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Report of the Commissioner of the Environment and Sustainable Development

CHAPTER 4

A Study of Federal Support to the Fossil Fuel Sector



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CHAPTER 4

A Study of Federal Support to the Fossil Fuel Sector

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A Study of Federal Support to the Fossil Fuel Sector

Main Points

What we examined

As a member of the G-20, Canada has officially recognized that efforts to deal with climate change, wasteful energy consumption, market distortions, and barriers to clean energy investment are undermined by inefficient fossil fuel subsidies.

The purpose of this study was to provide parliamentarians with information on the various means, including but not limited to subsidies, by which the government supports the fossil fuel sector, and the cost of that support. Because there is no single entity within government that is responsible for assembling a listing of government programs and activities that support the fossil fuel sector in Canada, our study undertook to compile such an inventory.

Where a program offered support to other economic sectors as well, we considered to the extent possible only the value of the support attributable to the fossil fuel sector. We also included programs that reduce carbon footprint through clean energy technology.

This document is not an audit report. For this reason, our observations should not be considered an assessment of the government's current practices. Our study did not assess the effectiveness or efficiency of the programs and activities identified or their impacts.

Our work for this chapter was completed on 28 August 2012. More details about the objectives, scope, and approach are in **About the Study** at the end of this chapter.

Why it's important

In general terms, subsidies have a direct effect on public sector budgets. Subsidies can help address market failures, respond to social needs, and encourage environmental improvements. At the same time, subsidies can also exert market and pricing distortions that can have negative impacts on environmental quality.

The Organisation for Economic Co-operation and Development has identified fossil fuel subsidies in its member nations amounting to between US\$45 billion and US\$75 billion annually between 2005 and 2010. Approximately 30 percent of that amount was received by

producers, and the majority was provided through tax expenditures. A report submitted to the G-20 noted that subsidies to producers of fossil fuels worldwide may be around US\$100 billion per year.

According to the International Energy Agency (IEA), the complete phase-out of global subsidies for fossil fuel consumption could reduce greenhouse gas emissions by 1.7 gigatonnes by 2020. This would amount to approximately 40 percent of the abatement needed to limit global warming to a 2°C rise by 2020. Although reform of fossil fuel subsidies on its own may not be sufficient to resolve climate change, according to the IEA it is a necessary step forward.

What we found

- The government has a broad range of programs that provide support to the fossil fuel sector. That support can be grouped into two main types: direct spending through various programs; and tax expenditures under the *Income Tax Act*, which represent the majority of financial support.
- Based on the data that the government provided to us, the majority (97 percent) of direct spending to support the fossil fuel sector was for research and development, more than half of which related to clean technology. Other direct spending went to economic development activities. Total direct spending amounted to \$508 million over the fiscal period 2007–08 to 2011–12. Extended over 30 years, this would represent a significant decline in direct spending support to the sector since the 30 years preceding our 2000 study of government support for energy investments.
- The costs of tax expenditures are not as easily determined as are direct expenditures, due to limitations in data availability and the methodological challenges of developing cost estimates.
- The estimated costs of tax expenditures that Finance Canada was able to attribute specifically to the fossil fuel sector amounted to \$1.47 billion over the fiscal period 2006–07 to 2010–11, primarily relating to the accelerated capital cost allowance for oil sands projects. This tax expenditure is being phased out over four years. A number of other tax expenditures are also being phased out over varying time periods. The estimated costs of tax expenditures attributable to the oil and gas, mining, and clean energy sectors as a whole amounted to about \$2 billion, accounted for largely by deductions for flow-through shares. Finance Canada was unable to estimate the proportion of this support that was attributable specifically to the fossil fuel sector. For other tax expenditures, such as the accelerated capital cost allowance for mining and Canadian exploration expenses, the Department was unable to provide an estimate of the costs.

Introduction

4.1 For more than a decade, the federal government has recognized the importance of improving the interaction between economic and environmental objectives. In general, the government has committed to helping ensure that fiscal and environmental objectives are complementary. For example:

- In 2003 (in a joint response to an environmental petition), the Department of Finance Canada, Environment Canada, Industry Canada, and Natural Resources Canada noted that since the mid-1990s, direct financial support to the fossil fuel sector had fallen sharply, and that the direction of tax policy has been toward reforming the tax treatment relative to the renewable energy sector.¹
- In 2005, Finance Canada published *A Framework for Evaluation of Environmental Tax Proposals*, outlining the context and criteria that would guide the Department in evaluating options for using the tax system to pursue environmental goals and achieve sustainable development.²
- In 2008, the *Federal Sustainable Development Act* formally recognized the interrelationship among economic, social, and environmental factors in supporting sustainable development.
- In 2010, the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals (the federal government's official policy on strategic environmental assessments) noted that all ministers are responsible for ensuring that all their decisions fully consider the environmental implications of proposed initiatives.

4.2 Subsidies are one of many tools used by governments to attain economic, social, and environmental objectives.³ “Virtually all of the member countries of the Organisation for Economic Co-operation and Development (OECD) provide some form of government assistance to industry”⁴ for a number of reasons, including the following:

- to alleviate market failures,
- to reduce regional disparities,
- to encourage the growth of small businesses⁵ and other investments, or
- to meet other social policy objectives.⁶

Fossil fuels—A non-renewable source of energy, including coal, oil, and natural gas. Fossil fuels have formed over millions of years through the decay, burial, and compacting of rotting vegetation on land and marine organisms on the sea floor. They are being depleted. When these fuels are burned, they produce carbon dioxide, which is a significant greenhouse gas.

In Canada, the federal government uses tools that include subsidies in the form of direct program spending, regulation, and tax measures. Exhibit 4.1 provides the context and definitions of subsidy and support as used in this chapter.

4.3 Government regulations and policies, such as subsidies for developing clean energy or **fossil fuels**, can affect the environment and sustainable development both negatively and positively. According to the OECD, subsidies to industry often do not achieve their desired outcomes in terms of growth and productivity.⁷ Support for industry “can help sustain levels of production that are environmentally harmful in terms of polluting emissions and resource consumption.”⁸ In addition, energy subsidies can be “economically costly to taxpayers and can damage the environment through increased emissions of greenhouse gas and other air pollutants.”⁹ However, because many environmental improvements depend on technological change, support to industry “for research and development and environmental protection can be environmentally beneficial.”¹⁰

Exhibit 4.1 Definitions of subsidy and support

Canada is a member of various international organizations that have attempted to define the term “subsidy,” including the International Energy Agency (IEA), the Organisation for Economic Co-operation and Development (OECD), The World Bank, and the World Trade Organization (WTO). While the definitions continue to evolve, this study highlights two principal definitions that have gained wide acceptance in international law and economics—the WTO’s definition of subsidy and the OECD’s definition of support.

The WTO, in the Agreement on Subsidies and Countervailing Measures, states the accepted international definition of a **subsidy** as a financial contribution by a government that confers a benefit.

A subsidy exists where

- government provides a direct or indirect transfer of funds,
- revenue is forgone or not collected,
- government provides goods or services or purchases goods, or
- government provides income or price support.*

Canada and other WTO members are legally bound to this definition through international treaty law and domestic implementing legislation. In addition, several complex legal cases under the WTO and North American Free Trade Agreement dispute settlement processes have provided further interpretations of this definition. These cases have prompted several experts to try to apply this definition to real-world scenarios.

In their Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, the IEA, the Organization of the Petroleum Exporting Countries (OPEC), OECD, and The World Bank note the limited practical applicability of the WTO definition, due to many factors.** Supplementing the WTO definition, the OECD defines **support** as gross transfers from taxpayers to industry arising from a government’s policies.

Sources: * World Trade Organization, Agreement on Subsidies and Countervailing Measures, Part 1: General Provisions, Article 1, 1.1, http://www.wto.org/english/docs_e/legal_e/24-scm_01_e.htm

** IEA, OPEC, OECD, The World Bank, Joint Report: Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, Prepared for submission to the G-20 Summit Meeting, Toronto (Canada), 26-27 June 2010, http://opec.org/opec_web/static_files_project/media/downloads/publications/OPECIEA_OECDWB_Joint_Report.pdf

4.4 The relationship between subsidies available to the energy sector and their effect on GHG emissions is complex. However, in general terms, reducing the relative price of fossil fuels can increase consumption, which can result in increased GHG emissions.

4.5 The production and consumption of fossil fuels are the main sources of human-induced GHG emissions. According to the International Energy Agency (IEA), the complete phase-out of global subsidies for fossil fuel consumption could reduce GHG emissions by 1.7 gigatonnes by 2020. This would amount to over 40 percent of the abatement needed to be on track to limiting global warming to a 2°C rise by 2020.

4.6 Although the reform of fossil fuel subsidies on its own may not be sufficient to mitigate climate change, it is, according to the IEA, a necessary step forward.

International commitments

4.7 At the September 2009 G-20 summit in Pittsburgh, member countries noted in the Leaders' Statement that "inefficient fossil fuel subsidies encourage wasteful consumption, distort markets, impede investment in clean energy sources and undermine efforts to deal with climate change."¹¹

4.8 The G-20 leaders committed to rationalizing and phasing out, over the medium term, "inefficient fossil fuel subsidies that encourage wasteful consumption."¹² They also recognized the importance of providing support for clean energy, renewable energy sources, and technologies that dramatically reduce GHG emissions.¹³

4.9 Inefficient subsidies. The Leaders' Statement did not define "inefficient subsidies" but left it to each of the member countries to do so. Identifying which fossil fuel subsidies may be "inefficient" requires understanding the circumstances within each country, and the impact of different subsidies.¹⁴ "Acknowledging that a particular energy subsidy affects the production or consumption of a fossil fuel does not automatically mean that it is inefficient or leads to wasteful consumption."¹⁵ Well-implemented subsidies can help address market failures or respond to social needs.¹⁶ A subsidy's design, administration, and interaction with other government policies determine to what extent it is socially and environmentally harmful and how urgently it might need to be phased out.¹⁷

Intangible capital—Assets that are not physical in nature but are still valuable to a corporation. They are treated like tangible capital assets, such as equipment, which have a physical form. Both types of capital assets are depreciable. A corporation can deduct costs relating to intangible capital assets from its income for tax purposes over the asset's useful life. In the context of the fossil fuel sector, intangible capital assets may include costs related to the discovery of new resource deposits, clearing land, and drilling wells.

Tax expenditures—Special measures, such as low tax rates, exemptions, deductions, deferrals, and credits, used by the government to achieve public policy objectives through the tax system. Tax expenditures are often used as alternatives to direct spending and to achieve economic and social policy objectives at the cost of lower tax revenue.

4.10 At the June 2010 G-20 summit in Toronto, the G-20 members submitted national implementation strategies and timetables for reducing or phasing out inefficient fossil fuel subsidies. Canada's implementation strategy focused on several tax reforms that had been announced in budgets before 2009, such as the phase-out of the accelerated capital cost allowance for oil sands projects (see paragraph 4.83). Canada committed to continuing to review its policies to ensure that the policies provide an internationally competitive economic environment and achieve their goals efficiently.¹⁸

4.11 Budgets in 2011 and 2012 contained additional reforms supporting Canada's G-20 commitments, such as phasing out the Atlantic Investment Tax Credit for oil and gas and mining, and aligning the deduction rates for **intangible capital** expenses in oil sands projects with those available in the conventional oil and gas sector.

4.12 In 2012, Canada agreed with other members of the Asia-Pacific Economic Cooperation to reaffirm their commitment to "rationalize and phase out inefficient fossil fuel subsidies that encourage wasteful consumption."¹⁹

4.13 To support work on reforms to fossil fuel subsidies, the G-20 leaders directed the OECD, IEA, the Organization of the Petroleum Exporting Countries (OPEC), and The World Bank to prepare a joint report on fossil fuel subsidies. Reports, released in June 2010 and November 2011, noted that subsidies to producers of fossil fuels may be in the order of US\$100 billion per year worldwide, and that the value of support to fossil fuel production in OECD member countries was estimated to be between US\$45 and US\$75 billion annually between 2005 and 2010. Most of the support mechanisms identified were **tax expenditures**.

4.14 The reports also noted that subsidies for consumption in developing countries were estimated at US\$557 billion in 2008 and US\$409 billion in 2010. According to the OECD, support for consumption accounts for less than 20 percent of fossil fuel support in Canada.

Previous work by the Commissioner of the Environment and Sustainable Development

4.15 In 2000, a study by the Commissioner of the Environment and Sustainable Development (the Commissioner)—Government Support for Energy Investments—examined direct federal spending, federal regulations, and the use of the tax system to support energy investments. The study noted that between 1970 and 1999, Canadian direct federal

spending on energy production from fossil fuels was \$40.4 billion, but that support provided through the tax system could not be estimated.

4.16 The Commissioner's 2000 study examined three categories of tax expenditures available to the oil and gas and mining sectors:

- accelerated deductions;
- flow-through shares; and
- the resource allowance for the non-deductibility of Crown royalties and mining taxes.

Overall, the study found that, with a few exceptions, federal government support for energy investments, including support through the tax system, did not particularly favour the non-renewable sector over the renewable sector. The exceptions included investments in oil sands and coal mines, where significant tax expenditures were available. Paragraph 4.83 provides more information on these tax expenditures available to the fossil fuel sector.

4.17 The 2000 study cautioned that estimating total federal tax expenditures is complex, partly due to methodology issues and data gaps. For example, the estimation of tax expenditures must take into account the unique tax situation of each company. In addition, providing aggregate estimates with a reasonable degree of accuracy can be extremely labour intensive and requires isolating data specific to each project and corporation.

4.18 The study found that Finance Canada was not collecting data needed to estimate total tax expenditures related to accelerated deductions for the oil and gas sector. Finance Canada has noted that no widely accepted method exists for estimating these tax expenditures. The study encouraged the Department to explore other ways to estimate the total cost of tax expenditures, including accelerated deductions.

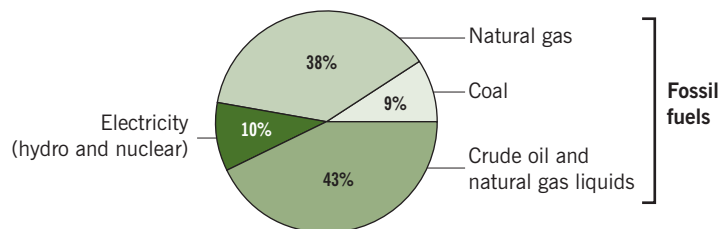
4.19 In 2004, the Commissioner conducted an audit that examined how the government uses the tax system to achieve its sustainable development commitments. The audit identified gaps in the assessment of the environmental impacts of tax expenditures. Finance Canada noted its commitments to continue to evaluate research concerning environment-related tax expenditures and to assess the potential for using the tax system to help the government meet its environmental objectives. A Framework for Evaluation of Environmental Tax Proposals, published in 2005, outlines the criteria for evaluating environmental tax proposals.

4.20 This current study by the Commissioner provides an opportunity to update estimates of federal support provided by both direct and indirect (tax expenditures) spending to the fossil fuel sector for the fiscal years 2006–07 to 2011–12.

Canada's fossil fuel sector

4.21 Canada has substantial and diversified fossil fuel resources, and is an exporter of oil, natural gas, and coal.²⁰ Fossil fuels account for 90 percent of primary energy supply in Canada. Exhibit 4.2 illustrates the production of primary energy by source.

Exhibit 4.2 In 2010, fossil fuels accounted for most of the primary energy production in Canada



Source: Statistics Canada, Table 128-0016, Supply and demand of primary and secondary energy in terajoules, CANSIM (database)

4.22 Canada is the third-most oil-rich nation in the world (after Saudi Arabia and Venezuela), with most of its oil found in the Alberta oil sands. Advances in technology hold considerable potential for increasing Canada's oil resources.

4.23 Oil sands production has grown rapidly in recent years, offsetting a decline in the production of conventional oil.²¹ The National Energy Board baseline projection of the most likely outcome for Canada's energy future is for oil production to double by 2035, at which time oil sands production will account for 85 percent of the country's total oil production, compared with 54 percent in 2010.

4.24 The fossil fuel sector employed about 200,000 people in Canada and generated \$62 billion in 2011, accounting for 8 percent of Canada's nominal gross domestic product. Fossil fuel exports totalled more than \$114 billion. In 2011, about 480,000 cubic metres of crude oil a day and about 400 million cubic metres of natural gas a day were produced; more than half of this production was exported.

4.25 In 2010, the energy sector produced 81 percent of Canada's GHG emissions. In 2010, Canada represented 3.1 percent of global energy production, 2.3 percent of energy demand, and 1.8 percent of CO₂ emissions from fuel combustion.

Recent attempts at estimating support

4.26 While the methodologies used to measure subsidies are also evolving, certain approaches have gained general acceptance among experts. For example, the OECD's Producer Support Estimate Manual includes a well-established approach for use in the agricultural sector, and the Organisation has adopted this approach in measuring fossil fuel subsidies. Other attempts to catalogue methodologies include the following documents:

- Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, jointly published in 2010 by IEA, OPEC, OECD, and The World Bank; and
- Subsidy Estimation: A Survey of Current Practice, published in 2010 by the Global Subsidies Initiative (GSI) of the International Institute for Sustainable Development.

4.27 Recent studies by the OECD in 2011 and GSI in 2010 have attempted to estimate the value of Canadian federal support to the fossil fuel sector. These studies identified a number of challenges related to how the estimates were calculated. These challenges led to different methodologies for estimating subsidies, and to results ranging from \$1.38 billion in a single year to \$1.54 billion over three years.

4.28 In 2011, the OECD published its Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels for 24 OECD member countries, including Canada. The report found that many of the tax incentives available to the oil and gas and mining sectors have been reformed. At the same time, the study concluded that several tax expenditures supporting energy production remain in place. The OECD inventory identified nine support measures available to producers from the federal government, eight of which were provided through the tax system and were identified in Finance Canada's tax expenditure reports. The OECD inventory also noted that estimates for some of the tax expenditures identified were not available.

4.29 The OECD has acknowledged a number of caveats related to its methodology, underscoring the complexity of estimating the aggregate value of individual subsidies. The inventory included support measures identified by the responsible governments; however, due to differences in defining benchmarks, the estimates are not comparable across countries (for more information on expenditures and benchmarks, see paragraph 4.42). Also, due to the potential for interaction among tax expenditures, simply adding up the values of individual measures does not necessarily result in an accurate estimate of the total value of tax expenditures.

4.30 A 2010 paper entitled *The Myths and Facts of Fossil Fuel Subsidies: A Critique of Existing Studies* noted a number of weaknesses in the methods used to analyze the magnitude of subsidies. In particular, the authors cite

- the use of a definition of “subsidy” that had been designed for the multilateral trade regime rather than for domestic subsidy assessments;
- the failure to account for the interdependence between tax expenditures and royalties; and
- the lack of robust economic frameworks, including economic models capable of capturing the dynamic interplay among different measures.²²

Specificity principle

4.31 Both the World Trade Organization definition of a “subsidy” and the OECD definition of “support” apply the specificity principle, which states that to be included, a measure must be available only to one organization or group of organizations. It is designed to focus on measures that provide preferential treatment to a specific sector or industry over others.

4.32 For example, because fossil fuel extraction accounts for most of the output of the Canadian mining sector (including oil and gas extraction), the OECD considered some tax expenditures available to the mining sector as a whole to be specific enough to warrant inclusion as support to the fossil fuel sector.²³ However, the OECD excluded other tax expenditures available to a wider array of sectors because they do not provide preferential treatment to the fossil fuel

sector over other sectors. The OECD did not, for example, include the Atlantic Investment Tax Credit because it is available to a range of sectors, including logging, farming, fishing, and manufacturing, in addition to mining.

4.33 In order to compile a broad list of support to the fossil fuel sector and to ensure that all forms of support to the sector are included, this study did not apply the specificity principle. For the purpose of this study, we included direct spending programs available to the fossil fuel sector regardless of their availability to other economic sectors, and tax expenditures available to a group of sectors that included mining and clean energy. To the extent possible, we included only the value of support that was attributable to the fossil fuel sector.

Focus of the study

4.34 We undertook this study to inform parliamentarians about the federal government's support to the fossil fuel sector. Reform of fossil fuel support is a necessary step forward in mitigating climate change. The study adopts an inventory approach similar to that used by the OECD in its Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels. In particular, the study uses the OECD term "support," which avoids confusion between the everyday use of the term "subsidy" and its meanings in specific economic and legal contexts.

4.35 No single entity within the federal government is responsible for assembling a comprehensive list of government programs that provide support for the fossil fuel sector. This study aimed to compile a broad list of federal government programs and activities that support this sector and to outline the budgetary impacts of those programs and activities. We examined only federal support to fossil fuel production. We did not assess the impacts of the programs and activities on GHG emissions or the effectiveness or efficiency of the identified programs and activities.

4.36 The financial data collected concerning direct expenditures covered the period 2007–08 to 2011–12. However, the tax expenditure data covered the period 2006–07 to 2010–11, because estimates for the 2011–12 fiscal year were not available when we were completing our work.

Observations

Categories of support

4.37 Based on the studies and methodologies referred to in the introduction, we developed a framework for the support we identified. Support was first broken down into three types: direct spending, tax expenditures, and government-provided goods and services. We then broke down direct spending into two categories—economic development, and research and development—each of which was further broken down into objectives.

Direct spending

Contributions—Conditional transfer payments made to individuals or organizations that are based on a contribution agreement.

4.38 Direct spending involves disbursements of government funds to provide direct financial support to a specific company or industry. This spending includes **contributions** and payments to non-governmental organizations (NGOs), non-profit organizations, or private companies. Programs in this category are the easiest to identify and understand, and are the most transparent when determining the level of financial support.

4.39 Economic development. This category of direct spending is intended to support the economic development of businesses, industries, and communities. It is divided into three objectives:

- **Small and medium enterprise development.** Funding for this objective focuses on enhancing the capacities of small and medium enterprises. Recipients are individual companies. This form of support provides contributions that allow businesses to hire new personnel, fill skills gaps, expand facilities or operations, and develop new competencies.
- **Training.** Under this objective, the government supports education and training. It provides funding to post-secondary institutions for programs to help students acquire the skills they need to contribute to the fossil fuel sector. It also funds other organizations that offer programs to provide people with the skills they need to find jobs in the sector. Such programs often focus on the economic health of a community or group.
- **Industry development.** Funding for this objective supports industries or groups of companies, rather than specific companies. It provides non-profit groups or industry associations with funds to support activities, such as enhancing export trade, developing sector strategies, or expanding the industry.

4.40 Research and development. This category of direct spending supports the fossil fuel sector as a whole, and includes payments and contributions to institutions (such as universities and industrial associations) and private enterprises. It includes funding for both third party and government-conducted research under the following objectives. Case Study 1 provides an example of direct spending related to research and development objectives.

- **Basic research.** This support focuses on gaining more comprehensive knowledge about fossil fuels. It can include research into potential new resources, such as gas hydrates, or research into how resources interact with the environments around them.
- **Exploration and extraction.** This support focuses on upstream industrial activities, such as finding and developing new resource deposits. Research involves developing better techniques for identifying deposits and reservoirs, accessing deposits and developing sites, and extracting the resource from the ground.
- **Production and transportation.** This support focuses on research into midstream industrial activities, including processing, storing, and transporting commodities. Processing includes refining the raw resource into a consumable commodity. Although commodities are transported by road, rail, and pipeline, the research focuses primarily on pipelines.
- **Clean technology.** Support for research in this area focuses on reducing the industry's carbon emissions and environmental footprint. Research involves investigating ways to reduce the emissions intensity of upstream and midstream activities, such as

Case Study 1—Example of direct spending on research and development

Atlantic Innovation Fund

The Atlantic Canada Opportunities Agency (ACOA) supports projects across the spectrum of research and development, although it does not have any programs specific to the fossil fuel sector.

Through the Atlantic Innovation Fund (the Fund), universities in Atlantic Canada received \$15 million to support research and development for fossil fuel production. This included \$12 million for exploration and extraction projects such as seismic modelling, simulation software, and magnetic resonance imaging (MRI) measurements to identify new reservoirs. The Fund also supported other projects, including research into ultraclean diesel.

ACOA has also funded research by private corporations and research institutes. In total, it provided \$6.3 million for projects such as risk mitigation strategies for subsea infrastructure, and engineering technologies for resource markets.

carbon capture and storage (see the Case Study on page 22) and new ways to use fossil fuels that produce fewer emissions.

- **Reclamation and remediation.** Support for this type of research focuses on the impacts that fossil fuel extraction has on land and water. Reclamation involves restoring extraction and production sites to their original conditions. Remediation is the removal, reduction, or neutralization of substances, wastes, or hazardous material from a site to prevent or minimize any adverse environmental effects.

Tax expenditures

4.41 The principal function of the tax system is to raise the revenues necessary to fund government spending. The tax system can also achieve public policy objectives by using tax expenditures.²⁴

4.42 Tax expenditures are deviations from a benchmark. A benchmark tax structure represents what might be considered “normal” or “neutral” taxation of income and consumption. According to the OECD, special tax provisions intended to address policy objectives may be considered deviations from the benchmark. However, the line between what is normal and what is special is often not a clear one,²⁵ as outlined in Exhibit 4.3.

4.43 Tax expenditures can include tax credits, exemptions, rate reductions, deductions, deferrals, rebates, and carry-overs. They result in reduced taxes payable by the beneficiaries. Tax expenditures can have an impact on the amount and timing of tax revenues that the government receives. Some of the federal government’s tax expenditures are targeted specifically at resource sectors, including fossil fuel producers.

4.44 The primary challenge in any analysis of tax expenditures is to identify the reference point—the benchmark tax structure—against which to establish the nature and extent of any tax expenditures.²⁶ There are a number of approaches to defining the benchmark, which vary among countries.²⁷ Differences in what is included in the benchmark result in differences in what is identified as a tax expenditure. Finance Canada takes a broad approach, considering only the most fundamental structural elements of the tax system to be part of the benchmark.²⁸

Government-provided goods or services

4.45 Providing goods or specialized services for free, or at a price below market value, is another category of support. These services can include advocacy, promotion, and outreach.

4.46 Advocacy, promotion, and outreach. Foreign Affairs and International Trade Canada carries out advocacy activities that include the systematic promotion and defence of Canadian investments abroad. It also engages in trade promotion, helping Canadian suppliers of services, technologies, and equipment sell to foreign buyers and open new markets. Natural Resources Canada conducts outreach designed to provide knowledge and tools related to oil sands issues to the general public and decision makers in foreign countries, with the goal of preventing and addressing market access issues.

Exhibit 4.3 Understanding benchmark tax systems

Tax expenditures are estimated by identifying aspects of the tax system that deviate from a benchmark—also known as a reference, efficient, or ideal—tax system. A benchmark establishes a theoretical set of basic rules that would apply to all actors in an economy, and defines the tax base to which those rules would be applied. How the benchmark is defined will affect both what is identified as a tax expenditure and the estimated size of the expenditure.

There is no international consensus about which benchmark tax system should be used. Two common benchmark systems are

- the **income base**, where all income (such as labour, dividends and interest, capital gains, and gifts) is taxed; and
- the **consumption base**, which taxes spending rather than earnings (such as a sales tax).

Depending on the benchmark, the actual tax system will deviate more or less from the theoretical system it is compared to, affecting which tax measures are identified as expenditures.

The results of using different benchmarks

The capital cost allowance (CCA) is a good example of how different benchmarks can result in different tax expenditure estimates. The CCA applies to depreciable property—property that wears out over the years, such as cars, farm equipment, and business machines—that is used to earn income.

Under a consumption base, the costs of such property would be deducted from the tax base immediately. Under an income base, however, the value of the property represents real wealth, and only the value lost in any year is deducted from taxable income. The CCA is the actual amount Canadians are allowed to deduct from their tax base in any year.

Under an income base, the CCA is not considered a tax expenditure: it matches the benchmark because it allows Canadians to deduct only the lost value of an asset in any year. Under a consumption base, however, the CCA is considered a **negative tax expenditure**: the government collects more revenue because Canadians are not able to deduct the entire cost in that year.

An accelerated CCA (ACCA) is an exception to the rule, allowing some assets to depreciate more quickly. Under the income tax benchmark used by Finance Canada, ACCA is a **positive tax expenditure**: by allowing Canadians to deduct more from their taxable income in the early years of an asset's useful life, it reduces the revenue collected by the government in those years. However, under a consumption base, an ACCA is actually closer to the theoretical benchmark and reduces the negative tax expenditure. Canadians can deduct more of the value of an asset immediately.

4.47 These activities include participating in conferences and round tables, and developing and disseminating advocacy materials and fact sheets.

4.48 Because only a portion of the federal government's advocacy, promotion, and outreach activities is directed toward fossil fuels, it can be difficult, if not impossible, to isolate the portion of spending specifically attributable to the fossil fuel sector. Thus, advocacy, promotion, and outreach activities are not included in the information on government support presented in the next section.

Support through direct spending

4.49 In order to provide parliamentarians with information about how the government supports the fossil fuel sector and about the value of that support, we identified 10 departments and agencies that provide support to the sector.

4.50 We asked each department and agency to identify the type of programs and activities that support the fossil fuel sector, referring to the types outlined in the previous section. The organizations identified a broad variety of programs and activities. Because this is a study, we did not audit the information we received from them; however, we reviewed it for reasonability and completeness.

4.51 Based on project descriptions provided by the entities, we broke down direct spending into economic development and research and development (as previously noted). This was done to develop a better understanding of the objectives of the government programs that provide direct support. In some cases, the categorization is an approximation because some programs contribute to a number of objectives.

4.52 Of the 10 departments and agencies we examined, 9 provide support to the fossil fuel sector through direct spending. Exhibit 4.4 lists the value of that support, as provided to us by the organizations involved in this study.

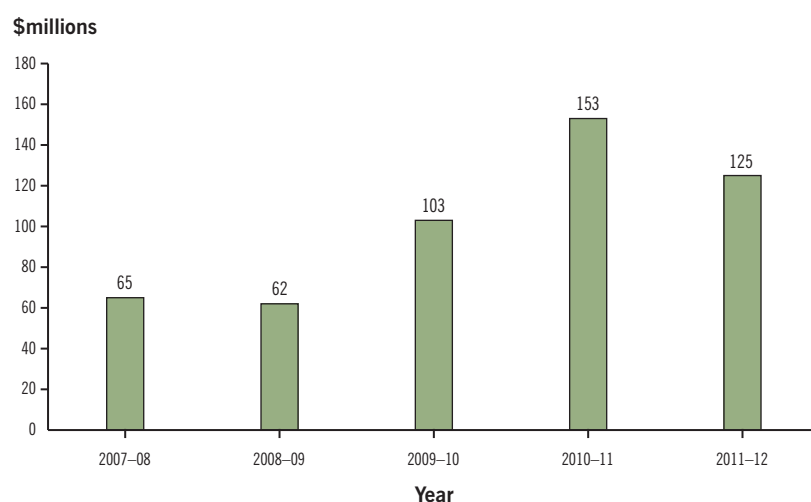
4.53 Exhibit 4.5 highlights support on an annual basis, demonstrating the variability from year to year. The increase in support in 2009–10 and 2010–11 is virtually all attributable to Natural Resource Canada's support for carbon capture and storage projects. The decrease in support in 2011–12 reflects a reduction in its funding for such projects.

4.54 Exhibit 4.6 illustrates the government's support through direct spending classified by category and objectives.

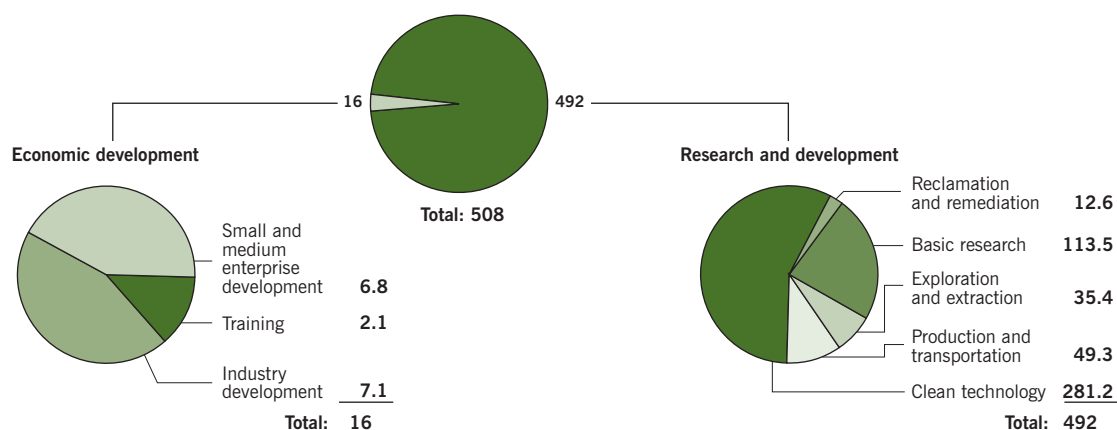
Exhibit 4.4 Direct spending support to the fossil fuel sector, by department and agency, for the 2007–08 to 2011–12 fiscal years

| Departments and agencies | Direct spending (\$millions) | |
|---|------------------------------|--------------------------|
| | Economic development | Research and development |
| Natural Resources Canada | — | 313.8 |
| Natural Sciences and Engineering Research Council | — | 70.9 |
| National Research Council | — | 28.3 |
| Atlantic Canada Opportunities Agency | 4.5 | 21.4 |
| Industry Canada | — | 24.1 |
| Sustainable Development Technology Canada | — | 23.7 |
| Western Economic Diversification Canada | 9.1 | 9.6 |
| Canadian International Development Agency | 2.4 | — |
| Foreign Affairs and International Trade Canada | — | 0.2 |
| Total | 16 | 492 |
| Combined total | 508 | |

Source: Based on unaudited information provided by the departments and agencies

Exhibit 4.5 Direct spending support by year

Source: Based on unaudited information provided by the departments and agencies

Exhibit 4.6 Direct spending support for the 2007–08 to 2011–12 fiscal years (\$millions)

Source: Based on unaudited information provided by the departments and agencies

4.55 This section describes the programs and activities identified as direct spending support to the fossil fuel sector by 9 of the 10 departments and agencies. The descriptions include the amount of support the entities provided for the period 2007–08 to 2011–12. Support provided by Finance Canada through the tax system is presented in the section **Support through tax expenditures**.

Natural Resources Canada

4.56 Natural Resources Canada conducts innovative scientific research and is an established leader in science and technology in the fields of energy, forests, and minerals and metals.

4.57 Research and development. Natural Resources Canada provided the following funding:

- \$88 million for basic research to fill knowledge and technological gaps aimed at reducing environmental risks from fossil fuel production;
- \$10.1 million for research to improve production and transportation of fossil fuels; and
- \$215.7 million for clean technology research such as carbon capture and storage. This support went to academic institutions such as the Institute for Sustainable Energy, Environment and Economy (ISEEE) at the University of Calgary; research associations such as the Carbon Capture and Storage Research Consortium of Nova Scotia; and federal science-based departments and agencies.

Natural Sciences and Engineering Research Council

4.58 The Natural Sciences and Engineering Research Council (NSERC) is an important funder of direct costs of research in the natural sciences and engineering at Canadian universities and colleges.

4.59 Research and development. Through peer-reviewed funding across a variety of sectors, NSERC provided a total of \$70.9 million for research on fossil fuels. Research projects in the oil sands included restoration and remediation of surface mining sites, and the search for better ways to remove unwanted solids from oil wells and for substances that speed up chemical reactions to help extract more oil from the oil sands. Projects in other areas included research to provide the mining industry with better information to help it find and exploit new deposits, training for students wishing to work in the industry, and support to increase Canada's competitive advantage in the mining sector. NSERC's support for research and development broke down as follows:

- \$6.4 million for basic research,
- \$26.2 million for production and transportation,
- \$9.9 million for research into exploration and extraction,
- \$17 million for clean technology, and
- \$11.4 million for reclamation and remediation.

National Research Council

4.60 The National Research Council (NRC) is a government research organization responsible for undertaking scientific and industrial research, publishing and selling scientific and technical information, and providing scientific and technological services to the research and industrial communities.

4.61 Research and development. Within the life sciences and frontier sciences areas, the National Research Council conducted research under the following objectives:

- \$2.8 million for basic research,
- \$2.9 million for clean technology research, and
- \$883,000 for reclamation and remediation.

4.62 Most of NRC's fossil fuel research was related to engineering activities that fell across a variety of research objectives, and was conducted by the Industrial Materials Institute, the Institute for

Fuel Cell Innovation, and the Institute for Chemical Process and Environmental Technology (Case Study 2). This accounted for \$21.7 million, or 77 percent of NRC's total expenditures on fossil fuels.

Case Study 2—Government-conducted research in oil sands

The National Research Council (NRC) engages in a variety of research activities. In particular, the Institute for Chemical Process and Environmental Technology's Oil Sands project focuses on existing and emerging technologies for recovering and upgrading bitumen from oil sands. The project includes research on chemistry fundamentals, refining, and fuel use, as well as sustainability and social impacts. The institute had internationally recognized expertise, and often worked with industrial partners and clients. NRC spent nearly \$13 million on the OILS project between 2007 and 2012, and more than \$28 million on fossil fuel projects overall.

Atlantic Canada Opportunities Agency

4.63 The Atlantic Canada Opportunities Agency (ACOA) strives to create opportunities for economic growth in Atlantic Canada through enterprise and community development, as well as advocacy at the national level.

4.64 Research and development. Over 80 percent of ACOA's support to the fossil fuel sector was provided to 13 projects through the Agency's Atlantic Innovation Fund. This support included

- \$2.1 million for basic research,
- \$18.4 million for research into exploration and extraction, and
- \$933,000 for production and transportation.

4.65 Fossil fuel projects included research into applications of wireless systems in the petroleum industry, the use of magnetic resonance imaging (MRI) to analyze petroleum reservoirs, and the production of ultraclean diesel. Support provided by ACOA to universities was highlighted in the Case Study on page 13.

4.66 Economic development. The Business Development Program and Entrepreneurship and Skills Development Program fund projects in a variety of economic sectors. In the fossil fuel sector, these included projects to expand marine and offshore operations, purchase equipment and infrastructure, fund staff training on new equipment, and develop in-house engineering expertise and pipeline capabilities. In total, these programs provided \$4.5 million in small and medium enterprise development funding.

Industry Canada

4.67 Industry Canada works to improve conditions for investment, improve Canada's innovation performance, increase Canada's share of global trade, and build a fair, efficient, and competitive marketplace.

4.68 Research and development. Through the Technology Partnerships Canada program, Industry Canada provided \$1.5 million to support exploration and extraction. Industry Canada also manages funding agreements with the Canada Foundation for Innovation and Genome Canada, which are independent non-governmental organizations responsible for allocating funding according to objectives outlined in their funding agreements. These agreements supported research and development as follows:

- \$7.5 million for basic research,
- \$448,000 for production and transportation,
- \$960,000 for research into exploration and extraction,
- \$6.6 million for clean technology, and
- \$368,000 for reclamation and remediation.

4.69 Research areas included unconventional sources of oil and gas, such as the oil sands, and greener production and extraction of fossil fuels.

4.70 Industry Canada also manages a funding agreement providing a one-time grant to the Canada School of Energy and Environment located in Calgary, which included \$6.75 million supporting the fossil fuel sector. This funding aimed to enhance collaboration and knowledge dissemination in energy and environmental research, and to facilitate technology transfer and commercialization by funding proof of principle projects (early research products being moved into application or commercialization).

Sustainable Development Technology Canada

4.71 Sustainable Development Technology Canada (SDTC) focuses on adding sustainability to Canada's fossil fuel sector. To this end, it operates two funds that focus on developing and demonstrating new technologies as they prove their viability in full-scale, real-world situations. The SD Tech Fund supports projects that address climate change, air quality, clean water, and clean soil. The NextGen Biofuels Fund supports the establishment of large demonstration-scale facilities

for the production of renewable fuels. We did not include the latter fund in this study because biofuels were outside its scope.

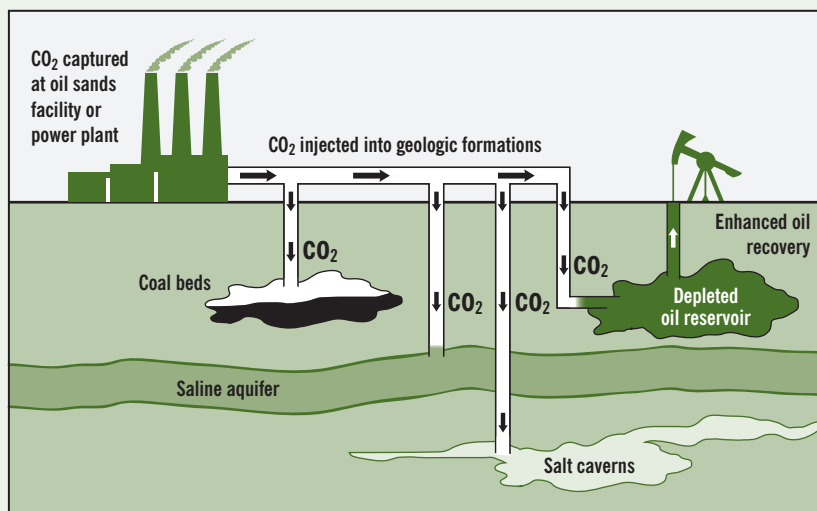
4.72 Research and development. SDTC provided \$23.7 million in support to the fossil fuel sector through a variety of clean technology projects. Carbon capture and storage, enhanced oil recovery methods (Case Study 3), and technologies to better identify gas leaks are examples of the types of projects SDTC has funded.

Case Study 3—Government-conducted research in carbon capture and storage

A significant amount of the research and development funding identified in this study was directed toward carbon capture and storage (CCS). CCS is a process for capturing carbon dioxide (CO₂) emitted from facilities and injecting it into geologic formations to prevent its release and accumulation in the atmosphere. CCS can be applied to facilities such as coal-fired power plants and oil and gas processing facilities.

A number of departments and agencies are involved in CCS development. One of every five projects in Sustainable Development Technology Canada's oil and gas portfolio is a CCS project. At Natural Resources Canada, \$215 million—nearly 70 percent of the research and development funding supporting the fossil fuel sector—involved CCS.

The Intergovernmental Panel on Climate Change estimates that CCS could be responsible for 15 to 55 percent of global greenhouse gas (GHG) reduction efforts this century. The International Energy Agency has identified CCS as a significant emissions reduction option, noting a strong economic case to invest in CCS technology. CCS research contributes to the shift to a green economy in Canada. CCS benefits the fossil fuel sector by helping reduce the sector's GHG emissions; this helps Canada balance its continued use of fossil energy with efforts to reduce GHG emissions. Research into CCS also includes using the captured CO₂ to enhance oil recovery by pumping it into depleted wells to force out more oil or gas.



Western Economic Diversification Canada

4.73 Western Economic Diversification Canada was established to improve the long-term economic competitiveness of western Canada. Its programs support a wide range of initiatives, including innovation and research, business development, and community economic development.

4.74 Economic development. Through programs such as the Western Economic Partnership Agreements and the Canada Saskatchewan Northern Development Agreement, Western Diversification Canada provides contributions to small businesses, universities, research institutes, and industry associations. The Western Diversification Program is the main program through which the organization makes investments in the economy. In all, the Department provided support to the fossil fuel sector amounting to \$2.3 million for small and medium enterprise development, \$2.1 million for training, and \$4.7 million for industry development.

4.75 Research and development. Through its various programs, Western Diversification Canada also supports research and development. Most of this funding is provided through Western Economic Partnership Agreements, which are multi-year federal–provincial funding commitments. Support for research and development in the fossil fuel sector through these agreements and other programs totalled

- \$2.8 million for basic research,
- \$1.3 million for exploration and extraction,
- \$863,000 for production and transportation, and
- \$4.6 million for clean technology.

Canadian International Development Agency

4.76 The Canadian International Development Agency (CIDA) funds international development programs and projects through contributions to Canadian and international institutions. It also enters into contracts with Canadian companies to provide assistance in implementing programs and projects.

4.77 Economic development. Through a single project, CIDA provided a Canadian industry association with \$2.4 million to help governments of developing countries better manage their fossil fuel sectors.

Foreign Affairs and International Trade Canada

4.78 Foreign Affairs and International Trade Canada supported the fossil fuel sector through direct spending related to research and development.

4.79 Research and development. The Global Opportunities for Associations program contributed money to support national associations carrying out new or expanded international collaborations in research and development, for the benefit of the entire industry. Foreign Affairs and International Trade Canada also provided grants through the International Science and Technology Partnerships Program (ISTPP) and the Going Global Innovation program. Through these programs, the Department provided

- \$53,500 for basic research,
- \$77,000 for production,
- \$15,000 for reclamation and remediation, and
- \$65,000 for clean technology.

Support through tax expenditures

Department of Finance Canada

4.80 The aspects of the Department of Finance Canada's mandate most relevant to this study include developing tax policies and providing economic advice to the federal government. The Department also prepares the federal budget, administers the transfer of federal funds to provinces and territories, and monitors economic and financial developments in Canada.

4.81 Tax expenditures. Most of the tax expenditures that support the fossil fuel sector identified by Finance Canada for this study are accelerated deductions. Accelerated deductions encourage investment by allowing businesses to write off the capital cost of certain assets faster than if those costs were written off over the useful life of the asset, reducing taxes payable in the short term. These deductions do not affect the overall taxes a corporation pays in the long term, but allow a corporation to defer its taxes to a future taxation period.

4.82 In the years between the Commissioner's 2000 study and this study, Finance Canada continued to review the effectiveness of its tax expenditures related to the fossil fuel sector. A number of such expenditures—for example, the Resource Allowance and the Transitional Arrangement for the Alberta Royalty Tax Credit, were phased out by 2007. Other expenditures that have been or are being phased out are noted in the following paragraph (indicated by *).

4.83 The following tax expenditures were available to the fossil fuel sector during the study period:

- **Earned depletion*.** This incentive was designed to encourage corporations to undertake exploration and development. This incentive entitled corporations in the oil and gas and mining sectors to an extra deduction of up to 33.3 percent of certain expenses. Although it has been phased out, companies are still entitled to deduct depletion amounts earned before 1990. This expenditure was estimated to cost \$50 million in the 2006–07 fiscal year, decreasing to between \$5 million and \$6 million annually over the rest of the study period.
- **Canadian exploration expense*.** This is a cost incurred to determine the existence, location, extent, or quality of a crude oil or natural gas reservoir or mineral resource not previously known to exist. The cost also includes pre-production development expenses incurred to bring a new mine into production. Expenses are deductible at a rate of 100 percent in the year incurred. Under a neutral tax system, successful exploration and pre-production expenses would normally be capitalized and amortized over the life of the asset. Budget 2011 announced that development expenses incurred to bring a new oil sands mine into production, which had been treated as Canadian exploration expenses, will gradually be treated as Canadian development expenses (meaning they would be deductible at the lower rate of 30 percent annually), with implementation to occur between 2013 and 2016. Estimates for this expenditure were not available.
- **Canadian development expense for oil sands resource properties*.** Canadian development expenses (CDE) can be deducted at the accelerated rate of 30 percent annually. Before Budget 2011, the costs of acquiring oil sands properties could be treated as CDE. This rate was more rapid than that provided to similar expenses in the conventional oil and gas sector. Budget 2011 announced that such expenses would no longer qualify as CDE. Estimates for this expenditure were not available.
- **Flow-through share deductions.** Flow-through shares are a government-authorized tax shelter. Corporations can transfer certain unused tax deductions to investors who, in addition to receiving an equity interest in the corporation, are entitled to claim deductions for Canadian exploration and development expenses (described in previous bulleted points). Investors are typically willing to pay more for such shares because of the flow-through tax deductions allowed. Flow-through shares are a

financing mechanism used mostly by corporations without sufficient income to make immediate use of the available tax deductions. Cost estimates for this expenditure included the mining and clean energy sectors, and ranged from \$220 million to \$530 million annually over the study period.

- **Reclassification of expenses under flow-through shares.** Small corporations in the oil and gas sector are entitled to reclassify the first \$1 million of Canadian development expenses passed on to shareholders under a flow-through share agreement (deductible at 30 percent) as Canadian exploration expenses (deductible at 100 percent). This expenditure was estimated to cost \$8 million in the 2006–07 fiscal year, but to generate revenue (a negative expenditure) of between \$7 million and \$15 million annually between 2007–08 and 2010–11.
- **Deductibility of contributions to a qualifying environmental trust.** Corporations that are required to set aside funds in environmental trusts—to ensure that adequate amounts are available to conduct restoration activities at the end of operations—are allowed to deduct those contributions as expenses in the year the contribution is made instead of when the costs of restoration are actually incurred. Cost estimates for this expenditure included the mining and clean energy sectors and were less than \$3 million annually over the study period.
- **Accelerated capital cost allowance (ACCA) for oil sands*.** This incentive was provided to improve cash flows to oil sands projects, to allow Canada to compete with other jurisdictions in securing large investments, and to promote the development of the oil sands. Budget 2007 announced the phase-out of this measure over four years, beginning in 2011. At the time of Budget 2007, the costs of this expenditure were forecast to be on average \$300 million annually over the study period.
- **Accelerated capital cost allowance for mining.** This incentive is similar to the ACCA for the oil sands (described in the previous bulleted point), but remains in place for the mining sector, including coal mines. Estimates for this expenditure were not available.

4.84 Finance Canada does not collect the data necessary to calculate the portion of tax expenditures attributable specifically to the fossil fuel sector. However, the Department was able to provide aggregate estimates of the costs of some of the previously noted tax expenditures attributable to a group of sectors, including mining, oil and gas, and

clean energy. Based on data available from Statistics Canada, fossil fuels represent a majority of the revenue generated by this group. Exhibit 4.7 shows the estimated cost of each tax expenditure, where available, over the study period.

4.85 Limitations of the estimates. There are a number of limitations associated with the estimates provided in Exhibit 4.7. Some estimates include support to the mining and clean energy sectors, in addition to the fossil fuel sector. Finance Canada forecast the cost of the ACCA for oil sands at the time of Budget 2007, and the estimates reported in this study for the years 2007 to 2011 have not been updated since. In addition, the Department estimated the cost of each tax expenditure in isolation, assuming that all other tax measures remain unchanged and without considering potential interactions among them.

Exhibit 4.7 Federal government tax expenditures for the 2006–07 to 2010–11* fiscal years

| Tax expenditures | Cost** (\$millions) |
|--|---------------------|
| Tax expenditures that are exclusive to the fossil fuel sector | |
| Accelerated capital cost allowance for oil sands | 1,500 |
| Transitional arrangement for the Alberta royalty tax credit | 2.5 |
| Reclassification of expenses under flow-through shares | (33)*** |
| Tax expenditures that are available to mining and/or clean energy sectors | |
| Flow-through share deductions | 1,935 |
| Earned depletion | 70 |
| Net impact of the resource allowance | 18 |
| Deductibility of contributions to a qualifying environmental trust | 4 |
| Tax expenditures for which no estimates are available | |
| Accelerated capital cost allowance for mining | n/a |
| Canadian development expense for oil sands resource properties | n/a |
| Canadian exploration expense | n/a |

* This reflects the most current data available from Finance Canada. Finance Canada anticipates that data that includes the 2011–12 fiscal year will be available early in 2013.

** The cost of each tax measure was estimated separately, assuming that all other tax provisions remained unchanged. Many tax expenditures, however, interact with each other such that the impact of changing many provisions at once cannot generally be calculated by adding up the estimates of each individual provision.

*** Negative tax expenditures arise when the deviation from the benchmark results in increased revenue to the government.

Source: Adapted to fiscal years by Finance Canada from the Tax Expenditures and Evaluations

4.86 Other analyses by Finance Canada. In the past, Finance Canada has conducted some studies specific to fossil fuels that included estimates of tax expenditures. In 2001, partly in response to the Commissioner's 2000 study, Finance Canada developed a model to calculate the tax expenditures associated with oil sands projects. Using this model, the Department estimated that the total net present value of tax expenditures for companies operating in the Alberta oil sands region would be \$816 million from 1996 to 2010. At the time of Budget 2007, Finance Canada updated the estimate for the ACCA for oil sands to \$300 million annually for the period 2007 to 2011.

4.87 Finance Canada also publishes annual estimates of the costs of tax expenditures; however, they do not include estimates of the costs of accelerated deductions.

4.88 We noted that other recent studies have presented estimates of the cost of tax expenditures. For example, in its 2011 Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels, the Organisation for Economic Co-operation and Development estimated Canadian tax expenditures attributable to the fossil fuel sector. It did so by pro-rating estimates for the oil and gas and mining industries as a whole on the basis of the relative contribution of the various sectors to gross domestic product (GDP).

4.89 Although the federal government provides a significant amount of financial support to the fossil fuel sector through tax expenditures, data capture and availability of data remain problematic. The data on the value of tax expenditures available to the fossil fuel sector is incomplete. The only method available to determine the industry of a taxpayer by tax return is the North American Industry Classification System. But this system does not provide the level of detail necessary to identify and break down tax expenditures specific to fossil fuels, and it cannot account for taxpayers with activities in multiple industries.

4.90 Other difficulties exist in estimating accelerated deductions. These stem from different approaches to defining the benchmark tax structure and measuring associated deviations. Finance Canada is not aware of a practical methodology that would regularly produce results of reasonable quality or accuracy.

Questions for Parliamentarians to Consider About Fossil Fuel Support

4.91 In approving budgets and enacting changes to the *Income Tax Act*, Parliament plays a role in ensuring that programs achieve the government's desired policy objectives. This study provides information to inform parliamentarians about the ways the government supports the fossil fuel sector.

4.92 Based on our analysis, we have identified several questions parliamentarians may consider when holding departments and agencies accountable for their support of the fossil fuel sector.

- Who has overall responsibility within the federal government for monitoring and reporting on Canada's progress against the G-20 commitment to rationalize inefficient fossil fuel subsidies?
- What steps has the government taken to ensure that support of the fossil fuel sector is not contradicting or impeding policy objectives related to the environment and sustainable development?
- How is the government working to achieve policy coherence among economic, social, and environmental factors in supporting sustainable development?

4.93 In terms of the support the tax system provides, members of Parliament may wish to consider the following questions:

- What are the financial implications of the various tax expenditures the government offers the fossil fuel sector?
- What policy objectives do the various tax expenditures for the fossil fuel sector achieve? Are they still relevant? Do they achieve their purpose? How is their effectiveness measured?
- Are there ways to overcome the data limitations and methodological challenges that are preventing the government from estimating some of the tax expenditures?

Conclusion

4.94 The federal government provides support to the fossil fuel sector through the direct expenditure of public funds and through tax expenditures under the *Income Tax Act*. As part of our study, we tried to obtain financial data on the costs and disbursements of the various programs and activities that support the fossil fuel sector.

4.95 The 2000 study conducted by the Commissioner of the Environment and Sustainable Development found that over the 30-year period from 1970 to 1999, Canadian direct federal spending on energy production from fossil fuels was \$40.4 billion.

4.96 Direct spending. Based on data that departments and agencies provided, we determined that the federal government supported the fossil fuel sector with \$508 million in direct spending during the five fiscal years from 2007–08 to 2011–12. The majority of direct spending identified was for research and development, more than half of which related to clean technology.

4.97 This data is not readily comparable with the 2000 study due to the differences in time periods covered. However, if the level of spending identified in the current study remained constant over 30 years, it would amount to about \$3 billion.

4.98 Tax expenditures. The estimated costs of tax expenditures specifically attributable to the fossil fuel sector amounted to \$1.47 billion for the fiscal years 2006–07 to 2010–11. For some tax expenditures, Finance Canada is able to estimate only the costs attributable to a group of sectors, including mining, oil and gas, and clean energy, in which fossil fuels represent a majority of revenue. The cost of these tax expenditures amounted to an additional \$2 billion for fiscal years 2006–07 to 2010–11. This amount does not include the costs of some tax expenditures, such as the Canadian exploration expense, which Finance Canada does not currently have the information or methodologies necessary to estimate.

Endnotes

Web links to cited documents that are publicly available are provided in the following notes.

- ¹ Renewable Energy Production and Conventional Energy Subsidies, Petition #58, Joint response by Environment Canada, Finance Canada, Industry Canada, and Natural Resources Canada, <http://www.oag-bvg.gc.ca>.
- ² Evaluating the Tax System to Advance Environmental Goals, Petition #147, Response by Finance Canada, <http://www.oag-bvg.gc.ca>.
- ³ International Energy Agency (IEA), Organization of the Petroleum Exporting Countries (OPEC), Organisation for Economic Co-operation and Development (OECD), The World Bank, Joint Report: Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, Prepared for submission to the G-20 Summit Meeting, Toronto (Canada), 26-27 June 2010, p. 4, http://opec.org/opec_web/static_files_project/media/downloads/publications/OPECIEA_OECDWB_Joint_Report.pdf.
- ⁴ Frank Lee, OECD Workshop on Environmentally Harmful Subsidies: OECD Work on Defining and Measuring Subsidies in Industry, Paris, 7-8 November 2002, p. 3, <http://www.oecd.org/site/agrehs/35215663.pdf>.
- ⁵ Ibid., p. 3.
- ⁶ Ibid., p. 3.
- ⁷ Ibid., p. 4.
- ⁸ Ibid., p. 14.
- ⁹ IEA, OPEC, OECD, The World Bank, Joint Report: Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, p. 5.
- ¹⁰ Frank Lee, OECD Workshop on Environmentally Harmful Subsidies: OECD Work on Defining and Measuring Subsidies in Industry, p. 14.
- ¹¹ OECD Leaders' Statement, The Pittsburgh Summit, 24-25 September 2009, p. 14, paragraph 29, http://www.mofa.go.jp/policy/economy/g20_summit/2009-2/statement.pdf.
- ¹² Ibid.
- ¹³ Ibid., p. 14, paragraph 29.
- ¹⁴ IEA, OPEC, OECD, The World Bank, Joint Report: Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative, p. 9.
- ¹⁵ Ibid.
- ¹⁶ Ibid., p. 8.
- ¹⁷ Ibid., p. 9.

- ¹⁸ Annex: G-20 Initiative on Rationalizing and Phasing Out Inefficient Fossil Fuel Subsidies: Implementation Strategies & Timetables, G-20 Toronto Summit, Canada. 26-27 June 2010, p. 13, http://www.eenews.net/assets/2010/06/28/document_cw_03.pdf.
- ¹⁹ Asia–Pacific Economic Cooperation (APEC) Energy Ministerial Meeting, June 2012: St. Petersburg Declaration–Energy Security: Challenges and Strategic Choices, http://www.apec.org/Meeting-Papers/Ministerial-Statements/Energy/2012_energy.aspx.
- ²⁰ OECD, Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels, p. 75, http://www.oecd-ilibrary.org/environment/inventory-of-estimated-budgetary-support-and-tax-expenditures-for-fossil-fuels_9789264128736-en.
- ²¹ Ibid.
- ²² Kenneth J. McKenzie and Jack Mintz, The Myths and Facts of Fossil Fuel Subsidies: A critique of Existing Studies, 9 October 2011, University of Calgary School of Public Policy (SPP) Research Paper No. 11-14, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1940535.
- ²³ OECD, Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels, p. 77.
- ²⁴ Finance Canada, Tax Expenditures and Evaluations 2010, p. 9, <http://www.fin.gc.ca/taxexp-depfisc/2010/taxexp10-eng.asp>.
- ²⁵ OECD, Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels, p. 37–38.
- ²⁶ Ibid.; OECD Secretariat, Measuring Support to Energy–Version 1.0: Background paper to the joint report by IEA, OPEC, OECD and The World Bank on “Analysis of the Scope of Energy Subsidies and Suggestions for the G-20 Initiative,” p. 31, paragraph 103, <http://www.oecd.org/env/45339216.pdf>.
- ²⁷ OECD, Inventory of Estimated Budgetary Support and Tax Expenditures for Fossil Fuels, p. 37; OECD Secretariat, Measuring Support to Energy–Version 1.0, p. 31, paragraph 103.
- ²⁸ Finance Canada, Tax Expenditures and Evaluations 2010, p. 9.

About the Study

Objectives

The overall objective of this study is to document the support that the federal government provides to the fossil fuel production sector.

The study's three sub-objectives are to

- identify the policy instruments that provide support to the sector,
- identify the federal programs and activities that support those policy instruments, and
- determine the level of financial support that the identified programs and activities provide to the fossil fuel sector.

Criteria were not established because this is a study and not an audit. A study differs from an audit in that it is more descriptive and exploratory and does not include observations or recommendations that are directly attributable to the entities.

Scope and approach

This study focused on the federal government's support to the Canadian fossil fuel sector, without applying any one particular definition of the term "subsidy" or any one methodology for measuring such support. Rather, this study included direct spending and tax expenditures based on an inventory approach, without applying the specificity principle.

The fossil fuel production sector includes businesses related to oil, gas, and coal from both conventional and unconventional (oil sands, shale gas) sources. Our work concentrated on the support the federal government provided to all stages of fossil fuel production up to delivery to the consumer—namely, exploration, extraction, transportation, and upgrading/refining. In addition to the operators, we included upstream, midstream, and certain downstream service providers.

We excluded activities related to consuming fossil fuels, including electricity generation, the transportation sector, and energy-intensive manufacturing industries.

We did not assess the impacts that the programs and activities may have had on greenhouse gas emissions or the effectiveness or efficiency of the identified programs and activities. Furthermore, our study focused on the costs to the government of the programs and activities it provided, not on the benefit the industry receives from them.

We studied the programs available to the sector as the following 10 entities identified them:

- Natural Resources Canada,
- Natural Sciences and Engineering Research Council,
- National Research Council,
- Atlantic Canada Opportunities Agency,

- Industry Canada,
- Sustainable Development Technology Canada,
- Western Economic Diversification Canada,
- Canadian International Development Agency,
- Foreign Affairs and International Trade Canada, and
- Department of Finance Canada.

Based on preliminary work, we determined that these were the main federal entities that support the fossil fuel sector. We interviewed officials from those entities and obtained documents describing their programs and related financial data.

We sent a questionnaire to all of these entities. We used the results to prepare an inventory of the active programs available to the fossil fuel sector.

As part of the study, a panel of experts with experience in the fossil fuel sector provided us with valuable input and advice.

Period covered by the study

This study focuses on federal government programs that provided support to the fossil fuel sector during fiscal years 2006–07 to 2011–12.

Our work for this study was completed on 28 August 2012.

Study team

Senior Principal: Bruce Sloan
Lead Director: Marianne Avarello
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Catherine Johns
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