

Reports of the Commissioner of the Environment and Sustainable Development to the Parliament of Canada

Canadian Net-Zero Emissions Accountability Act— 2030 Emissions Reduction Plan

Report 6



Independent Auditor's Report | 2023



Office of the
Auditor General
of Canada

Bureau du
vérificateur général
du Canada

Performance audit reports

This report presents the results of a performance audit conducted by the Office of the Auditor General of Canada (OAG) under the authority of the *Auditor General Act* and the *Canadian Net-Zero Emissions Accountability Act*.

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- gather the evidence necessary to assess performance against the criteria
- report both positive and negative findings
- conclude against the established audit objectives
- make recommendations for improvement when there are significant differences between criteria and assessed performance

Performance audits contribute to a public service that is ethical and effective and a government that is accountable to Parliament and Canadians.

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At a Glance



Overall message

The federal government is not on track to meet the 2030 target to reduce greenhouse gas emissions by at least 40% below the 2005 level by 2030. While the 2030 Emissions Reduction Plan included important mitigation measures to reduce emissions, some of these measures, such as the Oil and Gas Emissions Cap and the *Clean Fuel Regulations*, have been delayed. We found that the measures most critical for reducing emissions had not been identified or prioritized.

These are not new findings. The federal government has failed to meet previous emission reduction targets despite the development and implementation of more than 10 climate change mitigation plans since 1990. Canada's current emissions are significantly higher than they were in 1990. Environment and Climate Change Canada had still not taken sufficient steps to improve the transparency and reliability of its economic and emission modelling despite repeated recommendations from our office and modelling experts. Course correction is critical to achieving the target. However, we found that responsibility for reducing emissions was fragmented among multiple federal organizations that were not directly accountable to the Minister of Environment and Climate Change. This means there is no real way for the minister to commit other federal organizations to correcting course to meet the 2030 targets.

While some progress has been made, we are still extremely concerned about the federal government's ability to achieve meaningful progress under the new *Canadian Net-Zero Emissions Accountability Act*. The stakes for failing to mitigate climate change grow ever higher, and the window of opportunity to reduce emissions and meet the 2030 and 2050 targets is rapidly closing.

Key facts and findings



- In March 2022, the Minister of Environment and Climate Change published the 2030 Emissions Reduction Plan, the first plan under the *Canadian Net-Zero Emissions Accountability Act*.
- The act requires the Commissioner of the Environment and Sustainable Development to report by the end of 2024 on the implementation of the measures aimed at mitigating climate change. With the urgent need for rapid, deep emission cuts in Canada's fight against catastrophic climate change, we decided to begin reporting in fall 2023, more than a year earlier than required.
- In the 2030 plan, Environment and Climate Change Canada and Natural Resources Canada made efforts to identify groups that could be disproportionately burdened by measures in the plan and developed some measures to support them.
- Environment and Climate Change Canada projected that Canada would miss the target for reducing emissions. To meet the 2030 target, emissions should be reduced by at least 40% below the 2005 level. In December 2022, the department revised the emission reductions it expected from the 2030 plan from achieving 36.4% below the 2005 level to 34%, missing the 2030 target by an even wider margin.
- Only 45% of the measures in the plan had an implementation deadline.
- The plan did not include a target or expected emission reductions for 95% of its measures. Federal government organizations expected only 43% of measures to have some direct impact on emissions.
- Weaknesses in Environment and Climate Change Canada's economic modelling included overly optimistic assumptions, limited analysis of uncertainties, and lack of peer review.
- The act does not require the minister to achieve the targets. If Canada were to fail again in meeting its target, the act only requires that the minister include the reasons why and propose actions to address the failure.

See **Recommendations and Responses** at the end of this report.

Table of Contents

Introduction	1
Background	1
Focus of the audit	5
Findings and Recommendations	6
The 2030 Emissions Reduction Plan is insufficient to meet the 2030 emission reduction target	6
Potentially strong measures in the plan.....	7
Shortfall in emission reductions expected from the plan	9
Missing and inconsistent information for measures	10
Lack of reliability of emission projections from economic modelling	12
There were significant flaws in implementing mitigation measures that increase the likelihood of not meeting the 2030 target	15
Delays in implementation and missing information	16
No prioritization of measures	18
Fragmented accountability for reducing emissions hinders course correction to meet the 2030 target	20
Promising approach for course correction if strengthened.....	21
Lagging or missing information for course correction.....	22
Fragmented accountability for reducing emissions	24
Lack of available information.....	27
Lessons learned for more effective implementation of the plan	29
Conclusion	30
About the Audit	31
Recommendations and Responses	35
Appendix: Measures in the 2030 Emissions Reduction Plan	39

Introduction

Background

The Canadian Net-Zero Emissions Accountability Act

6.1 The 2015 United Nations' Climate Change Conference led to Canada and 194 other parties adopting the Paris Agreement, a key international commitment to reduce greenhouse gas emissions. The Paris Agreement is the latest in a series of international attempts to fight climate change that date back to 1992. The Paris Agreement's objective is to limit the increase in global average temperatures to below 2 degrees Celsius and preferably to 1.5 degrees Celsius compared with temperature levels in pre-industrial times. In 2021, the Government of Canada committed to reducing greenhouse gas emissions to 40% to 45% below the 2005 level by 2030.

6.2 One tool the government is using is the *Canadian Net-Zero Emissions Accountability Act*, which came into force on 29 June 2021. The act focuses on promoting transparency and accountability in the federal government's efforts to ensure Canada's economy achieves **net-zero greenhouse gas emissions**¹ by 2050. The act requires the Minister of Environment and Climate Change to set emission targets and to publish emissions reduction plans and progress reports.

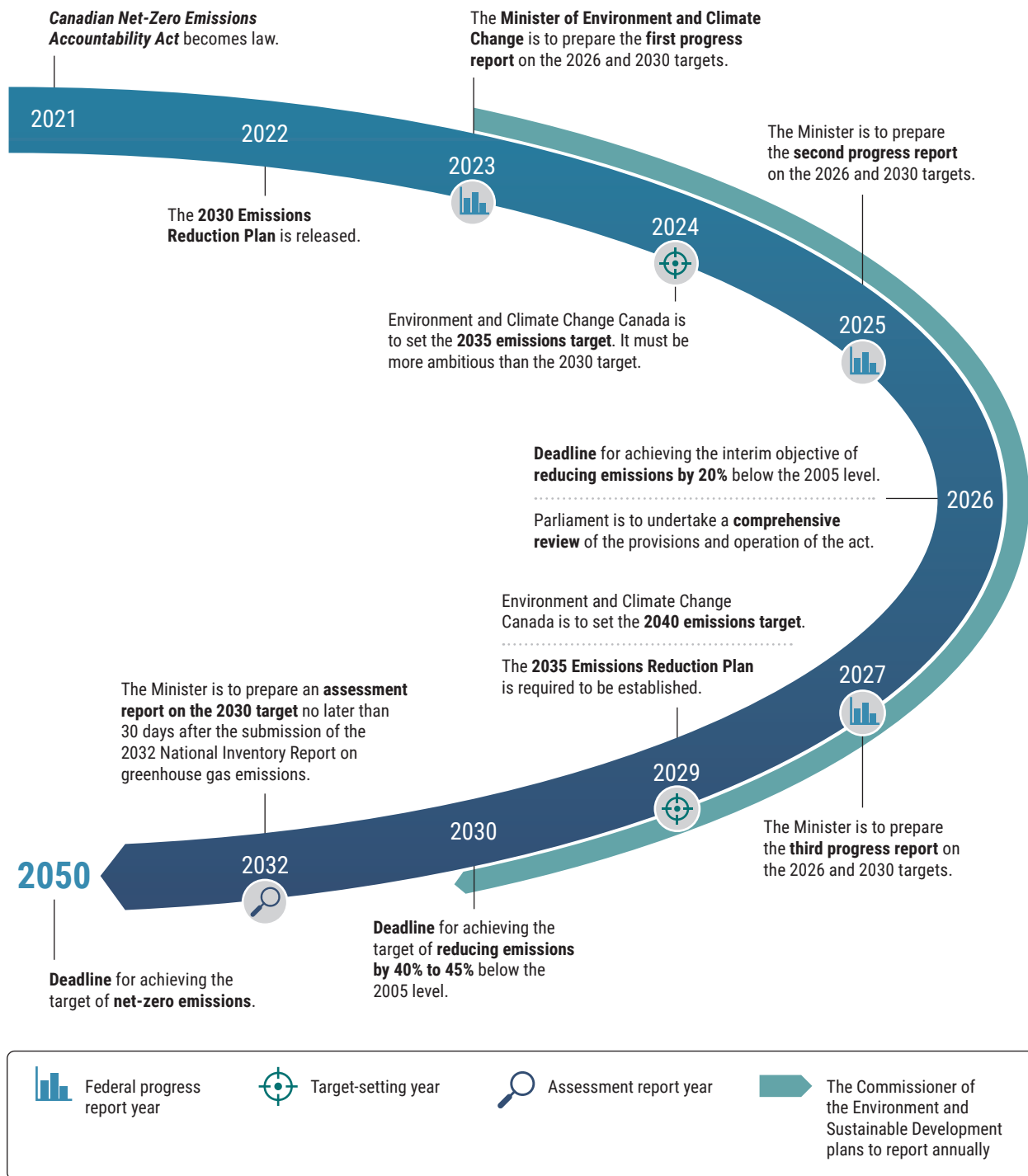
6.3 In March 2022, the Minister of Environment and Climate Change published the 2030 Emissions Reduction Plan. This was the first plan under the act. The plan must include the key mitigation measures that the federal government intends to take to achieve Canada's 2030 target. The plan must also include an interim emission reduction objective for the year 2026. The plan set this objective at 20% below the 2005 level. The act requires the minister to prepare a report by the end of 2023 on the progress made toward the 2030 target.

6.4 The act also requires the Commissioner of the Environment and Sustainable Development to report on the government's implementation of mitigation measures, which are measures to reduce greenhouse gas emissions. Reporting is to start no later than the end of 2024 and occur at least once every 5 years. With the urgent need for results in Canada's fight against catastrophic climate change, we decided to begin reporting in 2023, more than a year earlier than required. We will continue to report annually. In so doing, we aim to better assist the federal government to take corrective action early enough to help it reach its 2026 interim

¹ **Net-zero greenhouse gas emissions**—A state in which emissions of greenhouse gases into the atmosphere from human activity are balanced by removals of greenhouse gases from the atmosphere through human activity over a specific period. Removals can include natural carbon sinks, such as wetlands and forests, or sequestration using emerging technologies like carbon capture, utilization, and storage.

emission reduction objective and its 2030 target. Exhibit 6.1 shows a timeline for when various types of reports and other information required by the act are expected to be released.

Exhibit 6.1—Timeline of target setting, deadlines, and reports as required under the *Canadian Net-Zero Emissions Accountability Act*

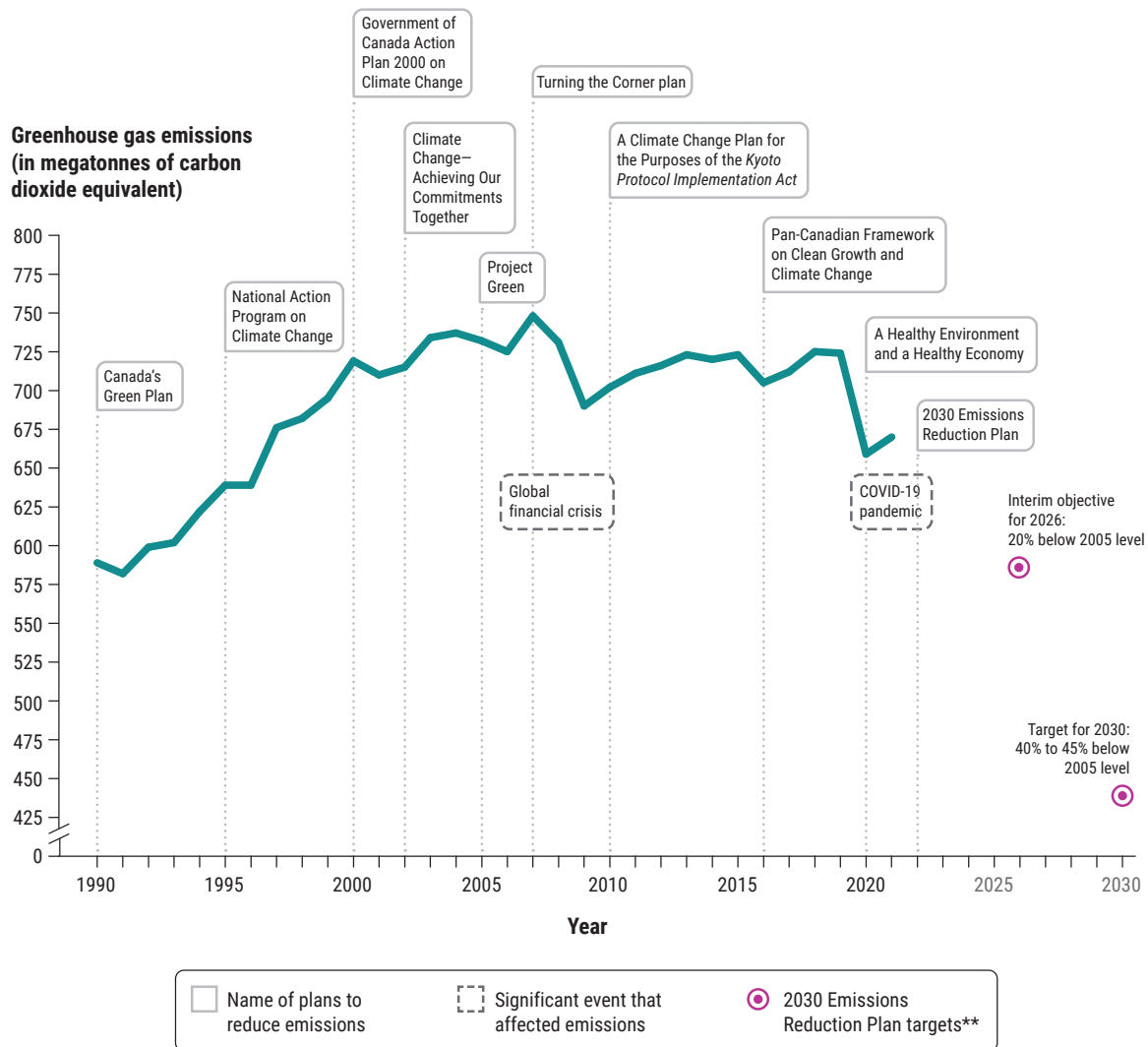


Source: Canadian Net-Zero Emissions Accountability Act

Canada’s record at reducing greenhouse gas emissions

6.5 Since 1990, the federal government has developed more than 10 plans to reduce emissions. It has spent billions of dollars on developing and implementing plans. Despite these efforts, Canada’s greenhouse gas emissions were higher in 2021 than they were in 1990 (1990 is the baseline year for reporting emissions and assessing progress for Canada and other industrialized countries under the United Nations Framework Convention on Climate Change). Exhibit 6.2 shows Canada’s total annual emissions and its emission target for 2030.

Exhibit 6.2—Canada’s performance in reducing greenhouse gas emissions* and the years it issued plans to reduce emissions



* Excluding land use, land use change, and forestry

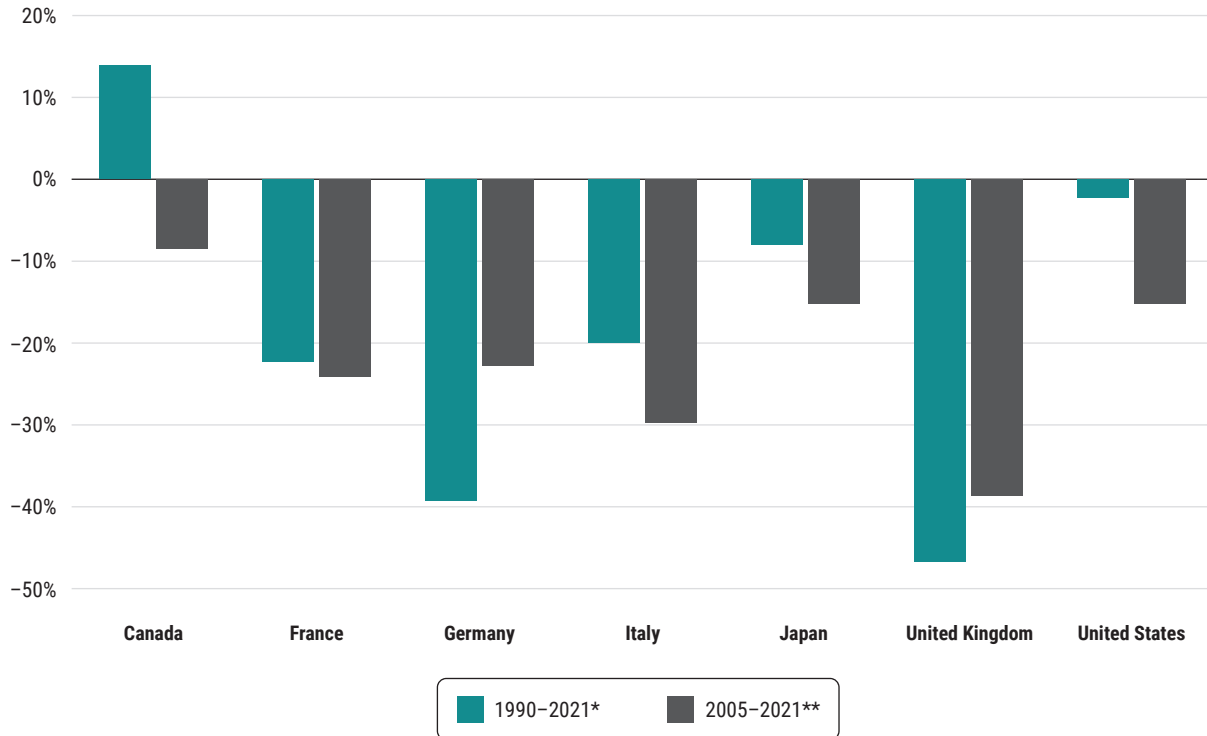
** The 2026 interim objective for emissions is 20% below 2005 levels. The 2030 target for emissions is 40% to 45% below 2005 levels. The 2030 target shown is 40% below.

Source: Based on data from the National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

6.6 From 2005 to 2021, emissions decreased by 8% (2005 is the baseline year chosen by Canada for its 2030 target under the Paris Agreement). This means that the bulk of reductions need to occur in the years ahead to meet the 2030 target. Canada has been the worst performer of all **Group of Seven**² countries since 1990 and since 2005 in reducing emissions (Exhibit 6.3).

Exhibit 6.3—Performance of Group of Seven countries in reducing greenhouse gas emissions

Percentage change in greenhouse gas emissions



*1990 is the baseline year for reporting emissions and assessing progress for Canada and other industrialized countries under the United Nations Framework Convention on Climate Change.

**2005 is the baseline year picked by Canada for its 2030 target under the Paris Agreement.

Source: National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

6.7 In November 2021, we issued a report titled Lessons Learned from Canada’s Record on Climate Change. The report considered 30 years of climate change action in Canada and 20 years of our audit work on this topic. It identified key barriers to progress and potential solutions.

² **Group of Seven (G7)**—Informal grouping of 7 industrialized nations (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States).

Roles and responsibilities

6.8 **Environment and Climate Change Canada.** This is the lead department on climate change mitigation. The department is responsible for putting in place mitigation measures under its mandate to reduce greenhouse gas emissions, reporting on historical emissions, estimating future emissions, and leading on behalf of the federal government the coordination of action on climate change with provincial and territorial officials.

6.9 **Natural Resources Canada.** This department is responsible for developing and implementing the most mitigation measures after Environment and Climate Change Canada under Canada's 2030 Emissions Reduction Plan. These include measures supporting clean electricity; carbon capture, utilization, and storage; and clean fuels. The department co-chairs the interdepartmental climate plan implementation committees together with Environment and Climate Change Canada.

6.10 **The Privy Council Office.** This office is responsible for providing advice to the Prime Minister on strategic policy planning and coordination of the government's policy objectives, such as advancing the climate change agenda. The office also provides guidance and advice to federal departments on their policy proposals to Cabinet and works to ensure coherence with the government's policy objectives. The Climate Secretariat within the office is tasked with advancing a whole-of-government approach to support the implementation of climate policies across federal government organizations.

6.11 **Department of Finance Canada.** This department provides analysis and tracking of economic and financial risks, opportunities, and investments related to climate change. It is also responsible for developing and implementing some mitigation measures under Canada's 2030 Emissions Reduction Plan. In addition, it participates in the interdepartmental climate plan implementation committees.

Focus of the audit

6.12 This audit focused on whether Environment and Climate Change Canada, in consultation with key federal government organizations, had designed a credible and inclusive 2030 Emissions Reduction Plan and whether responsible federal organizations had implemented mitigation measures to meet the greenhouse gas emission reduction targets. We assessed the organizations' performance using a range of expectations. These expectations were based on, but not limited to, the *Canadian Net-Zero Emissions Accountability Act* and the *Auditor General Act*.

6.13 This audit is important because it will help Parliament hold the government to account for its plans and progress toward its greenhouse gas emission reduction target and for its commitments to Canadians and the international community. It serves as a benchmark for measuring success now and in the future. This is all the more important given Canada’s failure to meet its targets for reducing greenhouse gas emissions in the past and the rapidly closing window of opportunity to meet the 2030 and 2050 targets.

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

Findings and Recommendations

The 2030 Emissions Reduction Plan is insufficient to meet the 2030 emission reduction target

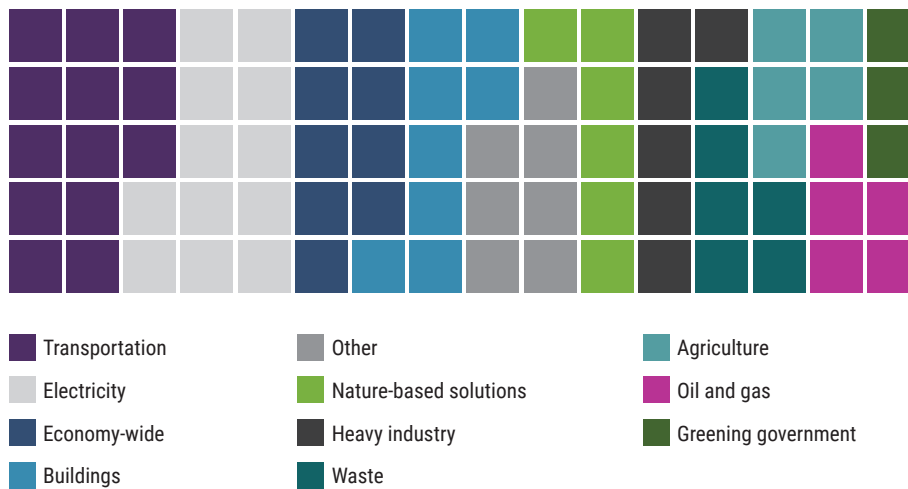
Why this finding matters

6.15 This finding matters because the 2030 Emissions Reduction Plan is the first plan to be issued under the *Canadian Net-Zero Emissions Accountability Act*. As the first plan, it represents an opportunity to set out how to meet Canada’s target for reducing emissions to 40% to 45% below the 2005 level by 2030. To meet the target, the plan needs to have measures that would be expected to deliver sufficient reductions.

Context

6.16 The 2030 Emissions Reduction Plan lays out potential reductions in emissions by economic sector and includes 80 measures (Exhibit 6.4). Some of these measures, such as carbon pricing, were existing measures that have already been implemented. The plan also introduced other measures, such as a commitment to launch a fund to accelerate the adoption of net-zero-ready building codes. (See the Appendix for a list of the 80 measures the plan designates as current and 37 measures that the plan designates as new and are anticipated to contribute to meeting the 2030 target.)

Exhibit 6.4—Breakdown of the 2030 Emissions Reduction Plan’s 80 measures by sector



Note: See the Appendix for a list of the measures.

Source: Based on information in the 2030 Emissions Reduction Plan, Environment and Climate Change Canada, 2022

6.17 In developing the plan, the Minister of Environment and Climate Change must have taken into account the United Nations Declaration on the Rights of Indigenous Peoples and submissions by the Net-Zero Advisory Body, which was established under the act.

Potentially strong measures in the plan

Findings

6.18 There is agreement among many experts that a policy package including a range of regulatory and economic mitigation measures, such as carbon pricing, can support deep emission reductions if they are stringent enough and applied widely. These experts include those from the Intergovernmental Panel on Climate Change and the Organisation for Economic Co-operation and Development. We found that the 2030 Emissions Reduction Plan included several of these measures and Environment and Climate Change Canada was working to strengthen them.

6.19 We found that the department ensured that all provincial and territorial jurisdictions had carbon pricing in place by 2019. It was also working to strengthen the mitigation measure. For example, our 2022 Report 5—Carbon Pricing found that there were shortcomings in the measure’s design, and the department strengthened the measure in August 2021. Also, the department indicated that the price will increase steadily until 2030 and was considering measures to improve the certainty around the future price. The objective of these changes is to give private sector firms confidence that the price will increase as

scheduled. This confidence is meant to motivate them to invest earlier in reducing or eliminating their greenhouse gas emissions. This in turn would improve the effectiveness of the pricing.

6.20 Environment and Climate Change Canada had also implemented several regulations to reduce emissions. In the 2030 Emissions Reduction Plan, the department committed to further strengthen some of these mitigation measures—for example:

- **Electricity.** In 2018, the department amended the *Reduction of Carbon Dioxide Emissions from Coal-Fired Generation of Electricity Regulations* to require all coal-fired plants to meet a prescribed emission-intensity limit by 2030. The impact of these regulations has effectively closed down most coal-fired plants on an accelerated timeline. In the 2030 plan, the department re-committed to developing more stringent regulations that would cover all sources of emissions from electricity generation, including natural gas-fired plants. The strengthened regulations were intended to ensure that Canada's electricity generation achieve net-zero emissions by 2035.
- **Oil and gas.** The department committed to developing more stringent regulations for oil and gas than those last released in 2018: the *Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds (Upstream Oil and Gas Sector)*.
- **Transportation.** In 2010, the department published the *Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations*. These regulations set vehicle emission standards for the 2011 to 2016 model years. A 2015 amendment set more stringent emission standards for the 2017 to 2025 model years. In the 2030 plan, the department committed to developing a light-duty vehicle zero-emission vehicle sales mandate. It would require set percentages of new light-duty vehicles sold to have zero emissions. The percentage would increase annually, reaching 100% by 2035.
- **Fuels.** In 2010, the department published the *Renewable Fuels Regulations*. They set a requirement for average renewable fuel content. In the 2030 plan, the department committed to developing more stringent *Clean Fuel Regulations*. They would require gasoline and diesel suppliers to reduce over time the carbon intensity of the fuels they produce and sell for use in Canada.

6.21 Another strength of the 2030 plan was that Environment and Climate Change Canada and Natural Resources Canada made efforts to identify groups that could be disproportionately burdened by measures in the plan. They also identified some measures to provide targeted support for those groups, including

- funding for clean energy projects in the North
- funding to support public transportation in rural communities
- some exemptions from carbon pricing and targeted support for groups such as farmers, fishers, and rural residents

Shortfall in emission reductions expected from the plan

Findings

6.22 Environment and Climate Change Canada estimated that the measures in the 2030 Emissions Reduction Plan were not expected to reduce emissions to the extent needed to meet the target. It projected that the 2030 plan would decrease Canada's total emissions to about 470 **megatonnes of carbon dioxide equivalent (Mt CO₂ eq)**³ in 2030. To meet the target from the 2030 plan, emissions should be reduced to no more than 443 Mt CO₂ eq. As a percentage, the plan projected 2030 emissions to be reduced to 36.4% below the 2005 level. Although this would be a significant achievement and change in trajectory for Canada's emissions, it falls short of Canada's commitment to reducing emissions to 40% to 45% below the 2005 level by 2030.

6.23 In December 2022, the projected emissions from the implementation of the plan for 2030 were updated to 491 Mt CO₂ eq. This is a larger shortfall than the plan originally expected (a shortfall of 46 Mt CO₂ eq rather than the originally expected 27 Mt CO₂ eq). As a percentage, the reduction would be 34% compared with the 2005 level rather than 40% to 45%.

6.24 The shortfall in expected emission reductions also means that the federal government does not project that the plan can meet the United Nations' Sustainable Development Goal 13 (Climate Action). Canada based its commitment to taking urgent action to combat climate change and its effects on the 2030 target of a 40% to 45% reduction in emissions below the 2005 level. Canada also based its Federal Sustainable Development Strategy on the United Nations' goals and uses the 2030 target. Canada is therefore also falling short of meeting the emission reduction target in this strategy with the plan currently in place.



Take urgent action to combat climate change and its impacts

Source: United Nations

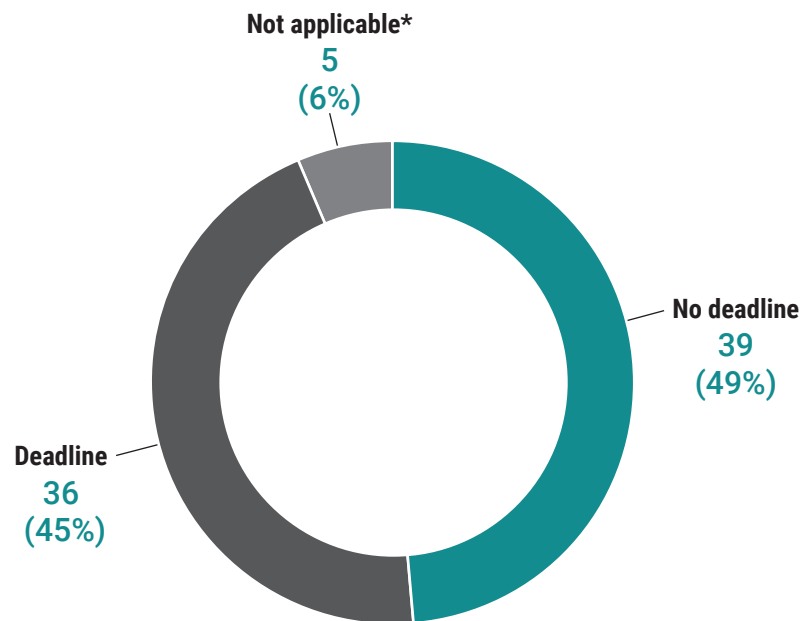
³ **Megatonne of carbon dioxide equivalent (Mt CO₂ eq)**—The amount of a greenhouse gas that has the same warming potential as a million tonnes (a megatonne) of carbon dioxide over a specified period.

Missing and inconsistent information for measures

Findings

6.25 We found that many of the 2030 Emissions Reduction Plan’s 80 measures lacked timetables specifying an implementation deadline, milestones, and targets. For example, an implementation deadline was reported for only 45% (36) of the measures in the plan (Exhibit 6.5).

Exhibit 6.5—Nearly half of the 80 emission reduction measures in the 2030 Emissions Reduction Plan did not have a deadline for achievement



*A deadline was not applicable because the mitigation measure had already been completed or was part of a multilateral effort involving several countries, so Canada had no control of the deadline.

Source: Based on information in the 2030 Emissions Reduction Plan, Environment and Climate Change Canada, 2022

6.26 We expected the plan would specify a mitigation target for each measure and how organizations would track the implementation of the measures. We noted that the plan did not include a target or expected emission reductions for 76 (95%) of its 80 measures. Federal organizations expected only 34 (43%) of the 80 measures to have some direct impact on emissions. Environment and Climate Change Canada informed us that among the other 46 measures, some aimed to enable other measures to reduce emissions or would contribute to reducing emissions only indirectly. For example, the measure to build new electricity transmission infrastructure between provinces would help distribute more renewable power, but building the infrastructure would not itself reduce emissions. The department also told us that for some

measures, attributing a specific expected reduction estimate was too complex, given that many of the measures interact and overlap with each other.

6.27 Without expected emission reductions transparently available in the plan, it is not possible to know which of the mitigation measures to reduce emissions were key. Without milestones and deadlines, it is not possible to know whether all measures had been implemented on time. It is important that this information be publicly available in an accessible format so that Canadians and parliamentarians can hold the government to account for its commitments.

6.28 The 2030 Emissions Reduction Plan stated that “meeting Canada’s 2030 and 2050 climate objectives will create good, middle-class jobs, and grow a competitive, sustainable and inclusive economy.” We found that the plan did not define the phrase “inclusive economy.” Also, given this statement, we expected that the plan would identify which groups would be disproportionately affected by the plan, which measures would mitigate those effects, and which process would assess if those measures are working. However, federal organizations lacked a comprehensive set of performance indicators and the disaggregated data (that is, separate data on affected groups) needed to understand the plan’s effects on specific groups. For example, the plan included a mandate that an increasing number of vehicles sold must have zero emissions (at least 20% by 2026, at least 60% by 2030, and 100% by 2035). The plan identified that low-income Canadians could find it difficult to afford zero-emission vehicles and put some incentives and subsidies in place to help them. However, indicators and disaggregated data were not yet available to measure the success of these incentives.

6.29 The Office of the Auditor General of Canada has noted in previous reports that there has been a systemic issue with federal organizations not having or not using disaggregated data to deal with diversity and inclusion. (See Report 1—Implementing Gender-Based Analysis from 2015 and Report 3—Follow-up on Gender-Based Analysis Plus from 2022.)

6.30 The Government of Canada acknowledged its duty to consider the United Nations Declaration on the Rights of Indigenous Peoples in the development of the emissions reduction plans. We found that Environment and Climate Change Canada had sought input from First Nations, Inuit, and Métis partners on possible measures. It also asked them how the plan could reflect their unique circumstances, ambitions, and leadership in mitigating climate change. However, Indigenous groups identified challenges with the engagement process. For example, the Assembly of First Nations noted that there was insufficient time to provide meaningful comments and that the 2030 plan did not yet fully consider the standards of the declaration.

Recommendation

6.31 To improve transparency and effectiveness in implementing measures, Environment and Climate Change Canada should publish timetables specifying an implementation deadline, milestones, and expected emission reductions for each of its measures. In addition, the department should ensure this information is contained in subsequent emissions reduction plans and progress reports, beginning with the 2023 progress report.

Environment and Climate Change Canada's response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Recommendation

6.32 To ensure that the next Emissions Reduction Plan is inclusive, Environment and Climate Change Canada, working with the federal organizations implementing measures in the plan, should conduct a thorough analysis on all measures within the plan to determine how certain groups will be affected by the plan and its measures. On the basis of this analysis, the department, working with other federal organizations, should put in place measures to mitigate these effects, develop performance indicators, and collect disaggregated data to assess if the measures are working.

Environment and Climate Change Canada's response. *Partially agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Lack of reliability of emission projections from economic modelling

Findings

6.33 Our examination of the modelling undertaken for the 2030 Emissions Reduction Plan found many of the same issues we had identified in past audits. These included overly optimistic assumptions, limited analysis of uncertainties, and lack of peer review. Modelling is an important tool for assessing the potential effectiveness of a plan's mitigation measures and informing about whether adjustments are needed. The need for high-quality modelling is all the more important given that there has been no sustained downward trend in Canada's emissions since 2005. This has been the case despite numerous climate change mitigation plans projecting that emissions would decrease as a result of implementing the plans. There have been

just 2 significant, isolated drops in emissions. Environment and Climate Change Canada attributed the first to the 2008 financial crisis and the second to the 2020 pandemic (see Exhibit 6.2).

6.34 Examples of the overly optimistic assumptions used in the department's economic models included the following:

- The models assumed that there would be no delays in the design and implementation of mitigation measures. For example, they assumed that no new natural gas electricity plants (without carbon capture and storage) would begin construction after 2023 because of the implementation of the *Clean Electricity Regulations*. However, as of August 2023, the regulations had just been published in draft form. Similar issues were found in the assumptions relating to the *Clean Fuel Regulations*, the Net Zero Accelerator Initiative, the commitment to develop regulations to recover methane from landfills, and measures for improving energy efficiency of buildings.
- The models took for granted that some outcomes would occur on the basis of assumptions provided by the department implementing a measure. In these cases, the models did not simulate how a measure would interact with other measures as designed. Instead, they included the measure as a fully realized event. For example, the Environment and Climate Change Canada's modelling assumed that all new buses would be electric by 2040. However, while the plan included funding commitments for electric buses, it did not have or model a measure that would require this outcome.
- The models assumed that some of the technologies required to reduce emissions would soon be available. For example, the modelling results suggested that carbon capture and storage facilities would be built and would avoid 27 Mt CO₂ eq of emissions annually by 2030.
- The modelling did not factor in the impact and cost of climate change on the environment, the economy, and the wealth and health of Canadians. For example, it did not incorporate how a changing climate would increase the number of hot days and therefore the increase in energy demand from air conditioning.

6.35 In addition, we found that the department did not adequately assess the uncertainty associated with projection results and communicate it to decision makers and the public. The many assumptions that models rely on are uncertain by nature. The department did not analyze how changes in assumptions would affect the emission levels projected for the 2030 plan.

6.36 Compared with its previous plans, the department improved transparency by including in the 2030 plan some information on its modelling, such as some policy assumptions. However, this information

was still insufficient for external modellers to understand and replicate the department's results. For example, the assumed costs for carbon capture and storage technology were not disclosed in the plan.

6.37 We found that the peer review of the modelling was insufficient. A formal and in-depth peer review would be crucial given the complex methodology of the modelling, the need for significant coordination between different modelling teams, and the lack of transparency noted above. It was also important given the concerns raised by experts about the interaction of the department's 2 models in projecting the plan's expected emission reductions. As each mitigation measure was assigned to 1 of the 2 models, the effects of overlapping measures may be missed. This could lead to double counting of effects and an overestimate of the total emission reductions expected from the 2030 plan.

6.38 In the plan, the department committed to convene an expert-led process to provide independent advice on its modelling and to increase transparency. The department developed an action plan to improve its modelling after receiving input from the Net-Zero Advisory Body and a small group of modelling experts from outside the department. It then consulted a larger group of experts to determine if the proposed actions adequately addressed the issues. This larger consultation resulted in 8 recommendations for improving the action plan. We found that the department made improvements to the action plan but shortcomings remained. For example, the department did not commit to analyzing how changes in assumptions, such as future technology costs, would affect results. The department also did not make public the review report resulting from this process and the action plan.

6.39 In 2022, Natural Resources Canada invested \$5 million to establish the Energy Modelling Hub. The hub is a national network of energy and electricity modellers, policymakers, and other experts. The hub is led by academics and experts external to government. While its focus has initially been on the electricity sector, its leaders told us that the hub aims to address the broader Canadian economy. This initiative is a positive step to improve the quality and transparency of modelling in Canada.

6.40 Experts and users of modelling results have recommended that Environment and Climate Change Canada improve the transparency and reliability of the information used in and resulting from its modelling. For example, one of the review report's recommendations for improving transparency was that the department provide full details of modelling assumptions and approaches in future reports on greenhouse gas emission projections. Our office has repeatedly made similar recommendations over the last 20 years. We found that the department agreed to most of our recommendations, but it did not take significant steps to address them.

Recommendation

6.41 To improve the transparency and credibility of its modelling, Environment and Climate Change Canada should work with independent scientists, engineers, and economists and apply their expertise in a pan-Canadian modelling forum. The forum could integrate the Energy Modelling Hub into its framework to avoid overlap. Collaboration should include a timely in-depth peer review of the department's modelling assumptions, structures, and interactions. The review should also improve the models' input data and assumed values to make them as realistic as possible. Environment and Climate Change Canada should formalize this collaboration and make the results public.

Environment and Climate Change Canada's response. *Partially agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

There were significant flaws in implementing mitigation measures that increase the likelihood of not meeting the 2030 target

Why this finding matters

6.42 This finding matters because timely and effective implementation of the mitigation measures is essential for the 2030 Emissions Reduction Plan to succeed. Prioritizing the measures that are expected to contribute the most to reducing emissions could lead to federal organizations achieving better outcomes.

Context

6.43 Under the *Canadian Net-Zero Emissions Accountability Act*, the Commissioner of the Environment and Sustainable Development must examine and report on the Government of Canada's implementation of the measures aimed at mitigating climate change.

6.44 Every 3 months since June 2022, Environment and Climate Change Canada obtained updates from the federal organizations responsible for implementing mitigation measures. The updates include the implementation status, amounts of funding planned and disbursed, the information on the monitoring of risks, and emission targets for the measures they are implementing. The department developed an internal tool called the climate data hub to store the information received.

6.45 There were 80 measures identified as current in the 2030 Emissions Reduction Plan and 37 new ones proposed (see the Appendix for a complete listing). Some measures have been split into 2 or more sub-measures. Most (115 in total) are included and being tracked in the climate data hub.

6.46 At the time of our audit, Environment and Climate Change Canada, working with the organizations responsible for implementing mitigation measures, was close to finalizing the Horizontal Results Framework for Climate Change Mitigation. This is a tool for tracking the annual results of the plan's mitigation measures and their progress toward achieving the 2030 and 2050 climate goals.

Delays in implementation and missing information

Findings

6.47 We examined a subset of the 2030 Emissions Reduction Plan's measures expected to be among the most important for reducing emissions. We found that some key measures were delayed (Exhibit 6.6). These delays increase the likelihood that Canada will miss its 2030 target. They also could result in Canada adding a significantly higher amount of greenhouse gases to the atmosphere over time than if the measures had not been delayed. This is important because increases in average global temperature are determined by the average total concentration of greenhouse gases in the atmosphere. Greenhouse gases can endure in the atmosphere for hundreds of years.

Exhibit 6.6—Many important measures had been delayed

Measure	When first proposed	Initial milestones	Current status	Reason for delay	Expected emissions avoided because of the measure
<i>Clean Electricity Regulations</i>	Nov 2021	Draft regulations expected end of 2022	Draft regulations delayed by 8 months. Draft regulations published in August 2023.	Consultations took longer than expected.	0.4 Mt CO ₂ eq* in 2030
Oil and Gas Emissions Cap	Nov 2021	Cap was to include a 2025 requirement. Form and timeline of cap was to be communicated in early 2023.	Delayed. No information on basic design details yet.	Received additional input from Indigenous organizations, industry, and others.	Not estimated
Strengthened Oil and Gas Methane Regulations	Oct 2021	Draft regulations expected in early 2023.	Delayed. No draft regulations yet.	Environment and Climate Change Canada did not provide a reason for the delay.	12 Mt CO ₂ eq in 2030**
Investment Tax Credit for Carbon Capture, Utilization, and Storage	Jun 2021	Proposed to come into effect in 2022.	Delayed. However, the measure is proposed to retroactively go into effect as of 2022.	Additional round of consultations to take place.	15 Mt CO ₂ eq in 2030
<i>Clean Fuel Regulations</i>	2016	Final regulations proposed to be published in 2019.	Final regulations delayed by 3 years. Final regulations published in July 2022. Partially came into effect in July 2023.	Delays related to the 2019 and 2021 federal elections and the COVID-19 pandemic.	26.6 Mt CO ₂ eq in 2030

* Mt CO₂ eq: Megatonnes of carbon dioxide equivalent

** To be confirmed by the Regulatory Impact Analysis Statement process.

6.48 Furthermore, the climate data hub had no information or incorrect information on the key measures we examined. The hub was tracking 115 measures, 98 (85%) of which were still in progress. Overall, there was no information on whether 30% of these measures (29) were on track to be implemented on time.

6.49 We found that, in contrast to the lack of information on the actual status of implementation, the hub did receive more complete information about the risks that might affect the implementation of measures. Environment and Climate Change Canada monitored the risks reported and worked with lead organizations to develop risk mitigation strategies.

Recommendation

6.50 To help ensure timely implementation of climate measures, Environment and Climate Change Canada should monitor that the information in the climate data hub is complete, accurate, concise, and relevant. When it is not, Environment and Climate Change Canada should promptly follow up with implementing organizations. It should also align the information in the hub with the Horizontal Results Framework for Climate Change Mitigation by the end of 2024.

Environment and Climate Change Canada's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

No prioritization of measures

Findings

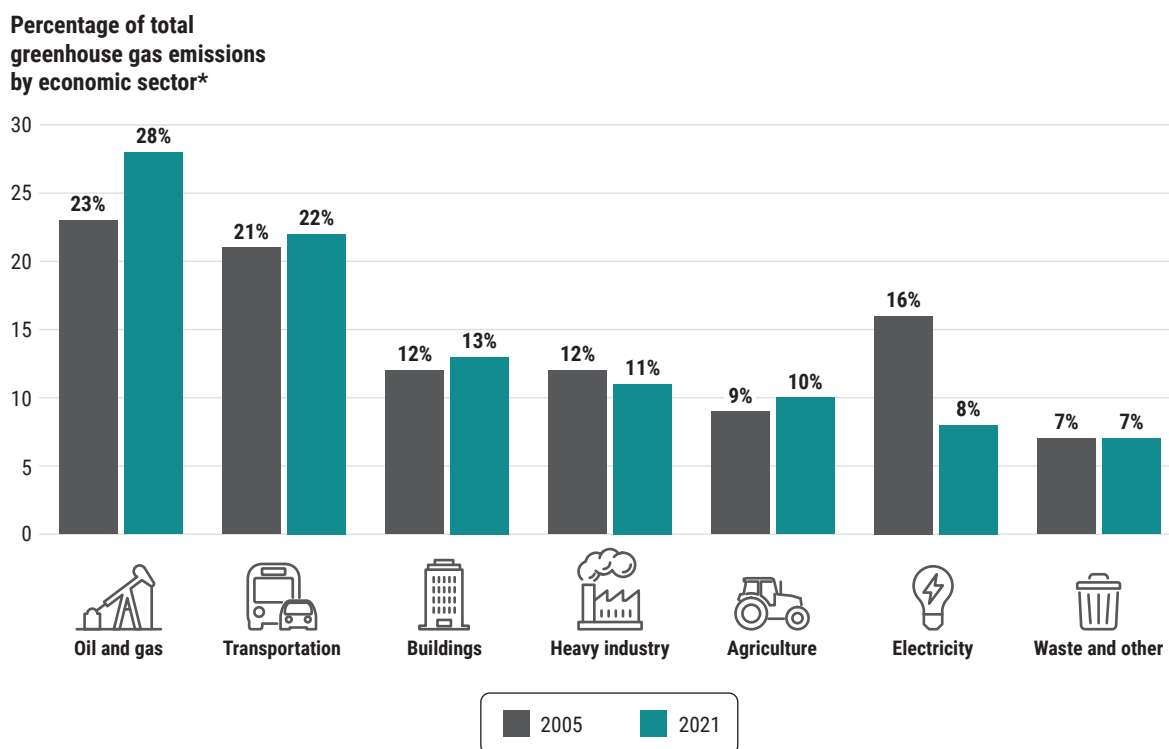
6.51 We found that Environment and Climate Change Canada had not systematically assessed, identified, and prioritized the implementation of the measures in the 2030 Emissions Reduction Plan that would be the most important in helping Canada achieve its emission reduction targets.

6.52 For example, one of the most important measures for reducing emissions by 2030 was the *Clean Fuel Regulations*. As Exhibit 6.6 shows, this measure had been delayed 3 years because other issues were prioritized. Our 2023 report *Emission Reductions Through Greenhouse Gas Regulations* found that the delay was the result of the regulations having to compete against other high-priority regulations. This delay in implementing a key measure may further endanger Canada's ability to meet its emission targets.

6.53 Less than half of the measures tracked in the climate data hub were expected to directly reduce emissions. The *Clean Fuel Regulations* was one, estimated to avoid emissions by 26.6 Mt CO₂ eq by 2030. Other measures were to indirectly support emission reductions or have other benefits while delivering less significant emission reductions. For example, the measure of additional funding for zero-emission vehicle charging stations was expected to indirectly support emission reductions. The Clean Energy for Rural and Remote Communities was estimated to reduce emissions by only 0.14 Mt CO₂ eq annually by 2030 but was expected to increase access to clean energy in Indigenous, rural, and remote communities.

6.54 Targeting the sectors with the highest emissions would be a useful means for prioritizing measures. Oil and gas is Canada’s highest-emitting economic sector, accounting for 28% of total emissions in 2021 (Exhibit 6.7).

Exhibit 6.7—The oil and gas sector continued to be the highest-emitting economic sector in Canada in 2021



* Data may not add up to 100% due to rounding.

Source: National Inventory Report 1990–2021: Greenhouse Gas Sources and Sinks in Canada, Environment and Climate Change Canada, 2023

6.55 The 2030 plan included 5 measures dedicated to reducing emissions from this sector, and 3 were still under development. Of these 5 measures, only 2 had emission reduction targets. Some

economy-wide measures, such as carbon pricing and *Clean Fuel Regulations*, were also expected to reduce emissions from the oil and gas sector.

6.56 The plan included an emission reduction proposal for each sector to achieve Canada's 2030 target. To identify those reductions, the department assumed in its model that emissions from the oil and gas sector in 2030 would be 31% below the 2005 level and that economy-wide emissions in 2030 would be 40% below the 2005 level. It then calculated where the most economical reductions could be achieved in sectors other than oil and gas. The department identified that the oil and gas, transportation, and buildings sectors had the greatest potential for achieving reductions additional to those that could be expected from the mitigation measures in the plan. This modelling approach could be used to prioritize the sectors where measures should be strengthened or added.

Recommendation

6.57 Environment and Climate Change Canada, in coordination with implementing federal organizations and the interdepartmental climate plan implementation committees, should systematically identify the key measures needed to meet Canada's 2030 and 2050 emission reduction targets and prioritize their implementation. It should also publish this information in the 2025 progress report.

Environment and Climate Change Canada's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Fragmented accountability for reducing emissions hinders course correction to meet the 2030 target

Why this finding matters

6.58 This finding matters because it is essential for federal organizations to know whether they are on course toward the 2030 emission reduction target and to correct their course if they are not. A system that collects early results and progress is of critical importance in order to have sufficient time to correct course and avoid missing the target. Clear accountability and responsibilities for reducing emissions and transparent information are also critical factors for success.

Context

6.59 Environment and Climate Change Canada compiles Canada's greenhouse gas emission inventory, called the National Inventory Report. The department submits the report every April to the United Nations Framework Convention on Climate Change. The national inventory reports include historical emissions from 1990 onward. The United Nations convention requires that countries report emission information from 1990 until 2 years before the inventory is due. This means that the report the department submitted in April 2023 contained information on greenhouse gas emissions from 1990 to 2021.

Promising approach for course correction if strengthened

Findings

6.60 We found that the Horizontal Results Framework for Climate Change Mitigation proposes a promising approach that could be used as a basis for course correction. However, it needs to be strengthened. At the time of our audit, this framework was close to being finalized. We found that its performance targets lacked specificity, and many would not yield the information needed on progress to enable course correction.

6.61 The draft framework included measures that conformed to one or more of the following criteria:

- those expected to reduce more than 0.5 Mt CO₂ eq of emissions in 2030
- those that had reducing emissions as an explicit primary goal
- those that indirectly supported current emission reduction efforts or played a key role in supporting future reductions
- those that, in addition to climate benefits, had significant funding or would be of particular interest to Canadians

The framework included performance indicators for the individual measures and for the economic sectors. Environment and Climate Change Canada planned that the first report under this framework would be published in November 2024.

6.62 The department developed the framework by including the existing performance indicators and targets developed by implementing federal organizations. We found that 41% of the measures had at least one performance target that was specific and related to emission reductions. Of these, less than half had specific milestones to track annual progress. This meant that, for more than half of these measures,

department officials did not know how much annual progress would be sufficient to put them on course to meet the target (in some cases, the target was for 2030).

6.63 At the sectoral level, 22 of the 26 targets were not specific enough to identify whether progress was being made toward the 2030 and 2050 emission reduction targets. For example, a target in the framework for the buildings sector was an “annual downward trend” of projected and historical annual emissions from the 2005 base year. While the department provided the base year emission level, it did not specify an emission level to reach by 2030. Without this key detail, it is impossible for anyone to tell the extent to which the sector is expected to reduce emissions to help meet the 2030 overall emission reduction target of 40% to 45% below the 2005 level.

6.64 In comparison, the United Kingdom’s Climate Change Committee developed a monitoring framework that included multiple indicators per sector supported by timely data. The framework has been used to provide early detection of where adjustments may be needed and is a model for better practices.

Lagging or missing information for course correction

Findings

6.65 We found that many of the indicators at the sectoral level relied on historical emission data from the annual national inventory reports to show whether progress had been made. This data was also used as input for projections that Environment and Climate Change Canada planned to include in its 2023 progress report.

6.66 The national inventory report is not as effective a tool as it could be for monitoring progress and for timely course correction. This is because of the 16-month time lag in publishing inventory data that follows the minimum reporting requirements of the United Nations Framework Convention on Climate Change. Canadians will not know until April 2032 whether the 2030 emission reduction target has been met.

6.67 Other countries, such as Finland, the Netherlands, and Sweden, have developed methods of calculating historical emission data so that it is available with a 3-month to 1-year time lag, similar to economic data. The quarterly estimates of greenhouse gas emissions are less precise but still allow for more timely analysis of the effects of mitigation measures and economic events on greenhouse gas emissions.

6.68 We found that the department was not making timely adjustments. The department told us that it was not planning to report on adjustments to the 2030 Emissions Reduction Plan until its

progress report, expected in late 2023. This is despite the fact that the March 2022 plan was projected to miss the 2030 target, and the most recent inventory data showed increased emissions from 2020 to 2021.

6.69 The plan was also missing information needed for timely course correction. The *Canadian Net-Zero Emissions Accountability Act* requires the department to set a 2026 interim emission reduction objective, which it set at 20% below the 2005 level. However, the plan did not include the department's projections of emission reductions for 2026 resulting from implementing the measures.

6.70 We found that the department was planning to update its methodology for calculating historical emission data for the 2024 inventory report. The emissions reported for past years, including 2005, were expected to be significantly higher than in previous reports. With a higher baseline level in 2005 to work from, the target level for emissions to be at least 40% below that baseline by 2030 will also be higher. On the basis of the 2023 National Inventory Report, this means that achieving the 2030 goal will allow for higher emissions than the targeted maximum of 439 Mt CO₂ eq. With this change in Canada's ambition, and the requirement of the Paris Agreement that calls for increasingly ambitious climate action, Canada could face pressure to adopt a new target that is consistent with the scientific evidence behind the Paris Agreement.

6.71 An effective tool for avoiding a slip in ambition and for course correction would be the development of annual milestones or "carbon budgets." A carbon budget fixes the total amount of greenhouse gas emissions allowed over a period of time, rather than setting a single percentage of reduction or an emission level in a target year. The carbon budget can then be broken down and allocated to particular regions or industries. Other countries use this approach to set expectations and help keep progress on track. For example, the United Kingdom sets legislated 5-year carbon budgets to support the planning for net-zero emissions by 2050.

Recommendation

6.72 Building on existing tools, Environment and Climate Change Canada, working with implementing federal organizations, should develop a complete monitoring framework to enable timely assessment of whether results are on track. The framework should include multiple performance indicators for sectors and measures, with targets and interim milestones developed in coordination with the department's modelling group.

Environment and Climate Change Canada's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Recommendation

6.73 To support timely course correction, Environment and Climate Change Canada, working with federal organizations including Statistics Canada, should develop methods for estimating greenhouse gas emission data with a lag of no more than a year and ideally less.

Environment and Climate Change Canada's response. Agreed.

See **Recommendations and Responses** at the end of this report for detailed responses.

Fragmented accountability for reducing emissions

Findings

6.74 We found that the responsibility for reducing emissions and achieving the 2030 and 2050 targets is fragmented among multiple federal organizations not accountable to the Minister of Environment and Climate Change, who is responsible for the 2030 Emissions Reduction Plan (Exhibit 6.8).

6.75 The *Canadian Net-Zero Emissions Accountability Act* does not require the Minister of Environment and Climate Change or any other party to achieve the emission targets. However, if Canada fails to achieve its targets, the act requires that the minister include the reasons why and propose actions to address the failure. Although the Minister of Environment and Climate Change can support and collaborate with other ministers to meet the 2030 and 2050 targets, the Minister of Environment and Climate Change has no way of compelling them to do more to meet the targets.

6.76 Ministers are responsible for meeting their mandate letter commitments and for providing timely direction to their organizations for implementing the measures in the plan. Department officials are responsible for implementing their measures in the plan on time and on budget and for achieving results. However, we found that if a measure was expected to directly cause emission reductions but had no quantitative target, no one was ultimately responsible or accountable for ensuring that it did in fact reduce emissions in a meaningful manner and contribute to achieving Canada's 2030 target.

6.77 While the central agencies, including the Climate Secretariat in the Privy Council Office, can take a leadership role in helping federal organizations create the conditions for effective mitigation action, we found that at the time of our audit they had mainly taken a coordinating and supporting role.

6.78 In Canada, the Net-Zero Advisory Body reports to the Minister of Environment and Climate Change with advice on achieving net-zero emissions by 2050. In the United Kingdom, the Climate Change

Committee was established through the *Climate Change Act 2008*. The committee is made up of academic experts who advise the government on emission targets and on preparing for and adapting to the effects of climate change. It also reports on the progress made in reducing greenhouse gas emissions. As opposed to the Net-Zero Advisory Body in Canada, the Climate Change Committee in the United Kingdom reports to Parliament. It has played an important role in cementing consensus and holding the government accountable for ensuring that climate action remained a priority. This is important given the potential for competing political agendas and periodic changes in government. In our view, reporting to Parliament gives this committee an additional and useful degree of independence and transparency.

Exhibit 6.8—Responsibility is distributed among multiple organizations

Person or organization	Responsibilities	Source of responsibility (if applicable)
Minister of Environment and Climate Change	<p>Setting emission reduction targets</p> <p>Consulting and publishing advice received</p> <p>Establishing plans for achieving the emission target</p> <p>Publishing public progress reports</p> <p>If the targets are not achieved, explaining why and proposing actions to address failures</p> <p>Recommending members to be appointed to the Net-Zero Advisory Body</p> <p>May determine or amend the terms of reference of the Net-Zero Advisory Body</p>	<p><i>Canadian Net-Zero Emissions Accountability Act</i></p> <p>Mandate letter delivered by the Prime Minister</p> <p><i>Department of the Environment Act</i> identifying the power, duties, and functions of the Minister of Environment and Climate Change</p>
Privy Council Office (Climate Secretariat)	Supporting climate policy development and consideration at Cabinet and supporting the Prime Minister on climate policy	The Privy Council Office's role flows from common law and the conventions for the use of the Prime Minister's prerogative for forming a ministry and for the machinery of government decisions
Department of Finance Canada and the Treasury Board of Canada Secretariat	Advancing the federal government's policy agenda, including climate change	A variety of authorities, including enabling legislation, mandate letters, and the <i>Financial Administration Act</i>
Officials in 19 federal organizations	Implementing the departmental measures in the 2030 Emissions Reduction Plan	A variety of authorities, including mandate letters and Cabinet decisions arising from memoranda to Cabinet and Treasury Board submissions
Interdepartmental climate plan implementation committees (co-chaired by Environment and Climate Change Canada and Natural Resources Canada)	Providing strategic oversight and direction on the implementation of measures relating to climate change	Committee terms of reference

Person or organization	Responsibilities	Source of responsibility (if applicable)
Net-Zero Advisory Body	Reporting to the Minister of Environment and Climate Change with advice on achieving net-zero emissions by 2050	<p><i>Canadian Net-Zero Emissions Accountability Act</i></p> <p>The Minister of Environment and Climate Change recommends members to be appointed to the advisory body and may determine or amend the advisory body's terms of reference. Currently, the advisory body consists of 8 members, but it can include up to 15. The secretariat that serves the Net-Zero Advisory Body is housed within Environment and Climate Change Canada</p>

Recommendation

6.79 The Privy Council Office should work with other federal organizations to review the authorities, responsibilities, and leadership accountabilities relating to climate change mitigation. On the basis of its review, it should develop an action plan for changes needed to ensure that climate change mitigation is prioritized. It should make the action plan publicly available.

The Privy Council Office's response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Lack of available information

Findings

6.80 We were concerned about the lack of public access to information relating to climate change mitigation. For example, when we requested certain information that would assist the public in understanding some of the government's initiatives and following progress, the documents we received were heavily redacted and we were told that some of the requested information was contained only in confidential documents that could not be made public.

6.81 We sought to obtain information about the application of the integrated climate lens. This was a tool established by the Government of Canada in 2021 and led by Environment and Climate Change Canada. It was in its pilot phase at the time of this audit. The purpose of the lens

is to take into account climate and economic considerations to inform policy development and government decision making across federal organizations. We were interested in reviewing the lens’s assessments of the measures in the plan to determine if they had been used to support coherent planning. While information had been provided to decision makers, it was not available to our audit team or the public. In our view, this information and supporting analyses should be in departmental records that can be shared with Canadians.

6.82 In addition, we asked Environment and Climate Change Canada where the proposed contribution for the oil and gas sector’s 2030 emissions of 31% below the 2005 level came from. The plan stated that it drew on its modelling of the most economically efficient pathway to meet the 2030 target for its projections for sectors. However, the department told us that its modelling did not suggest this value, and we did not see any documented analyses that supported it.

6.83 These events caused us concern about the lack of transparency surrounding information on climate change mitigation. In our view, this information should be more readily available to government officials, parliamentarians, and all other Canadians. It would guide them in the deliberation, collaboration, and coordination critically needed for success in reducing Canada’s greenhouse gas emissions.

Recommendation

6.84 Environment and Climate Change Canada and the Privy Council Office should make substantive information from the integrated climate lens analyses publicly available in order to meet the intent of the lens. The 2030 Emissions Reduction Plan states that the lens is to take into account climate and economic considerations to inform policy development and decision making across federal organizations.

Environment and Climate Change Canada’s response. *Agreed.*

The Privy Council Office’s response. *Agreed.*

See **Recommendations and Responses** at the end of this report for detailed responses.

Lessons learned for more effective implementation of the plan

6.85 In fall 2021, the Commissioner of the Environment and Sustainable Development published a report titled *Lessons Learned from Canada’s Record on Climate Change*. Drawing on 3 decades of experience, this report identified trends in Canada’s efforts to fight climate change, along with 8 lessons learned from Canadian accomplishments and mistakes. We noted in the report that Canada had consistently failed to meet its emission reduction targets.

6.86 Throughout our audit, we observed many instances where the lessons identified in our 2021 report remained relevant. For example:

- Strengthening leadership and coordination at the national level (Lesson 1) could help address the problems associated with fragmented accountability for reducing emissions.
- Our findings relating to the lack of disaggregated data on the effects of the 2030 Emissions Reduction Plan on specific groups of people could be useful for the federal government’s efforts to transition the economy and affected communities away from emission-intensive sectors (Lesson 2).
- Canada’s failure to date to back climate targets by strong plans and effective actions (Lesson 6) is relevant to the audit as a whole. Our findings on the significant deficiencies in the implementation of the plan are especially pertinent. The issues of delays in implementation, missing information, and lack of prioritization of measures need to be resolved for Canada’s climate targets to be achieved.

6.87 We recognize the progress that the government has made so far. This includes announcing and beginning to implement some economic and regulatory measures aimed at reducing emissions. However, we are concerned that many deficiencies noted in past reports still persisted in this audit. Despite the progress made, Canada’s emission level in 2021 was still well above that in 1990, which is when Canada first committed to addressing climate change. Since then, the stakes have grown ever higher and the pace of action to combat the climate crisis needs to increase.

6.88 This audit resulted in 9 recommendations for federal organizations to implement. Taken together and if fully implemented, they provide a strong basis for Canada to meet, for the first time, its emission reduction target.

Conclusion

6.89 We concluded that the mitigation measures in the 2030 Emissions Reduction Plan were insufficient to meet Canada's 2030 target. Missing and inconsistent information, delays in launching important measures, and a lack of reliability in projections hindered the credibility of the plan. Although the plan was designed with measures that could deliver sizeable reductions, fragmented accountabilities for reducing emissions and no prioritization of measures were barriers to success.

6.90 Federal organizations made efforts toward inclusivity by identifying for certain measures in the plan the groups that were disproportionately affected and developing some measures to support affected groups. However, the plan's design was not fully inclusive, as federal organizations lacked the performance indicators and disaggregated data needed to assess if these measures were working.

About the Audit

This independent assurance report was prepared by the Office of the Auditor General of Canada on the design and implementation of the 2030 Emissions Reduction Plan. Our responsibility was to provide objective information, advice, and assurance to assist Parliament in its scrutiny of the government's management of resources and programs and to conclude on whether Environment and Climate Change Canada, Natural Resources Canada, the Privy Council Office, and the Department of Finance Canada complied in all significant respects with the applicable criteria.

All work in this audit was performed to a reasonable level of assurance in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3001—Direct Engagements, set out by the Chartered Professional Accountants of Canada (CPA Canada) in the CPA Canada Handbook—Assurance.

The Office of the Auditor General of Canada applies the Canadian Standard on Quality Management 1—Quality Management for Firms That Perform Audits or Reviews of Financial Statements, or Other Assurance or Related Services Engagements. This standard requires our office to design, implement, and operate a system of quality management, including policies or procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

In conducting the audit work, we complied with the independence and other ethical requirements of the relevant rules of professional conduct applicable to the practice of public accounting in Canada, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour.

In accordance with our regular audit process, we obtained the following from entity management:

- confirmation of management's responsibility for the subject under audit
- acknowledgement of the suitability of the criteria used in the audit
- confirmation that all known information that has been requested, or that could affect the findings or audit conclusion, has been provided
- confirmation that the audit report is factually accurate

Audit objective

The objective of this audit was to determine whether Environment and Climate Change Canada, in consultation with key federal organizations, designed a credible and inclusive 2030 Emissions Reduction Plan and whether responsible organizations had implemented selected measures to meet the greenhouse gas emission reduction targets.

Scope and approach

The federal organizations audited were Environment and Climate Change Canada, Natural Resources Canada, the Privy Council Office, and the Department of Finance Canada.

This audit had 2 lines of enquiry: the design of the 2030 Emissions Reduction Plan and the implementation of mitigation measures. With this audit, we aimed to establish a baseline against which progress in improving both process and outcomes by organizations will be assessed in forthcoming annual Commissioner of the Environment and Sustainable Development reports under the *Canadian Net-Zero Emissions Accountability Act* and in other future audits.

For the plan to be credible, we assessed whether the plan had mitigation measures that were sufficient to meet Canada’s 2030 target and whether it set the path to achieving the net-zero emissions goal in 2050. We also assessed whether the plan was supported by effective governance, timelines, milestones for implementation, and a framework for course correction.

For the plan to be inclusive, we set out to assess whether the organizations

- engaged with a diverse group of partners and stakeholders, including Indigenous people, in the development of the plan
- used gender-based analysis plus to assess how the plan took into account systemic inequalities and gender and other diverse identity factors
- mitigated the adverse effects of climate change and the plan’s measures on populations

For this audit, we analyzed data and information obtained from documents provided by the federal organizations and during interviews with department officials. We used our Lessons Learned from Canada’s Record on Climate Change report, published in 2021, as a framework to assist with our examination. We also considered international best practices.

Criteria

We used the following criteria to conclude against our audit objective:

Criteria	Sources
<p>Environment and Climate Change Canada, in consultation with selected federal organizations designs a credible 2030 Emissions Reduction Plan.</p>	<ul style="list-style-type: none"> • <i>Canadian Net-Zero Emissions Accountability Act</i> • <i>Advice for Canada’s 2030 Emissions Reduction Plan, Net-Zero Advisory Body, 2022</i> • <i>Guide to Departments on the Management and Reporting of Horizontal Initiatives, Treasury Board of Canada Secretariat, 2018</i> • <i>Previous Commissioner of the Environment and Sustainable Development reports on climate change mitigation</i> • <i>Setting Canada Up For Success: A Framework for Canada’s Emissions Reduction Plans, Canadian Climate Institute, 2022</i> • <i>CCC Mitigation Monitoring Framework: Assessing UK Progress in Reducing Emissions, Climate Change Committee, 2022</i>

Criteria	Sources
<p>Environment and Climate Change Canada, in consultation with selected federal organizations, designs the 2030 Emissions Reduction Plan with inclusive mitigation measures.</p>	<ul style="list-style-type: none"> • <i>Canadian Net-Zero Emissions Accountability Act</i> • <i>United Nations Declaration on the Rights of Indigenous Peoples Act</i> • <i>Canadian Gender Budgeting Act</i> • Transforming Our World: The 2030 Agenda for Sustainable Development, United Nations, 2015 • Canada’s 2030 Agenda National Strategy: Moving Forward Together: Sustainable Development Goals, Employment and Social Development Canada, 2021 • Achieving a Sustainable Future: Federal Sustainable Development Strategy 2022 to 2026, Environment and Climate Change Canada, 2022 • 2022 Reports of the Auditor General of Canada, Report 3—Follow-up on Gender-Based Analysis Plus
<p>The implementing federal organizations have implemented selected measures.</p>	<ul style="list-style-type: none"> • <i>Canadian Net-Zero Emissions Accountability Act</i> • Directive on Results, Treasury Board, 2016 • Policy on Results, Treasury Board, 2016 • Cabinet Directive on Regulation, Treasury Board of Canada Secretariat • Framework for the Management of Risk, Treasury Board, 2010 • Policy on Transfer Payments, Treasury Board, 2022
<p>Environment and Climate Change Canada, supported by Natural Resources Canada and the Privy Council Office and working with implementing federal organizations, implements a system for measuring, monitoring, and reporting on results of all measures, and for correcting the course to meet the 2030 target.</p>	<ul style="list-style-type: none"> • <i>Canadian Net-Zero Emissions Accountability Act</i> • Policy on Results, Treasury Board, 2016 • Advice for Canada’s 2030 Emissions Reduction Plan, Net-Zero Advisory Body, 2022 • Compete and Succeed in a Net Zero Future: First Annual Report to the Minister of Environment and Climate Change, Net-Zero Advisory Body, 2023 • Guide to Departments on the Management and Reporting of Horizontal Initiatives, Treasury Board of Canada Secretariat, 2018 • Previous Commissioner of the Environment and Sustainable Development reports on climate change mitigation

Criteria	Sources
	<ul style="list-style-type: none"> • 2022 Reports of the Auditor General of Canada, Report 3—Follow-up on Gender-Based Analysis Plus • Canada’s 2030 Agenda National Strategy: Moving Forward Together: Sustainable Development Goals, Employment and Social Development Canada, 2021 • Achieving a Sustainable Future: Federal Sustainable Development Strategy 2022 to 2026, Environment and Climate Change Canada, 2022 • CCC Mitigation Monitoring Framework: Assessing UK Progress in Reducing Emissions, Climate Change Committee, 2022

Period covered by the audit

The audit covered the period from 1 June 2021 to 17 August 2023. This is the period to which the audit conclusion applies. However, to gain a more complete understanding of the subject matter of the audit, we also examined certain matters that preceded the start date of this period.

Date of the report

We obtained sufficient and appropriate audit evidence on which to base our conclusion on 8 September 2023, in Ottawa, Canada.

Audit team

This audit was completed by a multidisciplinary team from across the Office of the Auditor General of Canada led by Kimberley Leach, Principal. The principal has overall responsibility for audit quality, including conducting the audit in accordance with professional standards, applicable legal and regulatory requirements, and the office’s policies and system of quality management.

Recommendations and Responses

In the following table, the paragraph number preceding the recommendation indicates the location of the recommendation in the report.

Recommendation	Response
<p>6.31 To improve transparency and effectiveness in implementing measures, Environment and Climate Change Canada should publish timetables specifying an implementation deadline, milestones, and expected emission reductions for each of its measures. In addition, the department should ensure this information is contained in subsequent emission reduction plans and progress reports, beginning with the 2023 progress report.</p>	<p>Environment and Climate Change Canada’s response. Agreed. As required by subsection 10(1)(e) of the <i>Canadian Net-Zero Emissions Accountability Act</i>, Environment and Climate Change Canada will publish a projected timetable for the implementation of measures included in future emissions reduction plans. As required by subsection 14(b) of the <i>Canadian Net-Zero Emissions Accountability Act</i>, Environment and Climate Change Canada will provide an update on the implementation of the federal measures, sectoral strategies, and federal government operation strategies described in emissions reduction plans, including, where available, information such as final implementation deadlines and anticipated reductions. The first progress report associated with the 2030 Emissions Reduction Plan will be completed by the end of 2023.</p>
<p>6.32 To ensure that the next Emissions Reduction Plan is inclusive, Environment and Climate Change Canada, working with the federal organizations implementing measures in the plan, should conduct a thorough analysis on all measures within the plan to determine how certain groups will be affected by the plan and its measures. On the basis of this analysis, the department, working with other federal organizations, should put in place measures to mitigate these effects, develop performance indicators, and collect disaggregated data to assess if the measures are working.</p>	<p>Environment and Climate Change Canada’s response. Partially agreed. Environment and Climate Change Canada, along with other departments responsible for implementing measures in the 2030 Emissions Reduction Plan, will continue to leverage government-wide decision-based tools, such as the Gender-Based Analysis Plus tool, to analyze the impacts of measures on specific demographics and to inform the development of future measures. Environment and Climate Change Canada will also apply such tools to future emissions reduction plans and related milestones required by the <i>Canadian Net-Zero Emissions Accountability Act</i>. Environment and Climate Change Canada is not solely responsible for the development of measures, collection of disaggregated data, or development of performance indicators across the Emissions Reduction Plan, but will work collaboratively with other implementing departments to explore options for developing indicators and for collecting data to better understand the impact of climate measures on certain groups, such as marginalized groups.</p>

Recommendation	Response
<p>6.41 To improve the transparency and credibility of its modelling, Environment and Climate Change Canada should work with independent scientists, engineers, and economists and apply their expertise in a pan-Canadian modelling forum. The forum could integrate the Energy Modelling Hub into its framework to avoid overlap. Collaboration should include a timely in-depth peer review of the department’s modelling assumptions, structures, and interactions. The review should also improve the models’ input data and assumed values to make them as realistic as possible. Environment and Climate Change Canada should formalize this collaboration and make the results public.</p>	<p>Environment and Climate Change Canada’s response. Partially agreed. Environment and Climate Change Canada continues to enhance the transparency and credibility of its emissions modelling. This has been recognized by third parties, who noted that the Emissions Reduction Plan includes more transparency on the modelling and analysis used to develop the projections than we have seen before, develops sector-by-sector emission projections that could form the basis of sectoral road maps to aid with implementation, and provides insight on how the plan is to be executed.</p> <p>Environment and Climate Change Canada recently concluded an expert-led process to provide independent advice on its modelling. The action plan developed to address the recommendations received through this modelling review will include early actions such as establishing a Canadian version of the Stanford University Energy Modeling Forum, which will provide regular opportunities to formally collaborate with external modelling experts. The recommendations received through this modelling review will be made public as will results of the new modelling forum.</p> <p>Environment and Climate Change Canada shares the goals of the Commissioner of the Environment and Sustainable Development with differences of emphasis in certain areas such as the specifics of the interactions with experts.</p>
<p>6.50 To help ensure timely implementation of climate measures, Environment and Climate Change Canada should monitor that the information in the climate data hub is complete, accurate, concise, and relevant. When it is not, Environment and Climate Change Canada should promptly follow up with implementing organizations. It should also align the information in the hub with the Horizontal Results Framework for Climate Change Mitigation by the end of 2024.</p>	<p>Environment and Climate Change Canada’s response. Agreed. Environment and Climate Change Canada will review the data collected from implementing departments to identify and address any gaps and ensure ongoing consistency between the climate data hub and the Horizontal Results Framework for Climate Change Mitigation.</p>
<p>6.57 Environment and Climate Change Canada, in coordination with implementing federal organizations and the interdepartmental climate-plan-implementation committees, should systematically identify the key measures needed to meet Canada’s 2030 and 2050 emission reduction targets and prioritize their implementation. It should also publish this information in the 2025 progress report.</p>	<p>Environment and Climate Change Canada’s response. Agreed. Environment and Climate Change Canada, along with other departments responsible for implementing measures in the 2030 Emissions Reduction Plan, through the auspices of the Climate Plan Implementation Committee will systematically identify and prioritize key measures.</p>

Recommendation	Response
<p>6.72 Building on existing tools, Environment and Climate Change Canada, working with implementing federal organizations, should develop a complete monitoring framework to enable timely assessment of whether results are on track. The framework should include multiple performance indicators for sectors and measures, with targets and interim milestones developed in coordination with the department’s modelling group.</p> <p>6.73 To support timely course correction, Environment and Climate Change Canada, working with federal organizations including Statistics Canada, should develop methods for estimating greenhouse gas emission data with a lag of no more than a year and ideally less.</p> <p>6.79 The Privy Council Office should work with other federal organizations to review the authorities, responsibilities, and leadership accountabilities relating to climate change mitigation. On the basis of its review, it should develop an action plan for changes needed to ensure that climate change mitigation is prioritized. It should make the action plan publicly available.</p>	<p>Environment and Climate Change Canada’s response. Agreed. Environment and Climate Change Canada will further develop the existing Horizontal Results Framework for Climate Change Mitigation and the climate data hub in complementary and consistent ways to include more indicators, targets, and interim milestones.</p> <p>Environment and Climate Change Canada’s response. Agreed. Earlier greenhouse gas emission estimates could be valuable in policy development if it is assured that the development of the estimates is done in a consistent and complementary manner to the National Inventory Report.</p> <p>The development of methods for estimating greenhouse gas emission data with a lag of at most a year should be accompanied by a cost-benefit analysis to confirm whether there is good value for the necessary resources. Environment and Climate Change Canada’s collaboration with Statistics Canada will ensure the expertise in both departments is optimized to produce the most accurate and timely greenhouse gas emission data for Canada.</p> <p>The Privy Council Office’s response. Agreed. Climate change mitigation is a priority of the Government of Canada, and the Privy Council Office is supportive of a review to ensure that the authorities, responsibilities, and leadership accountabilities remain as effective as possible. Areas and instruments that can be reviewed and could be leveraged include mandate letters, Cabinet committee structures and assignments, and alignments of ministerial and departmental powers, duties, and functions. Changes to the machinery of government are a prerogative of the Prime Minister. Should the Prime Minister determine that changes or an action plan is merited after the completion of the review, the Privy Council Office is supportive of making those changes public as appropriate.</p>

Recommendation	Response
<p>6.84 Environment and Climate Change Canada and the Privy Council Office should make substantive information from the integrated climate lens analyses publicly available in order to meet the intent of the lens. The 2030 Emissions Reduction Plan states that the lens is to take into account climate and economic considerations to inform policy development and decision making across federal organizations.</p>	<p>Environment and Climate Change Canada’s response. Agreed. Enhancing public trust in the conduct of environmental assessment is an important objective of the integrated climate lens, as it has been in the application of strategic environmental assessments.</p> <p>As the integrated climate lens evolves beyond its pilot phase, Environment and Climate Change Canada is committed to making climate change information readily available. In modernizing the Strategic Environmental Assessment regime, the government intends to formalize a reporting mechanism among departments to demonstrate publicly how climate and other environmental impacts were taken into account. The mechanism may build on and update the Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals, which requires the preparation of a public statement of environmental effects on select proposals.</p> <p>The Privy Council Office’s response. Agreed. The Privy Council Office will work with other central agencies toward the publication of appropriate summaries of integrated climate lens analyses.</p>

Appendix: Measures in the 2030 Emissions Reduction Plan

Exhibit A.1—The following 80 measures are designated as current in the plan

Sector	Measure name
Transportation	<ol style="list-style-type: none"> 1. <i>Passenger Automobile and Light Truck Greenhouse Gas Emission Regulations</i> and subsequent amendments 2. Mandatory requirement that all new light-duty vehicle sales be zero-emission by 2035 3. <i>Heavy-duty Vehicle and Engine Greenhouse Gas Emission Regulations</i> and subsequent amendments 4. Incentives for Zero Emission Vehicles program 5. Zero Emission Vehicle Infrastructure Program 6. Green Freight Assessment Program 7. Clean Transportation System—Research and Development Program 8. Collaboration with Railway Association of Canada to Reduce Locomotive Emissions 9. Public Transit Funding 10. Collaboration at the International Maritime Organization 11. Collaboration with aviation sector to reduce greenhouse gas emissions from aviation 12. Supporting the International Civil Aviation Organization 13. Off-road zero emissions equipment regulations
Electricity	<ol style="list-style-type: none"> 14. Phase-out of conventional coal-fired power plants by 2030 15. Regulatory performance standards for new natural gas units and converted coal-to-gas units 16. Emerging Renewable Power Program 17. Smart Renewables and Electrification Pathways Program 18. Indigenous Off-Diesel Initiative 19. Clean Energy for Rural and Remote Communities program 20. Northern Responsible Energy Approach for Community Heat and Electricity program 21. Indigenous Clean Energy Program 22. Smart Grid Program 23. Strategic Interties 24. Small Modular Reactor Action Plan Implementation 25. Clean electricity regulations (formerly called Clean Electricity Standard)

Sector	Measure name
Economy-wide	26. Price on carbon pollution 27. Return of federal carbon pollution proceeds 28. Finalizing Canada’s Greenhouse Gas Offset Credit System 29. <i>Clean Fuel Regulations</i> 30. Clean Fuels Fund 31. Low Carbon Economy Fund 32. Hydrogen Strategy for Canada 33. Explore border carbon adjustments 34. Canada Infrastructure Bank
Buildings	35. Develop net-zero energy ready model building code and code for retrofits by 2022 36. Green Construction Through Wood program 37. Canada Greener Homes Grant program 38. Green and Inclusive Community Buildings program 39. Energy Efficient Buildings Research, Development, and Demonstration program 40. National Housing Strategy 41. National Infrastructure Assessment 42. Canada Greener Homes Loan program
Enabling	43. Clean Growth Hub 44. Energy Innovation Program 45. Federal support to Sustainable Development Technology Canada 46. Just Transition for Canadian Coal Power Workers and Communities: Task Force 47. Just Transition legislation and comprehensive action 48. Green Bonds 49. Climate Action and Awareness Fund
Nature-based solutions	50. Nature Smart Climate Solutions Fund 51. 2 Billion Trees program 52. Nature-Based Climate Solutions Advisory Committee 53. Indigenous Protected and Conserved Areas 54. Canada Target 1 Challenge 55. Natural Infrastructure Fund
Heavy industry	56. <i>Regulations Amending the Ozone-Depleting Substances and Halocarbon Alternatives Regulations</i> and amendments 57. Clean Growth Program 58. Strategic Innovation Fund—Net Zero Accelerator Initiative 59. Cutting Corporate Taxes for Zero Emissions Technology 60. Net Zero Challenge 61. Enhancing Canada’s Supply of Critical Minerals

Sector	Measure name
Waste	62. Food Waste Reduction Challenge 63. Comprehensive approach to Zero Plastic Waste 64. Minimum recycled content regulations for certain plastic manufactured items 65. <i>Single-Use Plastics Prohibition Regulations</i> 66. International legally binding agreement on plastic pollution 67. Landfill methane regulations
Agriculture	68. Agricultural Climate Solutions—Living Labs Stream 69. Agricultural Climate Solutions—On-Farm Climate Action Fund 70. Agricultural Clean Technology Program 71. Canadian Agricultural Partnership 72. Fertilizer emission reduction target
Oil and gas	73. Emissions Reduction Fund 74. Investment Tax Credit for Carbon Capture, Utilization, and Storage 75. Carbon Management strategy 76. Oil and gas methane regulations 77. Oil and gas emissions cap
Greening government	78. Greening Government Strategy: updated targets and policies 79. Federal Low-Carbon Fuel Procurement Program 80. Federal Clean Electricity Fund

Source: Based on the 2030 Emissions Reduction Plan, Environment and Climate Change Canada, 2022

Exhibit A.2—The following 37 measures are designated as new in the plan and are expected to contribute to the 2030 target

Sector	Measure name
Transportation	<ol style="list-style-type: none"> 1. Light duty vehicle zero-emission vehicle sales mandate 2. Strategy to reduce emissions from medium- and heavy-duty vehicles 3. Medium- and heavy-duty vehicles zero-emission vehicle regulation 4. Extend the incentives for Zero-Emission Vehicles Program for light-duty vehicles 5. Additional funding for zero-emission vehicle charging stations 6. Purchase incentive program for medium- and heavy-duty vehicles 7. Retrofit large trucks 8. Hydrogen trucking demonstration projects 9. Greening Government fleet
Electricity	<ol style="list-style-type: none"> 10. Deployment of commercially ready renewable energy technologies 11. Funding for the Smart Renewables and Electrification Pathways Program 12. Electricity Predevelopment Program 13. Pan-Canadian Grid Council 14. Establish Regional Strategic Initiatives 15. Atlantic Loop initiative 16. Support de-risking and accelerating the development of transformational, nation-building interprovincial transmission lines
Economy-wide	<ol style="list-style-type: none"> 17. Indigenous Leadership Fund 18. Guarantee the future price of carbon pollution 19. Indigenous Climate Leadership 20. Regional Strategic Initiatives 21. Plan to reduce methane emissions
Buildings	<ol style="list-style-type: none"> 22. Low Carbon Building Materials Innovation Hub 23. Transition off fossil-fuels for heating systems 24. EnerGuide labeling of homes 25. Net Zero Building Code Acceleration Fund 26. Improve federal capacity and technical support to provinces, territories and key stakeholders for the development and adoption of net zero emission codes, and alteration to existing buildings codes 27. Develop an approach to increase the climate resilience of the built environment 28. Low-income stream of the Greener Homes Loan Program 29. Greener Neighbourhoods Pilot Program 30. Retrofit accelerator initiative 31. Centre of Excellence
Enabling	None
Nature-based solutions	32. Additional funding in the Nature Smart Climate Solutions Fund
Heavy industry	33. Industrial Energy Management System

Sector	Measure name
Waste	None
Agriculture	34. Additional funding for the Agricultural Climate Solutions—On-Farm Climate Action Fund 35. Funding for resilient agricultural landscapes program 36. Funding for Agricultural Clean Technology program 37. Transformative science for a sustainable sector
Oil and gas	None
Greening government	None

Source: Based on the 2030 Emissions Reduction Plan, Environment and Climate Change Canada, 2022

