value through a series of allowable royalty relief deductions.

- *Drilling royalty relief deductions* are provided to companies to encourage new drilling in the form of drilling incentives. The royalty tax rate is reduced for an initial volume of production. The value of the subsidy is the difference in the royalty tax rate that would have otherwise been paid. Subsidies identified in our review include the *Vertical Well Drilling Incentive (Annex 1, Section 12.3.5), Horizontal Well Drilling Incentive (Annex 1, Section 12.3.6), Exploratory Well Drilling Incentive (Annex 1, Section 12.3.7)* and the *Freehold Drilling Incentive (Annex 1, Section 12.3.1).*
- *New or Expanded Water Flood Projects (Annex 1, Section 12.3.8)* qualify for a reduction in the corporation capital tax surcharge rate from 3.6 per cent to 2.0 per cent. The program is designed to provide a more competitive investment environment and ultimately increase the oil production potential.
- *High Water-Cut Program (Annex 1, Section 12.3.9)* is designed to extend the producing lives and improve the recovery rates of high water-cut oil wells. Incremental high water-cut oil that is produced qualifies for a lower royalty rate and a Saskatchewan resource credit of 2.5 per cent.
- *Oil Well Reactivation Program (Annex 1, Section 12.3.10)* is designed to encourage oil wells that are currently shut-in or suspended to be reactivated. Oil produced from these wells is reclassified as new oil for production tax purposes resulting in a lower tax royalty rate.
- *Workover Reclassification Program (Annex 1, Section 12.3.11)* encourages investments to increase oil production from existing wells by performing workovers. Incremental oil produced from these wells is reclassified as new oil for production tax purposes resulting in a lower tax royalty rate.

- *Royalty Tax Rebate (Annex 1, Section 12.3.2)* is designed to offset the provincial portion of income taxes that are payable as a result of the federal government's decision to disallow provincial royalties and similar taxes as deductions in determining taxable income. The Royalty Tax Rebate is the royalties and income taxes less the 25 per cent Resource Allowance. This rebate is being phased out with the federal government's initiative to re-introduce full deductibility of provincial resource royalties.
- *Allowable Transportation Expenses. (Annex 1, Section 12.3.4).* Saskatchewan producers are allowed to deduct arm's length transportation expenses incurred in transporting clean oil from the well head to the point at which the oil is sold. This is deducted for royalty calculation purposes.
- *Enhanced Oil Recovery Royalty Regime (Annex 1, Section 12.3.1)* lowers royalty rates to allow EOR projects to recover investment and operating costs including a 5 per cent annual gross return and is based on project profitability and investment payout. The program is designed to recognize the higher investment and operating costs of EOR projects.

There are several instances of **direct or indirect transfers of funds**, with an environmental focus, in the oil and gas sector that are being funded or involve outstanding liability for the provincial government, including:

- *Upstream Emission Reduction Initiative (Annex 1, Section 13.3.2)* provides an annual contribution of $300,000 to support one or two large projects in Saskatchewan. In addition, Saskatchewan also provides up to an additional $100,000 per year as the provincial contribution to smaller oil and gas industry emission reductions projects in Saskatchewan.
- *Saskatchewan Carbon Dioxide EOR and Storage Initiative (Annex 1, Section 13.3.1)* provides funding for preparing the engineering, economic, administrative and legal information required to assess the different barriers to implementing carbon dioxide EOR in oil fields in Saskatchewan and then joint cost-share the design and implementation of new pilot projects in two or more Saskatchewan oil fields. The aim of the pilot projects is to demonstrate the technical and economic potential of EOR in these reservoirs.

There are two main types of **government foregone revenue** provided to the oil sector in Saskatchewan: tax expenditures and excise or special taxes.

Tax expenditures

- *Flow-Through Shares (Annex 1, Section 14.3.4).* The FTS program provides tax incentives to investors who acquire FTS by allowing deductions for resource expenses renounced by eligible corporations, and investment tax credits for individuals on resource expenses. Expenses can be deducted up to the maximum of 100 per cent.
- *Deferred Exploration and Development Expenses (Annex 1, Section 14.3.5)* can be carried forward and deducted from paid-up capital for capital tax purposes in computing income taxes in future years rather than be deducted in each yearly tax pool.

Excise or Special Taxes

- *Provincial Sales Tax Exemption (Annex 1, Section 14.3.2)* is allowed for certain mobile capital equipment used in the oil, gas and potash industries for exploration and development.
- *Enhanced Oil Recovery Tax Exemption (Annex 1, Section 14.3.3).* Chemicals and agents used for injection to enhance oil recovery are exempted from provincial sales and fuel taxes.

- *Fuel Tax Rebate for Mineral Exploration (Annex 1, Section 14.3.6)* is available as a tax credit against income taxes payable for unlicensed machinery and equipment used in mineral exploration, including oil.

7.3 VALUE OF SUBSIDY PROGRAMS

The preferred mechanism to provide subsidies in Saskatchewan is through royalty relief. Our review indicates that the number of direct spending and tax expenditure programs is limited. Our estimate of the subsidy to the oil sector in Saskatchewan by the provincial government is $327 million per year. It is likely that this estimate is conservative as several smaller subsidy programs are not valued and included in the estimate.

TABLE 9: OVERVIEW AND ESTIMATE OF VALUE OF SASKATCHEWAN SUBSIDIES

Typology of Subsidy		Subsidy	Estimate of Annual Value
Goods or Services Below-Market Value	**Government-Owned Energy Minerals**	**Royalty relief or reductions**	
		• Drilling Incentives (vertical, horizontal, exploratory and freehold)	$248 million[a] Range ($96-$310)
		• Enhanced Oil Recovery Royalty Regime	$6.0 million[b]
		• Allowable Transportation Expenses	Likely small
		• New or Expanded Water Flood Projects	Likely small
		• High Water-Cut Program	Likely small
		• Oil Well Reactivation Program	Likely small
		• Workover Reclassification Program	Likely small
		• Saskatchewan Petroleum Research Incentive Program	$1.0 million[c]
Direct and Indirect Transfer of Funds and Liabilities	**Direct Spending**	**Agency appropriations and contracts**	
		• Resource and Energy Policy Grants	$2.1 million[d]
		Research and development support	
		• Petroleum Technology Research Centre (PTRC)	1.1 million[e]
	Environmental Costs	**Environmental damages**	
		• Upstream Emission Reduction Initiative, Saskatchewan Energy and Resources	$0.3 million[f]
		• Saskatchewan Carbon Dioxide EOR and Storage Initiative	$1.6 million[g]

[a] Value of drilling incentives estimated using 2008 heavy oil, non-heavy oil and southwest designated oil well production values and forecasted WTI prices for oil between $51 and $120. Average well production values were estimated based on balancing total net royalty tax revenues for 2008. Well data was analyzed from oil and gas reports from Energy and Resources Saskatchewan website: http://www.er.gov.sk.ca/oilgasstatreports.

[b] Government of Saskatchewan, 2005.

[c] Government of Saskatchewan, 2007.

[d] Government of Saskatchewan, 2009.

[e] Saskatchewan Ministry of Energy and Resources, 2009c.

[f] Government of Saskatchewan, n.d.

[g] Saskatchewan Ministry of Energy and Resources, 2009a.

TABLE 9: OVERVIEW AND ESTIMATE OF VALUE OF SASKATCHEWAN SUBSIDIES (CONTINUED)

Typology of Subsidy		Subsidy	Estimate of Annual Value
Government Revenue Foregone	**Tax Breaks and Special Taxes**	**Tax expenditures**	
		• Deferred Exploration and Development Expenses	Likely small
		• Flow-Through Shares	Likely small
		Provincial Tax Reductions due to Federal programs	
		• Canadian Exploration Expense	$20.1 million[h]
		• Canadian Development Expense	$43.8 million[i]
		Excise taxes/special taxes	
		• Provincial Sales Tax Exemption on Equipment and Services used by the oil, gas, and potash industry	$0.4 million[j]
		• Fuel Tax Rebate for Mineral Exploration	$2.1 million[k]
		• Enhanced Oil Recovery Tax Exemption	Likely small
		TOTAL	$327 million Range ($175 – $389)

[h] See Annex 2 for details.
[i] See Annex 2.
[j] Public Accounts, 2008-09. PERMANENTLY MOUNTED MOBILE CAPITAL EQUIPMENT ("PME") (O.C. 1436/67)
[k] Government of Saskatchewan, 2002.

8. OIL SUBSIDIES IN NEWFOUNDLAND AND LABRADOR

Today there are three producing offshore oil projects in Newfoundland and Labrador: Hibernia, Terra Nova and White Rose. Oil production exceeds 300,000 barrels of crude per day representing about 12 per cent of Canada's total crude oil production. Another offshore oil field, the Hebron project, is under development and there are other significant discoveries that could be developed in the future. This makes the offshore oil and gas industry in Newfoundland and Labrador the most important industry sector in the province and it was estimated in 2007 that 36 per cent of the nominal gross domestic product (GDP) was attributed to the oil and gas industry.

8.1 HISTORICAL CONTEXT OF SUBSIDY PROGRAMS

While the first exploration wells were drilled off the coast of Newfoundland and Labrador in the early 1960s development, exploration was not undertaken seriously until 1973 when oil prices increased dramatically. Oil and gas production in Newfoundland and Labrador began in earnest in 1997 with the development and first production from the Hibernia offshore oil field. However, an equally dramatic decline in prices from a peak in 1979 delayed any potential projects until the late 1990s as the economics provided little incentive for development.

Offshore development is considerably more technically challenging and capital intensive than onshore conventional oil development. As a result, the government needed to take a more hands-on approach and establish predictable and competitive regulatory and royalty policies before oil companies were willing to invest significant capital and explore and develop potential resources. Newfoundland and Labrador took on a different view of development than other provinces in Canada. The province established regulations that sought to develop any oil resources that it found and not allow oil fields to remain fallow and oil companies to determine the development schedule. These regulations are based on the development model that was used for the North Sea and are intended to maximize local benefits without delaying development. The Atlantic Accord signed in 1985 allowed joint management of Newfoundland and Labrador's offshore resources, giving the province benefits as if the oil were located on land.

By the time the Atlantic Accord was signed and the province and oil companies were ready to negotiate the first offshore development agreement, prices were significantly depressed (i.e., between $20 and $30 per barrel adjusted in time for inflation) and offshore development was only marginally profitable. However, the Government of Newfoundland and Labrador was determined to not delay the development of offshore resources and were willing to provide financial incentives in return for commitments to generate jobs in the province. As a result, the subsidies received in these early years were very generous by any standard. The provincial government agreed to give the developers over $1 billion in grants and $1.7 billion in loan guarantees for the $5.2 billion Hibernia project. As a result, oil and gas subsidies were much higher in Newfoundland and Labrador than for conventional oil deposits in other provinces in Canada in order to be able to attract the investment for offshore development. The combination of low oil prices at the time, high technology risks and commitment to bring jobs to Newfoundland and Labrador also allowed oil companies to negotiate a relatively low royalty rate. The original royalty agreement was that the province would increase its take by 1 per cent of gross revenue (sales less transport costs) every 18 months until it received 5 per cent of gross revenue. While this arrangement may not have been unreasonable when world oil prices were low, when oil prices eventually increased, companies successfully lobbied to increase production. Since royalties had not been tiered to various potential production levels (as with oil wells in Alberta and Saskatchewan), and instead fixed to

production and gross revenue for periods of time, the province did not gain by allowing an increase in production and actually lost money because existing oil was produced more quickly.

The second and third offshore projects, Terra Nova and White Rose, did not receive the same level of assistance as the Hibernia project, but one consequence was that only a fraction of the project construction jobs and work remained in Newfoundland. Royalty arrangements negotiated were more lucrative to the province. For Terra Nova, it was estimated that the project would generate twice as much in royalties as Hibernia. In the course of negotiating the White Rose project, the province developed a generic royalty regime that was to apply to all future projects and was tied to production levels. This development was intended to be both fair to the province and provided more certainty to investors and financial security and create an investment climate that would help to encourage oil companies to invest in future projects.

In the development of the offshore oil field (Hebron) in 2006, the provincial government sought to alter the generic royalty regime to include an additional royalty that would kick in during times of very high oil prices and also establish an equity stake in the project. Negotiations stalled on these demands. However, rising oil prices eventually increased the bargaining position of the province. In 2008, oil companies and the province executed an agreement to proceed with the Hebron project. The province did receive an equity stake (although less than what it had originally sought) and an improved royalty regime with an additional 6.5 per cent royalty paid on net revenues whenever monthly average oil prices exceed $50 U.S. WTI per barrel, calculated after the net royalty payout was made.

The Hibernia, White Rose and Hebron offshore projects are the only projects in Canada where either federal or provincial governments have equity stake in oil and gas projects. While there is inherent risk in establishing equity stake in offshore oil development, the stake in Newfoundland and Labrador has turned out to be quite lucrative. An 8.5 per cent stake in the Hibernia project for which the government paid $290 million in the early 1990s earned the federal government $288 million in revenue in 2008–2009 alone and over $1 billion within the past seven years. This equity stake is roughly equivalent to the $332 million in federal subsidies estimated for 2008.

In 2008–2009 the Province of Newfoundland and Labrador earned an estimated $2.5 billion annually from oil royalties representing over 30 per cent of the total provincial revenues. Forecasts for 2009–2010 are significantly lower due to lower world oil prices and lower production. As in other Canadian jurisdictions and most developments around the world, royalties are now tiered based on production levels and net revenues.

8.2 NUMBER OF SUBSIDY PROGRAMS

Four main types of oil and gas subsidies in Newfoundland and Labrador were noted in a review of the literature. The review included both historical subsidies that were offered for the first offshore exploration projects to be established, as well as subsidies that are currently in effect. Table 10 indicates the distribution of subsidy types and indicates whether the granting agency was federal, provincial or from both federal and provincial sources.

TABLE 10: TYPES OF SUBSIDIES AND GRANTING AGENCIES IDENTIFIED IN LITERATURE FOR NEWFOUNDLAND AND LABRADOR

Typology of Oil and Gas Subsidies		Federal Level*		Provincial Level		Combination of Federal and Provincial		TOTAL
		Historic	Current	Historic	Current	Historic	Current	
Direct and Indirect Transfer of Funds and Liabilities	Credit Support	–	4	1	–	1	–	6
	Direct Spending	–	1	–	4	1	–	6
Goods and Services Provided Below-Market Value	Government-Owned Energy	1	–	1	–	–	–	2
Government Foregone Revenue	Tax Breaks and Special Taxes	–	1	1	5	–	–	7
TOTAL		**1**	**6**	**3**	**9**	**2**	**–**	**21**

* No double counting between federal and provincial programs.

The main focus of subsidies by the provincial government have been on foregone revenue as well as direct spending.

Government foregone revenue is provided to the oil sector in Newfoundland and Labrador through several tax breaks, including:

- *Provincial Sales Tax Exemption on Start-Up Capital and Operating Expenditures (Annex 1, Section 14.4.1)* is an exemption of PST on start-up capital expenditures that was provided at the outset of the Hibernia and Terra Nova projects. The exemption is no longer in place.
- *Fuel Tax Exemption for Offshore Projects (Annex 1, Section 14.4.2)* is a provincial tax exemption on gasoline, diesel, marine fuel and aviation fuel used by the offshore industry in fixed or stationary equipment.
- *Fuel Tax Exemption for Onshore Oil Exploration (Annex 1, Section 14.4.3)* is a provincial tax exemption for gasoline consumed by off-road equipment used in onshore oil exploration.

Direct spending by the Government of Newfoundland and Labrador in the oil sector has included several programs to stimulate the technology export market and provide stimulus for oil exploration:

- *Oil and Gas Manufacturing and Services Export Development Fund (Annex 1, Section 13.4.2)* is a $3 million fund to provide support to the oil and gas equipment and service industry to increase their export capability and technology transfer opportunities.
- *Petroleum Exploration Enhancement Program (Annex 1, Section 13.4.5)* aims to boost new petroleum exploration in Western Newfoundland through strategic investments in geoscientific activities.
- *Offshore Seismic Funding Assistance (Annex 1, Section 13.4.6)* is a $20 million investment through the Crown-held Energy Corporation of Newfoundland and Labrador to purchase existing proprietary seismic data for use by the offshore oil industry.
- *Canada-Newfoundland Offshore Petroleum Board (Annex 1, Section 13.4.3)* regulates the oil industry and is jointly funded with the federal government.
- *Offshore Technology Transfer Fund (Annex 1, Section 13.4.1)* provided funds historically for the Hibernia project to train and develop a skilled labour force within the province.

8.3 VALUE OF SUBSIDY PROGRAMS

Historically, substantial subsidies in the form of loan guarantees and grants were offered to attract oil companies to invest in the very first offshore oil projects in Newfoundland and Labrador. Oil and gas subsidies for subsequent offshore projects, including Hebron, Hibernia South and White Rose, have been substantially reduced. Reductions in the magnitude of subsidies to the oil and gas sector in Newfoundland and Labrador is largely a result of now proven offshore oil technologies, a decrease in the investment risk of the projects, and relatively high oil prices and forecasts. The most important current subsidies are the Atlantic Canada Investment Tax credit provided by the federal government and the direct equity stakes that are taken by Newfoundland and Labrador's provincial energy corporation (Nalcor). Newfoundland has invested approximately $200 million directly by taking equity stake in three offshore oil projects. While this investment has inherent risk, previous experience with the Hibernia project has found that returns will likely outweigh costs and this could be considered an investment rather than a subsidy.

Our conservative estimate of the subsidy to the oil sector in Newfoundland and Labrador by the provincial government is at least $83 million per year.

TABLE 11: OVERVIEW AND ESTIMATES OF VALUE OF NEWFOUNDLAND AND LABRADOR SUBSIDIES

Typology of Subsidy		Subsidy	Estimate of Annual Value
Direct and Indirect Transfer of Funds and Liabilities	**Direct Spending**	**Earmarks**	
		• Oil and Gas Manufacturing and Services Export Development Fund	$1.5 million[a]
		• Petroleum Exploration Enhancement Program	$2.5 million
		• Offshore Seismic Funding Assistance	$6.7 million[b]
		Agency appropriations and contracts	
		• Canada-Newfoundland Offshore Petroleum Board	$6.0 million[c]
Government Revenue Foregone	**Tax Breaks and Special Taxes**	**Excise taxes/special taxes**	
		• Waiving PST on start-up capital expenditures and operating expenditures	$13.4 million[d]
		• Fuel tax exemption for offshore oil and gas development (minimum value just for Terra Nova)	Unknown
		• Fuel Tax exemption Onshore Oil Exploration	Unknown
		Provincial Tax Reductions due to Federal programs	
		• Canadian Exploration Expense	$18.4 million[e]
		• Canadian Development Expense	$34.1 million[f]
		TOTAL	83 million

[a] Department of Business (NL), n.d.

[b] See Annex 1, Section 13.4.6

[c] C-NLOPB, 2009.

[d] $7.2 billion for Hibernia and White Rose with 8 per cent exemption of PST, divided by the life of projects, (50 years) plus financing costs at 8 per cent. $1 million annually in operating costs waived.

[e] See Annex 2 for details.

[f] ibid.

9. ECONOMIC AND ENVIRONMENTAL IMPACTS OF SUBSIDIES

The main focus of this section is to estimate the environmental and economic implications of the subsidies estimated in this report. We conduct two assessments. First, we conduct a well-by-well assessment of the size of the subsidies for new and existing wells. Saskatchewan is singled out due to the availability of data, which we could use to conduct the analysis. Second, we conduct national macroeconomic modelling with a regional and sector focus to estimate the economic and environmental implications of the subsidies. This assessment removes the subsidy in a modelling framework that explicitly accounts for the subsequent tax interactions and the marginal incentive to produce that emerges under a no-subsidies case with higher production costs.

9.1 FINANCIAL IMPLICATIONS OF SUBSIDY AT THE WELL LEVEL IN SASKATCHEWAN

We were somewhat limited in data for conducting an in-depth financial assessment of the subsidy impact on financial returns in the various jurisdictions. After a review of available data, we settled on using Saskatchewan Energy and Resources Master Well Index, which includes over 26,000 operating wells in the province.[8] This Well Index includes data on location, production volume, type of well and oil produced (horizontal, vertical, enhanced oil recovery, light, heavy, etc.), depth of well, the value of production and if drilling incentives are applicable. Using this data set, we developed a method to apportion the subsidy volumes in Saskatchewan to the various well types to determine the size of the subsidy relative to production volumes for new and existing wells, and the incentive to new wells relative to their royalties due. These comparators put into perspective the size of the available subsidies relative to basic well characteristics.

To make this Master Well Index manageable so that we could calculate production subsidies by well type, we first categorized the data into four areas and three well types. The information extracted from the dataset is summarized in Table 12 below for a baseline year of 2008.

TABLE 12: SASKATCHEWAN PRODUCTION DATA FOR 2008 BY AREA AND OIL TYPE DIVISION

Production Information for 2008		Production Volume (000 m^3)	Number of Producing Wells	Average well production (m^3/well)	Average Production Value ($/$m^3$)	Production Value ($ millions)
Area I (Lloydminister)	Heavy	10,016	5,797	1,728	$456	$4,567
Area 2 (Kinderley)	Heavy	1,803	1,739	1,037	$473	$853
	Light	504	5,823	87	$604	$304
Area 3 (Swift Current)	Medium	2,374	2,186	1,086	$504	$1,196
Area 4 (Estevan/Weyburn)	Medium	3,863	3,292	1,173	$569	$2,198
	Light	6,922	7,335	944	$600	$4,153
TOTAL ALL DIVISIONS		**25,482**	**26,172**	**974**	**$521**	**$13,272**

Source: EnviroEconomics calculations based on Saskatchewan's Master Well Index.

[8] Monthly Production and Disposition of Crude Oil 2008 (Saskatchewan Ministry of Energy and Resources, 2010c).

With the wells defined and categorized, we then estimated the distribution of subsidy by area and oil type. In Section 6, 19 specific oil incentive programs were identified, of which 11 were quantified in Saskatchewan totalling $327 million annually. Each of these subsidies was then distributed to the wells in the four areas and oil type outlined above using information on individual wells in the Master Well Index. The second column in Table 13 indicates the basis of distribution for the incentive programs to the wells in the Master Well Index.

As some oil subsidies specifically target new production in the short term while others target general overall production, we divided the level of subsidy targeting new production and overall production by well. This distinction allows us to consider what percentage of the oil subsidies specifically stimulate new production in the short term and the percentage of oil subsidies that are more generally aimed at lowering overall costs of production. The third column in Table 13 below indicates the subsidies in Saskatchewan that are targeted to either new wells or overall production.

TABLE 13: DISTRIBUTION AND TARGET OF SASKATCHEWAN OIL SUBSIDY PROGRAMS

Subsidy Program	Basis of Distribution of Subsidy by Area and Oil Type Division	Target of Subsidy Program
Drilling Incentives	Wells that qualify for incentive volumes[a]	New wells
Enhanced Oil Recovery Royalty Regime	Wells employing Enhanced Oil Recovery	New wells
Saskatchewan Petroleum Research Incentive Program	Wells employing Enhanced Oil Recovery	New wells
Upstream Emission Reduction Initiative	All wells	Overall production
Saskatchewan CO_2 EOR and Storage Initiative	Wells employing Enhanced Oil Recovery	Overall production
Resource and Energy Policy Grants	All wells	Overall production
Petroleum Technology Research Centre	New wells	Overall Production
Provincial Sales Tax Exemption on Equipment Services	All wells	Overall production
Fuel Tax Rebate for Mineral Exploration	New wells	New wells
Enhanced Oil Recovery Tax Exemption	Wells employing Enhanced Oil Recovery	Overall production
Canadian Exploration Expense	New wells	New wells
Canadian Development Expense	New wells	New wells

[a] Distribution of drilling incentive is based on a weighted average of qualifying incentive volumes for the wells in each area and oil type division. Drilling incentive volumes are the volumes of oil that can be drilled before normal royalty rates apply.

With the wells identified and the incentives assigned to the wells by region and oil type, we were able to estimate on a per-well basis the importance of the subsidy relative to the production value of each well type. Estimated subsidies targeted at newly drilled wells provide incentives relative to the value of production in 2008 ranging between 15 per cent and 56 per cent, with an average of 27 per cent of the production value (Table 14).[9] Subsidies as a percentage of production value are highest for medium oil production in Area 4 and lowest for medium oil in Area 3. These subsidies vary from a high of $385 per m^3 produced (or $451,000 per well) to a low of $76 m^3 produced (or $82,000 per well). The average subsidy level is $143 per m^3 produced or 27 per cent of the value of production. These appear significant given their size relative to the value of production.

TABLE 14: OIL SUBSIDIES IN SASKATCHEWAN TARGETING NEW PRODUCTION BY AREA AND OIL TYPE (APPROX. 2,300 NEW WELLS DRILLED IN 2008 RECEIVED INCENTIVE VOLUMES)

		Value of Subsidy			
Subsidies Targeting New Oil Production		**Total Subsidy ($ 000's)**	**Subsidy / new well ($)**	**Subsidy / m^3 produced new wells ($)**	**Percentage of New Production Value**
Area I (Lloydminister)	Heavy	$94,526	$153,202	$89	19%
Area 2 (Kinderley)	Heavy	$14,471	$273,041	$263	56%
	Light	$7,196	$30,110	$348	58%
Area 3 (Swift Current)	Medium	$17,825	$82,144	$76	15%
Area 4 (Estevan/Weyburn)	Medium	$49,648	$451,346	$385	68%
	Light	$137,559	$128,200	$136	22%
TOTAL ALL DIVISIONS		**$321,226**	**$139,119**	**$143**	**27%**

Source: EnviroEconomics calculations

Most incentives are targeted at new wells, and thus it is not surprising that incentive levels for producing wells are much lower than for new wells. Table 15 indicates that the average subsidy for existing wells is much lower than for new wells (Table 14) and ranges between 0.03 per cent of the value of production to 0.29 per cent, with an average of just 0.04 per cent. The highest subsidies are in the Kinderley region for light oil mainly because of the large number of wells operating in this region with small production levels. The average subsidy level is only $0.22 per m^3 produced or only 0.04 per cent of the total value of production. The impact of these subsidies on production seems likely to be small.

[9] We first calculate the total lifetime incentive and then divide by the number of producing years to hit the annualized incentive.

TABLE 15: EXISTING WELL SUBSIDIES AS A SHARE OF TOTAL PRODUCTION BY AREA AND OIL TYPE (OVER 26,000 PRODUCING WELLS IN 2008)

Subsidies Targeting Overall Oil Production		Value of Subsidy		
		Total Subsidy ($ 000's)	Subsidy / m^3 produced total	Percentage of Production Value
Area I (Lloydminister)	Heavy	$1,514	$0.15	0.03%
Area 2 (Kinderley)	Heavy	$274	$0.15	0.03%
	Light	$880	$1.75	0.29%
Area 3 (Swift Current)	Medium	$363	$0.15	0.03%
Area 4 (Estevan/Weyburn)	Medium	$1,376	$0.36	0.06%
	Light	$1,143	$0.17	0.03%
TOTAL ALL DIVISIONS		**$5,550**	**$0.22**	**0.04%**

Source: EnviroEconomics calculations

9.1.1 INCENTIVES RELATIVE TO ROYALTIES DUE

Given the size of the incentive volume to new wells, we calculated the size of the incentive relative to royalties due. To estimate this ratio, we adopted the following method to define typical new well archetypes receiving incentive volumes in each of the divisions and their royalty due:

- Estimate the average production profile for each well type in each of the four areas;
- Apply to each well type archetype the applicable royalty rate for that area;
- Compare the royalties to be paid with the incentive volume rate for each archetype (or well that is entitled to the incentive); and
- Annualize the difference, or royalty relief, based on a projection of the number of years the well would take to produce the incentive volume.

A first observation is that the incentive volume for producing incentive wells varies significantly by region and well type, ranging from a low of 3 per cent to a high of 32 per cent (Table 16). On average, across all well archetypes, the average incentive equates to about 16 per cent of the royalty due. These results imply, but do not confirm, that there is an incentive for some marginal wells to become financially viable and thus raise the level of well activity in the province. The number of incentive wells producing in 2008 (approx. 6,000 wells) includes wells that have been drilled over a number of years and thus differs from the number of new wells drilled only in 2008 that receive incentive volumes (approx. 2,300 wells).

TABLE 16: NEW WELL INCENTIVES AS A SHARE OF ROYALTIES DUE IN 2008 (WELL ARCHETYPES BASED ON APPROX. 6,000 PRODUCING WELLS RECEIVING INCENTIVE VOLUMES IN 2008)

Divisions and Well Types		Estimate of Annual Royalties Paid ($ / incentive well)	Estimate of Annual Royalty Relief ($ / incentive well)	Subsidy as a % of Royalty Due (%)
Area I (Lloydminister)	Heavy	$1,162,269	$112,429	10%
Area 2 (Kinderley)	Heavy	$177,249	$30,650	17%
	Light	$20,663	$648	3%
Area 3 (Swift Current)	Medium	$376,320	$38,134	10%
Area 4 (Estevan/Weyburn)	Medium	$306,106	$55,185	18%
	Light	$96,622	$31,080	32%
TOTAL ALL DIVISIONS		**$249,818**	**$40,433**	**16%**

9.2 THE MACROECONOMIC AND EMISSIONS IMPACT OF REDUCING EXISTING SUBSIDIES

As the Auditor General of Canada (2000) notes, the tax provisions for the oil sector are complex and when they are used, so is the way they interact with one another, with all the provisions of the Income Tax Act, and with the provincial tax and royalty regimes. This complexity makes it difficult to determine the final impacts of the subsidies. To partially address this complexity, we chose to use a computable general equilibrium (CGE) model of the Canadian economy, GEEM.[10] In CGE models, tax and royalty interactions are coupled with changes in prices, demand, supply and investment. Thus, when we reduce subsidy levels based on estimates developed in this report, the impacts on a host of important economic outcomes are worked out and traced through the economy. This includes the tax interaction between lowering subsidies and collecting more provincial and federal tax, as well as drops in tax with lower production when some production contracts absent the subsidies.

Using GEEM, we construct a scenario that removes the federal and provincial subsidies on production we estimated in this report. With the subsidy levels reduced, GEEM then balances supply and demand for commodities and services in all markets though prices and makes a comparison to a base case with the subsidies in place. As the subsidies are removed in the model, prices for those commodities previously subsidized rise, thereby altering demand, production, government budgets and emissions. Returns to factors of production then fall with lower demand and lower returns to capital thereby altering the level of investment in the sector. The result is a long-term decline in activity in that sector, relative to the baseline with the subsidies. But since all sectors and regions are linked through prices, and capital and labour are somewhat mobile, other sectors and regions are also affected both positively and negatively. Net effects on the total economy can then be understood.

The version of the GEEM model used in this project includes four oil producing sectors in Alberta, Saskatchewan, and Newfoundland and Labrador (Table 28), with the rest of the economy in Canada and the United States as separate regions. Each region interacts through trade of commodities and services. Capital

[10] Annex 3 provides a detailed breakdown of the GEEM. Special thanks to Jotham Peters of MKJA for modelling support on this project, as well as Chris Bataille.

is assumed to be mobile between provinces/states within each country, while labour is assumed to be mobile within regions (inter-region migration is not assumed to be influenced by the policy). In the model, a representative household in each region is the owner of primary factors (labour, capital and natural resources), which they rent to producers who combine them with intermediate inputs to create commodities. Commodities can be sold to other producers (as intermediate inputs), to final consumers, or to other regions and the rest of the world as exports. Commodities can also be imported from other regions or the rest of the world.

In the GEEM model, the current economic structure of the Canadian economy, as represented in the national input output tables, forms the basis of a forecast of economic activity to 2020.[11] While this report has identified subsidies in 2009 where possible, we select 2020 as the modelling base year to allow the subsidies to affect capital formation in time. By pushing out the time frame in the model, we better capture the long-term effects of the subsidies.

Our approach is to first estimate a production and emissions baseline in 2020 with the subsidies in place. Then, we systematically strip away the subsidies to production identified in this report and trace the impact relative to the case with subsidies. Both federal and provincial subsidies are removed in the model, with the federal subsidies allocated to the regions and the oil sector based on national production shares for the applicable subsidy (i.e., only the oil sands capital cost allowance is allocated to oil sands producers). Note that we only remove subsidies that are directed at the oil sector directly, and therefore exclude some expenditures that are oriented to institutions. This means that of the 63 subsides identified, 40 are targeted at production to some degree, plus another 16 did not have estimates of the size of the subsidy. The total value of the subsidies included is $2.82 billion for 2008.

Table 28 provides the input subsidy data in the model, and shows the level of subsidy by sector and region that is removed in the scenario without subsidies. These 2009 subsidy values are scaled to 2020 production using the ratio of subsidy to baseline production. The scenario therefore assumes that current subsidy levels will align with the forecast in 2020: subsidies will rise as non-conventional output increases or fall with conventional declines. While future subsidies may or may not be tied to production, this assumption is necessary for modelling the longer-term impact of the current subsidies.

TABLE 17: DISTRIBUTION OF SUBSIDY BY OIL TYPE AND REGION (MILLIONS $2009)

	Alberta		Saskatchewan		Newfoundland Offshore	
	Federal	Provincial	Federal	Provincial	Federal	Provincial
Oil Sands Mining and Upgrading	$451	$393	$0	$0	$0	$0
Oil Sands In Situ	$400	$348	$0	$0	$0	$0
Conventional Light	$136	$241	$45	$124	$227	$77
Conventional Heavy	$37	$67	$74	$202	$0	$0

Source: EnviroEconomics calculations

[11] Forecasts are based on Informetrica economic projections, but updated with oil and gas production projections for the Canadian Association of Petroleum Producers in their June 2010 forecast (CAPP, 2010).

With the quantities of subsidies to be removed by type of oil production and jurisdiction, the no-subsidies scenario was run to determine impacts on government budgets, GDP and emissions in 2020. Table 18 presents the results of the scenario when the subsidy equivalent to about 2.5 per cent of the sector's value of production is removed:

- **Gross Domestic Product (GDP) falls significantly in the oil sector but is mostly unaffected economy-wide.** Overall, the economy-wide impacts of the no-subsidies case is small, ranging between a low of zero nationally to a high of 0.16 per cent in Alberta. But, this small change masks some rather large impacts in the oil-producing sectors, as the removal of the subsidy increases production costs, thereby making some production uneconomic. Output is scaled back significantly, with lower rates of new capital formation driving much of this decline. Alberta is hardest hit with a drop in GDP in the oil sector of 6 per cent, while the impact in Newfoundland and Labrador is small (0.3 per cent). This disparity has much to do with the characteristics of the two regions: Alberta is expanding capacity rapidly and hence the subsidies impact the formation of new capital more than in Newfoundland where new offshore capital is growing at a much slower pace. But still, at basic prices (GDP), the economy-wide impacts are small, with the reduction in the oil sector partially offset as the subsidy is redirected by government spending elsewhere in the economy.
- **Net exports fall with the decline oil produced.** Not surprisingly, the trade surplus for oil falls in all cases, and significantly in Alberta. This is less a price effect, since world oil prices are unchanged by movement in Canadian production and more about output declines. Natural gas imports to Alberta also fall off significantly as there is less demand in the non-conventional sector, thereby improving the trade surplus. Indeed one indirect beneficiary of the oil subsidies is the gas sector, which sees its output fall with the benefit of the subsidies removed and less gas demand from the non-conventional oil sector.
- **Employment increases, although not significantly.** Although we do not recycle the subsidy revenue in the model to any partial purpose, the increase in government budgets and subsequent spending does drive up employment. This has much to do with a drop in the capital-intensive oil sector relative to government spending that tends to be more labour intensive. Similarly, labour income tax rises in all provinces as a result of redirecting the subsidy expenditures.
- **Government budgets improve.** In all jurisdictions, there is a net improvement in government balances, primarily due to the savings from subsidies that are not paid, even accounting for losses in royalty payments and corporate income taxes from the oil sector. In the simulation, current subsidy levels are scaled to future production, and with a large increase in forecast production, the value of the subsidies not paid are large relative to government spending in Alberta and Saskatchewan.[12] Corporate income tax and royalty revenues in the provinces are all lower relative to the case with subsidies, which is expected with less oil sector output. Labour income tax is higher as more labour is employed—less activity in the capital-intensive oil sector is offset by more activity in the relatively labour-intensive rest of the economy. Alberta has the highest budget savings given its large relative subsidy due to a rapidly expanding oil sector, with the subsidy not paid more than compensating for the reduced royalties and corporate income tax.

[12] In 2008, Alberta subsidies, as estimated in this report, are about 2.7 per cent of Budget 2008 expenses ($1.05 billion on $37 billion), and in Saskatchewan they are 2.8 per cent ($0.26 billion on $9.4 billion) (Government of Saskatchewan, 2008).

- **GHG emissions.** The output declines in the emission-intensive oil extraction sector are the major driver of reduced emissions nationally and provincially. With less activity in the oil sector and more activity in the relative low-emission rest of the economy, the GHG decline is much larger than the overall decline in economic activity (GDP). Nationally, the drop is 2.1 per cent below forecasted levels in 2020, with reduction in Alberta being the main driver.

TABLE 18: IMPACT ON GOVERNMENT BUDGETS, GDP AND EMISSIONS IN 2020 (PERCENTAGE CHANGE WITH NO SUBSIDIES FROM 2020 BASELINE WITH SUBSIDIES)

	Federal/National	Alberta	Saskatchewan	Newfoundland and Labrador
GDP (region)	0.0%	–0.16%	–0.14%	–0.10%
GDP Oil Producers	–4.8%	–6.0%	–1.2%	–0.3%
Employment	0.0%	0.4%	0.3%	0.0%
Net Oil Exports (trade surplus)	–13.6%	–9.9%	–1.6%	1.0%
Government Budget	0.9%	4.8%	3.8%	–0.2%
Royalties		–7.8%	–7.2%	–2.3%
Corporate Income Tax	–1.1%	–4.1%	–2.5%	–0.6%
Labour Income Tax	0.0%	0.4%	0.3%	0.0%
Subsidies Avoided	1.2%	6.9%	5.5%	0.4%
GHG Emissions	–2.1%	–4.6%	–0.9%	–0.04%

Source: GEEM modelling

Within the oil sector and among regions, the impacts of the no-subsidies case are not uniform. Given the large relative subsidies in Alberta and to the non-conventional sector in particular (Table 17), output declines and hence the GDP drops are larger, with reductions in activity of about 6 to 7 per cent in the non-conventional oil sector. Note, however, that even under this no-subsidy scenario, the sector still more than doubles in size between now and 2020. Reduced GHG emissions are relatively larger, though, given the high emission intensity of the non-conventional sector, with declines of about 12 per cent relative to the 2020 forecast. Heavy oil becomes more competitive and output expands marginally as the relatively larger subsidy reductions shrink the non-conventional sector. In Saskatchewan, small output declines translate into GDP reductions of about 1 per cent in the light oil sector, with again more emissions reduced relative to the output decline. Newfoundland has the smallest decline in output given the small subsidies relative to the other jurisdictions and the low levels of new capital anticipated in the offshore. Table 19 provides the results.

Based on our stylized assessment, it seems feasible that the subsidies are in fact contributing to more activity and more emissions in Canada. The trade-off is clearly between more oil sector economic activity and oil output with subsidies and less emissions and better government balances without subsidies. From a macroeconomic or economy-wide perspective, it is not clear that such a trade-off exists. The provincial economies seem likely to be unaffected with or without the subsidies, while the adverse impacts on government balances remain. With or without the subsidies, the oil sector will most likely more than double in size between now and 2020.

TABLE 19: CHANGE IN GDP AND GHGS BY SECTOR AND REGION IN 2020 (PER CENT CHANGE WITH SUBSIDIES CASE RELATIVE TO NO SUBSIDIES)

		Oil Sands Mining and Upgrading	Oil Sands In Situ	Light Oil	Heavy Oil	Rest of the Economy
Alberta	GDP	–6.4%	–7.4%	0.0%	0.2%	1.0%
	GHG	–12.0%	–12.0%	–0.3%	0.0%	0.4%
Saskatchewan	GDP			–0.6%	–1.5%	0.0%
	GHG			–2.0%	–3.0%	–0.5%
Newfoundland and Labrador	GDP			–0.3%		–0.1%
	GHG			–0.6%		–0.1%

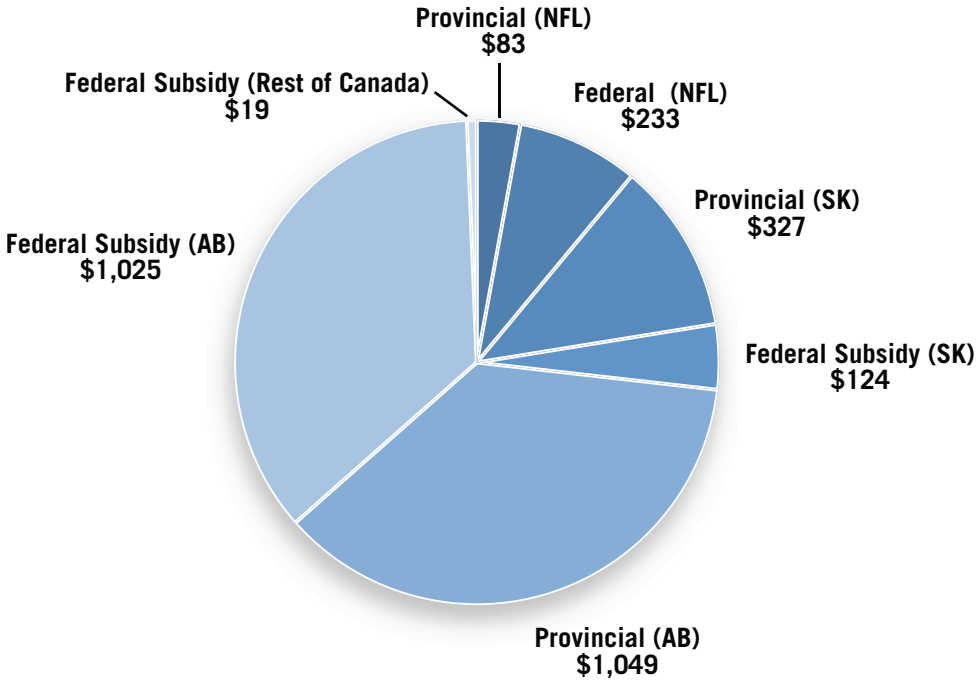
10. CONCLUSION

Both federal and provincial governments have made some progress in phasing out subsidies such as accelerated capital costs allowances; however, new subsidies have also emerged in an attempt to provide incentive to access more oil from high cost resources. In total, this study estimates that provincial and federal governments are providing over $2.8 billion in subsidies to the oil sector in Alberta, Saskatchewan and offshore Newfoundland and Labrador. These three jurisdictions account for more than 97 per cent of crude oil production within Canada and so this study provides a comprehensive subsidy estimate.

This study identified a total of 63 subsidy programs targeted at the oil industry in the jurisdictions: 18 in Alberta, 19 in Saskatchewan, nine in Newfoundland and Labrador and 17 at the federal level. Most of these subsidies seek to increase exploration and development activity, with a focus on reducing the costs of exploration, drilling and development through a mix of tax breaks and royalty reductions. Development subsidies primarily directed at encouraging companies to bring new oil resources into production comprised 59 per cent of total subsidies ($1.68 billion). These subsidies typically reduce capital expenditures through accelerated write-offs, tax credits, royalty reductions or allowances. Subsidies to support exploration, drilling, operations and research and technology comprised the remaining share of subsidies in about equal proportion.

Figure 10 shows the relative proportion of subsidies for the three provinces and the breakout of federal subsidies provided to the provinces. Federal subsidies total $1.38 billion or 49 per cent of total subsidies we estimated. The Province of Alberta receives the vast share of total federal and provincial subsidies (73 per cent), which is larger than Alberta's share of crude oil production (67 per cent).

FIGURE 11: ANNUAL SUBSIDY VALUE ($MILLIONS)



In terms of the types of subsidies that are prevalent, the federal government and Government of Newfoundland and Labrador favour tax expenditures (83 per cent of federal subsidies, 63 per cent of Newfoundland and Labrador), while Saskatchewan favours royalty relief or reductions in other taxes (78 per cent of Saskatchewan subsidies). Alberta has a larger mix of different types of subsidies with royalty relief (46 per cent) and tax breaks (25 per cent) comprising the largest proportion of total subsidies.

On average, across Canada, the subsidy as a share of average production value is estimated to be about 5.2 per cent. The subsidy as a share of production is highest in Alberta (5.7 per cent) and a lowest in Newfoundland and Labrador (3.7 per cent). This is consistent with the cost of production, which is also highest in Alberta and lowest in Newfoundland and Labrador. Subsidies as a percentage of the total transfers to government, including taxes, royalties and crown land sales, were 5.3 per cent on average across Canada, with a high of 7 per cent in Alberta and a low of 5.2 per cent in Saskatchewan.

An analysis of the financial implications of subsidies to well drilling in Saskatchewan found that subsidies to encourage the development of new oil wells were significant. The average subsidy level to produce new wells was found to be $139,000 per well or $143 per m^3 produced. This subsidy level represents approximately 27 per cent of the estimated future value of production from these wells, although the full tax implications of these subsidies were not estimated. Subsidies provided for production in Saskatchewan were found to be much smaller and estimated to be only $0.22 per m^3 produced.

Unique relative to past subsidy work in Canada is the exploration of the impacts of oil sector subsidies on emission and economic outcomes. We used an economy-wide macroeconomic model with royalty and corporate tax interactions to determine the impact of subsidies on production and emissions. We forecasted economic activity and emissions nationally and by region as well as oil production to 2020, and then estimated how the $2.8 billion of subsidies identified in this report alter oil production, the associated linked economic activity and emissions. This future-looking analysis allows us to capture the longer-term impacts of the subsidies on new capital deployment production. Note that our modelling is stylized and provides indicative results. Nevertheless, the analysis helps one think about the policy trade-offs of the current practice of subsidizing the sector.

With the equivalent of $2.8 billion in current dollars incentivizing future oil production, we identify the following implications attributable to the subsidy:

- **The current subsidies have a slight positive impact on economic activity.** The largest impacts are found in Alberta, where the size of the total economy (i.e., GDP) is about 0.16 per cent larger in 2020 because of the subsidies. This, in effect, increases the annual GDP growth rate in 2020 from about 1.64 per cent to 1.8 per cent. This has a marginal effect on the overall size of the Alberta economy, which is projected to be about 27 per cent bigger in 2020 than it is today.
- **Subsidies to the oil sector are increasing the level of production.** The impact of the subsidies on the marginal producer of oil is important. With subsidies in place, oil production nationally is projected to be in the order of 5 per cent larger in 2020, with a range of 0.3 per cent increase in Newfoundland and Labrador to a high of 6 per cent in Alberta. In 2020, the sector is projected to be about twice as large as it was in 2005, with or without subsidies, which implies that subsidies influence growth in the sector but are not a major determinant.
- **Net exports are fuelled by subsidies.** Subsidies are contributing to oil exports, which in turn generate foreign exchange. Our results indicate that net exports in oil (or the trade surplus) increase about 14 per cent nationally with subsidies in place.

- **The employment benefit of the subsidies is questionable.** While the economy does expand with the oil subsidies in place, most of this happens in the capital-intensive oil sector. The impacts on total employment are therefore negligible.
- **Government balances are lower even with higher corporate taxes and royalty payments.** While the increased economic activity due to the subsidies does increase corporate taxes and royalties paid, labour taxes are likely lower due to the spending in the capital intensive oil sector. More significantly, major subsidy outlays are relatively large. Government balances are therefore worse off with the subsidies: the federal government is lower by 1 per cent, Alberta by 5 per cent, and Saskatchewan by 4 per cent. A small increase is observed in the Newfoundland and Labrador budget, where the federal subsidy infusion creates more activity and revenue while not being offset by provincial subsidies paid.
- **Subsidies drive production and hence more emissions.** Nationally, emissions are about 2 per cent higher in 2020 with the subsidies. In Alberta, the likely increase in emissions attributable to the subsidies is large, with about 5 per cent more provincial emissions than if the subsidies were removed.
- **Non-conventional production is experiencing the greatest benefit from the subsidies, followed by new drilling.** With targeted programs for the oil sands, as well as a large share of total production, the oil sands are disproportionally benefiting. Our assessment indicates that the subsidies are adding 6 to 7 per cent more production to the sector and about 12 per cent more emissions. Most of the targeted programs are for more exploration activity and drilling in the provinces.

Perhaps most interesting is the risk of a growing subsidy obligation on governments. With oil production predicted to more than double between now and 2020, with or without the subsidies in place, the share of subsidy relative to overall government expenditures could grow. In our simple modelling, scaling up current subsidies to future production more than doubles the subsidy as a share of government expenditures. As mentioned above, government balances are then worse off as the tax and royalty increases are more than offset by the subsidies paid. This points to a risk in government balances through providing incentive programs to a rapidly expanding sector.

Finally, an important area for future work is to examine how the subsidy revenue could be recycled. Given the size of the current government spending on subsidies to the oil sector, redirecting subsidy revenue to reduce corporate and income taxes, pay off debt, or increase the size of government spending, would all have very different efficiency implications.

11. REFERENCE LIST

Alberta Energy. "Enhanced Oil Recovery Royalty Relief Program." Information Letter 2003-16. Edmonton: Alberta Energy, 17 June 2003. 20 October 2010. <http://inform.energy.gov.ab.ca/Documents/Published/IL-2003-16.PDF>

Alberta Energy. *Oil and gas fiscal regimes: Western Canadian provinces and territories*. Edmonton: Alberta Energy, December 2006. 20 October 2010. <http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf>

Alberta Energy Resources Conservation Board. "Crude oil disposition overview." 2010. 20 October 2010: <http://www.ercb.ca/docs/products/STs/st98-2010-ds-overview.xls>

Alberta Energy Resources Conservation Board. *Liability management rating report – June 2010.* June 2010. 20 October 2010: <http://www.ercb.ca/docs/data/facilities/llr_report_Jun2010.pdf>

Alberta Environment. "State of the environment – Land: Oil and gas well reclamation." 2009. 20 October 2010. <http://environment.alberta.ca/02855.html>

Alberta Office of the Auditor General. "Bitumen valuation methodology implementation." Report of the Alberta Auditor General. No. 20. Edmonton, AB: ABOAG, October 2009.

Alberta Orphan Well Association. "2008/09 Annual Report." June 2009. 20 October 2010. <http://www.orphanwell.ca/OWA%202008-09%20Ann%20Rpt%20Final.pdf>

Alberta Royalty Review. (2007). *Our fair share*. Report of the Alberta Ryalty Review Panel. 20 October 2010. <http://www.albertaroyaltyreview.ca/panel/final_report.pdf>

Babiker, M. H., Metcalf, G. E. & Reilly, J. "Tax distortions and global climate policy." *Journal of Environmental Economics and Management* 46, no. 2 (2003): 269–287.

Bataille, C., Jaccard, M., Nyboer, J., & Rivers, N. "Towards general equilibrium in a technology-rich model with empirically estimated behavioural parameters." *Energy Journal 27* (2006): 93–112.

Canadian Association of Oilwell Drilling Contractors. "Average monthly drilling rig count." 20 October 2010. <http://www.caodc.ca/>

Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB). *Annual Report, 2008–2009*. St John's, NL: C_NLOBP, 2009. http://www.cnlopb.nl.ca/pdfs/ar2009e.pdf

Canada Revenue Agency. "Flow-Through Shares." 20 October 2010. http://www.cra-arc.gc.ca/tx/bsnss/tpcs/fts-paa/menu-eng.html

Canadian Department of Finance. "Subsidies and countervailing measures information paper." Ottawa: CDE, 2010. 20 October 2010. http://www.fin.gc.ca/activty/pubs/sub_-eng.asp

Canadian Association of Petroleum Producers (CAPP). "CAPP fact sheet." 20 October 2010. <http://www.capp.ca/getdoc.aspx?DocID=111534>

Canadian Association of Petroleum Producers (CAPP). *Cananda's oil, natural gas and oil sands: Overview and outlook.* Calgary, AB: CAPP, February 2009. 20 October 2010. <http://www.capp.ca/getdoc.aspx?DocID=147850&DT=PDF>

Canadian Association of Petroleum Producers (CAPP). *Statistical handbook for Canada's upstream petroleum industry*. Technical Report. Calgary, AB: CAPP, 2010a.

Canadian Association of Petroleum Producers (CAPP). "2010–2025 Canadian crude oil forecast and market outlook." 2010b. 20 October 2010. <http://www.capp.ca/aboutUs/mediaCentre/NewsReleases/Pages/2010-Oil-Forecast.aspx#ufVSBF8FoJpL>

Chen, Duanjie & Mintz, Jack M. "Federal corporate tax cuts would lift Canada's standard of living." C.D. Howe e-Brief, 2005. 20 October 2010. <http://www.cdhowe.org/pdf/ebrief_14.pdf>

Department of Business (NL). "Guidelines and eligibility criteria (amended): Oil and Gas Manufacturing and Services Export Development Fund (OGEDF)." St John's: Government of Newfoundland and Labrador. 20 October 2010. <http://www.business.gov.nl.ca/business/GuidelinesEligibilityCriteria.pdf>

Department of Finance. *Tax expenditures and evaluation 2007.* Ottawa: Government of Canada, 2007.

Department of Finance. *Improving the income taxation of the resource sector in Canada.* Ottawa: Government of Canada, 2008. 20 October 2010. <http://www.fin.gc.ca/activty/pubs/rsc_1-eng.asp>

Department of Finance. "G-20 commitment – Fossil fuel subsidies." Memorandum. Ottawa: Government of Canada, 18 March 2010.

Department of Finance. *Federal budget, 2009.* Ottawa: Government of Canada, 2009. 20 October 2010. <http://www.budget.gc.ca/2009/plan/bpc3e-eng.html#s38>

Dissou, Y. "Cost-effectiveness of the performance standard system to reduce CO_2 emissions in Canada: A general equilibrium analysis." *Resource and Energy Economics* 27 (2005) 187–207.

European Commission (EC). "Methods of assessing the aid element." *State Aid Scoreboard*, DG Competition, 2007. 20 October 2010. <http://ec.europa.eu/comm/competition/state_aid/studies_reports/conceptual_remarks.html#calc_aid_element>

Global Subsidies Initiative (GSI). "Defining fossil-fuel subsidies for the G-20: Which approach is best?" Policy Brief. Geneva: GSI, June 2010.

Government of Alberta. "Energy Innovation Fund." 20 October 2010. <http://www.environment.alberta.ca/02014.html>

Government of Alberta. "Province announces three-point incentive program for energy sector." Edmonton: Government of Alberta, 3 March, 2009. 20 October 2010. <http://www.alberta.ca/ACN/200903/25402CDEFE818-F1BC-5D66-DF309066E457F2A4.html>

Government of Alberta. Backgrounder: Fiscal Tables. *Budget 2010*. Edmonton: Government of Alberta, 2010. 20 October 2010. http://alberta.ca/acn/201006/286652010_annrep_backgrounder_final.pdf

Government of Saskatchewan. "The Saskatchewan oil and gas industry upstream emission reduction initiative." 20 October 2010. <http://www.er.gov.sk.ca/Default.aspx?DN=56b82248-d453-4f75-90f2-0a12ec55707c>

Government of Saskatchewan. "Incentives to boost mineral exploration." 19 September 2002. 20 October 2010. <http://www.gov.sk.ca/news?newsId=70754f48-aff1-4022-9318-d032db340417>

Government of Saskatchewan. "Canadian enhanced oil recovery incentives." Press release 225. Regina: Industry and Resources, 18 March 2005. 20 October 2010.

Government of Saskatchewan. "Premier commits to exploring oil sands potential." News release. Regina: Government of Saskatchewan, 12 December 2007. 20 October 2010. <http://www.gov.sk.ca/news?newsId=0feaac0b-1ee6-4aab-a20e-0ebf9724be9f>

Government of Saskatchewan. "Oil industry fact sheet." 2008. 20 October 2010. ttp://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=6552,3384,5460,2936,Documents&MediaID=20542&Filename=Fact+Sheet+-+Oil+in+Sask+(Sept+8+2008).pdf

Government of Saskatchewan. "Permanently mounted mobile capital equipment." *Public accounts*. O.C. 1436/67. Regina: Government of Saskatchewan, 2009.

International Energy Agency (IEA). *Carrots and sticks: Taxing and subsidising energy.* Economic Analysis Division, Note on Energy Subsidies and Taxes. Paris: IEA, 17 January 2006. 20 October 2010. <http://www.iea.org/textbase/papers/2006/oil_subsidies.pdf>

International Monetary Fund (IMF). *Government finance statistics manual 2001 (GFSM 2001)*, Statistics Division, 19 December 2001. 20 October 2010. <http://www.imf.org/external/pubs/ft/gfs/manual/>

Iowerth, A., Bagnoli, P., Dissou, Y., Peluso, T. & Rudin, J. *A computable General Equilibrium Analysis of greenhouse gas reduction paths and scenarios.* Ottawa: Economic Studies and Policy Analysis Division, Finance Canada, 2000.

Kallbekken, Steffen. *A description of the dynamic analysis of economics of environmental policy (DEEP) model.* CICERO Report 2004:01. Norway: CICERO, 2004. 20 October 2010. <http://www.cicero.uio.no/media/2719.pdf>

Ketchum, Ken, Lavigne, Robert & Plummer, Reg. *Oil sands tax expenditures.* Department of Finance Working Paper. 2001-17. Ottawa: Government of Canada, 2001.

McKibbin, W. & Wilcoxen, P. "The theoretical and empirical structure of the G-Cubed Model." *Economic Modelling* 16 (1999): 123–48.

McKitrick, R. (1997). "Double dividend environmental taxation and Canadian carbon emissions control." *Canadian Public Policy – Analyse de Politiques* 23, no. 4 (1997): 417–434.

MineralFields.com. "What is a Super Flow-Through Limited Partnership?" 20 October 2010. http://www.mineralfields.com/fr/index.cfm?Section=&PageId=76D561C9-423B-A2BC-40931D7E23EBFCD1&refresh=FBDF1586-423B-A2BC-4825C7020F468454

Mintz, Jack. *Measuring effective tax rates for oil and gas in Canada.* Working Paper. Calgary, AB: School of Public Policy, University of Calgary, 2010.

Mintz, Jack & Chen, Duanjie. "Taxing Canada's cash cow: Tax and royalty burdens on oil and gas invstments." *School of Public Policy Briefing Paper* 3, no. 3, Calgary, AB: School of Public Policy, University of Calgary, February 2010. 20 October 2010. <http://www.policyschool.ucalgary.ca/files/publicpolicy/mintz3.pdf>

National Energy Board. *Reference case scenario: Canadian energy demand and supply to 2020 – An energy market assessment.* Ottawa: Government of Canada, 2009a.

National Energy Board. *Forecasts for oil and gas production at different prices for oil and natural gas.* Ottawa: Government of Canada, 2009b.

Natural Resources Canada (NRCAN). "NRCAN's Three Year Plan for Transfer Payment Programs, 2008–2009." Ottawa: NRCAN, 14 September 2010. 20 October 2010. <http://www.nrcan-rncan.gc.ca/com/resoress/transfer-eng.php>

Natural Resources Canada (NRCAN). "Backgrounder: Clean Energy Fund Renewable Energy and Clean Energy Systems Demonstration Projects." News release, 2010/01 (a). Ottawa: Government of Canada, 2010. 20 October 2010. <http://www.nrcan-rncan.gc.ca/media/newcom/2010/201001a-eng.php>

Newfoundland and Labrador Department of Finance. *Public Accounts, Volume I: Consolidated summary financial statements.* St John's, NL: Government of Newfoundland and Labrador, 2009. 20 October 2010. <http://www.fin.gov.nl.ca/fin/publications/index.html>

Newfoundland and Labrador Mines and Energy. *Hibernia Project Royalty Regime.* St John's, NL: Department of Natural Resources, Government of Newfoundland and Labrador. 20 October 2010. http://www.nr.gov.nl.ca/mines&en/exploration/hibernia.pdf

Newfoundland and Labrador Department of Natural Resources. *Oil and gas report.* St John's, NL: Department of Natural Resources, Government of Newfoundland and Labrador, 2008. 20 October 2010. <http://www.nr.gov.nl.ca/mines&en/oil/>

Office of the Auditor General of Canada. *Government support for energy investments.* Report of the Commissioner of the Environment and Sustainable Development. Chapter 3. Ottawa: Government of Canada, 2000.

Office of the Auditor General of Canada. *Subsidies to the oil and gas industry and federal initiatives for greenhouse gas emission reductions.* Commissioner of the Environment and Sustainable Development. Petition: No. 222. Ottawa: Government of Canada, 2008.

Petroleum Technology Research Centre (PTRC). *Annual Report, 2008–2009*. Regina, SK: PTRC, 2009. 20 October 2010. <http://www.ptrc.ca/siteimages/2008-9%20Annual%20Report.pdf>

Saskatchewan Ministry of Energy and Resources. *Monthly production and disposition of crude 2008.* Saskatoon, SK: Government of Saskatchewan, 2008. 20 October 2010. <http://www.er.gov.sk.ca/Default.aspx?DN=3732,3620,3384,2936,Documents>

Saskatchewan Ministry of Energy and Resources. *Oil reserves data with production by region*. Saskatoon, SK: Government of Saskatchewan, 2008. 20 October 2010. <http://www.er.gov.sk.ca/oilgassummaryreport>

Saskatchewan Ministry of Energy and Resources. *Saskatchewan's strategic approach to carbon dioxide capture and storage.* Saskatoon, SK: Government of Saskatchewan, 6 March 2009a. 20 October 2010. <http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=10291,10289,3384,5460,2936,Documents&MediaID=25534&Filename=SER+CO2+Info+Opening+Remarks+(Mar+6+09).pdf>

Saskatchewan Ministry of Energy and Resources. *Ministry of Saskatchewan Energy and Resources Orphan Fund Program.* Saskatoon, SK: Government of Saskatchewan, 6 March 2009b. 20 October 2010. <http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=10419,10418,3680,3384,5460,2936,Documents&MediaID=25616&Filename=LLR+Presentation+Feb+2009.pdf>

Saskatchewan Ministry of Energy and Resources. *Annual Report 2008-2009.* Saskatoon, SK: Government of Saskatchewan, 2009c. 20 October 2010. <http://www.publications.gov.sk.ca/deplist.cfm?d=22&c=870>

Saskatchewan Ministry of Energy and Resources. *Saskatchewan crude oil Crown royalty and freehold production tax.* Saskatoon, SK: Government of Saskatchewan, 2010b. 20 October 2010. <http://www.er.gov.sk.ca/royaltytaxfactors>

Saskatchewan Ministry of Energy and Resources. *Master well index file.* (Master Well Index All.zip). Saskatoon, SK: Government of Saskatchewan, 2010c. 20 October 2010. http://www.er.gov.sk.ca/Default.aspx?DN=3732,3620,3384,2936,Documents

Statistics Canada. *Oil and gas extraction*. Catalogue no. 26-213-X. Ottawa: Government of Canada, 2007.

Statistics Canada. "Financial and Taxation Statistics for Enterprises. 61-219-x. Reconciliation of Profit." Ottawa: Government of Canada, 2008.

Statistics Canada. "Reconciliation of Profit Oil and gas extraction and support activities: Reconciliation of profit (Table 7.2)." *In Financial and Taxation Statistics for Enterprises.* 61-219-X. Ottawa: Government of Canada, 2008.

Statistics Canada. *Oil and gas extraction*. Catalogue no. 26-213-X. Ottawa: Government of Canada, 2009.

Statistics Canada. *Energy statistics handbook.* Ottawa: Government of Canada, 2009.

Tax and Revenue Administration. "Current and historic Alberta tax rates." Edmonton: Alberta Finance and Enterprise, Tax and Revenue Administration, Government of Alberta. 20 January 2010. 20 October 2010. <http://www.finance.alberta.ca/publications/tax_rebates/rates/hist1.html>

Treasury Board of Canada. "Section 3: Supplementary Information" In *Departmental performance report for Natural Resources Canada, 2007–2008.* Ottawa: Treasury Board of Canada, 2008, 20 October 2010. <http://www.tbs-sct.gc.ca/dpr-rmr/2007-2008/inst/rsn/rsn03-eng.asp>

Treasury Board of Canada. "Section 3: Supplementary Information" In *Departmental performance report for Natural Resources Canada, 2008–2009.* Ottawa: Treasury Board of Canada, 2009, 20 October 2010. <http://www.tbs-sct.gc.ca/dpr-rmr/2008-2009/inst/rsn/rsn00-eng.asp>

Varangu, Kristi. *IEA work on defining and measuring environmentally harmful subsidies in the energy sector.* OECD Workshop on Environmentally Harmful Subsidies, 7–8 November 2002. Paris: OECD, 2002. 20 October 2010. <http://www.oecd.org/dataoecd/41/27/35217143.pdf>

Wigle, Randy. BMRT V 1.0 Model Documentation. Working Paper. Waterloo, ON: Department of Economics Wilfred Laurier University, 2007.

ANNEX 1: DETAILED SUBSIDIES

12. GOVERNMENT-OWNED ENERGY MINERALS

12.1 FEDERAL

12.1.1 DEDUCTIBLE PORTION OF ROYALTIES DUE

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Deductible Portion of Royalties Due – Revision of Resource Allowance
Jurisdiction	Federal
Granting Organization	Federal Department of Finance – Government of Canada
Objective of Subsidy	Improve international competitiveness of the Canadian resource sector, to reduce complexities in the tax system.
Recipient of Subsidy	Canadian Corporations generating resource profits
Size of Subsidy (Financial or Otherwise)	Under the pre-2003 tax regime, the Resource Allowance was allowed as a deduction in lieu of provincial royalties and freehold mineral taxes, which were not tax deductible. The Resource Allowance is equal to 25 per cent of resource profits computed as gross revenue (including production royalties receivable and deemed income in B.C.) less the sum of: operating and lifting costs, non-provincial production royalties paid or payable, general and administrative expenses related to production, deductible Crown lease rentals and capital cost allowances in respect of production assets. The Resource Allowance does not reduce the tax saving advantages related to the exploration and development expenditures discussed above. Resource Allowance not claimed in the current year cannot be carried forward. Commencing in the 2003 tax year, the resource allowance deduction is being phased out and a portion of Crown royalties will become deductible. Royalties paid are 100 per cent deductible in 2008.
Time Period Since Initiation	Deductible percentage of 25 per cent resource allowance 2003 90 2004 75 2005 65 2006 35 2007 0 Deductible percentage of Crown royalties and mining taxes 2003 10 2004 25 2005 35 2006 65 2007 100
Source Documents	http://www.fin.gc.ca/taxexp-depfisc/2004/taxexpnot04_3-eng.asp http://www.fin.gc.ca/activty/pubs/rsc_1-eng.asp#B.%20Reviewing

12.2 PROVINCIAL – ALBERTA

12.2.1 DRILLING ROYALTY CREDIT

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Drilling Royalty Credit
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	To provide short-term stimulus through credits for qualified drilling during the current economic slowdown and therefore provide more royalties to the Alberta Government.
Recipient of Subsidy	All Albertan natural gas, oil and non-project oil sands wells that meet the following requirements: • Spud date on or after April 1, 2009 and before April 1, 2011. • Finish drill date on or after April 1, 2009 and before April 1, 2011. • The well must be used to extract conventional oil, natural gas, or crude bitumen from non-project oil sands wells. • The well must be drilled on Alberta Crown Mineral rights.
Size of Subsidy (Financial or Otherwise)	For each well drilled within the timeframe of the program, the Alberta Department of Energy will establish a credit against royalties due to the Crown on company-wide production of natural gas, oil and non-project crude bitumen of up to $200 CDN per unique drilled metre dependent on each well's Crown interest (each metre counted only once in multi-lateral wells). The $200/m CDN drilling credits will be paid to eligible companies based on net royalties. This program provides credit to companies on a sliding scale based on their production levels. The maximum credit is based on the amount of production and is in place to help small and medium-sized companies the most.
Time Period Since Initiation	The program is in effect for the fiscal 2009/2010 and 2010/2011 years. The ability of companies to establish credits is through drilling (spud and finish drill date) in fiscal 2009/2010 and 2010/2011. Delivery of final payment for credits established in the requisite timeframe by drilling will occur after credit assignment is completed (by application) by the licensee and after royalties are reported/invoiced for the March 2011 production month. It is estimated that all payments for the DRC program will be complete by June 2011 following the annual gas invoice. Adjustments to production, royalties, drilled depth, etc. will be made using existing processes for those adjustments. Any changes to credit payments under the DRC will then be made as required.
Source Documents	http://www.albertadrillingcredit.com/ http://www.energy.gov.ab.ca/About_Us/1558.asp#creditEst

12.2.2 NEW ROYALTY FRAMEWORK TRANSITIONAL OFFER (TO) (NATURAL GAS)

This subsidy is not included in this study or in Table 7, as it applies primarily to natural gas exploration and development.

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	New Royalty Framework Transitional Offer (TO)
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	To promote new drilling in the province in response to the global economic crisis and slowdown in oil and gas drilling.
Recipient of Subsidy	The five-year transition option will apply to natural gas as well as field condensate production from eligible natural gas wells. Companies cannot elect for the option to apply only a portion of the production from the well. Companies that choose the TO to apply to a qualifying oil well will also be subject to the TO for the associated natural gas production from the well.
Size of Subsidy (Financial or Otherwise)	Under the NRF, conventional oil and natural gas royalty rates are based on formulas that are a function of price and production. The appropriate formula to calculate the monthly TO rate is determined by the range within which the par price (PP) established by Alberta Energy for that month falls and the range within which the well's actual production falls. For the TO program, these ranges and other fractions within the formula have changed. Under this option the maximum gas royalty is capped at 30 per cent. Offering the transitional rates is estimated to result in a potential reduction of projected royalties of approximately $172 million CDN in 2009, rising to $512 million CDN in 2013, depending on the number of new wells paying transitional royalty rates, actual production rates and commodity prices.
Time Period Since Initiation	On October 25, 2007, the Government of Alberta announced the New Royalty Framework to be effective January 1, 2009. However, on November 19, 2008, the Government of Alberta announced a five-year transitional option (TO). The wells that adopt the transitional rates will be required to shift to the New Royalty Framework effectively on January 1, 2014. The election must be made prior to a well being spudded on or after January 1, 2009.
Source Documents	http://www.pwc.com/en_CA/ca/energy-utilities/publications/energy-news-alberta-new-royalty-framework-2008-12-01-en.pdf http://www.pwc.com/en_CA/ca/energy-utilities/publications/energy-news-alberta-new-royalty-framework-2008-12-01-en.pdf http://alberta.ca/home/NewsFrame.cfm?ReleaseID=/acn/200811/24794B6951691-B6CE-E573-6C373FBC2DE15150.html

12.2.3 ALBERTA ROYALTY TAX CREDIT (HISTORIC)

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Alberta Royalty Tax Credit
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The Alberta Royalty Tax Credit (ARTC) was a royalty program administered through the income tax system. It returned a percentage of a specified amount of Alberta Crown royalties paid in a year on conventional oil and gas production.
Recipient of Subsidy	The program enabled oil and gas companies to receive a credit on their income tax. The credit was a percentage of a set amount of the Crown royalties they paid in the year on wells that qualified for the program.
Size of Subsidy (Financial or Otherwise)	Both the percentage, or credit rate, and the specified amount varied over time. Most recently, the credit rate reflected fluctuations in quarterly oil and gas prices. Maximum benefits ranged from $500,000 CDN, calculated at 25 per cent of eligible royalties up to $2 million CDN when the reference price exceeded $210 CDN, to $1.5 million CDN or 75 per cent of eligible royalties when the price was $100 CDN or less. The tax credit amounted to $44 million CDN from the 2008–2009 Government of Alberta Annual Report.
Time Period Since Initiation	The ARTC program was established in 1974 in response to that year's federal budget, which made royalties a non-deductible expense for federal income tax purposes. It was announced on September 21, 2006 that the ARTC would be discontinued. Alberta discontinued its ARTC and RCIT programs for corporations, individuals and trusts effective January 1, 2007.
Source Documents	http://www.finance.alberta.ca/publications/tax_rebates/corporate/overview.html#announce_rtc http://www.finance.alberta.ca/publications/tax_rebates/corporate/corp21.html http://www.finance.alberta.ca/publications/annual_repts/govt/ganrep09/confinst.pdf

12.2.4 NEW WELL ROYALTY REDUCTION

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	New Well Royalty Reduction
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	This one-year program is intended to help free up cash flow, and in turn, help provide access to the capital necessary for reinvestment by Alberta's oil and gas industry.
Recipient of Subsidy	Wells will qualify for this subsidy if the following three conditions are met. • Must come on production between April 1, 2009 and March 31, 2011, inclusive of those dates, • Must be subject to the payment of royalty under the Petroleum Royalty Regulation, 2009, the Natural Gas Royalty Regulation, 2009 or non-project oil sands wells subject to payment of royalty under the Oil Sands Royalty Regulation, 2009, and • Must pay Alberta Crown royalties.
Size of Subsidy (Financial or Otherwise)	For eligible non-project oil sands wells, the oil (bitumen) product receives a 5 per cent gross maximum royalty rate. This royalty rate will be subject to a cap based on either 12 production months or 50,000 barrels of oil production including equivalents, whichever is reached first. This incentive has the same requirements and dates as the Drilling Royalty Credit, but applies to companies that are beginning to invest in Alberta. This minimum is guaranteed up to a maximum production of 50,000 barrels of oil or 500 million cubic feet of natural gas. Based on forecasted drilling activity levels, the estimated potential royalty impact of the drilling royalty credit program is $1.04 billion CDN.
Time Period Since Initiation	In March 2009, the Government of Alberta announced a New Well Incentive Program. On June 25, 2009, the government announced the extension of the program by one year. The New Well Royalty Reduction program applies to wells that begin production between April 1, 2009, and March 31, 2011, inclusive of those dates; subject to the payment of royalties under the Petroleum Royalty Regulation, 2009, the Natural Gas Royalty Regulation, 2009, or non-project oil sands wells subject to payment of royalties under the Oil Sands Royalty Regulation, 2009; and must pay Alberta Crown royalties.
Source Documents	http://www.energy.gov.ab.ca/About_Us/1559.asp http://www.energy.alberta.ca/OilSands/pdfs/IB_2009_09.pdf http://www.financialpost.com/story.html?id=1349060 http://alberta.ca/ACN/200903/25402CDEFE818-F1BC-5D66-DF309066E457F2A4.html

12.2.5 BITUMEN ROYALTY IN KIND (BRIK)

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Bitumen Royalty in Kind
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	1. Foster Value-Added Oil Sands Development – Using royalty bitumen barrels to stimulate value-added activities, the resultant investment would create economic activity and jobs, improving Alberta's long-run economic sustainability and diversification of product portfolio while allowing Alberta to hedge its bitumen commodity risk. 2. Enhance the transparency and liquidity in the bitumen market—market design to facilitate more buyers and sellers of bitumen and a more transparent and liquid market. 3. Share in the differential risks between synthetic crude oil (SCO) and bitumen, with the considerable difference in price. By assuming some processing risks and costs, Alberta could obtain increased revenue compared with taking cash based on bitumen pricing.
Recipient of Subsidy	Bitumen producers will be required to deliver, in kind, the Crown's royalty share of bitumen production.
Size of Subsidy (Financial or Otherwise)	**BRIK Volume Determination:** Cash Royalty / Project Bitumen Unit Price = BRIK bitumen obligation for that project The bitumen obligation defined above will be delivered in the form of bitumen blend with the dilutents ratio determined from project specific information. **BRIK Volume Valuation:** Bitumen Volume x Project Bitumen Unit Price = BRIK $ value = Royalty Value of the delivery Valuing bitumen at the project-specific bitumen unit price mitigates any valuation risk for the Crown and gives producers the ability to deliver bitumen from their project at a value which matches their cash obligation. The province intends to take its BRIK portion and supply an Alberta-based project on a commercial basis with an agreed-upon amount of between 50,000 and 75,000 barrels per day of bitumen for upgrading.
Time Period Since Initiation	The option of government taking BRIK volumes was identified in October 2007 in the New Royalty Framework (NRF). The Minister of Energy was asked by Premier Stelmach, in his March 2008 and April 2009 Mandate letters, to lead the implementation of strategies to increase upgrading and refining capacity in Alberta, including the implementation of BRIK. The BRIK regulations take effect in 2012 and will address all bitumen production in Alberta. Initially, BRIK volumes will not include Alberta's integrated operations.

12.2.5 BITUMEN ROYALTY IN KIND (BRIK) (Continued)

Source Documents	http://www.energy.gov.ab.ca/BRIK.asp http://www.energy.gov.ab.ca/Org/pdfs/ValuBitumenBRIKdiscuss.pdf http://www.esc.ab.ca/doc/Sep09.GoA.pdf

12.2.6 ENHANCED RECOVERY OF OIL ROYALTY REDUCTION (EOR)

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Enhanced Recovery of Oil Royalty Reduction
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The Alberta enhanced oil recovery royalty regime facilitates the use of EOR methods for conservation of petroleum resources. The Enhanced Recovery of Oil Royalty Reduction Regulation provides for Crown sharing in the incremental costs of enhanced oil recovery through a reduction in royalties on incremental tertiary production.
Recipient of Subsidy	EOR recovery methods that use the injection of fluids such as hydrocarbons, carbon dioxide, nitrogen, chemicals or other approved substances allow for the recovery of additional oil. To promote this additional recovery, the Crown has agreed to share in incremental costs that are over and above the cost of conventional recovery methods by forgoing royalties on a portion of incremental tertiary production. The Department reviews each application for EOR royalty relief to determine if the scheme meets the criteria set out in the Regulation. The Department will also seek the EUB's advice on the technical parameters of the proposed scheme. If the scheme meets the eligibility criteria, the Minister will approve the scheme for EOR royalty relief under the Enhanced Recovery of Oil Royalty Reduction Regulation.
Size of Subsidy (Financial or Otherwise)	The Crown shares in the allowable incremental costs (royalty relief) by reducing the amount of royalty due on incremental tertiary crude oil production; this is granted on a monthly basis. Tertiary revenues are determined by a tertiary factor, which deems a portion of the oil recovered from a scheme as incremental tertiary production. The tertiary (t) factor is the lesser of 0.9 or the result of the following formula: t Factor = (incremental tertiary reserves over scheme life)/(remaining recoverable reserves at start of tertiary flood) The reduction in oil royalties is the lesser of: • (Scheme allowed costs) x (crown interest) x (royalty rate) or • (Scheme oil production) x (crown interest) x (royalty rate) x (t factor) x (oil par price).

12.2.6 ENHANCED RECOVERY OF OIL ROYALTY REDUCTION (EOR) (Continued)

Time Period Since Initiation	The tertiary Enhanced Oil Recovery (EOR) Royalty Relief Program was introduced in 1977 through Section 4.2 of the Petroleum Royalty Regulations. Since 1977 there have been numerous amendments to the EOR program, including the most recent in 2003 to encourage the development of commercial CO_2 EOR projects. See CO_2 Enhanced Oil Recovery
Source Documents	http://www.energy.gov.ab.ca/Oil/pdfs/EOR_GuidelinesAugust2005.pdf http://www.qp.alberta.ca/574.cfm?page=1993_348.cfm&leg_type=Regs&isbncln=9780779732272 http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.2.7 CO_2 ENHANCED OIL RECOVERY

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	CO_2 Enhanced Oil Recovery
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Alberta's Enhanced Oil Recovery (EOR) Royalty Relief Program encourages the development of commercial carbon dioxide (CO_2) EOR projects. The development of a CO_2 EOR industry has the potential to provide significant long-term benefits to Alberta in the form of increased oil production and economic activity, and an increased ability to manage the province's greenhouse gas emissions via geological storage of CO_2. CO_2 EOR has attractive advantages, including: • improving the flow rate of the oil to be recovered; • increasing recoveries of the total existing resource (e.g., 8–15 per cent); and • storing a portion of the injected CO_2 underground permanently.
Recipient of Subsidy	EOR recovery methods that use the injection of fluids such as hydrocarbons, carbon dioxide, nitrogen, chemicals or other approved substances allow for the recovery of additional oil. To promote this additional recovery, the Crown has agreed to share in incremental costs that are over and above the cost of conventional recovery methods by forgoing royalties on a portion of incremental tertiary production. The Department reviews each application for EOR royalty relief to determine if the scheme meets the criteria set out in the Regulation. The Department will also seek the EUB's advice on the technical parameters of the proposed scheme. If the scheme meets the eligibility criteria, the Minister will approve the scheme for EOR royalty relief under the Enhanced Recovery of Oil Royalty Reduction Regulation.

12.2.7 CO_2 ENHANCED OIL RECOVERY (Continued)

Size of Subsidy (Financial or Otherwise)	A temporary t-factor will be provided for new and expanded CO_2 EOR projects. As royalty relief is applied only to that portion of the oil production that would not have been realized from base recovery operations, a tertiary (t) factor is used to specify the incremental production from approved EOR projects. The current practice is to establish a t-factor only after the EUB recognizes reserves for EOR projects. This process may take up to three years and royalty relief cannot be provided during the interim period. ARC energy trust estimates that 2010 capital expenditure for EOR projects to be $40 million CDN compared to 2008's actual expenditure of $51 million CDN.
Time Period Since Initiation	In June 2003, the Alberta Department of Energy (ADOE) announced changes to the Enhanced Oil Recovery (EOR) Royalty Relief Program to encourage the development of commercial carbon dioxide (CO_2) schemes. The following changes have been implemented to the EOR Royalty Relief program effective May, 2003: • A temporary t-factor will be provided for new and expanded CO_2 EOR projects. • Increased allowance for recognition of the value of net CO_2 injection for EOR projects. • Recognition of capital costs for replacement of oil field facilities associated with CO_2 injection operations. • Increased overhead allowance to provide recognition of incremental operating costs resulting from CO_2 injection operations.
Source Documents	http://inform.energy.gov.ab.ca/Documents/Published/IL-2003-16.PDF http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://www.arc.ab.ca/areas-of-focus/carbon-conversion-capture-and-storage/carbon-storage/co2-enhanced-oil-recovery/ http://www.arcresources.com/NR/rdonlyres/0DEBCB96-F02F-4DE8-87ED-2591ED887183/0/2010budgetFINAL.pdf

12.2.8 CO_2 PROJECTS ROYALTY CREDIT

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	CO_2 Projects Royalty Credit
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The objective of the CO_2 Projects Royalty Credit program (the "program") is to encourage projects and application of technology that will lead to the expanded production of Alberta's oil and gas resources through use of CO_2 injection into geological formations. Alberta believes that a producer's ability to undertake certain projects is often limited by the related technical and financial risk. This program provides a reduction in royalties to offset some financial risk to encourage producers to undertake demonstration projects. The development of a CO_2-enhanced oil and gas recovery industry has the potential to provide significant long-term benefits to Alberta in the form of increased petroleum production and economic activity, and also an increased ability to manage the province's greenhouse gas emissions via geological storage of CO_2.
Recipient of Subsidy	Demonstration projects based in Alberta that inject a mixture consisting mainly of CO_2 for enhanced recovery of oil, natural gas or coal bed methane were eligible for approval under the program.
Size of Subsidy (Financial or Otherwise)	The programs (CO_2 enhanced oil recovery and CO_2 projects royalty credit) are expected to generate at least $30 million CDN in incremental royalties over 20 years, while providing up to $15 million CDN in royalty deductions over five years. Over a 20-year period, this could also result in CO_2 storage of a minimum of 22 MT, equivalent to an average of 1.1 MT per year. • A maximum of $15 million CDN will be provided over five years in the form of oil and/or natural gas royalty credits to offset up to 30 per cent of companies' approved costs in approved CO_2 projects. • A maximum of $5 million CDN in royalty credits may be approved for a single CO_2 project. Projects supported under this program will result in up to $50 million CDN in additional industry investment over five years
Time Period Since Initiation	The royalty credit program is a temporary feature of Alberta's royalty system, which was introduced in 2003. A maximum of $15 million CDN will be provided over five years in the form of royalty credits. Approval of applications will be constrained by total program funding, time limit for the program and project selection criteria. The royalty credit can be claimed periodically upon commencement of CO_2 injection, as expenses are incurred, without awaiting production from the project site.

12.2.8 CO_2 PROJECTS ROYALTY CREDIT (Continued)

Source Documents	http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://inform.energy.gov.ab.ca/Documents/Published/IL-2003-17.PDF http://www.gov.ab.ca/acn/200404/16359.html

12.2.9 EXPERIMENTAL PROJECT PETROLEUM ROYALTY REDUCTION

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Experimental Project Petroleum Royalty Reduction
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The Experimental Project Petroleum Royalty Reduction encourages the use of new technology in recovering crude oil.
Recipient of Subsidy	The Experimental Project Petroleum Royalty Reduction applies to any oil well included in an experimental scheme that is: • Approved by EUB as an experimental scheme and that continues to retain that approved status, and • Subsequently approved by the Minister for royalty reduction under the Experimental Project Petroleum Royalty Regulation (AR 65/92).
Size of Subsidy (Financial or Otherwise)	Experimental oil projects approved by the AEUB are eligible for a flat royalty rate of 5 per cent of production. Crown royalty is calculated at 5 per cent of the Crown interest share of eligible production from each well-event in an approved scheme.
Time Period Since Initiation	The Experimental Project Petroleum Royalty Program reduces the royalty associated with experimental schemes. It was introduced in 1979 to encourage the development of new and improved methods for crude oil recovery. The effective date for an approved royalty reduction is specified by the Minister in the approval. Typically, it will commence as follows: • the approval date of the new scheme for the experimental project, or • the expiry date of the previous experimental royalty period for the project, whichever is later. The term for which an approved royalty reduction is effective is specified by the Minister in the approval. In most instances, it is based on the effective period of the EUB experimental scheme approval. For schemes expected to produce at near commercial levels, the term may relate to a fixed volume of crude oil production.

12.2.9 EXPERIMENTAL PROJECT PETROLEUM ROYALTY REDUCTION (Continued)

Time Period Since Initiation (continued)	As listed in the 2007 New Royalty Framework, to simplify the royalty system, several special royalty programs will be eliminated, including the experimental project petroleum royalty reduction.
Source Documents	http://www.energy.alberta.ca/Oil/pdfs/PetroleumRoyaltyGuidelines.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://inform.energy.gov.ab.ca/Documents/Published/IL-1992-08.PDF http://www.energy.gov.ab.ca/Org/pdfs/royalty_Oct25.pdf

12.2.10 REACTIVATED WELL ROYALTY EXEMPTION

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Reactivated Well Royalty Exemption
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	This is a permanent royalty policy to encourage reactivation of wells. It provides royalty holidays for successfully reactivating crude oil or oil sands wells that are shut in. The Reactivated Well Royalty Exemption program was developed in order to address the circumstances of a maturing conventional oil sector in the early 1990s. The program was implemented to encourage incremental production through reactivation of shut-in oil wells.
Recipient of Subsidy	A reactivated well is an oil well or an oil sands well that was reactivated on or after October 1, 1992, after the well did not produce any substance during its qualifying period. This period comprises the 12 consecutive months preceding the month in which reactivation took place, if that month was October, November or December 1992 or January 1993. If the well was reactivated in February 1993 or later, the period consists of the preceding 24 months. Eligible oil from a reactivated well is oil or oil sands obtained from a pool or oil sands deposit that was penetrated by the well at the time the well commenced reactivated production. Production from deeper pools or deposits penetrated after the well commenced or resumed production is not eligible. An application is not required to qualify for the program.

12.2.10 REACTIVATED WELL ROYALTY EXEMPTION (Continued)

Size of Subsidy (Financial or Otherwise)	The royalty holiday is available from the reactivation date until 8,000 m^3 have been produced in aggregate from the reactivated well. Production of crude oil or oil sands from all events in the reactivated well is exempt from Crown royalty that would otherwise be payable under the Petroleum Royalty Regulation or the Oil Sands Royalty Regulation, 1984. Production from each producing event of an eligible reactivated well that has retained Old Oil status will be certified as New Oil after the well reaches the 8,000 m^3 production limit. Effective August 22, 2006, the following major royalty policy changes were implemented: • Conversion of the existing 8,000 m^3 production volume cap to a $150,000 CDN royalty value cap effective September 1, 2007. • Existing wells will have their accumulated royalty reduction volume under the program converted to a dollar amount based on the monthly par price when the royalty reductions were received. The royalty reduction for existing wells exceeding the maximum royalty value cap will be terminated effective September 1, 2007.
Time Period Since Initiation	The reactivated well royalty exemption took effect in January, 1993. Amendments to the original exemption were enacted on August 22, 2006. The program will be reviewed prior to the expiry date of September 1, 2012.
Source Documents	http://inform.energy.gov.ab.ca/Documents/Published/IL-1993-03.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://inform.energy.gov.ab.ca/Documents/Published/IL-2006-22.pdf

12.2.11 LOW PRODUCTIVITY WELL ROYALTY REDUCTION

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Low Productivity Well Royalty Reduction
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	This is a permanent oil royalty policy to encourage additional production from low-productivity wells. The Low Productivity Well Royalty Reduction program was developed in order to address the high marginal royalty rates facing investment in oil well productivity enhancements. The program was implemented to encourage incremental production through investment in low-producing oil wells.
Recipient of Subsidy	Wells eligible for this royalty reduction are wells that meet the following criteria: • A low-productivity well is an oil well or oil sands well. • The well did not produce more than 121 m^3 of oil or oil sands in any month during the qualifying period. • The qualifying period consists of the 12 consecutive months that end in September, October, November or December 1992, or the 24 consecutive months ending in January 1993 or later. • Average monthly production for the well is 73 m^3 or less during the most recent six months that the well produced, providing those months occurred within the qualifying period. • Eligible oil from a low-productivity well is oil or oil sands obtained from a pool or oil sands deposit that was penetrated by the well at the end of the well's qualifying period. Production from deeper pools or deposits penetrated after the well's qualifying period is not eligible.
Size of Subsidy (Financial or Otherwise)	Royalty is capped at 5 per cent for up to 16,000 m^3 in aggregate crude oil or oil sands production from each eligible well after the date of qualification. Royalty under the Petroleum Royalty Regulation or the Oil Sands Royalty Regulation is calculated on each month's production from each event within a well; royalty for each event is reduced if it exceeds 5 per cent of the Crown production. Effective August, 2006, the following major royalty policy changes were implemented: • Conversion of the existing 16,000 m^3 production volume cap to a $50,000 CDN royalty value cap effective September 1, 2007. • Existing wells will have their accumulated royalty reduction volume under the program converted to a dollar amount based on the monthly par price when the royalty reductions were received.

12.2.11 LOW PRODUCTIVITY WELL ROYALTY REDUCTION (Continued)

Size of Subsidy (Financial or Otherwise) (Continued)	• Creation of three well production ranges with corresponding threshold quantities effective September 1, 2007. The well production range for existing wells will be determined based on historical well productivity. The royalty rates will be calculated based on the lower of actual production or threshold quantity for each well effective September 1, 2007. Production Range — Threshold Quantity 24 m^3 per month or less — 24 m^3 >24 m^3 and < or = 47 m^3 per month — 47 m^3 >47 m^3 and < or = 73 m^3 per month — 73 m^3
Time Period Since Initiation	Enacted in January 1993, no application will be required for the low-productivity oil royalty adjustment. Well production history will be reviewed by the Department. The royalty adjustment will be established for eligible wells when the Department calculates royalty after qualification criteria have been met. However, initial processing will occur during March 1993 for the production month of January 1993. Royalty adjustments will be retroactive either to October 1, 1992, or the qualification date of the well. The royalty reduction for existing wells exceeding the maximum royalty value cap will be terminated effective September 1, 2007. The program will be reviewed prior to the expiry date of September 1, 2012.
Source Documents	http://inform.energy.gov.ab.ca/Documents/Published/IL-2006-23.pdf http://inform.energy.gov.ab.ca/Documents/Published/IL-1993-02.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.2.12 INNOVATIVE ENERGY TECHNOLOGIES PROGRAM (IETP)

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Innovative Energy Technologies Program (IETP)
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The IETP is designed to encourage the development of innovative technologies that will increase resource recovery. The program promotes the use of new or innovative technologies to increase environmentally sound recoveries for existing reserves and encourage responsible development of new oil, natural gas and in situ bitumen reserves. The program is also designed to assist industry to find commercial technical solutions to the gas over bitumen issue that will allow efficient and orderly production of both resources. IETP will encourage innovation and faster commercialization of new technologies by sharing in the financial risk.
Recipient of Subsidy	Program evaluation criteria will be based on a project proposal's demonstration of compliance with Alberta Energy's objectives of developing innovation, encouraging dissemination of technology and providing positive economic benefits to the people of Alberta without causing harm to the environment. The allocation of funding to specific projects will be based on the merits of the project. Flexibility will be provided on funding allocation to oil, gas and oil sands projects to ensure that all three commodity areas have access to funds from this program.
Size of Subsidy (Financial or Otherwise)	This represents a $200 million CDN commitment over five years by the Department of Energy to provide royalty adjustments to several pilot and demonstration projects. Successful applicants in the program are provided with royalty adjustments up to a maximum of 30 per cent of approved project costs. Industry must provide the remaining 70 per cent or more of total project costs. The total industry/government commitment to important new technologies, assuming full subscription of the program, will be at least $667 million CDN. The royalty adjustment for any one project is limited to a maximum of $10 million CDN. There are currently 28 projects that have been approved and publicly announced.

12.2.12 INNOVATIVE ENERGY TECHNOLOGIES PROGRAM (IETP) (Continued)

Time Period Since Initiation	Announced June 2004, this program offers royalty adjustments of up to $200 million CDN over five years to specific pilot and demonstration projects that use new or innovative technologies to increase environmentally sound recoveries for existing reserves and encourage responsible development of new oil, natural gas and in situ bitumen reserves. The deadline to apply for the Innovative Energy Technologies Program (IETP), Round 2, was extended to December 31, 2006. The deadline for submission of applications for the third round is May 31, 2007.
Source Documents	http://inform.energy.gov.ab.ca/Documents/Published/IL-2004-33.pdf http://www.energy.gov.ab.ca/Oil/768.asp http://inform.energy.gov.ab.ca/Documents/Published/IL-2005-27.pdf http://inform.energy.gov.ab.ca/Documents/Published/IL-2007-04.pdf

12.2.13 ROYALTY TAX DEDUCTION (RESPONSE TO RESOURCE ALLOWANCE)

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Royalty Tax Deduction
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Tax and Revenue Administration (TRA), Alberta Finance and Enterprise, administers the Alberta Corporate Tax Act, which provides for the calculation of: • Alberta corporate income tax for corporations with a permanent establishment in Alberta, including Alberta deductions and credits such as the Alberta royalty tax deduction, Alberta small business deduction, Alberta foreign investment income tax credit, Alberta political contributions tax credit and scientific research and experimental development (SR&ED) tax credit; • Alberta royalty tax credit (ARTC) for corporations that pay eligible Alberta Crown royalties; • Alberta royalty credit for individuals and trusts (RCIT) that pay eligible Alberta crown royalties; and • Insurance corporations tax payable by corporations carrying on the business of insurance in Alberta.

12.2.13 ROYALTY TAX DEDUCTION (RESPONSE TO RESOURCE ALLOWANCE) (Continued)

Recipient of Subsidy	Crown royalties are paid by companies to the provincial government for the right to extract natural resources owned by Albertans.
Size of Subsidy	The current corporate income tax rate is 10.0 per cent of the amount taxable in Alberta where: Alberta Taxable Income = (Canadian Taxable Income – Royalty Tax Deduction) x (Alberta Allocation Factor) Royalty Tax Deduction = (Disallowed Crown Royalties and Freehold Mineral Tax paid but not allowed as a deduction for federal income taxes) – (25 per cent Resource Allowance) Alberta Allocation Factor = Taxable income in Alberta/Taxable income in Canada The royalty tax deduction can only reduce the tax to zero. Unused deductions can be carried forward.
Time Period Since Initiation	Responding to federal resource tax changes that came into effect January 1, 2003, Alberta amended its Corporate Tax Act
Source Documents	http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://www.finance.alberta.ca/publications/tax_rebates/corporate/overview.html#announce_rtc

12.2.14 ROYALTY PAYMENTS

The summary below provides a description of royalty payments. The newly created Alberta Royalty Regime (2009) briefly described could be considered a subsidy.

Subsidy Category	Government-Owned Energy Minerals – Process of Paying Royalties Due
Subsidy Name	Royalty Payments
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Royalties are an important part of Alberta's overall fiscal framework. They ensure that Albertans, represented by the government, receive a portion of the benefits arising from the development of the province's resources. They are also an important policy tool that can shape economic and resource development. Royalty systems, namely the level of government take, endeavour to strike balance between two, at times competing, objectives: returning a share of the profits to the resource owner and encouraging the development of the resource.

12.2.14 ROYALTY PAYMENTS (Continued)

Recipient of Subsidy	For companies that develop natural resources, however, the resource is usually owned by the government. As a result, if a company wants to develop the resource, it must pay a price, or a portion of the economic value of the resource, to the government. This price is referred to as a royalty, representing the cost that must be paid to the resource owner in exchange for the right to develop the resource. Royalties are the cost of obtaining the benefits associated with a property right—in Alberta's case, the right to develop a resource that is owned by the government representing all Albertans. They ensure that Albertans receive a portion of the benefits arising from the development of the province's energy resources.
Size of Subsidy (Financial or Otherwise)	The province already accepts crude oil in lieu of cash royalties on conventional and heavy oils. The oil is then sold by an agent of the Crown (the Alberta Petroleum Marketing Commission) into the market with the proceeds paid to the Government of Alberta. Amendments to the Mines and Minerals Act made in November 2008 now allow the province to collect raw bitumen, or products from bitumen, anywhere along the value chain, in lieu of cash royalties. These products may then be sold at market prices to encourage more value-added development within the province. As with conventional oil, proceeds would be paid to the Government of Alberta. For natural gas and coal, the province receives royalties in the form of cash payment. Royalty Collected – Total revenue collected: • 2006/07 $12.260 billion CDN • 2007/08 $11.271 billion CDN • 2008/09 $12.176 billion CDN • 2009/10 $6.103 billion (Budget 2009)
Time Period Since Initiation	The history of Alberta's royalty regime dates back over 70 years. When Alberta entered Confederation in 1905, the federal government retained rights over natural resources. However, with the passage of the Natural Resources Transfer Acts in 1930, the Western provinces of Manitoba, Saskatchewan and Alberta gained exclusive jurisdiction over their natural resources. Alberta first set its royalty rate using a 5 per cent flat rate (of net revenue) for both oil and gas, which was later raised to 10 per cent by 1935. In 1941, the government raised the royalty rate to a flat 12.5 per cent and introduced a variable rate option where producers could choose between the 12.5 per cent flat rate or a variable rate of five to 15 per cent based on production. By 1972, the royalty rate increased to 25 per cent of industry net revenue in response to increasing world prices.

12.2.14 ROYALTY PAYMENTS (Continued)

Time Period Since Initiation (Continued)	The period between 1974 and 1997 saw many important variations to the royalty system responding to changing conditions in the oil and gas industry. In an effort to level the "playing field," the government introduced price sensitivity features to account for the volatility in energy prices throughout the 1970s and 1980s. In February 2007, Premier Ed Stelmach appointed an Alberta Royalty Review Panel whose members were asked to provide advice on how to restructure Alberta's royalty system. The Panel delivered its report in September 2007 and, following an analysis of the Panel's report, Premier Stelmach announced on October 23, 2007 the newly created Alberta Royalty Regime. The regime was implemented January 1, 2009.
Source Documents	http://www.energy.alberta.ca/Org/pdfs/Energy_Economic.pdf http://www.energy.alberta.ca/Org/pdfs/Royalty_Jurisdiction.pdf http://www.energy.alberta.ca/Tenure/pdfs/tenure_brochure.pdf http://www.internationallawoffice.com/Newsletters/Detail.aspx?g=4c592667-d57b-4039-b667-9a0417cc689b&l=7D6Z826

12.2.15 LEASING OF MINERAL RIGHTS

In the process of leasing mineral rights, there is no inherent subsidy indicated unless it is clear that lease arrangements were being reduced somehow.

Subsidy Category	Government-Owned Energy Minerals – Process for Mineral Leasing
Subsidy Name	Leasing of Mineral Rights
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Industry acquires leases from the province to develop Crown resources through a competitive bid auction, which occurs about every two weeks. The province receives revenue from bonus bids from the successful auction of mineral leases, rentals and fees associated with the leases, and through municipal and corporate income taxes. While these are not royalties, they are all part of the return Albertans receive for the development their resources. By facilitating the leasing of these rights, the tenure system makes it possible for individuals and companies to explore for and develop Alberta's mineral resources for the benefit of the citizens of the province.

12.2.15 LEASING OF MINERAL RIGHTS (Continued)

Recipient of Subsidy	The Department of Energy manages Crown-owned mineral rights on behalf of the citizens of the province. Alberta benefits from a wealth of Crown-owned natural resources, but relies on the private sector to develop these resources. Crown mineral rights are acquired through either a public offering or direct application process. The Public Offering process includes the following: companies apply to the Department of Energy and request that lands be offered for tenure, competitive bidding process—bonus bids, mineral agreements, royalties paid to the province to fund programs for Albertans.
Size of Subsidy (Financial or Otherwise)	The Department of Energy leases mineral rights for industry exploration and development through a competitive sealed bid auction held about every two weeks. Successful bids received are referred to as "bonus bids." • 2006/07 $2.463 billion CDN • 2007/08 $1.128 billion CDN • 2008/09 $1.112 billion CDN • 2009/10 $0.631 billion (Budget 2009) Leases issued are charged an annual rent of $3.50 CDN per hectare for each hectare covered by the agreement. • 2006/07 $159 million CDN • 2007/08 $159 million CDN • 2008/09 $160 million CDN • 2009/10 $143 million CDN (Budget 2009)
Time Period Since Initiation	Alberta's earliest tenure legislation for surface-mineable oil sands was established for the Bituminous Sands Area near Fort McMurray in the 1950s. (This area is now considered part of the Athabasca Oil Sands Area.) Under this legislation, the Alberta Government issued three-year exploration agreements, which could be converted to 21-year leases. Legislative changes introduced in the late 1980s provided for 21-year renewals of oil sands leases, provided that that the leases were producing a prescribed volume of bitumen. In the fall of 1997, a joint, industry-government committee—the Industry Oil Sands Tenure Advisory Committee (IOSTAC)—was formed to review the oil sands tenure system. The committee proposed several improvements, which are now part of the Oil Sands Tenure Regulation.
Source Documents	http://www.energy.alberta.ca/Org/pdfs/Energy_Economic.pdf http://www.energy.alberta.ca/OilSands/pdfs/GDE_OST_2009_Ch1.pdf http://www.energy.alberta.ca/AbRel/docs/Standard_DOE_101_December_07.pps #1036,6,Slide 6

12.3 PROVINCIAL – SASKATCHEWAN

12.3.1 ENHANCED OIL RECOVERY (EOR) ROYALTY REGIME

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Enhanced Oil Recovery (EOR) Royalty Regime
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The EOR royalty and tax system is a cost-sensitive system that was designed to recognize the higher investment and operating costs associated with implementing and operating EOR projects. Accordingly, the royalty and tax level is dependent on the profitability of each project.
Recipient of Subsidy	The EOR royalty regime applies to any project that enhances the total recovery of oil through the use of thermal recovery techniques or approved recovery techniques other than water floods. ELIGIBLE PROJECT COSTS AND INVESTMENTS 1. EOR OPERATING COSTS EOR operating costs include all operating costs that are directly related or attributable to the production of "EOR oil." A separate 10 per cent allowance is provided in recognition of overhead and administrative expenses. Examples of direct operating costs include lifting, injection, disposal and general maintenance costs associated with the project. In cases where both "EOR oil" and "non-EOR oil" is produced from an "EOR project," the direct operating costs that are eligible as EOR operating costs are determined by subtracting the "direct non-EOR operating costs" from the "total direct operating costs" of the project. The non-EOR operating costs are determined by multiplying the volume of oil that is not "EOR oil" by the "direct non-EOR operating costs factor" that is established by order of the minister. 2. EOR INVESTMENT In order for investments to qualify under the EOR royalty/tax regime, they must be directly related to the implementation and/or operation of an "EOR project" and be approved by the minister as EOR investments. Expenses that may be categorized as either an investment or an operating cost will be considered an investment, including the cost of substances other than water injected into EOR wells.

12.3.1 ENHANCED OIL RECOVERY (EOR) ROYALTY REGIME (Continued)

Size of Subsidy (Financial or Otherwise)	The royalty/tax rates before and after investment payout are the same as existed for the previous CO_2 regime except the after-payout rate for freehold oil has been reduced from 11 per cent to 8 per cent. Rates Prior to Payout: 1 per cent of gross EOR revenues from Crown Lands, 0 per cent of gross EOR revenues from Freehold Lands. Rates After Payout: 20 per cent of EOR operating income from Crown Lands, 8 per cent of EOR operating income from Freehold Lands. Payout: Occurs when the project has recovered all of its investments & operating costs including a 5 per cent annual gross up of unrecovered costs.
Time Period Since Initiation	Two separate royalty rate structures exist, one for projects that commenced operation prior to April 1, 2005 and the other for projects or project expansions that commenced operation on or after April 1, 2005. In both cases, the royalty level is sensitive to project profitability and investment payout.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27475&Filename=pr-ic11.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=3532,3430,3384,5460,2936,Documents&MediaID=9005&Filename=EOR+Letter+(March+21++2005).PDF http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27476&Filename=pr-ic11a.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=10291,10289,3384,5460,2936,Documents&MediaID=25535&Filename=SER+CO2+Presentation+%232+%28Mar+3%29.pdf

12.3.2 ROYALTY TAX REBATE

This section discusses a historic subsidy and its removal, not a current subsidy.

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Royalty Tax Rebate
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The Royalty Tax Rebate (RTR) helps to offset the provincial portion of income taxes that are payable as a result of the federal government's decision to disallow provincial royalties and similar taxes as deductions in determining taxable income. As a consequence of the federal government's initiative to reintroduce full deductibility of provincial resource royalties for federal and provincial income tax purposes, the Saskatchewan Royalty Tax Rebate is no longer necessary and will be allowed to wind down.
Recipient of Subsidy	Application Procedure: The Saskatchewan Royalty Tax Rebate for corporations is administered by the Canada Revenue Agency (CRA) as a deduction from income tax payable under the Income Tax Act, 2000 (Saskatchewan). For all taxation years, corporations eligible for the RTR must submit one copy of the Saskatchewan Royalty Tax Rebate Calculation Form for Corporations (Schedule 400) to their District Office of the CRA. A second copy must be sent to Saskatchewan Finance, Taxation and Intergovernmental Affairs Branch.
Size of Subsidy (Financial or Otherwise)	The current corporate income tax rate is 17 per cent of taxable income earned in Saskatchewan, less the royalty tax rebate. The small business rate is 8 per cent. The royalty tax rebate is the royalties/taxes less the 25 per cent Resource Allowance. The rebate cannot increase the tax. Unused deductions can be carried forward.
Time Period Since Initiation	The Saskatchewan Royalty Tax Rebate (RTR) was established in 1975 by an amendment to the Income Tax Act of Saskatchewan. The RTR was introduced in response to the federal government's November 18, 1974 budget, which announced that Crown royalties and similar taxes levied after May 6, 1974 could no longer be deducted as a business expense for income tax purposes.
Source Documents	http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://www.finance.gov.sk.ca/Default.aspx?DN=f29f0583-c327-44ac-ae3c-e723cbff5b53

12.3.3 CORPORATION CAPITAL TAX EXEMPTION

This exemption applies to all large corporations in Saskatchewan, and thus should not be considered an oil sector subsidy. The subsidy is not included in the study or in Table 9.

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Corporation Capital Tax Exemption
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	"This means provincial businesses will be encouraged to employ more Saskatchewan people," Finance Minister Eric Cline said. "It also results in about 100 Saskatchewan corporations being exempted from the Corporation Capital Tax rolls. Saskatchewan will have the highest Corporate Capital Tax exemption level of the nine provinces with a Corporate Capital Tax."[1]
Recipient of Subsidy	Corporation Capital Tax (CCT) is imposed on corporations that have paid up capital in excess of $10 million CDN. An additional exemption of $10 million CDN is available based upon the proportion of total salaries and wages that are paid in Saskatchewan by a taxable corporation divided by the salaries and wages of the corporation and all its associated corporations.
Size of Subsidy (Financial or Otherwise)	Resource corporations are taxed the greater of 3.6 per cent of the value of resource sales and 0.6 per cent of paid-up capital over $10 million CDN. Effective July 1, 2006 the value of resource sales will be taxed at 3.3 per cent. On July 1, 2007 this rate will be reduced to 3.1 per cent and on July 1, 2008 further reduced to 3.0 per cent. For resource corporations, the Resource Surcharge rate is 3.0 per cent of the value of sales of all potash, uranium and coal produced in Saskatchewan, and oil and natural gas produced from wells drilled in Saskatchewan prior to October 1, 2002. For oil and natural gas produced from wells drilled in Saskatchewan after September 30, 2002, the Resource Surcharge rate is 1.7 per cent of the value of sales. The Resource Surcharge applies to resource trusts in addition to resource corporations.
Time Period Since Initiation	Collected under the authority of the Corporation Capital Tax Act. Corporation Capital Tax (CCT) was implemented April 1, 1980. Effective July 1, 2008, the normal CCT on general corporations was eliminated. The province continues to levy CCT on financial institutions and provincial commercial Crown corporations. In addition, a Resource Surcharge on the value of sales of oil, natural gas, potash, uranium and coal in Saskatchewan continues to be levied under the of the Corporation Capital Tax Act.
Source Documents	http://www.finance.gov.sk.ca/taxes/cct/ http://www.gov.sk.ca/news?newsId=dd91f3a3-a0d8-41f9-9d8a-1e4c4217e9d5

[1] Government of Saskatchewan. Cutting taxes, creating jobs. News Release, April 29, 2002. Retrieved October 18, 2010 from: http://www.gov.sk.ca/news?newsId=dd91f3a3-a0d8-41f9-9d8a-1e4c4217e9d5

12.3.4 ALLOWABLE TRANSPORTATION EXPENSES

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Allowable Transportation Expenses
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	In determining the average net value (well-head value) of oil, certain transportation expenses are allowed as a deduction from the Gross Value of Sales.
Recipient of Subsidy	Allowable transportation expenses include: (i) arm's-length trucking charges or arm's-length pipeline tariffs incurred by the operator or special operator to transport the clean oil portion from the well-head to the point of sale in situations where the oil is not blended before being sold, or the point of blending in situations where the oil is blended before being sold; (ii) arm's-length waiting charges related to the clean oil portion that are levied by trucking companies; (iii) arm's-length fees related to the clean oil portion that are paid by the trucking company and are passed on to the operator or special operator. (Note: Terminal fees charged directly to the operator or special operators by the purchaser are deducted in determining the gross price.)
Size of Subsidy (Financial or Otherwise)	In determining the well-head value of oil for royalty purposes, Saskatchewan producers are allowed to deduct arm's length transportation expenses incurred in transporting clean oil from the well-head to the point at which the oil is sold. The well-head value of the oil is the positive difference between: (A) the average price, expressed in dollars per cubic metre, received by the royalty/tax payer pursuant to the arm's-length agreements for sale of the oil during the month; and (B) allowable transportation expenses, expressed in dollars per cubic metre.
Time Period Since Initiation	Well-head value of crude oil for royalty/tax purposes, effective April 1, 2000.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27473&Filename=pr-ic09.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.3.5 VERTICAL WELL DRILLING INCENTIVE

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Vertical Well Drilling Incentive
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	Certain vertical oil wells drilled on or after October 1, 2002 qualify for a reduced royalty rate of 2.5 per cent on a fixed volume of oil produced from the well. The changes were designed to provide a more competitive investment environment and a more simplified royalty/tax regime.
Recipient of Subsidy	Certain vertical oil wells with a finished drilling date on or after October 1, 2002 qualify for an incentive volume: (i) A Deep Development Vertical Oil Well qualifies for an 8,000 cubic metre incentive volume. (ii) an Exploratory Vertical Oil Well qualifies for: (a) A 4,000 cubic metre incentive volume if the oil well is a non-deep oil well. (b) A 16,000 cubic metre incentive volume if the oil well is a deep oil well. Where: Deep = Producing from a zone deeper than 1,700 metres and within the Mississippian or from a zone deposited before the Bakken zone, regardless of the depth. Non-Deep = Any well other than a deep well. Exploratory = Drilled more than 3 kilometres from the nearest oil well or producing from a geological system below which all other oil wells located within 3 kilometres are cased through or into. Development = Any well other than an exploratory well.
Size of Subsidy (Financial or Otherwise)	**Crown Royalty** (applied to oil produced from or allocated to Crown lands) A Crown royalty rate equal to the lesser of: • the "fourth tier oil" Crown royalty rate, and • 2.5 per cent. **Freehold Production Tax** (applied to oil produced from or allocated to Crown-acquired and freehold lands) Freehold lands: A freehold production tax rate of 0 per cent. Crown-acquired lands: A freehold production tax rate equal to the Crown royalty rate outlined above. After the incentive volume has been produced, the oil produced from the vertical oil well drilled on or after October 1, 2002 will be subject to the "fourth tier oil" royalty/tax rates that are outlined in Information Circular PR - IC01 entitled "Crude Oil Price Sensitive Royalty/Tax Structure."

12.3.5 VERTICAL WELL DRILLING INCENTIVE (Continued)

Time Period Since Initiation	Certain vertical oil wells with a finished drilling date on or after October 1, 2002 qualify for the reduced royalty rate of the fixed incentive volumes.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27467&Filename=pr-ic03.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=3769,3383,3384,5460,2936,Documents&MediaID=4413&Filename=2002%2520letter.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.3.6 HORIZONTAL WELL DRILLING INCENTIVE

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Horizontal Well Drilling Incentive
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	All horizontal oil wells drilled on or after October 1, 2002 qualify for a reduced royalty rate of 2.5 per cent on a fixed volume of oil produced from the well. The changes were designed to provide a more competitive investment environment and a more simplified royalty/tax regime.
Recipient of Subsidy	A horizontal oil well with a finished drilling date on or after October 1, 2002 qualifies for an incentive volume: (i) a Horizontal Oil Well that is a non-deep oil well qualifies for a 6,000 cubic metre incentive volume. (ii) a Horizontal Oil Well that is a deep oil well qualifies for a 16,000 cubic metre incentive volume. Where: Deep = Producing from a zone deeper than 1,700 metres and within the Mississippian or from a zone deposited before the Bakken zone, regardless of the depth. Non-Deep = Any horizontal well other than a deep horizontal well.
Size of Subsidy (Financial or Otherwise)	**Crown royalty** (applied to oil produced from or allocated to Crown lands) A Crown royalty rate equal to the lesser of: • the "fourth tier oil" Crown royalty rate, and • 2.5 per cent. **Freehold Production Tax** (applied to oil produced from or allocated to freehold and Crown-acquired lands) Freehold lands: A freehold production tax rate of 0 per cent.

12.3.6 HORIZONTAL WELL DRILLING INCENTIVE (Continued)

Size of Subsidy (Financial or Otherwise) (Continued)	Crown-acquired lands: A freehold production tax rate equal to the Crown royalty rate outlined above. After the incentive volume has been produced, the oil produced from a horizontal oil well drilled on or after October 1, 2002 will be subject to the "fourth tier oil" royalty/tax rates that are outlined in Information Circular PR - IC01 entitled "Crude Oil Price Sensitive Royalty/Tax Structure."
Time Period Since Initiation	All horizontal oil wells drilled on or after October 1, 2002 qualify for a reduced royalty rate of 2.5 per cent on a fixed volume of oil produced from the well.
Source Documents	http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27469&Filename=pr-ic05.pdf

12.3.7 EXPLORATORY WELL DRILLING INCENTIVE

This is a gas subsidy, not an oil subsidy, and therefore not included in this study's subsidy estimates.

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Exploratory Well Drilling Incentive
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The changes were designed to provide a more competitive investment environment and a more simplified royalty/tax regime.
Recipient of Subsidy	"Qualifying exploratory gas well" means a gas well with a finished drilling date on or after October 1, 2002: (i) that has gas listed as the well objective on the well licence; (ii) that has not had its wellbore, or any portion of its wellbore, utilized for any purpose since December 31, 1983; (iii) that, at the time the well is licensed, is located in a drainage unit that has not contained a gas well that produced gas from the same zone; (iv) that first produces gas from the zone noted as the producing zone or formation on the well licence and: (a) at the time the well is licensed, the inter-gas-well distance from the gas well to any other gas well or gas well location is more than 4.8 kilometres; or

12.3.7 EXPLORATORY WELL DRILLING INCENTIVE (Continued)

(b) produces gas from a zone within an older geological system than the oldest geological system in which:

(I) any other gas well is cased through or into, if, at the time the gas well is licensed, the inter-gas-well distance from the other gas well to the gas well is 4.8 kilometres or less;

(II) any other gas well is open-hole completed into, if, at the time the gas well is licensed, the inter-gas-well distance from the other gas well to the gas well is 4.8 kilometres or less; or

(III) any other gas well location is licensed through or into, if, at the time the gas well is licensed, the inter-gas-well distance from the other gas well location to the gas well is 4.8 kilometres or less;

(v) or a gas well with a finished drilling date on or after October 1, 2002 that is approved by the minister as a qualifying exploratory gas well.

Size of Subsidy (Financial or Otherwise)	Only gas wells classified as qualifying exploratory gas wells receive an incentive volume. A Qualifying Exploratory Gas Well qualifies for a 25,000 103 m^3 royalty/tax incentive volume. The royalty/tax incentive volume for a qualifying exploratory gas well receives the following royalty/tax rates: **Crown Royalty** (applied to gas produced from or allocated to Crown lands) A Crown royalty rate equal to the lessor of: • the "fourth tier gas" Crown royalty rate; and • 2.5 per cent. **Freehold Production Tax** (applied to gas produced from or allocated to Crown-acquired and freehold lands) Freehold lands: A freehold production tax rate of 0 per cent. Crown-acquired lands: A freehold production tax rate equal to the Crown royalty rate outlined above. After the incentive volume has been produced, the gas produced from the qualifying exploratory gas well drilled on or after October 1, 2002 will be subject to the "fourth tier gas" royalty/tax rates that are outlined in Information Circular PR - IC02 entitled "Natural Gas Price Sensitive Royalty/Tax Structures."
Time Period Since Initiation	All qualifying exploratory oil wells drilled on or after October 1, 2002 are eligible for a reduced royalty rated of 2.5 per cent on a fixed incentive volume.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27468&Filename=pr-ic04.pdf

12.3.8 NEW OR EXPANDED WATER FLOOD PROJECTS

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	New or Expanded Water Flood Projects
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The changes were designed to provide a more competitive investment environment and a more simplified royalty/tax regime.
Recipient of Subsidy	"Approved water flood project" means a new water flood project, or an expansion of an existing water flood project, that has been approved by the Minister as an approved water flood project for the purposes of these regulations. "Incremental water flood oil" means the quantity of oil determined by multiplying the total amount of oil produced within an approved water flood project on or after October 1, 2002 by the incremental oil factor applicable to that project.
Size of Subsidy (Financial or Otherwise)	Incremental water flood oil does not qualify for a royalty/tax incentive volume. A reduction in the Corporation Capital Tax Surcharge rate from 3.6 per cent to 2.0 per cent for: (a) All oil and gas that is produced from oil wells or gas wells with a finished drilling date on or after October 1, 2002; and (b) Incremental oil related to new or expanded enhanced oil recovery (EOR) projects or water flood projects having a commencement date on or after October 1, 2002. The oil and gas incentive volumes are subject to a maximum royalty rate of 2.5 per cent and a freehold production tax rate of 0 per cent.
Time Period Since Initiation	Incremental water flood oil produced from an approved water flood project that commenced operation on or after October 1, 2002 qualifies for the "fourth tier oil" Crown royalty and freehold production tax rates. The new fourth tier regimes have been incorporated within the Crown Oil and Gas Royalty Regulations and the Freehold Oil and Gas Production Tax Regulations, 1995.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27470&Filename=pr-ic06.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=4070,3383,3384,5460,2936,Documents&MediaID=6794&Filename=Letter+to+Operators+-+Ass.+Gas+Structure+Implementation.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=3769,3383,3384,5460,2936,Documents&MediaID=4413&Filename=2002%2520letter.pdf

12.3.9 HIGH WATER-CUT PROGRAM

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	High Water-Cut Program
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The program is designed to extend the producing lives and improve the recovery rates of high water-cut oil wells.
Recipient of Subsidy	Eligible oil wells (vertical or horizontal) include: 1. Individual oil wells or a group of oil wells that are currently producing conventional oil (non-EOR oil) and have been producing at an average water-cut of 95 per cent or greater during the last twelve producing calendar months immediately prior to making an application under the program. 2. Wells that have been shut in or suspended for 12 or more consecutive calendar months prior to making investments under the program where those wells produced at an average water-cut of 95 per cent or greater during the last three producing months immediately prior to the time the well was shut in or suspended.
Size of Subsidy (Financial or Otherwise)	Incremental high water-cut oil qualifies for the "third tier oil" Crown royalty/freehold production tax rates and a Saskatchewan Resource Credit (SRC) equal to 2.5 per cent. For further clarification, incremental high water-cut oil produced within the southwest area of the province will be classified as Southwest-designated oil and not non-heavy oil. The MOP (monthly oil production) factor used within the royalty/tax rate formula is based on the total oil produced from the well in a month, including the incremental high water-cut oil.
Time Period Since Initiation	The royalty/tax program for high water-cut oil wells was announced and made effective on August 24, 1999.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27477&Filename=pr-ic12.pdf

12.3.10 OIL WELL REACTIVATION PROGRAM

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Oil Well Reactivation Program
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The Saskatchewan Oil Well Reactivation Program was announced to encourage oil wells currently shut in or suspended to be reactivated.
Recipient of Subsidy	In developing the list of wells that qualify under the Program, the following criteria were used: (1) The well must have been classified as an oil well during the entire period January 1, 1993 to December 31, 1993, inclusive; and (2) The well must have been shut-in or suspended during the entire period January 1, 1993 to December 31, 1993, inclusive.
Size of Subsidy (Financial or Otherwise)	If a well listed on the printout is reactivated, the oil production from the well will be classified as "new oil" for Crown royalty and freehold production tax purposes. However, during the first five years (60 months) after which the well is reactivated, the following royalty/tax provisions apply. Crown production is subject to the lesser of: (1) the "new oil" Crown royalty rate; and (2) 4 per cent (5 per cent minus the Saskatchewan Resource Credit (SRC). Freehold or Crown-acquired production is subject to the lesser of: (1) the "new oil" freehold production tax rate; and (2) 4 per cent (5 per cent minus the SRC) minus the applicable production tax factor (PTF). The minimum freehold production tax rate is 0 per cent.
Time Period Since Initiation	On December 6, 1993, a new program called the Saskatchewan Oil Well Reactivation Program was announced.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=3532,3430,3384,5460,2936,Documents&MediaID=26197&Filename=Reactivation+Letter+March+24%2C+1994.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.3.11 WORKOVER RECLASSIFICATION PROGRAM

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Workover Reclassification Program
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The Workover Reclassification Program was introduced in July 1982 to encourage workovers to be performed on oil wells or on oil field equipment that would result in the recovery of incremental oil from oil wells that are currently producing oil classified as "old oil" for Crown royalty/freehold production tax purposes.
Recipient of Subsidy	"Approved workover" means a workover: (i) that is performed on an oil well or on oil field equipment associated with an oil well: (a) that is producing oil that is all or partially classified as "old oil" for Crown royalty and freehold production tax purposes; and (b) that produced an average of less than 5 cubic metres of oil per day (approximately 30 barrels per day) during the last six months in which the well was producing; and (ii) that in the opinion of the Minister: (a) will result in incremental oil being produced from the oil well and will also result in higher Crown royalty/freehold production tax revenues being received by the province; and (b) is uneconomic without "old oil" being reclassified to "new oil" for royalty/tax purposes.
Size of Subsidy (Financial or Otherwise)	Under this program, all or a portion of the "old oil" production from the oil wells may be reclassified to "new oil." The royalty classification of any well that produces old oil (pre-1974) may be reclassified to new oil for royalty purposes if the operator undertakes an approved major workover to improve oil recovery rates.
Time Period Since Initiation	The Workover Reclassification Program was introduced in July 1982. Under the Workover Reclassification Program, the reclassification of oil from "old oil" to "new oil" is effective the first of the month following the month in which Energy and Resources receives notification that the approved workover has been completed.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27471&Filename=pr-ic07.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

12.4 PROVINCIAL – NEWFOUNDLAND AND LABRADOR

12.4.1 FISCAL EQUALIZATION OFFSET PAYMENTS

This is a provincial and federal balance issue and not related directly to providing oil subsidies.

Subsidy Category	Government-Owned Energy Minerals – Royalty Relief or Reductions in Other Taxes Due on Extraction
Subsidy Name	Fiscal Equalization Offset Payments
Jurisdiction	Provincial – Newfoundland and Labrador
Granting Organization	Government of Canada, Government of Newfoundland and Labrador
Objective of Subsidy	The Government of Canada recognizes the unique economic and fiscal challenges faced by Newfoundland and Labrador and the strong commitment of the province to improve its fiscal situation. To make payments to the province to compensate for part of the reduction in fiscal equalization entitlements that would result from offshore revenues being included in the equalization program. To make natural resource sectors internationally competitive, economically productive, and contribute to the social well-being of Canadians.
Recipient of Subsidy	Government of Newfoundland and Labrador
Size of Subsidy (Financial or Otherwise)	The Atlantic Accord Agreement document reflects an understanding between the Government of Canada and the Government of Newfoundland and Labrador that: • Newfoundland and Labrador receives and will continue to receive 100 per cent of offshore resource revenues as if these resources were on land; • the Government of Canada intends to provide additional offset payments to the province with respect to offshore-related equalization reductions, effectively allowing it to retain the benefit of 100 per cent of its offshore resource revenues. Total program contributions in 2008–2009: $556.7 million CDN.
Time Period Since Initiation	Agreement start date: 2002 Commencing in 2006–2007, and continuing through 2011–2012, the annual offset payments shall be equal to 100 per cent of any reductions in equalization payments resulting from offshore resource revenues. A successor arrangement would be put in place for the period 2012–2013 to 2019–2020 if the province qualifies for an equalization payment in 2010–2011 or 2011–2012 and its per capita debt servicing charges have not become lower than those of at least four other provinces. No later than March 31, 2019, the parties agree to review the current arrangement.
Source Documents	http://www.gov.nl.ca/atlanticaccord/agreement.htm http://www.gs.gov.nl.ca/printer/publications/aa_mou.pdf

13. GOVERNMENT OWNERSHIP OF ENERGY-RELATED ENTERPRISES

13.1 FEDERAL

13.1.1 EQUITY INVESTMENT

Subsidy Category	Government Ownership of Energy-Related Enterprises – Security-Related Enterprises
Subsidy Name	Equity Investment
Jurisdiction	Newfoundland and Labrador
Granting Organization	Federal Government
Objective of Subsidy	Risk and benefit sharing of offshore development projects
Recipient of Subsidy	If the equity investment does not produce profits, it could be argued that the investment reduces the risk exposure of oil companies; however, in general this is not considered to be a subsidy for the sector.
Size of the Subsidy (Financial or Otherwise)	Ottawa holds an 8.5 per cent stake through the Canada Hibernia Holding Company, for which the federal government paid $290 CDN million in the early 1990s. In 2008–2009, the feds pocketed $288 million CDN in profit when the oil price was more than $100 CDN a barrel. In the past seven years, the federal government has reaped more than $1 billion CDN in profit.
Time Period Since Initiation	Investment in 1997; the stake is currently still under federal jurisdiction but may be transferred to Newfoundland and Labrador in future.
Source Documents	http://www.ey.com/Publication/vwLUAssets/EastCoastOffshore_Iss17Apr10/$FILE/EastCoastOffshoreIssue17Apr10.pdf

13.2 PROVINCIAL – NEWFOUNDLAND AND LABRADOR

13.2.1 EQUITY INVESTMENT

Subsidy Category	Government Ownership of Energy-Related Enterprises – Security Related Enterprises
Subsidy Name	Equity Investment
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador through Nalcor Energy, a Newfoundland and Labrador Crown-owned energy corporation
Objective of Subsidy	Risk and benefit sharing of offshore development projects
Recipient of Subsidy	If the equity investment does not produce profits, it could be argued that the investment reduces the risk exposure for oil companies; however, in general, this is not considered to be a subsidy for the sector.
Size of the Subsidy (Financial or Otherwise)	Nalcor acquired a 4.9 per cent equity stake in Hebron ($110 million CDN) and a five per cent share of the White Rose expansion. It also plans a 10 per cent interest in most of the Hibernia South field for approximately $30 million CDN. In 2009–2010 Nalcor received $40 million CDN to "facilitate its participation in oil and gas activities and other energy projects."
Time Period Since Initiation	Investments in 2009
Source Documents	http://www.thetelegram.com/index.cfm?sid=335179&sc=82 http://www.nalcorenergy.com/assets/derrick%20sturge's%20presentation_nalcor%20agm%2006%2009_web%20posting.pdf http://www.budget.gov.nl.ca/Budget2008/highlights.htm

13.3 SASKATCHEWAN

13.3.1 SASKATCHEWAN CARBON DIOXIDE EOR AND STORAGE INITIATIVE

Subsidy Category	Government-Owned Energy Minerals – Environmental Issues
Subsidy Name	Saskatchewan Carbon Dioxide EOR and Storage Initiative
Jurisdiction	Provincial - Saskatchewan
Granting Organization	Government of Saskatchewan – Ministry of Energy and Resources
Objective of Subsidy	The initiative will first prepare engineering, economic, administrative and legal information required to assess the different barriers to implementing CO_2 EOR in oil fields in Saskatchewan and then joint cost-share the design and implementation of new pilot projects in two or more Saskatchewan oil fields. The aim of the pilot projects is to demonstrate the technical and economic potential of EOR in these reservoirs.
Recipient of Subsidy	Collaboration between government and industry
Size of Subsidy (Financial or Otherwise)	$7.2 million CDN, five-year initiative
Time Period Since Initiation	2009 to 2014
Source Documents	http://www.er.gov.sk.ca/Default.aspx?DN=9eb5e74d-ba2c-486d-8796-ad6008f69180 http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=10291,10289,3384,5460,2936,Documents&MediaID=25534&Filename=SER+CO2+Info+Opening+Remarks+(Mar+6+09).pdf

13.3.2 UPSTREAM EMISSION REDUCTION INITIATIVE

Subsidy Category	Government-Owned Energy Minerals – Environmental Issues
Subsidy Name	Upstream Emission Reduction Initiative
Jurisdiction	Provincial - Saskatchewan
Granting Organization	Government of Saskatchewan – Ministry of Energy and Resources
Objective of Subsidy	To conduct a joint review with industry to look at opportunities to reduce emissions in the upstream oil and gas sector and develop technological opportunities to reduce GHG emissions.
Recipient of Subsidy	Oil and gas sector
Size of Subsidy (Financial or Otherwise)	Saskatchewan will participate in the Upstream Emission Reduction Initiative at an annual contribution of $300,000 CDN to support one or two large projects in Saskatchewan per year with industry. In addition, Saskatchewan would also provide up to an additional $100,000 CDN per year as the provincial contribution to smaller oil and gas industry emission reductions projects in Saskatchewan.
Time Period Since Initiation	Announced in 2007
Source Documents	http://www.er.gov.sk.ca/Default.aspx?DN=56b82248-d453-4f75-90f2-0a12ec55707c http://www.capp.ca/getdoc.aspx?dt=PDF&docID=146183

13.4 PROVINCIAL – NEWFOUNDLAND AND LABRADOR

13.4.1 OFFSHORE TECHNOLOGY TRANSFER FUND

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Offshore Technology Transfer Fund
Jurisdiction	Federal Government in collaboration with provinces
Granting Organization	Federal and Newfoundland and Labrador governments
Objective of Subsidy	Develop local job skills for offshore projects
Recipient of Subsidy	Hibernia Project
Size of the Subsidy (Financial or Otherwise)	Newfoundland government provided Hibernia project with $11 million CDN to ensure that Newfoundland engineers were hired to design the offshore structure.
Time Period Since Initiation	It does not appear from the literature that the Offshore Technology Transfer Fund is still active.
Source Documents	www.energybc.ca/econ3b.html

13.4.2 OIL AND GAS MANUFACTURING AND SERVICES EXPORT DEVELOPMENT FUND

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Oil and Gas Manufacturing and Services Export Development Fund
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Develop oil and gas service export markets
Recipient of Subsidy	Local oil and gas service companies
Size of the Subsidy (Financial or Otherwise)	$3 million CDN in funding to the Oil and Gas Manufacturing and Services Export Development Fund.
Time Period Since Initiation	2008 to 2010
Source Documents	http://www.budget.gov.nl.ca/budget2009/highlights/default.htm

13.4.3 CANADA-NEWFOUNDLAND OFFSHORE PETROLEUM BOARD

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Canada-Newfoundland Offshore Petroleum Board
Jurisdiction	Newfoundland and Labrador
Granting Organization	NRCan and Province of Newfoundland and Labrador
Objective of Subsidy	To provide financial support to the Offshore Board to cover its costs for the management of offshore resources on behalf of Canada and Newfoundland and Labrador
Recipient of Subsidy	This spending is a management cost.
Size of the subsidy (Financial or Otherwise)	NRCan covers 50 per cent of the operating costs of the Canada Newfoundland Offshore Petroleum Board. The province pays the other 50 per cent. This is done pursuant to provisions of the Canada-Newfoundland Atlantic Accord Implementation Act. $17.2 million CDN total in 2009.
Time Period Since Initiation	1985 to present
Source Documents	http://www.tbs-sct.gc.ca/rpp/2010-2011/inst/rsn/st-ts01-eng.asp#tab1-10

13.4.4 SCIENTIFIC RESEARCH AND EXPERIMENTAL DEVELOPMENT (SR&ED) TAX CREDIT PROGRAM

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Scientific Research and Experimental Development (SR&ED) tax credit program
Jurisdiction	National
Granting Organization	Federal Government – Canada Revenue Agency
Objective of Subsidy	Tax-based incentive program to encourage companies to conduct research and development in Canada
Recipient of Subsidy	Corporations in Canada conducting work that is performed for either scientific advancements or technological advancements to create new or improved products, processes, materials and devices.
Size of the Subsidy (Financial or Otherwise)	Corporations are eligible for a 20 per cent income tax credit (ITC), and qualifying Canadian-controlled private corporations (CCPCs) are eligible for a 35 per cent enhanced ITC on annual expenditures of up to $3 million CDN. Each year the SR&ED program provides over $4 billion CDN in investment tax credits to over 18,000 claimants. It is unclear how much of this tax credit has been provided to the oil and gas sector in Newfoundland.
Time Period Since Initiation	The SR&ED tax credit was first introduced in 1977, with major revisions in 1987 and 1994
Source Documents	http://www.cra-arc.gc.ca/E/pub/tg/rc4472/rc4472-e.pdf http://www2.parl.gc.ca/Content/LOP/ResearchPublications/899-e.htm

13.4.5 PETROLEUM EXPLORATION ENHANCEMENT PROGRAM (PEEP)

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Petroleum Exploration Enhancement Program (PEEP)
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Petroleum Exploration Enhancement Program (PEEP) is aimed to boost new petroleum exploration in Western Newfoundland. PEEP will encourage onshore exploration by providing funding to the new Energy Corporation to strategically invest in geoscientific activities. The Corporation will have the flexibility to commission seismic work independently and/or partner with private companies.
Recipient of Subsidy	Oil companies
Size of the Subsidy (Financial or Otherwise)	The program offers $5 million CDN over two years to assist companies in obtaining crucial geoscientific information in exchange for an equity position in future onshore projects.
Time Period Since Initiation	Program was announced in spring of 2007
Source Documents	http://www.nr.gov.nl.ca/mines&en/oil/OilGasReport08.pdf

13.4.6 OFFSHORE SEISMIC FUNDING ASSISTANCE

Subsidy Category	Direct Spending – Research and Development Support
Subsidy Name	Offshore Seismic Funding Assistance
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Stimulate new offshore oil and gas development
Recipient of Subsidy	Companies that conduct oil exploration
Size of the Subsidy (Financial or Otherwise)	Investment of $20 million CDN over three years through the Energy Corporation, to purchase existing proprietary seismic data for re-evaluation and acquire new data for the offshore sector.
Time Period Since Initiation	2008–2011
Source Documents	http://www.nr.gov.nl.ca/mines&en/oil/OilGasReport08.pdf

14. TAX BREAKS AND SPECIAL TAXES – TAX EXPENDITURES

14.1 FEDERAL – CANADA

14.1.1 ACCA-EFFICIENT AND RENEWABLE ENERGY GENERATION EQUIPMENT (43.1, 43.2)

Subsidy Category	Tax Breaks and Special Taxes - Tax Expenditures
Subsidy Name	ACCA - Efficient and Renewable Energy Generation Equipment (Class 43.1 & 43.2)
Jurisdiction	Federal – Canada
Granting Organization	Government of Canada
Objective of Subsidy	The purpose of Class 43.1 is to assist such investments by allowing businesses to write off the capital cost of these assets at a rate faster than would be the case if the costs were written off over the useful life of the assets, thus improving the after-tax rate of return on these investments. Incentives for investment in clean energy generation equipment are provided through accelerated CCA for equipment under Class 43.2 and flow-through share treatment (parallel to a provision available in the non-renewable resource sector) for project start-up expenses.
Recipient of Subsidy	Qualifying systems are described in Class 43.1 and various terms used are defined in the Income Tax Regulations subsection 1104(13). The main categories of qualifying systems, together with the conditions and restrictions that apply to each category, are outlined in Section 1.3 of the Class 43.1 Technical Guide and Technical Guide to Canadian Renewable and Conservation Expenses (CRCE). They are: 1) cogeneration and specified waste-fuelled electrical generation systems, 2) active solar systems, 3) small-scale hydroelectric installations, 4) heat recovery systems, 5) wind energy conversion systems, 6) photovoltaic electrical generation systems, 7) geothermal electrical generation systems, 8) specified-waste fuelled heat production systems. Accelerated CCA is provided under CCA Class 43.2 for certain clean energy generation equipment acquired after February 22, 2005 and before 2020. Eligible technologies include cogeneration, wind turbines, geothermal energy and small hydro.
Size of Subsidy (Financial or Otherwise)	Class 43.1 provides an accelerated rate of write off (30 per cent per year, on a declining balance basis) for investments that produce heat for use in an industrial process or electricity by using fossil fuel efficiently or by using renewable energy sources. Budget 2005 proposed that a new capital cost allowance class would be created for highly fossil fuel efficient and renewable energy generation equipment. The rate of write off for this class will be 50 per cent on a declining balance basis. The new class will apply to eligible investments that occur on or after February 23, 2005 and before 2012. Class 43.1 – 30 per cent declining balance (DB)

14.1.1 ACCA-EFFICIENT AND RENEWABLE ENERGY GENERATION EQUIPMENT (43.1, 43.2) (Continued)

Size of Subsidy (Financial or Otherwise) (Continued)	Class 43.1 includes prescribed energy conservation property (CRCE). This class is broadened to include biogas production equipment and distribution equipment acquired on or after February 23, 2005. Class 43.2 – 50 per cent DB Class 43.2 includes certain high-efficiency cogeneration systems and renewable energy generation equipment acquired on or after February 23, 2005, and before 2012. This accelerated CCA rate will also apply to biogas production equipment and distribution equipment used in district energy systems that rely on efficient cogeneration, acquired on or after February 23, 2005, and before 2012.
Time Period Since Initiation	Class 43.1 was introduced in the 1996 budget and it currently provides an accelerated CCA rate of 30 per cent for certain types of renewable energy and energy efficiency equipment. Since the introduction of Class 43.1, there have been several additions and modifications to the class. Most recently, the December 10, 2001 Budget Plan expanded eligibility for this class to property that generates electricity using blast furnace gas produced at steel mills. In addition, the capacity restriction was increased so that more small hydro-electric projects now qualify for Class 43.1. Class 43.2: • Prior to 1976 – All power generation assets fell into Classes 1, 2 or 8 (4, 6 or 20 per cent DB) • 1976–1994 – Class 34 (50 per cent straight-line CCA) existed, NRCan certification required • 1994–present – Class 43.1 (30 per cent DB) replaced Class 34, NRCan certification not required • 2005–2012 (to be extended to 2020 as per Budget 2008)
Source Documents	http://oee.nrcan.gc.ca/corporate/statistics/neud/dpa/policy_e/ details.cfm?searchType=default&sectoranditems=1l0&max=50&pageId=1&categoryID=1&regionalDeliveryId=all&programTypes=all&keywords=&ID=977&attr=0 http://www.cra-arc.gc.ca/E/pub/tp/it476r/it476r-e.html http://www.fin.gc.ca/activty/consult/class431-1-eng.asp http://www.geo-exchange.ca/en/UserAttachments/flex603_Tom%20Jewett-%20GeoExchange%20Technology%20and%20Class%2043%202.pdf http://www.ic.gc.ca/eic/site/fte-fte.nsf/eng/00004.html

14.1.2 ACCA-OIL SANDS

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	ACCA – Oil Sands
Jurisdiction	Federal – Canada
Granting Organization	Government of Canada
Objective of Subsidy	March 19, 2007 budget commitment to phase out the accelerated capital cost allowance (ACCA) for the oil sands. Fiscal policy adjustments incorporating the "polluter pays" principle are essential to achieving the budget's objective of "preserving and protecting our environment," and ending the ACCA is a step in the right direction.
Recipient of Subsidy	The 100 per cent ACCA applicable for oil sands projects will be phased out by 2015 because, as the budget itself acknowledges, "this preferential treatment is no longer required." Between 2011 and 2015, the preferential ACCA will be brought into line with the 25 per cent level currently applicable to conventional oil and gas.
Size of Subsidy (Financial or Otherwise)	Subject to these factors, the revenue cost associated with providing accelerated CCA for oil sands (as compared with the regular 25 per cent CCA rate) was forecast, at the time of Budget 2007, to be on average $300 million CDN annually for the period 2007–2011. Because of a 100 per cent ACCA, the company only pays income tax on the income from the project once it has written off all capital costs. Conventional oil and natural gas qualify for a 25 per cent capital cost allowance, significantly lower than that applicable to the oil sands. Eleven oil sands projects currently under construction will receive the full 100 per cent ACCA under grandfathering clauses. A further 45 planned projects will receive substantial capital cost allowances because they will be completed before 2015. As a result, over 90 per cent of oil sands projects currently announced will receive substantial subsidies.
Time Period Since Initiation	Budget 2007 announced the phase-out of the existing accelerated capital cost allowance (CCA) for general investment in oil sands projects, leaving in place the regular 25 per cent CCA rate for these assets (OAG, 2008). The economic conditions have changed significantly since this tax break was introduced in the mid-1990s, and it is neither appropriate nor necessary under current economic conditions. The cost would tend to decline as the phase-out proceeds over the 2011–2015 period. While for grandfathered projects accelerated CCA claims could arise after 2015, these are expected to decline quickly since the grandfathering only applies to costs incurred before 2012 (OAG, 2008).
Source Documents	http://pubs.pembina.org/reports/Owner_FullRpt_Web.pdf http://www.greenbudget.ca/pdf/Budget_Analysis_2007.pdf http://www.oag-bvg.gc.ca/internet/English/pet_215_e_28951.html

14.1.3 CEE, CDE, COGPE

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Canadian Exploration Expense (CEE)1; Canadian Development Expense (CDE)2; Canadian Oil and Gas Property Expense (COGPE)3
Jurisdiction	Federal – Canada
Granting Organization	Government of Canada
Objective of Subsidy	The goal of exploration is to obtain new and valuable knowledge about the location of a previously unknown resource, the discovery and profitability of which is uncertain. Special tax treatment of exploration costs (e.g., 100 per cent deductibility as Canadian exploration expense and various federal and provincial exploration tax credits) recognizes that exploration creates benefits for other businesses beyond the firm that incurred the original expenditure—that is, exploration can generate positive externalities. In many ways, this is similar to research and development (R&D) costs that are incurred to gain knowledge about improved processes and products. R&D costs receive special tax treatment in many countries, including Canada, because of the fact that this investment can generate significant benefits beyond those captured by the firm performing the activity.
Recipient of Subsidy	CEE: includes geological, geophysical, geochemical, drilling and completion expenses, cost of building a temporary access road or preparing a site for the well. CDE: includes expenses incurred in drilling or converting a well for the disposal of waste liquids; injection of water, gas or other substances; monitoring fluid levels or pressure changes; drilling for water or gas for injection; drilling and completing a well after the commencement of production or drilling and completing a well; building a temporary access road or preparing a site for the well to the extent that the expense is not a Canadian exploration expense. COGPE: includes the cost of any right, license or privilege to explore or drill for petroleum, natural gas or related hydrocarbons, the cost of any oil or gas well, and any rental or royalty.
Size of Subsidy (Financial or Otherwise)	CEE is deductible at a rate of 100 per cent. The CEE balance of exploration must be fully deducted against income with any unclaimed portion carried forward indefinitely. CDE is deductible at a rate of 30 per cent on a declining balance basis. COGPE is deductible at a rate of 10 per cent and includes the costs of acquiring an oil or gas well in Canada, an interest or right to explore, drill or extract petroleum or natural gas, or a qualifying interest or right in oil or gas production.
Time Period Since Initiation	Four provisions—Canadian exploration expenses, Canadian development expenses, Canadian oil and gas property expenses, and capital cost allowances—determine the timing of the deduction of capital expenditures.
Source Documents	http://www.fin.gc.ca/activty/pubs/rsc_1-eng.asp http://www.fin.gc.ca/drleg-apl/wmmNov06n_3-eng.asp

14.1.4 ATLANTIC CANADA INVESTMENT TAX CREDIT (AITC)

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Atlantic Canada Investment Tax Credit (AITC)
Jurisdiction	The federal AITC applies in the following jurisdictions: Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, the Gaspé region and their associated offshore areas. Only Newfoundland receives AITC for the oil and gas sector.
Granting Organization	Federal Department of Finance – Federal Government
Objective of Subsidy	The federal AITC reduces federal corporate income taxes by 10 per cent of the cost of qualifying investments. The objective is to stimulate new investment in the Atlantic Provinces. Compared to corporate rate cuts, the broad-based, Atlantic investment-tax credit is directed more specifically at new capital projects, with a greater impact in reducing the effective tax rate on capital for the same revenue cost as corporate rate cuts.
Recipient of Subsidy	AITC is earned on eligible expenditures on new buildings, machinery and equipment employed in the following qualifying activities: farming, fishing, logging, mining, oil and gas, and manufacturing and processing. However, the investment-tax credit is primarily targeted to resource and manufacturing industries and some capital goods are excluded from eligibility. The AITC is available for the provinces of Newfoundland, New Brunswick, Nova Scotia, Prince Edward Island, the Gaspé region and their associated offshore areas.
Size of the Subsidy (Financial or Otherwise)	Prior to 1995, the Atlantic investment tax credit (AITC) was available at a rate of 15 per cent with respect to eligible expenditures in the Atlantic region. The 1994 budget reduced the AITC rate to 10 per cent for eligible expenditures incurred after 1994.The AITC is refundable at a rate of 40 per cent for qualifying CCPCs and individuals. Total 2009 projected tax expenditure: $256 million CDN Between 2004 and 2009 the average annual expenditure was $282 million CDN annually. Approximately half of the AITC program is paid to the oil and gas sector, or roughly $125 million CDN annually.
Time Period Since Initiation	The AITC has been in place since at least 1994 to the present.
Source Documents	Department of Finance Canada. *2009 Tax expenditures and evaluations 2009:* Part 1. http://www.fin.gc.ca/taxexp-depfisc/2009/taxexp0901-eng.asp http://www.fin.gc.ca/taxexp-depfisc/1999/taxexp99_5-eng.asp J. M. Mintz & M. Smart. 2003. *Brooking no favourites. A new approach to regional development in Atlantic Canada.* C.D. Howe. No. 192., http://www.cdhowe.org/pdf/commentary_192.pdf

14.2 PROVINCIAL – ALBERTA

14.2.1 TOWNSHIP 53

This describes the removal of a subsidy.

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Township 53
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Reclassify conventional wells labelled as oil sands so that the oil sands rate does not apply.
Recipient of Subsidy	Currently, there are different royalty and taxation regimes north and south of Township 53 in Alberta. This is based on an "oilsands" classification that is a possible classification for oil producers north of Township 53, providing them with a more beneficial royalty status. The heavy oil and oil sands in Alberta located at Township 53 are related to Cold Heavy Oil Production with Sand (CHOPS).
Size of Subsidy (Financial or Otherwise)	Alberta Energy Utilities Board classifications for royalty and tax purposes are based on a geographical line, the south boundary to Township 53. North of this line, exclusive of the surface mining area in the Athabasca Deposit, the EUB classifies all deposits as oil sands, and the royalty regimes are determined by this classification. Primary oil production in such cases is referred to as "primary bitumen" production north of Township 53, but south of this Township, such production is called "primary heavy oil" production, even though the technologies may be identical, the strata contiguous, and the reservoir and oil properties completely similar. Production through CHOPS is therefore subjected to different royalty and taxation regimes, even though the deposits, the crude oil properties and the extractive methods are perhaps identical.
Time Period Since Initiation	In February 2007 the Government of Alberta assembled a panel to examine the province's royalty and tax regime. They proposed a reclassification of existing and future primary oil sands wells as heavy oil wells in Township 53 (south of Cold Lake).
Source Documents	http://www.energy.alberta.ca/OilSands/pdfs/RPT_Chops_chptr1.pdf http://www.energy.alberta.ca/OilSands/pdfs/RPT_Chops_recomm.pdf http://membernet.capp.ca/raw.asp?x=1&e=PDF&dt=NTV&dn=126685

14.2.2 FLOW-THROUGH SHARES

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Flow-Through Shares (FTS)
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	Junior resource corporations often have difficulty raising capital to finance their exploration and development activities. Moreover, many are in a non-taxable position and do not need to deduct their resource expenses. The FTS mechanism allows the issuer corporation to transfer the resource expenses to the investor. A junior resource corporation, in particular, benefits greatly from FTS financing.
Recipient of Subsidy	Certain corporations in the mining, oil and gas, and renewable energy and energy conservation sectors may issue FTS to help finance their exploration and project development activities. The FTS must be newly issued shares that have the attributes generally attached to common shares.
Size of Subsidy (Financial or Otherwise)	The FTS program provides tax incentives to investors who acquire FTS by allowing: • deductions for resource expenses renounced by eligible corporations; and • investment tax credits for individuals (excluding trusts) on resource expenses in the mining sector that qualify as flow-through mining expenditures. The type of expenses a PBC can renounce are: • Canadian exploration expenses (CEEs), which are added to the cumulative Canadian exploration expense (cumulative CEE) pool and can be deducted up to the maximum of 100 per cent; or • Canadian development expenses (CDEs), which are added to the cumulative Canadian development expense (cumulative CDE) pool and can be deducted up to the maximum of 30 per cent. FTS investors may benefit from: • deductions from income through renounced expenses; • an investment tax credit (ITC) on flow-through mining expenditures for individuals; and • amounts renounced to the partnership, which can be allocated to the partners. CEE is most attractive to investors buying FTS because they get a 100 per cent deduction from tax rather than merely 30 per cent for CDE, but both can be the subject of flow-through financings. Alberta companies who have raised flow-through money, for example, in late 2008 to spend in 2009, may find that though they have earned Alberta Drilling Credits, and are no doubt delighted to get the cheque, they may well find it reduces their qualifying CEE expense by the same amount.

14.2.2 FLOW-THROUGH SHARES (Continued)

Time Period Since Initiation	The investor and the corporation must have entered into an FTS agreement on or before March 31, 2008. Under the "look-back" rule, funds raised with the benefit of the credit in 2008, for example, can be spent on eligible exploration up to the end of 2009.
Source Documents	http://www.sepac.ca/pdf/articles/2009/DOB%20-%20091105.pdf http://www.cra-arc.gc.ca/tx/bsnss/tpcs/fts-paa/menu-eng.html

14.2.3 ACCA

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	ACCA
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	ACCA allows the individual oil sands projects, though not the parent company itself, to write off all of their capital costs before they start to pay income tax. The accelerated capital cost allowance under Class 43.1 and Class 43.2 of the Income Tax Regulations makes investments in energy efficiency and renewable power financially more attractive for industry. Because the cost of an asset can be depreciated and deducted more quickly for income tax purposes, income taxes payable early in the life of an asset are reduced and more funds are available to invest in the asset. See ACCA – Oil Sands, federal jurisdiction for further details as this applies across Canada.
Recipient of Subsidy	ACCA is subject to certain conditions. The most noteworthy being: (a) the costs must be for the purpose of expanding production and not just for plant maintenance and (b) the ACCA is "ring fenced," meaning it can only be claimed against the income of the project and not that of the entire corporation. To be an allowed cost of a project, a cost must be: • directly attributable to the project; • reasonable under the circumstances; • incurred by or on behalf of the project owners; • incurred on or after the effective date of the project; • incurred for one of the purposes set out in the Regulation, that is to say, to recover, purchase, process, transport or market oil sands products; provide services in support of these activities; or conduct research on oil sands recovery.

14.2.3 ACCA (Continued)

Size of Subsidy (Financial or Otherwise)	A 50 per cent accelerated CCA is provided under Class 43.2, accelerated CCA is provided under Class 43.1 (30 per cent). The federal estimated annual fiscal cost of this measure, as announced in the Economic and Fiscal Update of November 14, 2005 and reaffirmed in the 2006 budget, in fiscal 2005–2006 is $5 million CDN, in fiscal 2006–2007 is $10 million CDN, and in fiscal 2007–2008 is $20 million CDN, then $25 million CDN for each of the next three years thereafter.
Time Period Since Initiation	The accelerated capital cost allowance, implemented in 1996, has applied to both surface and underground mining in the oil sands. CAPP argues that the ACCA is a tax deferral, not a subsidy. Royalty Review Alberta supports taking away the ACCA as it is no longer needed, as in the case of the Federal ACCA. Per the 2007 New Royalty Framework, the government will eliminate the provincial portion of the ACCA for oil sands projects, consistent with the federal government's recent elimination of the allowance. To qualify for Class 43.2, higher-efficiency (efficiency = 72 per cent) systems that use fossil fuels, specified-waste-fuelled electrical generation systems and renewable energy systems must be acquired between February 22, 2005 and January 1, 2012.
Source Documents	http://www.energy.alberta.ca/Org/pdfs/TechReport-1_OilSands.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf http://www.energy.alberta.ca/Org/pdfs/royalty_Oct25.pdf http://www.ic.gc.ca/eic/site/fte-fte.nsf/eng/00004.html

14.3 PROVINCIAL – SASKATCHEWAN

14.3.1 FREEHOLD DRILLING INCENTIVE

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Freehold Drilling Incentive
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The changes were designed to provide a more competitive investment environment and a more simplified royalty/tax regime. • The freehold production tax structure is similar in concept to the Crown royalty structure. Like Crown royalty rates, production tax rates are sensitive to the individual productivity of each well; tax levels are also adjusted each month based on the level of the reference price set by the province for each of the oil types. • The amount of tax payable on the production of freehold oil is determined in much the same way as the royalty payable on the production of Crown oil.
Recipient of Subsidy	Newly drilled oil wells in Saskatchewan qualify for "volume-based" drilling incentives ranging from 0 to 16,000 cubic metres. Newly drilled exploratory gas wells in Saskatchewan qualify for a 25,000,000 cubic metre "volume-based" drilling incentive. Vertical, horizontal and exploratory wells qualify for the freehold tax rate of 0 up to the specified volume bases.
Size of Subsidy (Financial or Otherwise)	Freehold Production Tax (applied to oil produced from or allocated to Crown-acquired and freehold lands) Freehold lands: A freehold production tax rate of 0 per cent Crown-acquired lands: A freehold production tax rate equal to the Crown royalty rate outlined above Royalty/tax rates for production after incentive volume: After the incentive volume has been produced, the oil produced from the vertical oil well drilled on or after October 1, 2002 will be subject to the "fourth tier oil" royalty/tax rates.
Time Period Since Initiation	All wells qualifying for the freehold production tax rate up to the qualifying volume base have to have a drilling date on or after October 1, 2002.
Source Documents	http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27469&Filename=pr-ic05.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27468&Filename=pr-ic04.pdf http://www.er.gov.sk.ca/adx/aspx/adxGetMedia.aspx?DocID=5756,5755,3430,3384,2936,Documents&MediaID=27467&Filename=pr-ic03.pdf

14.3.2 PROVINCIAL SALES TAX EXEMPTION

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Provincial Sales Tax Exemption on Equipment and Services used by the oil, gas, and potash industry
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	A tax remission (rebate) is provided on certain mobile capital equipment that is used by the oil, gas and potash industries directly in the following activities: (a) exploration (b) development (c) testing (d) servicing the Provincial Sales Tax does not apply to the services listed in "Recipient of Subsidy," as used by the oil, gas, and potash industry. These tax exemptions provide an incentive for oil and gas production and simplify the provincial tax regime.
Recipient of Subsidy	The equipment must be used primarily in the above activities and must be capitalized in the contractor's records: (i) All drilling and service rigs (ii) Standard rig components, such as draw works, rotary tables, mud pumps, blow-out preventers, drill pipe and drill collars (iii) Testing equipment (iv) Mobile equipment used for seismic exploration, formation testing, cementing, perforating, fracturing, acidizing and similar operations, including the trucks or trailers on which this equipment is permanently mounted (v) Capitalized replacement parts for the above equipment Tax does not apply to charges for contract services, such as drilling, well stimulation, seismic exploration and surveys, coring, logging, formation testing, cementing, perforating, down-hole pumping, well stimulation (fracturing and acidizing) and similar operations.
Size of Subsidy (Financial or Otherwise)	The equipment and services exempt will not have to remit the 5 per cent sales tax, which applies to the purchase, importation or rental of certain goods and services in the province. PST budget of expected revenues: 2009/10 (Budget) $1,155,600,000 CDN
Time Period Since Initiation	These tax exemptions were introduced in March, 1985
Source Documents	http://www.finance.gov.sk.ca/revenue/pst/bulletins/pst13.pdf http://www.finance.gov.sk.ca/taxes/pst

14.3.3 EOR TAX EXEMPTION

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	EOR Tax Exemption
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	Effective April 1, 2005, the Provincial Sales Tax and Fuel Tax no longer apply to substances used in approved enhanced oil recovery (EOR) projects. This includes chemicals and agents such as natural gas, hydrogen chloride, liquid nitrogen, potassium chloride, liquid oxygen, carbon dioxide, propane and butane that are injected directly into the formation. The Sales Tax and Fuel Tax exemption on propane, butane and other chemicals injected into oil reservoirs to increase the recovery rate brings them into line with the tax exemption already in place for carbon dioxide used in EOR projects. The changes reflect the outcome of discussions with industry on steps that could be taken to expand Saskatchewan's oil production through EOR.
Recipient of Subsidy	In order to qualify for this exemption the substance must be: • acquired on or after April 1, 2005 • used in a new or existing EOR project that has been approved pursuant to the Oil and Gas Conservation Act; • injected directly into an oil-bearing formation as part of the enhanced oil recovery process; and, • primarily intended to directly enhance the recovery of oil (substances injected into a well for maintenance purposes are not eligible for the exemption).
Size of Subsidy (Financial or Otherwise)	Qualifying substances will be exempt from the 5 per cent sales tax as well as the fuel tax rates listed below. Date: March 24, 2005 Clear Gasoline 15.0 Propane 9.0 Clear Diesel 15.0 Fuel Railways 15.0 Aviation-Turbo 1.5 Aviation-Gas 1.5
Time Period Since Initiation	In order to qualify for this exemption the substance must be acquired on or after April 1, 2005
Source Documents	http://www.finance.gov.sk.ca/revenue/pst/bulletins/pst14.pdf http://www.finance.gov.sk.ca/taxes/ft/

14.3.4 FLOW-THROUGH SHARES

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Flow-Through Shares
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	Flow-Through Shares (FTS) are a tax-advantaged investment in the Canadian natural resource sector. Taxpayers in the highest marginal tax rate can reduce their taxable income and receive refundable or non-refundable tax-credits depending on their province of residency. Provincial flow-through initiatives have been announced that apply to the provincial portion of income tax relating to eligible expenses in relevant jurisdictions. FTS financing provides further indication that federal and provincial incentives have contributed to higher overall expenditure levels, to a revival in junior company and off-mine-site spending and to increased financing opportunities for project proponents.
Recipient of Subsidy	Certain corporations in the mining, oil and gas, and renewable energy and energy conservation sectors may issue FTS to help finance their exploration and project development activities. The FTS must be newly issued shares that have the attributes generally attached to common shares.
Size of Subsidy (Financial or Otherwise)	The FTS program provides tax incentives to investors who acquire FTS by allowing deductions for resource expenses renounced by eligible corporations and investment tax credits for individuals (excluding trusts) on resource expenses in the mining sector that qualify as flow-through mining expenditures. Saskatchewan has a 10 per cent provincial FTS tax credit that applies to the provincial portion of income tax relating to eligible expenses.
Source Documents	http://www.nrcan-rncan.gc.ca/mms-smm/busi-indu/met-qfi/2006/rep-rap-eng.htm, http://www.nrcan-rncan.gc.ca/mms-smm/busi-indu/met-qfi/2002/eir-eif-eng.htm http://www.neilfriesen.com/exempt-securities/flow-through-shares/, http://www.pdac.ca/pdac/advocacy/financial/flow-through-brochure.pdf

14.3.5 DEFERRED EXPLORATION AND DEVELOPMENT EXPENSES

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Deferred Exploration and Development Expenses
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	As these expenses are available for future deduction for income tax purposes they may be deducted from paid-up capital for capital tax purposes, as elected after March 31, 1999.
Recipient of Subsidy	Corporations that accumulate expenses incurred by them in exploration and development activities in Canada. Deferred exploration and development expenses do not include expenses renounced from another corporation.
Size of Subsidy (Financial or Otherwise)	These deferred expenses may be carried forward and deducted from income in computing income taxes in future years. Large corporations that have more than $10 million CDN in paid-up capital allocated to Saskatchewan are assessed a Corporation Capital Tax (CCT) equal to 0.6 per cent of paid-up capital in excess of $10 million CDN. Deductions for determining taxable paid-up capital include a standard exemption of $10 million CDN, an additional variable exemption up to $10 million CDN, investment allowance and deferred exploration and development expense deductions.
Time Period Since Initiation	For fiscal years ending after March 31, 1999, corporations have the option of deducting unused Canadian exploration and development tax pools in determining taxable paid-up capital. Previously, corporations were required to deduct these unused tax pools.
Source Documents	http://www.finance.gov.sk.ca/revenue/cct/bulletins/ct02.pdf http://www.energy.alberta.ca/Tenure/pdfs/FISREG.pdf

14.3.6 FUEL TAX REBATE FOR MINERAL EXPLORATION

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Fuel Tax Rebate for Mineral Exploration
Jurisdiction	Provincial – Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	The government is introducing major initiatives that include the fuel tax rebate in order to stimulate more exploration in the province's mineral sector and create new jobs for the people of Saskatchewan. The initiatives provide enhanced geoscience funding and incentives for both prospector and exploration companies.
Recipient of Subsidy	Every person who is engaged in mineral exploration may be eligible for a full fuel tax rebate on fuel used in unlicensed machinery and equipment used in mineral exploration. Fuel used in any of the following equipment is eligible for a rebate, provided the equipment or machinery is used directly in mineral exploration: • equipment or machinery, other than a snowmobile, that is not registered pursuant to the *Vehicle Classification and Registration Regulations* in Saskatchewan or similar legislation in other jurisdictions and does not operate on a public highway; • specialized aircraft that is permanently fitted with mineral exploration equipment; and • equipment used to generate electricity. Fuel consumed in licensed vehicles or equipment is not eligible for a rebate, regardless of the use.
Size of Subsidy (Financial or Otherwise)	The new six-year mineral exploration incentive program will cost $2.1 million CDN annually. The rebate is a tax credit against income taxes payable.
Time Period Since Initiation	The rebate applies to fuel purchased on and after January 1, 2003.
Source Documents	http://www.finance.gov.sk.ca/revenue/ft/bulletins/ft11.pdf http://www.gov.sk.ca/news?newsId=70754f48-aff1-4022-9318-d032db340417

14.3.7 SASKATCHEWAN PETROLEUM RESEARCH INCENTIVE PROGRAM

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Saskatchewan Petroleum Research Incentive Program
Jurisdiction	Province of Saskatchewan
Granting Organization	Government of Saskatchewan
Objective of Subsidy	Encourages research, development and demonstration of new technologies that facilitate increased production and recovery of the province's oil and gas resources and reduce environmental impacts.
Recipient of Subsidy	Oil and gas corporations operating in Saskatchewan
Size of Subsidy (Financial or Otherwise)	A total of $30 million CDN is available under the program over the period from 2005 to 2010 in the form of credits against oil and gas Crown royalties and freehold production taxes payable.
Time Period Since Initiation	The Saskatchewan Petroleum Research Incentive Program (SPRI) is to run to the end of March 2010
Source Documents	http://www.finance.gov.sk.ca/annreport/200809EnergyAndResources AnnualReport.pdf

14.4 PROVINCIAL – NEWFOUNDLAND AND LABRADOR

14.4.1 PST EXEMPTION ON START-UP CAPITAL AND OPERATING EXPENDITURES

Subsidy Category	Tax Breaks and Special Taxes – Tax Expenditures
Subsidy Name	Waiving PST on start-up capital expenditures and operating expenditures
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Stimulate new capital investments in Newfoundland and Labrador
Recipient of Subsidy	Hibernia and Terra Nova Projects
Size of the Subsidy (Financial or Otherwise)	The provincial government waived PST on start-up capital expenditures at the outset of the project, worth an estimated $186 million CDN. PST was also waived on operating expenditures amounting to approximately $1 million/year CDN. Note that new offshore projects (e.g., White Rose) no longer receive this subsidy.
Time Period Since Initiation	Starting in 1985. Documentation does not reveal the end-date for this subsidy.
Source Documents	http://www.livingoceans.org/files/PDF/energy/Dale_Marshall_re_Hibernia.pdf

14.4.2 FUEL TAX EXEMPTION FOR OFFSHORE PROJECTS

Subsidy Category	Tax Breaks and Special Taxes – Overall tax burden by industry
Subsidy Name	Fuel tax exemption
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Reduce operational costs for offshore oil and gas development
Recipient of Subsidy	Hibernia and Terra Nova Projects, as well as potentially new projects
Size of the Subsidy (Financial or Otherwise)	Provincial fuel tax rates (cents/Litre) are as follows: gasoline 16.5, diesel 16.5, marine fuel 3.5, aviation fuel 0.7. Gasoline used by manufacturers in fixed or stationary manufacturing equipment used directly in manufacturing is eligible for tax rebate. Total rebate/exemption provided to offshore projects is unknown but likely less than $10 million CDN annually.
Time Period Since Initiation	Unknown but it appears to be current.
Source Documents	http://www.fin.gov.nl.ca/fin/tax_programs_incentives/business/gasolinetax.html http://www.fin.gov.nl.ca/fin/publications/gas_tax.pdf

14.4.3 FUEL TAX EXEMPTION FOR ONSHORE OIL EXPLORATION

Subsidy Category	Tax Breaks and Special Taxes – Overall tax burden by industry
Subsidy Name	Fuel Tax Exemption
Jurisdiction	Newfoundland and Labrador
Granting Organization	Government of Newfoundland and Labrador
Objective of Subsidy	Stimulate onshore oil exploration
Recipient of Subsidy	Companies conducting oil exploration
Size of the Subsidy (Financial or Otherwise)	Tax exemption for gasoline consumed by off-road equipment used in onshore oil exploration will be implemented effective April 1, 2009. The provincial fuel tax rate on gasoline is 16.5 cents/Litre. Total exemption value is not known but likely less than $10 million CDN annually.
Time Period Since Initiation	Since 2009
Source Documents	http://www.budget.gov.nl.ca/budget2009/highlights/default.htm

15. CREDIT SUPPORT

15.1 PROVINCIAL – NEWFOUNDLAND AND LABRADOR

15.1.1 CANADA-NEWFOUNDLAND OFFSHORE DEVELOPMENT FUND

Subsidy Category	Credit Support – Subsidized credit to domestic infrastructure
Subsidy Name	Canada-Newfoundland Offshore Development Fund
Jurisdiction	Newfoundland and Labrador
Granting Organization	Both federal and Newfoundland and Labrador governments
Objective of Subsidy	Stimulate new investment in offshore infrastructure and develop local jobs and construction benefits
Recipient of Subsidy	Hibernia Project
Size of the Subsidy (Financial or Otherwise)	Both the federal and provincial levels of government subsidized the Bull Arm facility, where the offshore drilling structure for Hibernia was built, by up to $95 million CDN.
Time Period Since Initiation	Start date 1985–86
Source Documents	http://www.energybc.ca/econ3b.html http://www.budget.gov.nl.ca/budget2009/estimates/estimates2009.pdf http://www.budget.gov.nl.ca/

15.1.2 CANADA-NEWFOUNDLAND OFFSHORE DEVELOPMENT FUND

Subsidy Category	Credit Support – Government Loans and Loan Guarantees
Subsidy Name	Canada-Newfoundland Offshore Development Fund
Jurisdiction	Newfoundland and Labrador
Granting Organization	Federal and Newfoundland and Labrador governments
Objective of Subsidy	Stimulate new investment in development of offshore oil projects
Recipient of Subsidy	Hibernia Project
Size of the Subsidy (Financial or Otherwise)	In 1988, Mobil Oil obtained a $1.04 billion CDN grant from the federal government along with a $1.66 billion CDN loan guarantee.
Time Period Since Initiation	Start date 1985–86
Source Documents	http://www.energybc.ca/econ3b.html http://www.budget.gov.nl.ca/budget2009/estimates/estimates2009.pdf http://www.budget.gov.nl.ca/

16. ENVIRONMENTAL ISSUES

16.1 PROVINCIAL – ALBERTA

16.1.1 ORPHAN WELL FUND

Subsidy Category	Environmental Issues – Responsibility for closure and post closure risks
Subsidy Name	Orphan Well Fund
Jurisdiction	Provincial – Alberta
Granting Organization	Government of Alberta
Objective of Subsidy	The province is providing $30 million CDN to be invested by the Orphan Well Association in abandonment and reclamation projects with a focus on high-priority, very old "legacy" sites and on final reclamation efforts for abandoned sites—all of which pre-date the creation of the Orphan Well Association and the establishment of modern industry practices and regulatory standards.
Recipient of Subsidy	There are more than 600 estimated sites that fall into these categories.
Size of Subsidy (Financial or Otherwise)	$30 million CDN
Time Period Since Initiation	Initiated in 2009
Source Documents	http://www.alberta.ca/ACN/200903/25402CDEFE818-F1BC-5D66-DF309066E457F2A4.html

17. ANNEX 2: CALCULATION OF TAX DEFERRAL FROM CANADIAN DEVELOPMENT AND EXPLORATION EXPENSES

In Annex 2, we provide detail on how we estimate the tax expenditures for the federal Canadian development expense and the Canadian exploration expense tax expenditure programs. Both of these programs provide accelerated depreciation for expenditures that results in lowering taxes payable. We use three approaches to estimate the federal and provincial taxes reduced and subsequent subsidy to the industry. Data is from Statistics Canada's Reconciliation of Profit in the oil and gas sector in 2008, including federal and provincial tax rates. Two calculation methods, adopted from GSI (2010) are used to bound a range: year-by-year basis and lump-sum comparison. The table below provides the results, with the average of the two methods reported in the main document above. Note that because the federal program reduces net income for which provincial taxes are payable, federal and provincial taxes are avoided. In the main report, the aggregate provincial estimates is pro-rated to the provinces based on the 2008 value of production.

TABLE A2-1: VALUE OF TAX DEFERRAL FROM CDE AND CEE IN 2008 (IN $MILLION, 2009)

	Year-by-Year Basis		Preset Value Lump Sum	
	Federal	Provincial	Federal	Provincial
CDE	$510	$264	$422	$232
CEE	$214	$111	$240	$132

Source: EnviroEconomics calculations

CALCULATION ON YEAR-BY-YEAR BASIS

This method calculates the current year tax loss on the grounds that it is impossible to predict future tax liability, and so tax revenue reduced in a year is the value of the subsidy. Essentially, we remove the benefit of the tax deferral from the profit statement of the sector (Statistics Canada, 2008), and determine the impact on tax payable in 2008. The Commissioner of Environment and Sustainable development suggested that this approach is a reasonable way to estimate the benefit (Office of the Auditor General of Canada, 2000). This is then apportioned to oil production and split between exploration and development. There are a number of reasons why this is a reasonable approach:

- Recapture of the tax may not occur if the recipient was not profitable at the end of the period.
- Earlier losses could also be carried forward to offset current profits, which then reduces the future liability.
- Finally, if new equipment is purchased towards the end of the depreciation period, the accelerated write-off could be rolled over, again reducing the tax liability on the original equipment (GSI, 2010).

The limit of this approach is that it assumes the entity will not be profitable at any time in the future and therefore likely overestimates the subsidy.

The subsidy is calculated by simply the $AD_y = (CCA_t - D_b)\ T_{f,p}$

Where,
AD_y = accelerated depreciation yearly
CCA_t = capital cost allowance for tax purposes
D_b = depreciation book
$T_{f,p}$ = corporate tax rate

The Statistics Canada data needs to be pro-rated for the portion of oil (56 per cent) as well as for the splits between exploration (for the CEE) and development (for the CDE). The following table conducts these calculations.

TABLE A2-2: CALCULATION OF TAX DEFERRAL USING YEAR-BY-YEAR METHOD IN 2008 ($MILLION, 2009)

	Federal	Provincial
2008 Tax Savings with Natural Resource Expenses (tax) omitted from taxable income calculation	$1,290	$669
Pro-rated for oil as a share of the value of oil and gas production and oil in jurisdictions (CAPP, 2010b)	56%	56%
Resulting annual tax gain	$724	$375
Pro-rated for exploration's share of net expenditures relative to development (CAPP 2010a)	30%	30%
Canadian exploration expense tax savings*	$214	$111
Prorated for development's share of net expenditures relative to development (CAPP 2010a)	70%	70%
Canadian development expenses tax savings*	$510	$264

*Average federal rate in 2008 was 20 per cent with the average combined provincial rate of 11 per cent. (Statistics Canada, 2008)

LUMP-SUM COMPARISON

Under this method the accelerated depreciation is compared lump sum with that of a neutral tax rate. Two streams of capital costs are estimated using a present value calculation to determine what is paid over the entire depreciation period. The formula assumes the company (or in this case the sector) will be profitable over the entire life of the capital and therefore underestimates the size of the subsidy. This is the approach advocated by the Department of Finance Canada (2007) to impute tax deferrals. The following steps were followed:

1. Natural resources expenses, (books) were $7,382 million in 2008, while natural resource expenses (tax) were $13,910 million, resulting in a net profit reduction for tax purposes of $6,529 million.
2. We assume the book value is the benchmark tax case ($7,382 million), with the tax case providing the basis of the with subsidy case ($13,910 million).
3. For the benchmark case, the book expenses are depreciated on a declining balance using a rate of 25 per cent (Ketchum, Levigne & PLummer, 2001). In the subsidy case, the portion of the tax expenses for CDE (70 per cent of 2008 expenditures) are accelerated at a rate of 30 per cent, while the CEE expense is fully deductable (the write-off is 100 per cent). In both cases, provincial (11 per cent) and federal tax (20 per cent) savings are applied to the stream of capital.
4. As with the year-by-year basis, the natural resource book and tax expenses are apportioned to the oil sector and between exploration and development.
5. We then calculate the present value of these two cases assuming an 8 per cent discount rate (Treasury Board of Canada recommended) and assuming 20 years of equipment life. All values are converted to 2009 dollars using the CPI (1.013 from 2008 to 2009).

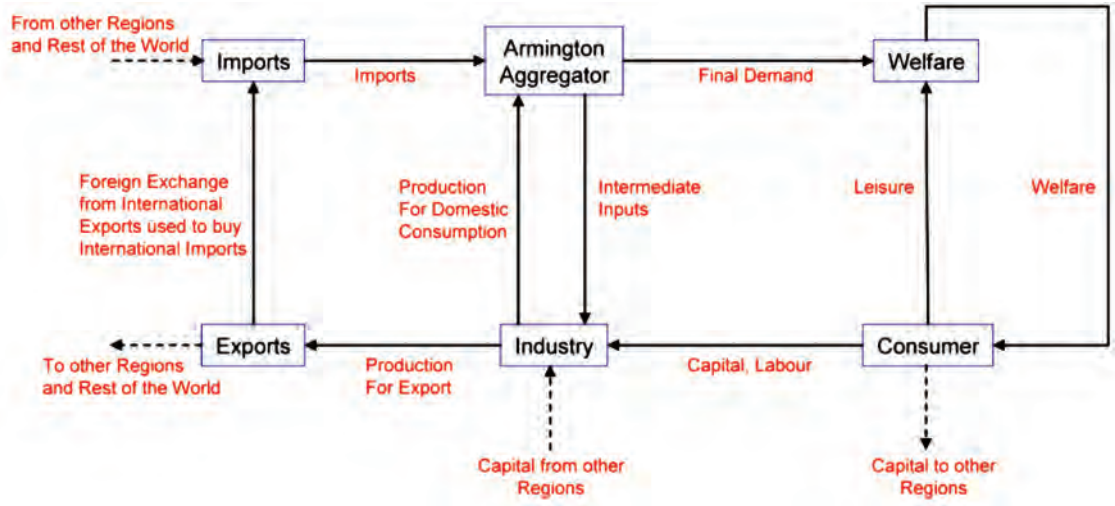
TABLE A2-3: CALCULATION OF CDE AND CEE USING LUMP-SUM METHOD IN 2008 (MILLIONS $2009)

	Subsidy Case	Benchmark Case	
Resource allowance (oil and gas) in 2008	$13,382	$7,102	
Pro-rated for oil as a share of the value of oil and gas production (CAPP, 2010b)	56%	56%	
Resource allowance (pro-rated for oil in jurisdictions 97.2%)	$7,304	$3,876	
CEE calculation			
Resource allowance pro-rated for exploration	30%	30%	
Resource allowance CEE	$2,159	$1,147	
CEE deduction applied	100%	25%	**CEE Tax Savings**
Present Value CEE Federal	$400	$174	$226
Present Value CEE Provincial	$220	$95	$125
CDE Calculation			
Resource allowance pro-rated for development	70%	70%	
Resource allowance CDE	$5,198	$2,758	
CDE deduction applied	30%	25%	**CDE Tax Savings**
Present Value CDE Federal	$821	$418	$403
Present Value CDE Provincial	$451	$230	$222

18. ANNEX 3: THE GEEM COMPUTABLE GENERAL EQUILIBRIUM MODEL

To complete the analysis, we employ a computable general equilibrium (CGE) model called GEEM, which is an economic model that balances supply and demand for commodities and services in all markets through prices. The current GEEM model represents British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, Atlantic Canada and the United States as separate regions, and each region interacts through trade of commodities and services. Capital is assumed to be mobile between provinces/states within each country, while labour is assumed to be mobile within regions (inter-region migration is not assumed to be influenced by the policy). In the model, a representative household in each region is the owner of primary factors (labour, capital and natural resources), which they rent to producers who combine them with intermediate inputs to create commodities. Commodities can be sold to other producers (as intermediate inputs), to final consumers, or to other regions and the rest of the world as exports. Commodities can also be imported from other regions or the rest of the world. The key economic flows in GEEM are captured schematically in Figure A3-1.

FIGURE A3-1: OVERALL STRUCTURE OF THE GEEM MODEL FOR A SINGLE REGION (E.G., BRITISH COLUMBIA)



GEEM functions by initially developing a representation of the North American economy in the absence of new policies in a specific year (e.g., 2020). This representation is based on the input-output tables published by Statistics Canada and sector growth rates provided by Informetrica. After the model has been developed for a specific year, we introduce policies, such as carbon taxes, cap-and-trade systems or technology regulations. These policies initially unbalance the model, as firms become more or less profitable under the policy at a given set of commodity and factor prices (e.g., natural gas prices and wage rates), and households may not be able to maintain current consumption patterns at their previous incomes given additional emissions costs. The GEEM model restores equilibrium within the economic system by adjusting all prices, sector outputs and household consumption patterns. Using the new equilibrium, we can estimate the effects of the policies on various economic indicators such as gross domestic product or employment.

GEEM assumes that all markets clear – prices adjust until supply equals demand. Most markets are assumed to be perfectly competitive, such that producers never make excess profits. However, an exception is made for the resource extraction sectors that are assumed to earn extra profits due to resource rent. The presence

of resource rents makes these sectors less susceptible to declines in output than other sectors, as the size of rents can decline while the sector remains profitable. However, output still declines as a function of costs from the sector (i.e., an increase in costs will remove marginal plants from production), and this relationship is based on data from the National Energy Board (2009).

Investment capital is modelled as a fixed stock; capital investment can be moved between different sectors or regions in response to a policy, but the overall level of investment remains constant.

Like most computable general equilibrium models, GEEM imposes the restriction of constant returns to scale on producers to make the model more tractable. Likewise, it imposes the assumption that consumer preferences are homogeneous and continuous.

The data underlying the model is derived primarily from the Statistics Canada System of National Accounts. We use the S-Level Input, Output, and Final Demand tables to populate the model, and aggregate these somewhat to focus on sectors of primary interest.[1] Energy consumption is disaggregated using data from the CIMS model and from the Statistics Canada Report on Supply and Demand of Energy.

GEEM is implemented in GAMS, using the MPS/GE substructure.

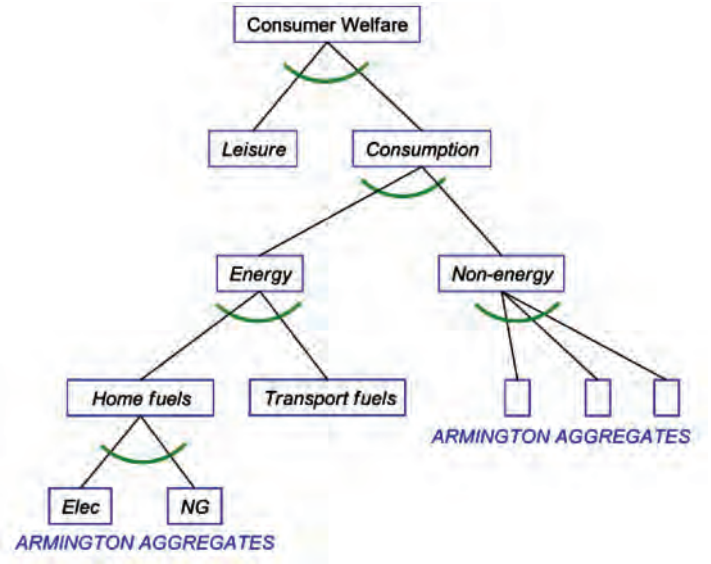
Consumers

GEEM uses a representative agent framework, like many CGE models, where all consumers (individuals) are represented by a single representative agent. In this framework, the representative agent aims to maximize utility, where utility is a function of consumption of various commodities and leisure:

(1) $$U^C = U^C(c_1 ... c_N, L)$$

In GEEM, U^C is characterized by a nested constant elasticity of substitution function, which is represented schematically in Figure A3-2. At the top level of the nest, the consumer chooses between leisure and consumption. Consumption is made up of energy commodities and non-energy commodities, which are nested separately. Amongst energy commodities, electricity and natural gas form an individual nest.

FIGURE A3-2: REPRESENTATION OF CONSUMER UTILITY FUNCTION IN GEEM



[1] This is the level with the least amount of resolution, and does not allow much differentiation of energy-intensive sectors, but is the only one available at a provincial level because of confidentiality concerns.

The consumer faces a budget constraint, given by:

(2) $$M^C = \sum_{i=1}^{n}(1+t_i^C)p_i c_i$$

Income for the representative consumer is derived from returns to primary factors, and all taxation revenue:

(3) $$M^C = \sum_{f=1}^{L} F_f w_f (1-t_f^F) + T$$

Equations (1) through (3) are solved through Lagrangian optimization for quantities *ci* and *L*. These commodity (and leisure) demand equations are used in developing the general equilibrium solution.

Producers

The GEEM model includes a representative producer in each of the *K* productive sectors of the economy, which are each assumed to be perfectly competitive (i.e., no excess profits are derived by producers) except for the upstream oil and gas sector. Profits for each sector *j* are given by:

(4) $$\pi^j = \sum_{i=1}^{N} p_i Y_{ij} - \sum_{i=1}^{N} p_i x_{ij} - \sum_{f=1}^{F} w_f F_{fj}(1+t_f^j - s_f^j)$$

Each sector makes outputs by combining primary factors and intermediate inputs in a nested *KLEM* (capital, labour, energy and materials) production function:

(5) $$Y_j = Y_j(F_{1j}..F_{fj}, x_{1j}..x_{Nj})$$

The specific structure of the production function Y_j is given in Figure A3-3. In this structure, energy commodities enter in successive nests, to represent the differing capacity to switch between fuels. Once aggregated, the energy commodities can substitute for the value-added aggregate, made up of capital and labour inputs. Overall, industry output is made up of a combination of this energy and value-added bundle with a bundle of intermediate (material) inputs. Combustion emissions from fossil fuel combustion are based on a fixed coefficient relationship with each fuel type.

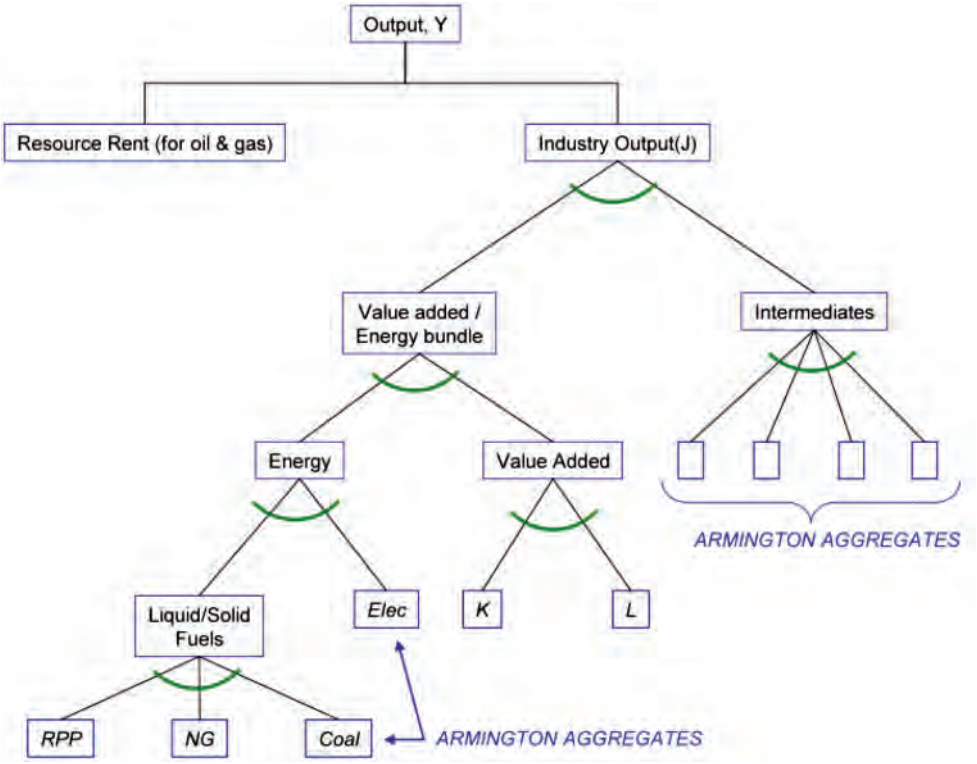
The oil and gas sector receives special treatment, as it is assumed to earn resource rents. The presence of resource rents makes the oil and gas sector less susceptible to declines in output, as the size of rents can decline while the sector remains profitable. All output adjustments from the oil and gas sector occur as the average cost of the sector increases, and it is assumed that these increases remove marginal plants from operation. The relationship between output and cost was approximated from the relationship between oil and natural gas prices and production from the National Energy Board (2009).

Total output is disaggregated into individual commodities using a constant elasticity of transformation function (T_j):

(6) $$Y_j = T_j(Y_{1j}..Y_{Nj})$$

Equations (4) through (6) are solved through Lagrangian optimization for quantities x_{ij} and F_{ij}. These equations are used in the general equilibrium conditions to solve the model.

FIGURE A3-3: REPRESENTATION OF PRODUCTION FUNCTION IN GEEM



Trade

GEEM models trade flows to other provinces and to the rest of the world. Imports are combined with domestically produced commodities in a constant elasticity of substitution function to produce Armington aggregate commodities, which are consumed by both producers (intermediate inputs) and consumers (final demand):

(7) $A_i = A_i(\ddot{Y}_i, M_i)$

Production is separated into production for domestic consumption and production for export according to a constant elasticity of transformation function (G_i):

(8) $Y_i = G_i(\ddot{Y}_i, \bar{Y}_i)$

Where $Y_i = \sum_{j=1}^{K} Y_{ij}$ overall trade flows are determined by balancing imports and exports mediated through a foreign exchange market:

(9) $$FXX = \frac{\sum_{i=1}^{N} p_i^W \bar{Y}_i}{PFX}$$

(10) $$FXM = \frac{\sum_{i=1}^{N} p_i^W M_i}{PFX}$$

(11) $FXX - FXM = BTD$

Runs in GEEM are constrained such that the balance of trade deficit (BTD) that prevailed in the benchmark scenario is replicated in the counterfactual scenario. The world price is given by:

(12) $p_i = p_i^W (1 + t_i^x)(1 + t_i^m)$

VARIABLE DEFINITIONS

Consumers

U^C Consumer utility

c_i Quantity of commodity *i* consumed by consumer

L Quantity of leisure consumed by consumer

p_i Price of commodity *i*

t_i^C Consumption tax rate on commodity *i*

t_f^F Direct factor tax rate on factor *f*

T Sum of all direct and indirect tax revenue

Producers

Y_{ij} Quantity of output of commodity *i* by sector *j*

Y_j Total output of all commodities by sector *j*

x_{ij} Quantity of intermediate input of commodity *i* by sector *j*

π^j Profit of sector *j*

F_{fj} Quantity of factor *f* required by sector *j*

w_f Returns to factor *f*

t_{fj} Indirect factor tax rate on factor *f* employed by sector *j*

s_{fj} Indirect factor subsidy rate on factor *f* employed by sector *j*

Trade

$\ddot{Y}_i$ Production of commodity *i* for domestic consumption

$\bar{Y}_i$ Production of commodity *i* for export to rest of world

BTD Balance of trade deficit with the rest of world

FXM Foreign exchange outlays for imports

FXX Foreign exchange receipts from exports

PFX Price of foreign exchange (exchange rate)

p_i^W World price of commodity *i*

t_i^x Tax on exports of commodity *i*

t_i^m Tax on imports of commodity *i*

ABOUT THE AUTHORS

Dave Sawyer is the proprietor of Sawyer EnviroEconomic Consulting. He is trained in both the quantitative and qualitative aspects of economics. His work experience has called for a variety of applied analysis in the area of environmental, natural resource and regulatory economics. He has completed a significant number of projects focused on assessing regulatory proposals and management instruments, estimating health and environmental benefits, feasibility and cost-benefit analysis. He has 14 years of environmental economic experience and has recently completed work on climate policy for Environment Canada, the National Roundtable on Environment and Economy, the Auditor General of Canada, the Auditor General of Alberta, and the governments of Alberta, Ontario, Manitoba and British Columbia. His international assignments have included the Caribbean, China, Indonesia, Philippines and Vietnam.

Seton Stiebert is a professionally designated engineer who has worked in the environmental consulting field for the past twelve years. He is currently an associate of EnviroEconomics in Ottawa, and has previously been both a senior engineer with Marbek Resource Consultants and project manager for RWDI Air Inc.

Mr. Stiebert has developed expertise in emission inventories and mitigation strategies, air quality impact assessments and air dispersion modelling, and has been a technical advisor to a number of clean development mechanism (CDM) projects for Foreign Affairs and International Trade Canada. His experience includes investigating a broad range of GHG emission controls and management tools, including: emission trading, environmental charges, fiscal incentives and regulatory instruments for all sectors of the economy at both the federal and provincial jurisdictional level.

THE GLOBAL SUBSIDIES INITIATIVE (GSI) OF THE INTERNATIONAL INSTITUTE FOR SUSTAINABLE DEVELOPMENT (IISD)

The International Institute for Sustainable Development (IISD) launched the Global Subsidies Initiative (GSI) in December 2005 to put a spotlight on subsidies – transfers of public money to private interests – and how they undermine efforts to put the world economy on a path toward sustainable development.

Subsidies are powerful instruments. They can play a legitimate role in securing public goods that would otherwise remain beyond reach. But they can also be easily subverted. The interests of lobbyists and the electoral ambitions of officeholders can hijack public policy. Therefore, the GSI starts from the premise that full transparency and public accountability for the stated aims of public expenditure must be the cornerstones of any subsidy program.

But the case for scrutiny goes further. Even when subsidies are legitimate instruments of public policy, their efficacy – their fitness for purpose – must still be demonstrated. All too often, the unintended and unforeseen consequences of poorly designed subsidies overwhelm the benefits claimed for these programs. Meanwhile, the citizens who foot the bills remain in the dark.

When subsidies are the principal cause of the perpetuation of a fundamentally unfair trading system, and lie at the root of serious environmental degradation, the questions have to be asked: Is this how taxpayers want their money spent? And should they, through their taxes, support such counterproductive outcomes?

Eliminating harmful subsidies would free up scarce funds to support more worthy causes. The GSI's challenge to those who advocate creating or maintaining particular subsidies is that they should be able to demonstrate that the subsidies are environmentally, socially and economically sustainable – and that they do not undermine the development chances of some of the poorest producers in the world.

To encourage this, the GSI, in cooperation with a growing international network of research and media partners, seeks to lay bare just what good or harm public subsidies are doing; to encourage public debate and awareness of the options that are available; and to help provide policy-makers with the tools they need to secure sustainable outcomes for our societies and our planet

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The GSI is an initiative of the International Institute for Sustainable Development (IISD). Established in 1990, the IISD is a Canadian-based not-for-profit organization with a diverse team of more than 150 people located in more than 30 countries. The GSI is headquartered in Geneva, Switzerland and works with partners located around the world. Its principal funders have included the governments of Denmark, the Netherlands, New Zealand, Norway, Sweden and the United Kingdom. The William and Flora Hewlett Foundation have also contributed to funding GSI research and communications activities.

FURTHER DETAILS AND CONTACT INFORMATION

For further information contact Ms. Kerryn Lang at: klang@iisd.org or info@globalsubsidies.org or +41.22.917.8920.

GSI Programme
International Institute for Sustainable Development
9 chemin de Balexert, 1219, Geneva, Switzerland
Fax: +41.22.917.8054