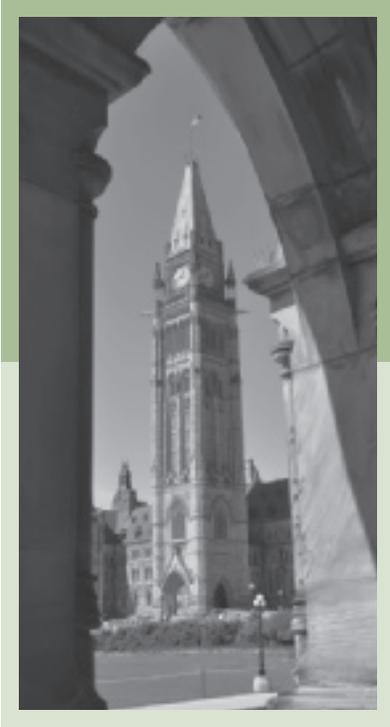


Fall 2012



Report of the Commissioner of the Environment and Sustainable Development

**The Commissioner's Perspective
Main Points—Chapters 1 to 4
Appendix**



Office of the Auditor General of Canada

OAG

The Report is available on our website at www.oag-bvg.gc.ca.

For copies of the Report or other Office of the Auditor General publications, contact

Office of the Auditor General of Canada
Distribution Centre
240 Sparks Street
Ottawa, Ontario
K1A 0G6

Telephone: 613-952-0213, ext. 5000, or 1-888-761-5953

Fax: 613-943-5485

Hearing impaired only TTY: 613-954-8042

Email: distribution@oag-bvg.gc.ca

Ce document est également publié en français.

© Her Majesty the Queen in Right of Canada, represented by the Minister of Public Works and Government Services, 2012.

Cat. No. FA1-2/2012-2-0E-PDF

ISBN 978-1-100-21331-6

ISSN 1495-0782



Commissioner of the Environment and Sustainable Development of Canada
Commissaire à l'environnement et au développement durable du Canada

Office of the Auditor General of Canada • Bureau du vérificateur général du Canada

To the Honourable Speakers of the House of Commons and the Senate:

On behalf of the Auditor General of Canada, I have the honour to transmit herewith this Fall 2012 Report, which is to be laid before the House and the Senate, in accordance with subsection 23(5) of the *Auditor General Act*.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Scott Vaughan', with a long, sweeping flourish extending to the right.

Scott Vaughan
Commissioner of the Environment
and Sustainable Development

OTTAWA, 18 December 2012

Table of Contents

The Commissioner's Perspective	1
---------------------------------------	----------

Main Points—Chapters 1 to 4

Chapter 1 Atlantic Offshore Oil and Gas Activities	11
Chapter 2 Financial Assurances for Environmental Risks	14
Chapter 3 Marine Protected Areas	17
Chapter 4 A Study of Federal Support to the Fossil Fuel Sector	20

Appendix

<i>Auditor General Act—Excerpts</i>	25
-------------------------------------	-----------

The Commissioner's Perspective

The Commissioner's Perspective



© Photo: Courrette/Ottawa

Scott Vaughan
Commissioner of the Environment
and Sustainable Development

Is environmental protection keeping pace with economic development?

Natural resources and international trade have always been at the heart of the Canadian economy and will very likely remain so into the future. Like other export-intensive countries, Canada faces critical challenges ahead. The global economy is undergoing fundamental changes as a result of the global economic downturn and the emergence of new consumer economies such as Brazil, Russia, India, and China.

As a trading nation, Canada looks beyond its borders to generate jobs, economic growth, and prosperity. Today, roughly 30 percent of Canada's gross domestic product (GDP) is fuelled by exports, and natural resources account for half of that. The federal government estimates that the natural resource sector provided jobs for over 750,000 Canadians in 2010 and is poised to grow even more. It also estimates that more than 600 major resource projects, representing \$650 billion in new investments, are under way or planned across the country for the next 10 years.

The expected boom in natural resource development brings not only economic opportunities, but also environmental challenges. For at least the past two decades, international markets, trade rules, and the private sector have recognized that economic growth, international trade, and environmental protection are interlinked. For example, Canada has been at the forefront—both in global trade agreements like those of the World Trade Organization, and regional and bilateral agreements—in acknowledging the critical role that environmental stewardship plays in the global economy. This year marks the 20th anniversary of the North American Free Trade Agreement, an agreement that codified explicit environmental commitments within trade rules and a parallel environmental cooperation agenda. Since then, Canada has completed a number of other trade agreements, including those with Costa Rica, Colombia, and Chile, which recognize that international trade and high levels of environmental protection go hand in hand.

As I noted in my 2012 Spring Report to Parliament, there is a growing list of Canadian companies that are integrating environmental performance into how they do business both here and abroad. For example, after years of facing consumer boycotts, Canada's forestry

sector is now a world leader in sustainably produced timber and forest products. In a number of global industries, Canadian companies continue to demonstrate environmental leadership.

A key challenge in expanding Canada's development and export of natural resources—from oil and gas to minerals and metals—will involve meeting or exceeding the environmental standards and consumer expectations of foreign markets. Trade cases continue to underscore that the environmental characteristics of a product, as well as how it is processed and transported, can affect market access and consumer choice. Therefore, it is vital from an economic perspective that Canada's environmental protections keep pace with economic development.

This report examines the following federal environmental programs and activities, which help ensure that natural resource development is both responsible and sustainable:

- protecting our ocean resources by establishing marine protected areas;
- managing environmental risks associated with offshore oil and gas development; and
- setting financial guarantees and liability limits for mining, shipping and offshore platforms, and nuclear power.

We have also included a study of federal support to the fossil fuel sector. This study highlights the critical link between environmental and economic issues raised in past reports. In the annual environmental petitions report, we follow up on questions posed in three petitions received in recent years. We present what Environment Canada and Health Canada are doing with regard to substances used in hydraulic fracturing for shale gas.

Looking forward, in 2013 we will be reporting on several aspects of the federal government's sustainable development strategy. In particular, we will be assessing the fairness of the information contained in the next progress report on the Federal Sustainable Development Strategy 2010–2013, as well as providing feedback to the Minister of the Environment on the government's next draft of the Federal Sustainable Development Strategy. In addition, we will be reporting on the implementation of the federal and departmental strategies.

Protecting and conserving Canada's oceans

The world's oceans facilitate about 90 percent of global trade and provide a wealth of benefits as well as material goods, most notably commercial and subsistence fisheries. Fish are the main source of protein for 1.5 billion people. Ocean scientists at the International Programme on the State of the Oceans reported in 2011 that, faster than predicted, human activities are compromising the oceans' ability to support us and stated that deferring action now will increase costs in the future. Canada's oceans are hardly immune to global threats. Canada's State of the Oceans Report, 2012, by Fisheries and Oceans Canada, noted that our country's oceans are increasingly threatened by pollution, overfishing, coastal development, and climate change.

Marine protected areas (MPAs) can be a cost-effective way of protecting the oceans, while ensuring that activities like commercial fishing, offshore drilling, and marine shipping respect and work in tandem with conservation goals. MPAs are not necessarily sanctuaries where all human activities are banned. In many, human activities take place but are closely managed for long-term sustainability. Research has shown that MPAs can have economic benefits, including higher fish catches in adjacent areas.

On this front, there is some good news at the international level. An October 2012 international assessment of progress being made under the United Nations Convention on Biological Diversity found rapid growth in the number of marine protected areas worldwide, making up more than 8.3 million square kilometres, or about 2.3 percent of the world's oceans. However, that is still short of the target accepted in 2010 under the Convention on Biological Diversity, which called for 10 percent of global oceans to be protected by MPA networks and other effective area-based conservation measures by 2020.

Here in Canada, 20 years after signing the Convention on Biological Diversity, only about 1 percent of our oceans and Great Lakes is protected. Our audit showed that at the current rate of progress, it will take Canada many decades to establish a fully functioning MPA network and achieve the target to conserve 10 percent of marine areas. While the process of establishing MPAs takes time, and there are many reasons for this slow progress, the fact remains that conservation actions are not keeping up with the increasing pressures faced by our oceans.

Offshore oil and gas activities

Protecting Canada's oceans requires more than setting aside protected areas. It requires vigilance by various resource extraction industries. The Macondo (*Deepwater Horizon*) incident in 2010 captured global attention, with the well blowout resulting in an estimated 4.9 million barrels of oil being spilled into the Gulf of Mexico. That incident demonstrated starkly the absolute importance of being ready to respond to a spill of that magnitude and the need for strong regulatory oversight to help prevent environmental disasters. The Macondo spill reminded us how quickly environmental damage can occur, and how expensive that damage can be—the estimated cost of that single incident is over \$40 billion US dollars.

In this report, we examined whether the two offshore petroleum boards operating in Atlantic Canada appropriately managed the environmental risks and impacts from offshore oil and gas activities. This report is the first time my office has conducted a performance audit of those boards. We found numerous good management practices, particularly with regard to assessing and managing current environmental impacts. We also found several opportunities for improvement.

While offshore oil and gas operators are responsible for responding to incidents, including major spills, in the case that an operator does not or cannot respond appropriately to a spill, the relevant board can take over management of the response, with support from federal departments and agencies. The obvious question from the audit is this: Are the boards and their federal partners adequately prepared to respond to a major oil spill? In my view, the boards and their federal partners are not adequately prepared and, although the probability of a major spill in the Atlantic offshore area is relatively low, they need to do more to prepare for one. This is particularly the case given the potential for increased risks due to deepwater drilling and expanding exploration and development activities.

We identified several shortcomings, including insufficient spill response tools across the federal government, inadequately tested capacity, poorly coordinated response plans, and out-of-date or missing agreements between the boards and supporting departments. In addition, the Canada–Newfoundland and Labrador Offshore Petroleum Board has yet to complete its review of operators' spill response capabilities and, therefore, does not have adequate assurance that operators are ready to respond effectively to a spill. Although the risks from an oil spill do not pertain to Nova Scotia, where only gas is currently produced, exploration for oil is expected to begin there in the near future.

The economic and financial impact of environmental risks

The legacy of resource development, such as tailings ponds left over from decommissioned mines, and unforeseen events, like oil spills or nuclear incidents, can not only damage the environment, but can pose significant financial risks to Canadian taxpayers. The federal government requires financial assurances for several key industries to operate in Canada. These assurances help manage risks to the environment and to the public purse by ensuring that funding is available from operators to decommission and restore sites after major resource projects have ended and to clean up incidents such as spills. Our chapter on the Financial Assurances for Environmental Risks examined the systems in place to obtain financial assurances.

We found that the federal departments we examined had procedures in place to obtain environmental financial assurances. We noted, however, that the departments lacked complete inventories of the assurances they held and did not know whether these assurances were sufficient to address the risks they were meant to cover. More concerning, given the expected increase in activity in the natural resource sector, we found that Aboriginal Affairs and Northern Development Canada, the department responsible for resource development in the North, was not conducting the required inspections that are essential for ensuring that the terms and conditions of project approvals are being met.

We also found that liability limits have not kept pace with the potential consequences of an incident. For example, the \$75 million absolute liability limit for nuclear facilities has not changed since it was introduced in the 1970s, while the absolute liability limits for incidents involving offshore oil and gas development (which range up to \$40 million) have not been updated in nearly 25 years. We found that Canada's limits are significantly lower than those of other countries. To put it in context, the United States' National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling found the US\$75 million absolute liability limit for offshore incidents in the United States was "totally inadequate," and placed the economic risk on the backs of taxpayers. As noted above, the Macondo (*Deepwater Horizon*) incident has resulted in estimated costs of over \$40 billion US dollars.

These findings, when considered with our concerns regarding preparedness to effectively respond to a major oil spill, show clearly that Canadians are exposed to environmental risks and the financial implications that go with them.

We also noted that the recent *Jobs, Growth and Long-term Prosperity Act* included key changes to the *Fisheries Act* and the government's Policy for the Management of Fish Habitat (Fish Habitat Policy). Before these changes, the Minister of Fisheries and Oceans could authorize projects that resulted in the harmful alteration, disruption, or destruction of fish habitat while requiring financial guarantees for habitat compensation, under the long-standing "no net loss" principle that was at the heart of the former Fish Habitat Policy. Recent amendments to the *Fisheries Act* were passed by Parliament in the summer of 2012. In light of the transformative nature of the changes made, I am concerned that the government does not know which aspects, if any, of the former "no net loss" principle remain in effect, and whether compensation plans are required for new projects. A practical consequence of this confusion is that the government does not know what will happen to the approximately \$120 million in financial assurances it now holds under the conditions of the former legislation.

This report also contains a study on federal support to the fossil fuel sector. At the G-20 meetings in 2009, Canada committed to rationalizing and phasing out inefficient fossil fuel subsidies in part to decrease emissions of greenhouse gases. I note that the federal government has taken action in line with this commitment. Direct support has decreased to between \$60 million and \$160 million annually, and at the same time, the proportion that supports cleaner technologies continues to increase. In addition, the government is phasing out some tax incentives that favoured the fossil fuel sector. The reduction of support to the fossil fuel sector clearly shows Canada going in the right direction.

At the same time, a number of other tax incentives that may provide a significant amount of support for fossil fuel extraction remain in place. We note, as we did in a similar study conducted in 2000, that the costs to taxpayers of tax incentives are difficult to estimate accurately. Finance Canada's estimates suggest that tax incentives to the oil, gas, mining, and clean energy sectors, of which fossil fuels represent the majority of GDP, may have amounted to more than \$3 billion over the past five years.

Environmental petitions

Finally, I am pleased to present the annual environmental petitions report. This year, Canadian residents submitted 23 environmental petitions reflecting many of the significant environmental issues facing Canada today, such as toxic substances, climate change, biodiversity and

fish habitat, and environmental assessment. We are pleased to report that departments and agencies responded on time to all petitions this year.

Since 2010, three environmental petitions have been submitted raising questions about the federal government's role in regulating hydraulic fracturing for shale gas and about disclosure of the substances being used in the process—many of which have been assessed as toxic when used in other applications. Production of natural gas from unconventional sources—such as shale gas—is expected to increase by more than 50 percent within the next 10 years, and to almost double in the next 20 years. While the regulation of the oil and gas sector largely falls under provincial jurisdiction, regulating toxic substances is a federal matter. Regulating toxic substances includes identifying and assessing the risks to human health and the environment posed by these substances. It also involves controlling the risks where substances are deemed to be toxic, and maintaining an inventory of pollutant releases.

We followed up with Environment Canada and Health Canada to get an update on what has been done since the Ministers responded to these petitions. Federal officials told us that they consider hydraulic fracturing to be an emerging issue that they are now starting to investigate. They are currently gathering information on the substances used for hydraulic fracturing in Canada. According to the government, until it has a better understanding of hydraulic fracturing, it cannot determine whether risk assessments and control measures are warranted. Currently, oil and gas exploration and drilling activities are exempt from reporting pollutant releases to Environment Canada. A review of these reporting requirements will be completed in March 2014.

The pace of progress

Reflecting on my current and past reports, I have seen several areas of progress by the federal government. In this report, we note the use of scientific expertise in selecting marine protected areas and note that the government is reviewing liability and compensation systems to ensure they reflect current realities. In 2011, we noted the government's plan for implementing an integrated environmental monitoring system in the oil sands region. We look forward to the implementation of that plan. The federal government has also made progress in other key areas, including expanding the use of environmental indicators to inform citizens about the state of Canada's environment.

We have also seen causes for concern in the management of programs directly related to natural resources. Last year, we pointed to weaknesses in the capacity of the federal government to identify the cumulative

effects of large-scale oil sands projects and to enforce compliance with the *Canadian Environmental Protection Act, 1999*. We also noted problems involving how the National Energy Board followed up when it found deficiencies in systems designed to ensure safety, pipeline integrity, and environmental protection. In 2010, we reported deficiencies in the federal government's readiness to respond to spills from ships. I note, however, that Budget 2012 saw some welcome steps to increase funding for pipeline inspections and to improve preparedness for oil spills from tankers and other vessels in Canadian waters.

This year's report has identified other shortcomings. For example, the current level of inspections of major resource projects in the North is very low relative to the level of activity. The government does not know the actual cost of its support to the fossil fuel sector. Meanwhile, offshore resource development continues to expand even as the government makes slow progress establishing marine protected areas. As well, the petroleum boards on the east coast and their federal partners are not adequately prepared to respond to a major oil spill should they need to step in.

Considering the central role of natural resources in today's Canadian economy, it is critical that environmental protections keep pace with economic development. In this report, we found a number of encouraging practices, but also numerous shortcomings. When combined with our previous reports and viewed in the context of the risks and challenges posed by increasing development, these shortcomings leave me concerned that environmental protection is failing to keep pace with economic development. Recognizing Canada's record of leadership in linking international trade with environmental protection, I am hopeful that these gaps will be addressed and that natural resource development and environmental stewardship will move forward in tandem.

Main Points—Chapters 1 to 4

Atlantic Offshore Oil and Gas Activities

Chapter 1 Main Points

What we examined

Canada's offshore oil and natural gas exploration and development activities in the Atlantic region are regulated by the Canada–Newfoundland and Labrador Offshore Petroleum Board and the Canada–Nova Scotia Offshore Petroleum Board. The boards are joint federal–provincial bodies. Their core regulatory responsibilities include safety, protection of the environment, and management and conservation of petroleum resources.

The boards are responsible for managing significant environmental risks associated with offshore oil and gas activities. According to the governing legislation, offshore operators are required to respond to spills. However, if the operator cannot or does not take appropriate measures, the board may lead the response to a major spill. The boards may seek support from federal parties, including the Canadian Coast Guard, Environment Canada, Transport Canada, and Natural Resources Canada.

We examined how the boards are managing the environmental risks and impacts associated with offshore oil and gas activities. Our audit work included the boards' procedures for assessing and authorizing offshore petroleum projects; ensuring compliance with environmental requirements; and preparing for and responding to spills. The boards work with the federal departments of Natural Resources, Environment, Transport, and Fisheries and Oceans, including the Canadian Coast Guard. We also looked at the advice and support those departments provide to the boards. Our audit did not include any provincial organizations or private sector operators.

Audit work for this chapter was completed on 24 August 2012. More details on the conduct of the audit are in **About the Audit** at the end of this chapter.

Why it's important

Marine ecosystems in Atlantic Canada are biologically diverse, providing critical habitat for species at risk and migratory birds in locations such as the Grand Banks, Sable Island, and The Gully Marine Protected Area. The offshore regions are also a vital part of the country's economy, providing employment for thousands of people and supporting activities such as aquaculture and fisheries, tourism and recreation, and shipping and transportation.

The potential impacts of an offshore oil spill in Atlantic Canada, such as seen in the Gulf of Mexico in 2010, could be widespread and devastating to the environment, industry, and the livelihoods of many Canadians. As a result, it is essential that the offshore petroleum boards manage the risks and impacts associated with the oil and gas activities they regulate.

What we found

- The boards have applied some good practices when assessing and approving offshore projects and activities, such as seeking input from key stakeholders. However, the boards have not yet established or updated their policies and procedures to guide environmental assessments, nor are they systematically tracking the measures to prevent or reduce environmental impacts. It will be important for the boards to determine how they will meet the objectives of their governing legislation to protect the environment, given the changes introduced by the new *Canadian Environmental Assessment Act, 2012*.
- The boards have taken adequate steps to ensure that offshore operators comply with environmental requirements. More remains to be done to implement risk-based audits of the operators' management systems, and to establish more formal arrangements for obtaining independent observations of offshore oil and gas activities.
- The boards have managed the current environmental impacts associated with oil and gas activities in Canada's Atlantic offshore areas in a manner consistent with the existing size and scale of operations. However, if a board were to take over the response to a major oil spill, the board and the federal entities that might contribute to the response efforts are not adequately prepared to play this role.
- Specifically, we found that the response plans of the boards and the federal entities are not coordinated and are sometimes inconsistent; the boards and federal entities have not tested or exercised their collective plans or collective capacity; and several memoranda of understanding are either out of date or not in place. In addition, the Newfoundland–Labrador Board has not yet completed the assessment of the operators' spill response capabilities that it began in 2008.

- Unlike the Newfoundland–Labrador Board, the Nova Scotia Board does not currently regulate activities that produce oil. It expects exploration for oil within its jurisdiction in the near future, and so has work to do to prepare for this.

The entities have responded. The entities agree with our recommendations. Their detailed responses follow the recommendations throughout the chapter.

Financial Assurances for Environmental Risks

Chapter 2 Main Points

What we examined

Environmental financial assurances are an important mechanism the federal government uses to help shield taxpayers from the costs of environmental protection, cleanup, and reclamation for a range of natural resource development projects of the private and public sector, including mining, energy projects, the transport of oil and gas, and nuclear. Absolute liability limits are used in certain sectors to limit or cap the total amount that an operator may be liable for if an incident occurs, without proof of fault. Such absolute liability caps are used in Canada and in other countries.

Assurances can be in the form of letters of credit, trust funds, guarantees, and insurance. The federal government holds or has access to these assurances during the lifetime of a project.

The responsibility for natural resource development rests primarily with the provinces. However, there are several specific and well-defined federal regulatory responsibilities covering natural resource development, energy production, and transportation.

We examined whether selected federal entities have appropriate systems in place for obtaining and managing environmental financial assurances. Our audit focused on federal regulation of four sectors: mining (north of the 60th parallel), nuclear, offshore oil and gas, and marine transportation. We also examined liability limits established for nuclear facilities and oil spills from ships, as well as the liability regime for offshore oil and gas production, which includes both an absolute liability limit and an unlimited liability for parties at fault.

Audit work for this chapter was completed on 31 August 2012. More details on the conduct of the audit are in **About the Audit** at the end of this chapter.

Why it's important

The environmental costs resulting from natural resource development projects can run into tens of millions—or in rare cases billions of dollars. Environmental financial assurances are an important safeguard, since they provide funds for future environmental liabilities to be paid for by a proponent or operator. They provide for liabilities arising from projects with long lifespans where risks associated with decommissioning and their related costs may not become known for decades. In conjunction with a regulatory framework, they can act as a powerful incentive to industry to reduce environmental impacts as a core part of business.

Environmental financial assurances are a tangible example of the “polluter-pays principle” in action, since the project proponent or operator is expected at the outset to cover all costs associated with environmental protection, site reclamation, longer-term protection of closed sites, and damages from accidents.

What we found

- Federal entities we examined have procedures in place for obtaining environmental financial assurances. Based on available information, we estimate that the assurances they have received give them access to approximately \$11.6 billion.
- Federal entities lack information to know if the assurances received are sufficient to cover the financial risks of projects, such as the cost of decommissioning and reclamation. We noted that Aboriginal Affairs and Northern Development Canada did not compare, on a regular basis, whether the financial securities obtained during the life of a mine are sufficient to meet the cost of reclamation of land and water. Fisheries and Oceans Canada was not able to confirm the total dollar value of the securities it held, whether the securities were still valid, or if they fully covered the estimated cost of fish habitat compensation plans.
- In two of the examined sectors—nuclear and offshore oil and gas—liability limits for damages to third parties are outdated and generally much lower than those in other countries. Liability limits for damages to third parties from nuclear facilities have not changed in 35 years. Similarly, the offshore oil and gas liability limits have not changed in more than 20 years. In the marine transportation sector, Transport Canada acknowledges a risk that the current maritime liability limits and compensation regimes may not be sufficient to cover the cost of any major spill in Canadian waters. As a result, taxpayers may have to cover shortfalls and pay for environmental remediation.

- The Canadian Nuclear Safety Commission has obtained environmental financial assurances to cover the decommissioning costs of major nuclear sites. It is working to expand the requirement for such assurances to include licensees in the areas of medical and industrial applications and academic research.

The entities have responded. The entities agree with all of our recommendations. Their detailed responses follow the recommendations throughout the chapter.

Marine Protected Areas

Chapter 3 Main Points

What we examined

Marine protected areas (MPAs) are a key tool that Canada has committed to using to protect and conserve marine biodiversity. As a signatory to the United Nations Convention on Biological Diversity, Canada agreed to an international target of conserving 10 percent of marine areas by 2020 through networks of protected areas and other conservation measures. A network of marine protected areas is a collection of individual marine protected areas that operates cooperatively in order to fulfill ecological aims more effectively and comprehensively than individual sites could do alone.

Fisheries and Oceans Canada, Parks Canada, and Environment Canada are the three federal authorities with specific, complementary mandates to establish and manage marine protected areas in Canada's oceans and Great Lakes. Fisheries and Oceans Canada is responsible for leading and coordinating the development and implementation of a national network of MPAs on behalf of the Government of Canada and also has a mandate to establish individual marine protected areas. Parks Canada is responsible for establishing marine protected areas to protect and conserve representative examples of Canada's natural and cultural marine heritage, to provide opportunities for public education and enjoyment, and to contribute to a national network of marine protected areas. Environment Canada is responsible for protecting habitat for a variety of wildlife, including migratory birds and species at risk.

We examined actions taken by Fisheries and Oceans Canada and Parks Canada to plan, establish, and manage marine protected areas.

Audit work for this chapter was completed on 28 August 2012. More details on the conduct of the audit are in **About the Audit** at the end of this chapter.

Why it's important

The world's oceans are under threat from the effects of pollution and over-exploitation. According to Fisheries and Oceans Canada, in 2009 the quantity of Canada's fishery catches was 41 percent less than the peak harvest volumes of the late 1980s; the 2009 landed values were among the lowest on record since 1984.

Conserving and protecting marine biodiversity is not solely an environmental priority. As recently reported at the 2012 World Economic Forum, the ocean's natural capital (the stock of ecological goods and services that can be maintained for use in the future) is intrinsic to the health and functioning of the world economy. Today, more than 1.5 billion people count on fish for their daily protein source. With the world population projected to reach 9 billion by 2050, humankind needs to double the production of food without further depleting Earth's natural capital.

In concert with other ocean management initiatives, the benefits of marine protected area networks include protecting species and ecosystems, protecting unique and threatened species, capturing and storing carbon, and providing refuge for species displaced by habitat change. MPA networks can also provide social and economic benefits, such as sustained fisheries, and enhanced recreation and research opportunities.

What we found

- Fisheries and Oceans Canada has established eight MPAs, led the development of the 2011 National Framework for Canada's Network of Marine Protected Areas, and is now developing technical guidance for implementing the Framework. However, the Department has not coordinated with other authorities and stakeholders to produce a plan for a network of marine protected areas as called for by the *Oceans Act* (in force in 1997). The Department has not identified the specific areas that need to be protected by it and others to create a national network that would conserve and protect Canada's marine habitats, animals, and plants.
- Parks Canada has made substantial progress toward its plan for establishing MPAs that would be representative of Canada's marine environments. The Agency has defined 29 marine regions in Canada, identified representative areas within 28 of those regions, decided on MPA candidate sites within 14 regions, and established two MPAs in legislation. However, significant work remains to be done. Parks Canada needs to select candidate sites for MPAs in 15 of its marine regions, and establish MPAs in the 26 of 29 regions where they have yet to be established. Although it has not set a timeline for doing so, the Agency plans to have MPAs in each of its 29 defined marine regions—these MPAs will be the Agency's contribution to Canada's MPA network.

- Both Fisheries and Oceans Canada and Parks Canada have recognized through their commitments within the Federal Sustainable Development Strategy that concrete actions are needed to complete this work, but they have not met these commitments. It has been 20 years since Canada ratified the United Nations Convention on Biological Diversity and 15 years since it committed to leading and coordinating the development and implementation of a national network of marine protected areas under the *Oceans Act*. Yet there is no national network of marine protected areas. Fisheries and Oceans Canada estimates that marine protected areas currently cover about 1 percent of Canada’s marine environment. At the current rate of progress, it will take many decades for Canada to establish a fully functioning MPA network and achieve the target established in 2010 to conserve 10 percent of marine areas under the United Nations Convention on Biological Diversity.

The entities have responded. The entities agree with all of the recommendations. Their detailed responses follow the recommendations throughout the chapter.

A Study of Federal Support to the Fossil Fuel Sector

Chapter 4 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.

Appendix

Appendix *Auditor General Act*—Excerpts

An Act respecting the office of the Auditor General of Canada and sustainable development monitoring and reporting

INTERPRETATION

Definitions	2. In this Act,
“appropriate Minister”	“appropriate Minister” has the meaning assigned by section 2 of the <i>Financial Administration Act</i> ;
	...
“category I department”	“category I department” means <ol style="list-style-type: none"> (a) any department named in Schedule I to the <i>Financial Administration Act</i>; (b) any department in respect of which a direction has been made under subsection 11(3) of the <i>Federal Sustainable Development Act</i>; and (c) any agency set out in the schedule to the <i>Federal Sustainable Development Act</i>.
“Commissioner”	“Commissioner” means the Commissioner of the Environment and Sustainable Development appointed under subsection 15.1(1);
	...
“sustainable development”	“sustainable development” means development that meets the needs of the present without compromising the ability of future generations to meet their own needs;

POWERS AND DUTIES

Examination	5. The Auditor General is the auditor of the accounts of Canada, including those relating to the Consolidated Revenue Fund and as such shall make such examinations and inquiries as he considers necessary to enable him to report as required by this Act.
Annual and additional reports to the House of Commons	7. (1) The Auditor General shall report annually to the House of Commons and may make, in addition to any special report made under subsection 8(1) or 19(2) and the Commissioner’s report under subsection 23(2), not more than three additional reports in any year to the House of Commons <ol style="list-style-type: none"> (a) on the work of his office; and, (b) on whether, in carrying on the work of his office, he received all the information and explanations he required.

- Idem** (2) Each report of the Auditor General under subsection (1) shall call attention to anything that he considers to be of significance and of a nature that should be brought to the attention of the House of Commons, including any cases in which he has observed that
- (a) accounts have not been faithfully and properly maintained or public money has not been fully accounted for or paid, where so required by law, into the Consolidated Revenue Fund;
 - (b) essential records have not been maintained or the rules and procedures applied have been insufficient to safeguard and control public property, to secure an effective check on the assessment, collection and proper allocation of the revenue and to ensure that expenditures have been made only as authorized;
 - (c) money has been expended other than for purposes for which it was appropriated by Parliament;
 - (d) money has been expended without due regard to economy or efficiency;
 - (e) satisfactory procedures have not been established to measure and report the effectiveness of programs, where such procedures could appropriately and reasonably be implemented; or
 - (f) money has been expended without due regard to the environmental effects of those expenditures in the context of sustainable development.

STAFF OF THE AUDITOR GENERAL

- Appointment of Commissioner** 15.1 (1) The Auditor General shall, in accordance with the *Public Service Employment Act*, appoint a senior officer to be called the Commissioner of the Environment and Sustainable Development who shall report directly to the Auditor General.
- Commissioner's duties** (2) The Commissioner shall assist the Auditor General in performing the duties of the Auditor General set out in this Act that relate to the environment and sustainable development.

SUSTAINABLE DEVELOPMENT

- Purpose** 21.1 In addition to carrying out the functions referred to in subsection 23(3), the purpose of the Commissioner is to provide sustainable development monitoring and reporting on the progress of category I departments towards sustainable development, which is a continually evolving concept based on the integration of social, economic and environmental concerns, and which may be achieved by, among other things,
- (a) the integration of the environment and the economy;
 - (b) protecting the health of Canadians;
 - (c) protecting ecosystems;
 - (d) meeting international obligations;

- (e) promoting equity;
- (f) an integrated approach to planning and making decisions that takes into account the environmental and natural resource costs of different economic options and the economic costs of different environmental and natural resource options;
- (g) preventing pollution; and
- (h) respect for nature and the needs of future generations.
- Petitions received** 22. (1) Where the Auditor General receives a petition in writing from a resident of Canada about an environmental matter in the context of sustainable development that is the responsibility of a category I department, the Auditor General shall make a record of the petition and forward the petition within fifteen days after the day on which it is received to the appropriate Minister for the department.
- Acknowledgement to be sent** (2) Within fifteen days after the day on which the Minister receives the petition from the Auditor General, the Minister shall send to the person who made the petition an acknowledgement of receipt of the petition and shall send a copy of the acknowledgement to the Auditor General.
- Minister to respond** (3) The Minister shall consider the petition and send to the person who made it a reply that responds to it, and shall send a copy of the reply to the Auditor General, within
- (a) one hundred and twenty days after the day on which the Minister receives the petition from the Auditor General; or
- (b) any longer time, where the Minister personally, within those one hundred and twenty days, notifies the person who made the petition that it is not possible to reply within those one hundred and twenty days and sends a copy of that notification to the Auditor General.
- Multiple petitioners** (4) Where the petition is from more than one person, it is sufficient for the Minister to send the acknowledgement and reply, and the notification, if any, to one or more of the petitioners rather than to all of them.
- Duty to monitor** 23. (1) The Commissioner shall make any examinations and inquiries that the Commissioner considers necessary in order to monitor
- (a) the extent to which category I departments have contributed to meeting the targets set out in the Federal Sustainable Development Strategy and have met the objectives, and implemented the plans, set out in their own sustainable development strategies laid before the Houses of Parliament under section 11 of the *Federal Sustainable Development Act*; and
- (b) the replies by Ministers required by subsection 22(3).

- Commissioner's report** (2) The Commissioner shall, on behalf of the Auditor General, report annually to Parliament concerning anything that the Commissioner considers should be brought to the attention of Parliament in relation to environmental and other aspects of sustainable development, including
- (a) the extent to which category I departments have contributed to meeting the targets set out in the Federal Sustainable Development Strategy and have met the objectives, and implemented the plans, set out in their own sustainable development strategies laid before the Houses of Parliament under section 11 of the *Federal Sustainable Development Act*;
 - (b) the number of petitions recorded as required by subsection 22(1), the subject-matter of the petitions and their status; and
 - (c) the exercising of the authority of the Governor in Council under subsections 11(3) and (4) of the *Federal Sustainable Development Act*.
- Duty to examine** (3) The Commissioner shall examine the report required under subsection 7(2) of the *Federal Sustainable Development Act* in order to assess the fairness of the information contained in the report with respect to the progress of the federal government in implementing the Federal Sustainable Development Strategy and meeting its targets.
- Duty to report** (4) The results of any assessment conducted under subsection (3) shall be included in the report referred to in subsection (2) or in the annual report, or in any of the three additional reports, referred to in subsection 7(1).
- Submission and tabling of report** (5) The report required by subsection (2) shall be submitted to the Speakers of the Senate and the House of Commons and the Speakers shall lay it before their respective Houses on any of the next 15 days on which that House is sitting after the Speaker receives the report.