

CHAPTER 2

Meeting Canada's 2020 Climate Change Commitments

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Meeting Canada's 2020 Climate Change Commitments

Main Points

What we examined

Since 1992, the Government of Canada has made domestic and international commitments to address climate change, including commitments to reduce its greenhouse gas (GHG) emissions.

The Government of Canada has now committed to reduce its economy-wide GHG emissions to 17 percent below 2005 levels by 2020, in alignment with the United States. This target was set internationally in the 2009 Copenhagen Accord and has also been communicated in the 2010 Federal Sustainable Development Strategy.

In this audit we examined whether Environment Canada had established an implementation plan designed to meet the 2020 national GHG emission reduction target.

Audit work for this chapter was substantially completed on 21 February 2012. Further details on the audit objective, scope, and criteria are in **About the Audit** at the end of the chapter.

Why it's important

Climate change has far-reaching impacts on Canada's economy, infrastructure, and natural environment, and on human health. Although the Minister of the Environment announced in December 2011 that Canada would withdraw from the Kyoto Protocol, the Government of Canada remains a Party to the United Nations Framework Convention on Climate Change. As such, the government is committed to achieving its national and international commitments to reduce greenhouse gas emissions to 17 percent below 2005 levels by 2020.

What we found

- Environment Canada has indicated that the Government of Canada will use a sector-by-sector approach to regulate GHG emissions. We found that this approach lacks an overall implementation plan designed to achieve the 2020 target, as well as economic analysis to estimate what the approach will cost the Canadian economy.

- As of February 2012, two regulations were in place to reduce GHG emissions in the transportation sector. These regulations apply to renewable fuels and to passenger automobiles and light trucks. Regulations for the third-largest GHG-emitting sector—the electricity sector—have been proposed but are not expected to take effect until 2015. Currently, no regulations are in place for the second-largest emitting sector, the oil and gas sector.
- In July 2011, Environment Canada released Canada's Emissions Trends, a document that outlines GHG emission reductions expected by 2020 under various scenarios. This document is an important planning tool and a step toward a transparent accounting for Canada's efforts to reduce GHG emissions. However, the document indicates that in 2020, Canada's GHG emissions will be 7.4 percent above 2005 levels instead of 17 percent below, and it estimates that Canada will need to reduce emissions by 178 million tonnes to meet the 2020 target. Therefore, according to Environment Canada's forecasts, the 2020 target will not be met with existing measures.
- Regulations are complex, and those developed to date have taken as long as five years to be developed and to realize greenhouse gas emission reductions. Existing federal regulations are expected to reduce GHG emissions by 11 to 13 million tonnes in 2020. Given that an additional 178 million tonnes in reductions are needed to meet the 2020 target, it is unlikely that enough time is left to develop and establish GHG regulations that together will contribute sufficient GHG reductions to meet the 2020 target.

The Department has responded. The Department agrees with all of our recommendations. Its detailed responses follow each recommendation throughout the chapter.

Introduction

2.1 Canada's government has recognized that the impacts of climate change are far-reaching, affecting our economy, infrastructure, health, and natural environment. Reports by the Government of Canada indicate that the impacts of our changing climate are already evident in every region of Canada. Impacts of recent extreme weather events highlight the vulnerability of Canadian communities and critical infrastructure to climate change.

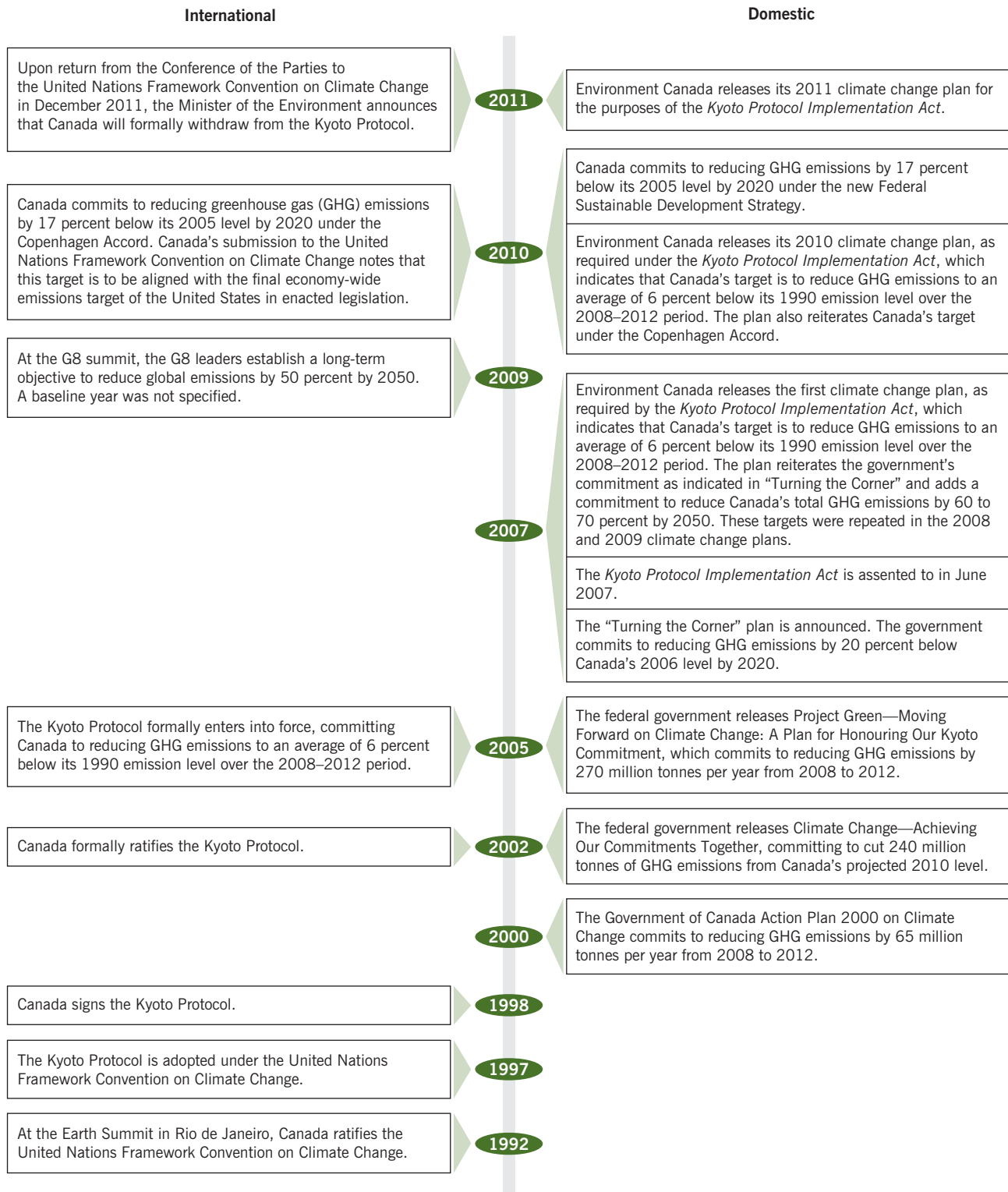
2.2 Since 1992, the Government of Canada has made domestic and international commitments to address climate change, including committing to reduce its emissions of greenhouse gases (GHG) (Exhibit 2.1). Although the Minister of the Environment announced in December 2011 that Canada would withdraw from the Kyoto Protocol, the Government of Canada remains committed to reducing greenhouse gas emissions as a Party to the United Nations Framework Convention on Climate Change and under the 2009 Copenhagen Accord.

Focus of the audit

2.3 In its 2011 climate change plan for the purposes of the *Kyoto Protocol Implementation Act*, Environment Canada noted that Canada has now committed to reduce its economy-wide GHG emissions to 17 percent below 2005 levels by 2020, in alignment with the United States. This target was set internationally in the 2009 Copenhagen Accord and has also been communicated in Canada's 2010 Federal Sustainable Development Strategy. This audit assessed whether Environment Canada had established a plan designed to meet these domestic and international commitments. While other federal departments and agencies also have responsibilities for implementing specific measures to address climate change, they were not included in the scope of this audit.

2.4 More details about the audit objective, scope, approach, and criteria are in **About the Audit** at the end of this chapter.

Exhibit 2.1 The federal government has made domestic and international commitments to address climate change and reduce greenhouse gas emissions



Observations and Recommendations

2.5 Our past audit reports examining the management of climate change in 1998, 2000, 2001, 2005, 2006, and 2011 found, among other things, that the federal government had not created effective governance structures for managing climate change activities designed to meet greenhouse gas (GHG) reduction targets. Our reports identified weaknesses in horizontal governance, accountability, and coordination. In our 2011 chapter on climate change plans under the *Kyoto Protocol Implementation Act*, we recommended that Environment Canada ensure that it support future climate change plans using an appropriate management accountability and reporting framework. We recommended that the framework include

- clear roles and responsibilities,
- goals and objectives for the plans,
- an evaluation strategy, and
- ongoing performance measurement that includes transparent financial reporting and quality assurance on GHG emissions and reductions reported.

In our view, these types of management tools are needed to achieve climate change commitments, particularly national commitments involving many departments and billions of dollars.

2.6 In this current audit, we examined whether Environment Canada had established an appropriate plan to meet the Government of Canada's commitment to reduce total GHG emissions by 17 percent by 2020, relative to 2005 emission levels.

Regulatory approach

The regulatory approach is not supported by an implementation plan designed to meet Canada's 2020 target

2.7 There are approximately eight years in which to achieve the Copenhagen Accord 2020 target. We examined whether an implementation plan had been developed to articulate the manner in which greenhouse gas (GHG) emissions would be reduced. Our expectations for what a plan could contain were based on Treasury Board of Canada Secretariat guidance documents and on our review of similar plans developed in the provinces and in other countries. Our review indicated, for example, that plans of this nature often

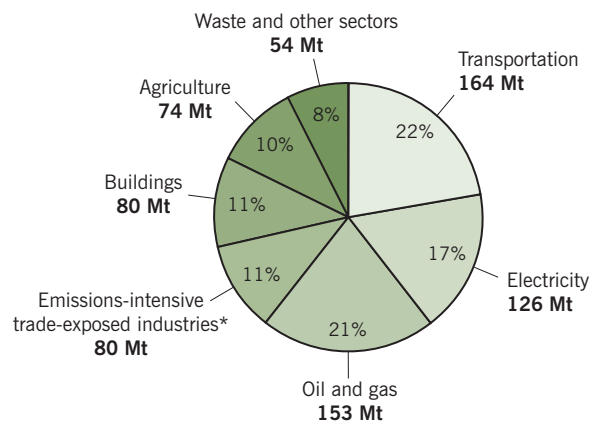
- establish performance measurement instruments such as interim targets,

- include mechanisms for coordination among different departments and jurisdictions, and
- use modelling and forecasts to estimate the GHG reductions of the recommended measures and the overall costs in order to compare expenditures with expected results.

2.8 To meet its target to reduce GHG emissions to 17 percent below 2005 levels by 2020, the federal government announced that it would use a sector-by-sector regulatory approach. Environment Canada uses the data in Exhibit 2.2 to show 2005 GHG emissions by economic sector and the sectors that will be regulated. The Department has stated that the government would begin regulating the largest GHG-emitting sectors first.

2.9 Environment Canada has no overall implementation plan that indicates how different regulations and federal departments and agencies will work together to achieve the reductions required to meet the 2020 target. The Department has not provided an estimate of the emission reductions expected from each sector or a general description of the regulations needed in each of the identified sectors. The regulatory approach does not identify which specific industries within each economic sector the regulations will target and when, or how these regulations will contribute to reducing GHG emissions. Without clarifying these elements of its approach, Environment Canada cannot reasonably determine whether Canada will meet the 2020 target and how much it will cost to do so.

Exhibit 2.2 The Government of Canada is regulating greenhouse gas emissions by sector—2005 emissions in million tonnes (Mt)



* For example, chemicals and fertilizers, iron and steel, and cement.

Source: Environment Canada

2.10 An implementation plan would communicate to the regulated companies when and how the regulations will affect them, allowing them to plan and adapt accordingly. Without an implementation plan, industry, consumers, and other levels of government lack a solid basis for knowing how to adjust technology and make formal investment decisions. An implementation plan for the overall approach is important because some sectors, such as the electricity sector and the oil and gas sector, may be affected by more than one of the planned GHG regulations. Furthermore, without such a plan, there is a risk that Canada will fail to meet its commitments to reduce GHG emissions. (See our recommendation in paragraph 2.27.)

Environment Canada does not know how much the regulatory approach will cost the Canadian economy

2.11 The government stated that the economic cost of implementing measures to achieve the obligations made under the Kyoto Protocol was prohibitively high. We therefore anticipated that the federal government would have estimated the cost of its regulatory approach and identified the least-cost options. Yet we found that Environment Canada has not conducted a comprehensive analysis to estimate the combined cost of the sector-by-sector approach to regulating GHG emissions. Nor has it estimated the impact on or costs to the Canadian economy of aligning its approach with the United States, or examined whether this is the most cost-effective option. These analyses are important in order to establish whether Canada faces proportionally higher costs than the United States in adopting an aligned regulatory approach.

2.12 When a regulation is drafted, an analysis is conducted of the regulation's potential impact, including its economic costs and benefits. However, we found that the combined economic costs of the overall regulatory approach have not been estimated. (See our recommendation in paragraph 2.27.)

Development of regulatory measures may be too slow to realize sufficient reductions by 2020

2.13 The *Canadian Environmental Protection Act, 1999* lists greenhouse gases as toxic substances. The GHG regulations that Environment Canada has either proposed or finalized to date are enacted under this statute. The regulations apply performance standards for emissions sources. Performance standards can set a limit on the amount of GHG that may be emitted during a specified period or within a specified distance. For example, the passenger automobile and light truck GHG regulations set progressively more stringent

standards for GHG emissions from new cars and trucks for the 2011 to 2016 model years. The proposed coal-fired electricity regulations set a performance standard with an emissions limit of 375 tonnes of carbon dioxide per gigawatt hour, per plant, which is equivalent to the average emissions intensity level of a high-efficiency natural gas-fired plant. Performance standards can also impose other requirements that will result in GHG emission reductions. For example, the regulations for renewable fuels require a percentage of average annual renewable content based on the volume of fuel produced or imported.

2.14 Exhibit 2.3 lists the GHG regulations that are part of the sector-by-sector approach, their current status, and costs and benefits to the Canadian economy as published in the regulatory impact analysis statements in the *Canada Gazette, Part I*. The exhibit shows that of the sectors planned for regulation, two regulations are in place in the transportation sector and one regulation has been proposed for the electricity sector. Four additional regulations in the transportation sector are in the early development stage, and two others are at the conceptual stage. Development of further regulations in the electricity, oil and gas, and emissions-intensive trade-exposed industries (such as cement, chemicals, and iron and steel) are also at the conceptual stage.

2.15 Environment Canada officials told us that recent amendments to the Energy Efficiency Regulations are also considered to contribute to GHG emission reductions in the buildings sector. While these regulations indirectly contribute to the reduction of GHG by decreasing electricity demand, we found that they are not consistently identified in public documents as part of the federal sector-by-sector approach to regulating GHG emissions. We have therefore not included them in our analysis.

2.16 The development of federal regulations is a complex process involving mandatory consultation with stakeholders, as well as analysis to determine the impact of the regulations on health and safety, security, the environment, and the social and economic well-being of Canadians. Regulations that place limits on GHG emissions can take up to five years to develop and realize actual GHG emission reductions (Exhibit 2.4). For example, the Renewable Fuels Strategy was announced in December 2006, but renewable fuel regulations for gasoline did not come into effect until December 2010. Furthermore, regulations to include renewable fuel content in diesel fuel and heating oil did not take effect until July 2011. In addition, the proposed regulations for coal-fired electricity plants, which were announced in June 2010, are not expected to come into effect or result in GHG emission reductions until 2015.

Exhibit 2.3 GHG regulations are in place in the transportation sector and proposed for the electricity sector

Sector and percentage of total Canadian emissions (2005)	Regulation or proposed industry to be regulated	Status of regulations	Projected GHG emission reductions in 2020	Projected costs and benefits to government and the economy resulting from regulations*
Transportation (22 percent)	Renewable Fuels Regulations <i>(Canadian Environmental Protection Act, 1999)</i>	Finalized Published in <i>Canada Gazette, Part II</i> , on 1 September 2010, requiring an average renewable fuel content in gasoline of 5 percent, in effect 15 December 2010. In July 2011 an amendment to the regulations was published in <i>Canada Gazette, Part II</i> , requiring an average renewable fuel content of 2 percent in diesel fuel and heating oil, in effect 1 July 2011.	2–3 million tonnes**	Cost of regulations: \$1.9 billion Cost of amendments: \$12.8 billion Benefit of regulations: \$560 million Benefit of amendments: \$10.4 billion
	Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations <i>(Canadian Environmental Protection Act, 1999)</i>	Finalized Final regulations for the 2011 to 2016 model years were published in <i>Canada Gazette, Part II</i> , on 1 October 2010. These regulations are aligned with those of the United States. Published at the same time as the 2011 to 2016 regulations was the notice of intent for more stringent regulations for 2017 and later model years, which are currently being developed in alignment with the US. A consultation paper on the next phase (2017 to 2025) was released on 16 November 2011. Responses were accepted until 16 December 2011.	9–10 million tonnes	Cost: \$4.2 billion Benefit: \$13.4 billion
	Proposed regulations to limit GHG emissions from new on-road heavy-duty vehicles and engines <i>(Canadian Environmental Protection Act, 1999)</i>	In development A consultation paper was released on 9 August 2011. The proposed regulations are targeted for publication in the <i>Canada Gazette, Part I</i> , in 2012. Regulations will take effect with the 2014 model year, becoming more stringent up to 2018, and are being developed in alignment with the US.	Not available	Not available

* The time frame for the analysis of costs and benefits is different for each regulation. For more information, see the Regulatory Impact Analysis Statements published in the *Canada Gazette*.

** Since the amendments regulate renewable fuel content in heating oil as well as diesel, these regulations also contribute to reducing greenhouse gas emissions in the buildings sector.

Exhibit 2.3 GHG regulations are in place in the transportation sector and proposed for the electricity sector (continued)

Sector and percentage of total Canadian emissions (2005)	Regulation or proposed industry to be regulated	Status of regulations	Projected GHG emission reductions in 2020	Projected costs and benefits to government and the economy resulting from regulations*
Transportation (22 percent) (continued)	Off-road vehicles	Conceptual stage	Not available	Not available
	Marine Vessel Pollution and Dangerous Chemicals Regulations <i>(Canada Shipping Act, 2001)</i>	In development Transport Canada is the lead department. Regulatory approach was outlined in a consultation paper released in fall 2011 and includes new controls approved by the International Maritime Organization for greenhouse gas emissions from ships. Proposed regulations are targeted for publication in <i>Canada Gazette, Part I</i> , in 2012 and are expected to take effect in 2013.	Not available	Not available
	Aviation	In development Transport Canada is the lead department. A carbon dioxide emissions standard for commercial airplanes is expected to be approved by the International Civil Aviation Organization in 2014 (currently in consultation phase). Once approved, it will be adopted into the Canadian Aviation Regulations (<i>Aeronautics Act, 1985</i>).	Not available	Not available
	Rail	Conceptual stage Transport Canada is the lead department.	Not available	Not available
Oil and gas (21 percent)	Upstream and downstream oil and gas activities will be regulated.	Conceptual stage Early consultation with industry and provinces to inform the scope and approach. Proposed regulations are expected to be published in <i>Canada Gazette, Part I</i> , in December 2012.	Not available	Not available

* The time frame for the analysis of costs and benefits is different for each regulation. For more information, see the Regulatory Impact Analysis Statements published in the *Canada Gazette*.

Exhibit 2.3 GHG regulations are in place in the transportation sector and proposed for the electricity sector (continued)

Sector and percentage of total Canadian emissions (2005)	Regulation or proposed industry to be regulated	Status of regulations	Projected GHG emission reductions in 2020	Projected costs and benefits to government and the economy resulting from regulations*
Electricity (17 percent)	Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations <i>(Canadian Environmental Protection Act, 1999)</i>	Proposed Proposed in <i>Canada Gazette, Part I</i> , on 27 August 2011. Scheduled to take effect 1 July 2015. Final regulations expected in June 2012.	6 million tonnes	Cost: \$8.2 billion Benefit: \$9.7 billion
	Natural gas-fired electricity generation	Conceptual stage Proposed regulations expected to be published in <i>Canada Gazette, Part I</i> , in September 2012.	Not available	Not available
Emissions-intensive trade-exposed industries (11 percent)	Individual sectors—for example, chemicals and fertilizers, iron and steel, and cement—will be regulated.	Conceptual stage Aim to publish proposed regulations for one or more sectors in <i>Canada Gazette, Part I</i> , in late 2012.	Not available	Not available

* The time frame for the analysis of costs and benefits is different for each regulation. For more information, see the Regulatory Impact Analysis Statements published in the *Canada Gazette*.

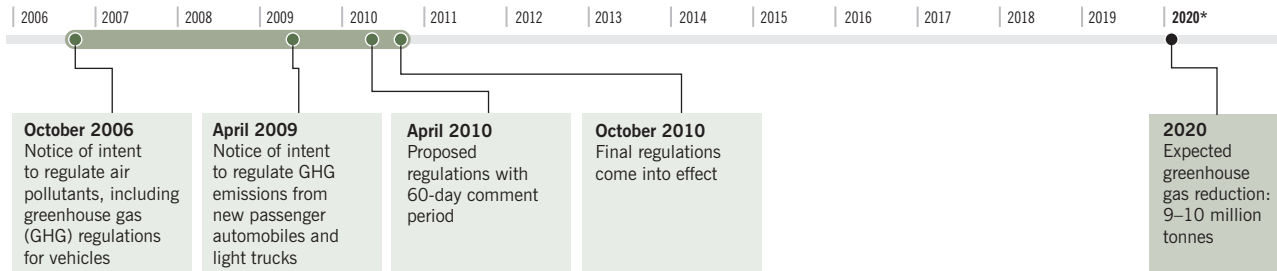
Note: Greenhouse gas regulations for the sectors of buildings, agriculture, and waste and others are not currently in place.

Source: Compiled from information from Environment Canada, Transport Canada, and *Canada Gazette*.

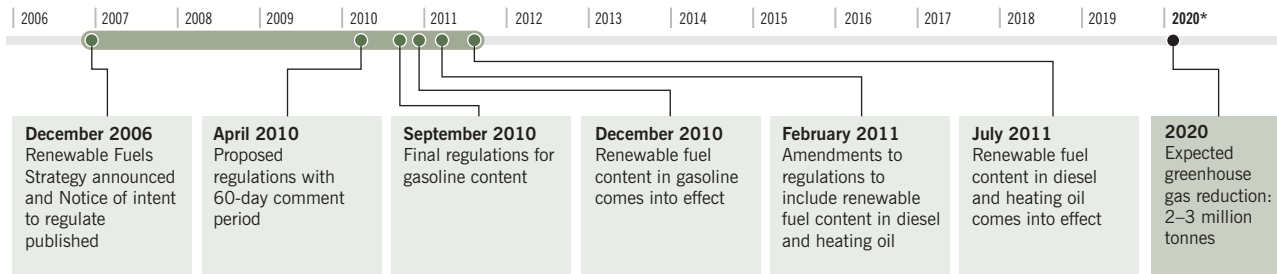
2.17 The proposed coal-fired electricity regulations will affect new plants and existing plants when they reach the age of 45 years, at which point they would have to meet the performance standard or else close. Environment Canada has estimated that these regulations will reduce GHG emissions by about 6 million tonnes in 2020. However, 34 of the 47 coal-fired electricity-generating plants operating in Canada would not be subject to the proposed performance standard until after 2020. In addition, any newly built plant in operation before the proposed regulations take effect on 1 July 2015 would not be

Exhibit 2.4 Greenhouse gas regulations have taken up to five years to develop and will not, on their own, realize sufficient reductions to meet the 2020 target

Passenger automobile and light truck regulations (2011–16 model years)



Renewable fuels regulations



Proposed coal-fired electricity regulations



* Additional emission reductions required to meet the 2020 target are 178 million tonnes according to Canada's Emissions Trends, 2011.

Source: Compiled from information from the *Canada Gazette* and Environment Canada.

required to meet them for 45 years. A new plant constructed before this date would contribute significant emissions by 2020 because an average 500-megawatt coal-fired plant emits about 3 million tonnes of GHG per year.

2.18 While regulations are in place or have been proposed for the highest and third-highest emitting sectors (transportation and electricity), none are yet in place for the second-highest, the oil and gas sector. This sector was responsible for 21 percent of GHG emissions in 2005, and emissions from oil sands production and upgrading are expected to increase by 62 million tonnes by 2020. Even if regulations for this sector were proposed by late 2012, as planned, a five-year delay is common before regulations come into effect, to provide adequate time for industry to adjust operations to the regulations.

2.19 In summary, as of February 2012, the two GHG regulations that were in place—applying to renewable fuels and to automobiles and light trucks—are expected to reduce GHG emissions by 11 to 13 million tonnes in 2020. Regulations for coal-fired electricity plants have been proposed and are expected to take effect in 2015. They are expected to result in 6 million tonnes of emission reductions in 2020. Regulations for the oil and gas sector were still in the conceptual stage. Given that an additional 178 million tonnes in reductions are needed to meet the 2020 target, it is unlikely that enough time is left to develop and establish GHG regulations that together will contribute sufficient GHG reductions. (See our recommendation in paragraph 2.27.)

Environment Canada does not have a clear definition or criteria to guide regulatory alignment with the United States

2.20 Canada's 2010 letter to the United Nations Framework Convention on Climate Change Secretariat, confirming the economy-wide emissions target for 2020, states that Canada's target and base year are aligned with those of the United States under the Copenhagen Accord. Environment Canada's 2011 climate change plan, for the purpose of the *Kyoto Protocol Implementation Act*, further indicates that it will align its regulatory approach with the United States, where appropriate and in Canada's best interests. Although the United States has not yet enacted legislation regarding its economy-wide target to reduce emissions to 17 percent below 2005 levels by 2020, the US *Clean Air Act* provides the federal legal authority to regulate GHG emissions in the United States (Exhibit 2.5).

Exhibit 2.5 The US *Clean Air Act* provides legal authority to regulate greenhouse gas emissions in the United States

- At the federal level in the United States, the *Clean Air Act* (CAA) is the central mechanism for developing regulations to reduce greenhouse gases (GHG).
- Since 1970, the US Environmental Protection Agency (EPA) has used the CAA to regulate air pollutants, and in 2007 the Supreme Court found that this authority also applied to the regulation of GHG.
- In 2009, the EPA made a science-based determination that GHGs threaten human health and welfare, which compelled the Agency to regulate GHG emissions in order to mitigate harm.
- Under the CAA, the EPA has implemented fuel efficiency standards for light- and heavy-duty vehicles.
- Starting in 2011, the EPA mandated permitting requirements for major new and modified industrial sources of GHG emissions. Industrial sectors that are targeted include power plants, refineries, iron and steel mills, pulp and paper mills, nitric acid plants, cement plants, and boilers. The permits require facilities to implement “best available control technologies” for pollution reduction. Permits are issued at the state level with EPA oversight and guidance.
- The EPA is also developing technology-based GHG performance standards for power plants and oil refineries.

Source: United States Environmental Protection Agency

2.21 While the United States has not specifically stated that it is taking a sector-by-sector approach to regulating GHG emissions, certain sectors are regulated for GHG under its *Clean Air Act*. We assessed whether Environment Canada had undertaken analysis and consultation to determine under which circumstances alignment with the United States was appropriate or not appropriate. To do this, we focused on the GHG regulations that are in place or are being developed as part of the sector-by-sector approach in Canada.

2.22 When developing GHG regulations, Environment Canada analyzes actions taken in the United States to reduce GHG emissions for the source or industry. Exhibit 2.6 shows the GHG regulations developed or under development in both countries by sector. It indicates that while Canada and the United States are both using regulations to reduce GHG emissions, their approaches are often different.

Exhibit 2.6 Canada and the United States are using regulatory approaches to reduce greenhouse gas (GHG) emissions

Canada (<i>Canadian Environmental Protection Act, 1999</i>)	United States
Transportation	
<p>Renewable Fuels Regulations</p> <p>Mandate an average annual percentage of renewable fuel content in gasoline (effective December 2010), diesel fuel, and heating oil (effective July 2011), based on the volume of fuel produced or imported.</p>	<p>Renewable Fuel Standard (<i>Energy Policy Act</i>)</p> <p>In place since 2005. Mandates renewable fuel volumes in gasoline and diesel based on forecasted production.</p>
<p>Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations</p> <p>Progressively more stringent standards, aligned with the United States, for GHG emissions from new cars and light trucks for the 2011 to 2016 model years, finalized in October 2010.</p> <p>In November 2011, Environment Canada released a consultation document on the next phase (2017 to 2025) of the regulations, also being developed in alignment with US standards.</p>	<p>Light-Duty Vehicle Greenhouse Gas Emission Standards (<i>Clean Air Act</i>) and Corporate Average Fuel Economy Standards (<i>Energy Policy and Conservation Act</i>)</p> <p>Final joint Environmental Protection Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) rule was published in May 2010 for model years 2012 to 2016.</p> <p>In November 2011, EPA and NHTSA issued a joint proposal to extend the harmonized GHG and fuel economy standards to model year 2017 through 2025.</p>
<p>New on-road heavy-duty vehicles and engines GHG regulations</p> <p>Consultation paper released in August 2011. Regulations are expected to take effect with the 2014 model year and become more stringent up to 2018, and will be aligned with the US standards.</p>	<p>Greenhouse Gas Emissions (<i>Clean Air Act</i>) and Fuel Efficiency (<i>Energy Policy and Conservation Act</i>) Standards for Medium- and Heavy-Duty Engines and Vehicles</p> <p>Regulations for 2014 to 2018 model years finalized in August 2011. Developed jointly by the US Environmental Protection Agency and the National Highway Traffic Safety Administration.</p>
Electricity	
<p>Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations</p> <p>Draft federal regulation released for public comment in August 2011.</p> <p>Performance standard proposed for carbon dioxide emissions from coal-fired plants.</p>	<p>GHG permitting program (<i>Clean Air Act</i>)</p> <p>Federal permitting requirement implemented by states, in effect since January 2011; covers new major stationary sources from all sectors, including all new and modified fossil fuel-fired power plants.</p> <p>A pre-construction permit establishes GHG emission limits for each plant on a case-by-case basis, based on deployment of best available control technology.</p>
<p>Natural gas-fired electricity regulations</p> <p>Draft federal regulatory approach under development.</p>	<p>Regulated GHG performance standards (<i>Clean Air Act</i>)</p> <p>The EPA is developing technology-based GHG performance standards (New Source Performance Standards) for new and modified fossil fuel-fired power plants.</p> <p>Emission guidelines that states will use to develop plans for reducing emissions from existing sources will also be developed.</p>

Exhibit 2.6 Canada and the United States are using regulatory approaches to reduce greenhouse gas (GHG) emissions (continued)

Canada (<i>Canadian Environmental Protection Act, 1999</i>)	United States
Oil and Gas	
<p>Federal regulations Regulations in conceptual stage.</p>	<p>GHG permitting program (<i>Clean Air Act</i>) Federal permitting requirement implemented by states, in effect since January 2011; covers all major stationary sources from all sectors, including refineries. A pre-construction permit establishes GHG emission limit for each plant on a case-by-case basis, based on deployment of best available control technology.</p> <hr/> <p>Regulated GHG performance standards (<i>Clean Air Act</i>) The EPA is developing technology-based GHG performance standards (New Source Performance Standards) for new and modified refineries. Emission guidelines that states will use to develop plans for reducing emissions from existing sources will also be developed.</p>
Other Emissions-Intensive Industries	
<p>Federal regulations Regulations for emissions-intensive trade-exposed industries (chemicals and fertilizers, iron and steel, cement, aluminum, pulp and paper, potash, lime and gypsum, base metal smelting, and iron ore pelletizing and mining) in conceptual stage.</p>	<p>GHG permitting program (<i>Clean Air Act</i>) Federal permitting requirement implemented by states, in effect since January 2011; covers large stationary sources from all sectors, including electricity generating units, boilers, pulp and paper, cement, iron and steel, refineries, nitric acid plants, and landfills.</p>

Source: Compiled with information from Environment Canada and US Environmental Protection Agency

2.23 Although the government has committed to align with the United States to reduce GHG, we found that there was no document available that defined “alignment” for the purposes of the sector-by-sector regulatory approach. Furthermore, no criteria were established for determining when regulatory alignment with the United States is appropriate and when it is not. This has resulted in varying interpretations of alignment within the Department. The following examples highlight these different interpretations.

2.24 Vehicle regulations. Due to the integration of the North American automotive industry, Environment Canada has chosen to harmonize the light-duty and heavy-duty vehicle regulations with equivalent US fuel economy and GHG emission standards. For the passenger automobile and light truck regulations, Environment Canada adopted the same emission standards and test procedures as the United States. Information sharing and monitoring are coordinated under a transportation working group of the Canada–US Air Quality Agreement.

2.25 Renewable fuels. Although both countries have chosen to regulate renewable fuel content, the regulated levels and the mechanics of the regulations are different. The US Renewable Fuel Standard mandates renewable fuel volumes based on forecasted production. The standard is reviewed and adjusted each year. The main driver for this policy is energy security. Canada's regulations, under the Renewable Fuels Strategy, are primarily driven by GHG reductions; they mandate renewable fuel percentages rather than volumes (5 percent average annual renewable fuel content in gasoline, and 2 percent in diesel and heating oil). While the regulated levels in Canada are lower than US levels, and compliance credits are assigned at different stages in the life cycle of the fuel, both sets of regulations target the producers and importers of petroleum fuel.

2.26 In summary, the Government of Canada, in its commitments to reduce GHG emissions, indicated it would align with the United States in its sector-by-sector approach where appropriate. We found that Environment Canada does not have criteria to determine when this alignment is appropriate and, further, that there is a lack of clarity in how the Department defines alignment.

2.27 Recommendation. Environment Canada should report on the results of the government's plan to achieve the target of reducing greenhouse gas (GHG) emissions to 17 percent below 2005 levels by 2020 through a sector-by-sector approach. The report should identify the measures currently planned, the amount of GHG reductions expected from each measure, the estimated timelines for the implementation of these measures, as well as mechanisms for assessing performance. The report should explain when the measures are aligned with the United States and estimate the overall cost of the approach to the Canadian economy.

The Department's response. The Department agrees with the intent of the recommendation. It will continue to support, within its mandate, the government's sector-by-sector approach to reduce greenhouse gas emissions, aligned with the US approach as appropriate, to achieve Canada's 2020 reduction target. As the government carries on with the implementation of its plan by adopting new measures, the Department will continue to update timelines and projections in public documents while also continuing to ensure that mechanisms for assessing performance are put in place for each measure for which it is responsible. This will be done through the new Federal Sustainable Development Strategy, annual Reports on Plans and Priorities and departmental performance reports, as well as the other reporting mechanisms outlined in our response to the Commissioner's other recommendation.

Consultation and coordination

Cap and trade—A form of market-based regulation that sets an overall limit on emissions and provides flexibility on how the regulated community achieves the required reductions.

Mechanisms for federal–provincial–territorial consultation have recently been established

2.28 In its July 2011 report, entitled Canada's Emissions Trends, Environment Canada stated that provincial and territorial measures were expected to contribute significantly to the achievement of the Canada-wide 2020 target, but did not state by how much. Projections used to forecast the 2020 emissions level include provincial measures such as Ontario's commitment to replace coal-fired electricity generation, the British Columbia carbon tax, and Nova Scotia's cap on electricity sector greenhouse gas (GHG) emissions. Based on its unique circumstances, each province and territory in Canada has adopted its own emission reductions target, its own climate change action plan, or both.

2.29 Policy instruments to address climate change across the country include carbon taxes, **cap-and-trade** schemes, and industry-specific performance standards, among others. In some cases, the same regulated industry, such as the electricity sector or the oil and gas sector, is targeted by more than one level of government and potentially by more than one government policy. Therefore, mechanisms and strategies for consulting, communicating, and coordinating these approaches are important to ensure the most effective and efficient implementation of these policies.

2.30 We found that Environment Canada consults with the provinces and territories on each regulation under development as part of its sector-by-sector approach. We also observed that in October 2011, a senior management working group on GHG regulatory development was created to share information with the provinces and territories on the regulatory options being considered, and to seek their feedback. More recently, in December 2011, a consultation steering committee on GHG regulatory development, composed of deputy ministers, was created to discuss provincial and federal regulations. As these two committees are new, we were unable to determine their effectiveness in communicating and coordinating strategies and identifying gaps in the development of GHG regulations.

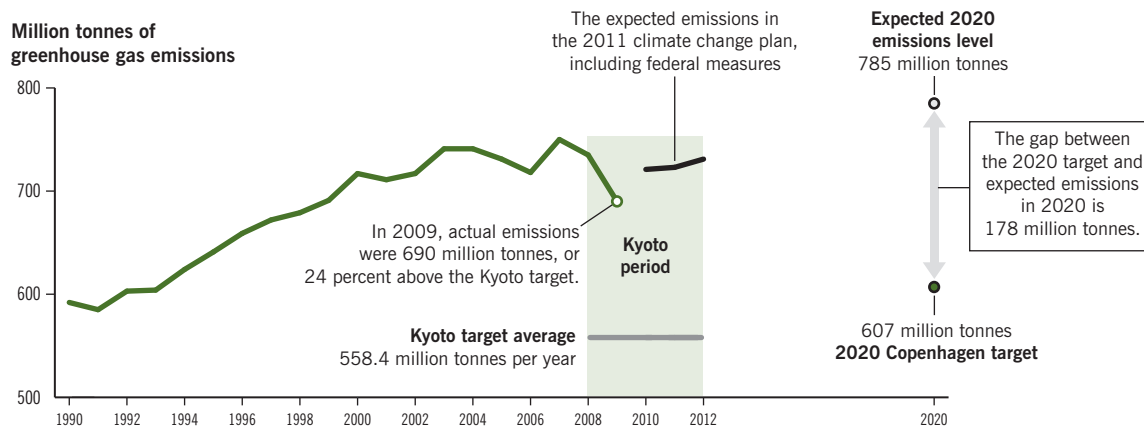
Targets and forecasts

2.31 As illustrated in Exhibit 2.1, Canada has made a variety of commitments and set a number of targets to reduce greenhouse gas (GHG) emissions since 1992. These targets have become significantly less ambitious over time (Exhibit 2.7). For example, the Kyoto Protocol target aimed to reduce emissions to 6 percent below the 1990 level between 2008 and 2012. Canada's Copenhagen Accord target for 2020 is 3 percent (or 17 million tonnes) above the 1990 level.

Environment Canada has published emissions forecasts

2.32 Canada's Emissions Trends, published in July 2011, incorporates statistics on GHG emissions and energy availability as of December 2010. It provides a transparent accounting of Canada's efforts to reduce GHG emissions—something that corresponds with our recommendations from previous audits. Although we did not audit the model used to generate these statistics and cannot attest to the accuracy of the numbers presented, we acknowledge this as a significant step in providing important information to Canadians and policy makers for decision making. At the time of this audit, Environment Canada officials did not know if they would continue to update and publish this information in the future.

Exhibit 2.7 Reduction targets for greenhouse gas emissions have become less ambitious over time



Source: Compiled with information from Environment Canada's National Inventory Report, 1990–2009: Greenhouse Gas Sources and Sinks in Canada (2011), A Climate Change Plan for the Purposes of the *Kyoto Protocol Implementation Act* (May 2011), and Canada's Emissions Trends (July 2011)

Environment Canada's forecasts show that targets will not be met with existing measures

2.33 The modelling presented in Environment Canada's Emissions Trends report shows that with existing measures, Canada will be 54 million tonnes (or 7.4 percent) above the 2005 level of GHG emissions in 2020 instead of the targeted 17 percent below it. According to these emissions forecasts, with existing measures, Canada will need to reduce GHG emissions by 178 million tonnes by 2020 to meet its target.

2.34 Given that the federal government has set a target and indicated it would be achieved using a sector-by-sector approach, we examined whether an analysis had been conducted to estimate the amount of GHG reductions expected from each sector so that regulations could be best targeted. We found that this information is not available on a sector-by-sector basis and that the only GHG regulations included in the projections are the renewable fuels regulations, the 2011 to 2016 passenger automobile and light truck regulations, and the proposed coal-fired electricity regulations. In other words, while the Government of Canada has a sector-by-sector approach to reducing GHG emissions, there is no sector-by-sector analysis to support it. In our view, these forecasts could be used to better support decision making by modelling scenarios to estimate the amount of GHG reductions that could be achieved from different policies and regulations to optimize their effectiveness. This would assist in setting achievable interim targets, selecting the measures needed to reach them, and measuring performance.

2.35 Recommendation. Environment Canada should forecast greenhouse gas (GHG) emissions and reductions under various scenarios to inform decision making. The Department should publish the Canada's Emissions Trends report regularly to support the development of GHG reduction measures toward meeting the 2020 target in any future climate change plans.

The Department's response. Agreed. The Department is committed to transparency in implementing the government's climate change plan. As such, the Department will continue to publish updated Emissions Trends reports. The Department will also continue to publish National Inventory Reports and National Communications under the United Nations Framework Convention on Climate Change (UNFCCC) and will implement any new measurement, reporting, and verification mechanisms established under the Copenhagen Accord, Cancun Agreements, and through the decisions reached at Durban.

Conclusion

2.36 Since 1992, the Government of Canada has committed, in various plans and agreements, to address climate change by reducing its national greenhouse gas (GHG) emissions. However, national GHG emissions have risen and were 690 million tonnes in 2009, which is 24 percent above the Kyoto target.

2.37 In 2010, the Government of Canada made new international and domestic commitments to reduce GHG emissions to 17 percent below 2005 levels by 2020. Environment Canada has announced a sector-by-sector regulatory approach in alignment with the United States. However, we concluded that the Department has not put in place an appropriate implementation plan to support this approach, which is designed to meet the 2020 target established by these commitments. As of February 2012, only one of the sectors, the transportation sector, was under regulation for GHG emissions. No regulations were in place for the oil and gas sector, the second-largest emitter of GHG. Because regulations are complex, and can take up to five years to develop and result in GHG reductions, it is unlikely that the regulatory approach will contribute emission reductions that are sufficient to meet the 2020 target.

2.38 In July 2011, Environment Canada released Canada's Emissions Trends, a report that outlines expected GHG emission reductions up to 2020, under varying scenarios. This document is an important step toward a transparent accounting of Canada's efforts to reduce GHG emissions. However, the forecast shows that in 2020, Canada's GHG emissions will be 7.4 percent above the 2005 level instead of 17 percent below, which indicates that the 2020 target will not be met with existing measures.

About the Audit

All of the audit work in this chapter was conducted in accordance with the standards for assurance engagements set by The Canadian Institute of Chartered Accountants. While the Office adopts these standards as the minimum requirement for our audits, we also draw upon the standards and practices of other disciplines.

Objective

The objective of our audit was to determine whether Environment Canada has established an appropriate climate change plan to meet its target to reduce greenhouse gas (GHG) emissions to 17 percent below 2005 levels by 2020, as committed to under the 2009 Copenhagen Accord and in the 2010 Federal Sustainable Development Strategy.

Scope and approach

Environment Canada is the entity under audit for this topic due to its responsibilities under the *Kyoto Protocol Implementation Act*, the United Nations Framework Convention on Climate Change, and the Federal Sustainable Development Strategy. While other federal departments and agencies also have responsibilities for implementing specific measures to address climate change, they were not included in the scope of this audit.

We interviewed key departmental officials in the National Capital Region. We also interviewed other stakeholders and consulted with experts in the field. We interviewed officials from the United States Environmental Protection Agency and reviewed documentation supplied to us by Environment Canada.

Criteria

Criteria	Sources
To determine whether Environment Canada has established a plan to meet commitments under the Federal Sustainable Development Strategy and the 2009 Copenhagen Accord, we used the following criteria:	
<p>Environment Canada has an appropriate plan to achieve the new greenhouse gas (GHG) emission reductions target (17 percent of the 2005 emission level by 2020).</p>	<ul style="list-style-type: none"> • October 2011 Report of the Commissioner of the Environment and Sustainable Development, Chapter 1, Recommendation 1.81 • Federal Sustainable Development Strategy, Environment Canada, 2010 • Canada's submission to the United Nations Framework Convention on Climate Change, Copenhagen Accord • Companion Guide: The Development of Results-based Management and Accountability Frameworks for Horizontal Initiatives, Treasury Board of Canada Secretariat • Environment Canada's quality assurance/quality control for reporting GHG emissions sources and sinks to the United Nations Framework Convention on Climate Change, National Inventory Report, 2011 • Canada's Emissions Trends, Environment Canada, 2011
<p>Environment Canada can demonstrate where alignment with the United States approach to regulating GHG emissions is appropriate and where it is not, and has planned which sectors of the Canadian economy will be regulated for GHG emissions and when.</p>	<ul style="list-style-type: none"> • Federal Sustainable Development Strategy, Environment Canada, 2010 • Canada's submission to the United Nations Framework Convention on Climate Change, Copenhagen Accord • Presentation—"Canada's Climate Change Mitigation Plan," at the United Nations Climate Change Conference, Bonn, Germany, 9 June 2011 • Speech given by the Honourable Peter Kent, Minister of the Environment, "Climate Change Milestones," at the Economic Club of Canada, Toronto, Ontario, 28 January 2011 • A Climate Change Plan for the Purposes of the <i>Kyoto Protocol Implementation Act</i>, Environment Canada, 2011
<p>Environment Canada knows whether the sector-by-sector regulatory approach is expected to reduce GHG emissions (2005 level) by 17 percent by 2020.</p>	<ul style="list-style-type: none"> • Canada's submission to the United Nations Framework Convention on Climate Change, Copenhagen Accord • Speech given by the Honourable Peter Kent, Minister of the Environment, "Climate Change Milestones," at the Economic Club of Canada, Toronto, Ontario, 28 January 2011 • Presentation—"Canada's Climate Change Mitigation Plan," at the United Nations Climate Change Conference, Bonn, Germany, 9 June 2011 • A Climate Change Plan for the Purposes of the <i>Kyoto Protocol Implementation Act</i>, Environment Canada, 2011 • Canada's Emissions Trends, Environment Canada, 2011

Management reviewed and accepted the suitability of the criteria used in the audit.

Period covered by the audit

The period covered by this audit was October 2006 to December 2011. Audit work for this chapter was substantially completed on 21 February 2012.

Audit team

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Appendix List of recommendations

The following is a list of recommendations found in Chapter 2. The number in front of the recommendation indicates the paragraph number where it appears in the chapter. The numbers in parentheses indicate the paragraph numbers where the topic is discussed.

Recommendation	Response
Regulatory approach	
<p>2.27 Environment Canada should report on the results of the government's plan to achieve the target of reducing greenhouse gas (GHG) emissions to 17 percent below 2005 levels by 2020 through a sector-by-sector approach. The report should identify the measures currently planned, the amount of GHG reductions expected from each measure, the estimated timelines for the implementation of these measures, as well as mechanisms for assessing performance. The report should explain when the measures are aligned with the United States and estimate the overall cost of the approach to the Canadian economy. (2.7–2.26)</p>	<p>The Department agrees with the intent of the recommendation. It will continue to support, within its mandate, the government's sector-by-sector approach to reduce greenhouse gas emissions, aligned with the US approach as appropriate, to achieve Canada's 2020 reduction target. As the government carries on with the implementation of its plan by adopting new measures, the Department will continue to update timelines and projections in public documents while also continuing to ensure that mechanisms for assessing performance are put in place for each measure for which it is responsible. This will be done through the new Federal Sustainable Development Strategy, annual Reports on Plans and Priorities and departmental performance reports, as well as the other reporting mechanisms outlined in our response to the Commissioner's other recommendation.</p>
Targets and forecasts	
<p>2.35 Environment Canada should forecast greenhouse gas (GHG) emissions and reductions under various scenarios to inform decision making. The Department should publish the Canada's Emissions Trends report regularly to support the development of GHG reduction measures toward meeting the 2020 target in any future climate change plans. (2.31–2.34)</p>	<p>Agreed. The Department is committed to transparency in implementing the government's climate change plan. As such, the Department will continue to publish updated Emissions Trends reports. The Department will also continue to publish National Inventory Reports and National Communications under the United Nations Framework Convention on Climate Change (UNFCCC) and will implement any new measurement, reporting, and verification mechanisms established under the Copenhagen Accord, Cancun Agreements, and through the decisions reached at Durban.</p>