



Office of the Auditor General of Ontario

Follow-up on
Value-for-Money Audit:
**Climate Change:
Ontario's Plan to
Reduce Greenhouse
Gas Emissions**

Follow-Up on VFM Chapter 3,
Volume 2, *2019 Annual Report*



November 2021

Ministry of the Environment, Conservation and Parks

Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions

Follow-Up on VFM Chapter 3, Volume 2,
2019 Annual Report

RECOMMENDATION STATUS OVERVIEW						
	# of Actions Recommended	Status of Actions Recommended				
		Fully Implemented	In the Process of Being Implemented	Little or No Progress	Will Not Be Implemented	No Longer Applicable
Recommendation 1	1				1	
Recommendation 2	1			1		
Recommendation 3	2	1		1		
Recommendation 4	1	1				
Recommendation 5	1	1				
Recommendation 6	1	1				
Recommendation 7	1		1			
Recommendation 8	1			1		
Recommendation 9	1			1		
Recommendation 10	1	1				
Recommendation 11	1		1			
Recommendation 12	1		1			
Recommendation 13	1			1		
Recommendation 14	1			1		
Recommendation 15	1			1		
Recommendation 16	1			1		
Recommendation 17	1	1				
Recommendation 18	1		1			
Recommendation 19	3			3		
Total	22	6	4	11	1	0
%	100	27	18	50	5	0

Overall Conclusion

According to the information the Ministry of the Environment, Conservation and Parks (Ministry) and Secretary of the Cabinet provided to us, as of September 29, 2021, 27% of actions we recommended in our *2019 Annual Report* have been fully implemented. The Ministry has made progress in implementing an additional 18% of the recommended actions.

The Ministry has fully implemented recommended actions to update its emissions estimates to reflect new information, work with partner ministries to base emission estimates from electric vehicles on sound evidence and analyze the feasibility of increasing the supply of renewable natural gas.

In our follow-up, we found that the Ministry has initiated some work to update its climate change plan to be based on sound evidence. Progress has been made in using modelling to account for interactions between, and to better estimate the impact of, emission-reduction initiatives in an updated “Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan” (Plan). The Ministry has been meeting with other ministries to discuss and evaluate opportunities for emission-reductions initiatives. The revised Plan is anticipated to include updates to the emissions reductions expected from the four committed policies: Emissions Performance Standards, Renewable Content in Gasoline, Transit and Natural Gas Conservation. At the time of our follow-up, we found that, based on a \$50/tonne carbon price, the Ministry estimated these committed policies could reduce Ontario’s emissions in 2030 by 3.4 megatonnes (Mt). These estimated reductions are 14.2 Mt less than the 17.6 Mt of total emissions reductions presented in the Plan.

Little progress has been made on 50% of the recommended actions, such as designing an effective reverse auction, including agriculture-specific initiatives in an updated Plan, assessing and comparing all costs and net emissions reductions of considered

initiatives, developing, implementing and reporting on performance metrics for all key sectors, and explaining to the public the outcomes of all initiatives to reduce emissions in an annual report. The Ministry does not have an expected timeframe for presenting an updated climate change plan to Cabinet for approval.

The status of actions taken on each of our recommendations is described in this report.

Background

High concentrations of greenhouse gases in Earth’s atmosphere, mainly from burning fossil fuels, have contributed to an increase in the planet’s average surface temperature (global warming) and to heat waves, droughts and storms. Ontario’s 2019 greenhouse gas emissions were 163 Mt, 22.4% of the Canadian total. Ontario’s 2018 emissions were 0.3% of the global total. Ontario’s 11 tonnes of average emissions per person per year in 2018 are higher than in many developed countries, and almost twice the world average.

Ontario’s *Cap and Trade Cancellation Act, 2018* (Act) committed the province to establish greenhouse gas emission-reduction targets, and required the Ministry of the Environment, Conservation and Parks (Ministry) to prepare a new climate change plan. In November 2018, the Ministry released “Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan” (Plan) for public consultation. According to the Ministry, the Plan’s climate change chapter fulfils the commitment under the Act to prepare a climate change plan. The Ministry’s internal modeling indicates that, if no further emission-reduction actions are taken and if economic growth continues, Ontario’s greenhouse gas emissions would increase by 0.1 Mt—from an estimated 160.8 Mt in 2018 to 160.9 Mt in 2030 (the “business-as-usual forecast”). Estimating this forecast accurately is important to provide the starting point for assessing and planning emission-reduction programs.

The Plan set a target to reduce Ontario's emissions to 30% below 2005 levels by 2030, representing a reduction to 143.3 Mt, or 17.6 Mt below the business-as-usual forecast. The Plan states that this aligns Ontario with Canada's 2030 target under the 2015 United Nations Paris Agreement, and outlines eight areas where the Ministry expects emissions reductions. At the time the Plan was released, Canada's target was to reduce greenhouse gas emissions by 30% below 2005 levels by 2030. Subsequently, in April 2021, Canada announced a new target of 40-45% reductions below 2005 levels by 2030.

Our audit focused on the process the Ministry used to develop the Plan, and the evidence underlying the proposed emissions reductions identified in the Plan to achieve the 2030 target. We found that the Ministry's projected emissions forecast, and the estimated emissions reductions for all eight areas, were not yet supported by sound evidence. Specifically:

- The Plan's "business-as-usual" emissions projection for 2030 was re-estimated in August 2019 to be 163.6 Mt—2.7 Mt higher than the projection on which the Plan is based. Some of the initiatives in Ontario's 2017 Long-Term Energy Plan, including renewable energy contracts, were cancelled before the Ministry calculated its 2030 projection in November 2018.
- The Plan's estimate for emissions reductions from Low Carbon Vehicles Uptake included reductions from cancelled programs that supported electric vehicle adoption.
- The Plan estimated emissions reductions from natural gas customers switching to renewable natural gas, though evidence shows that the higher cost of renewable natural gas means that few customers would switch.
- The Plan relied on the federal government's proposed Clean Fuel Standard for emissions reductions of 1.3 Mt by 2030, although the Standard was not yet finalized.
- The Plan double counted some emissions reductions that were targeted by more than one program, resulting in an overstatement of total emissions reductions. It contained two separate

overlapping programs aimed at reducing emissions from natural gas use, and it did not account for another overlap with both Natural Gas Conservation and the federal Clean Fuel Standard.

- The Plan improperly counted emissions reductions expected from reducing exported organic waste that are required by international agreement to be counted in the United States' emissions inventory—not Ontario's inventory.
- The Plan stated that Future Innovation would reduce emissions by 2.2 Mt, but no emission-reduction programs had yet been identified.

In reviewing the process used by the Ministry to develop the Plan, our Office learned that Ministry staff internally estimated that implementing initiatives in the Plan could likely achieve only 10.9 Mt in emissions reductions, 6.7 Mt less than the 17.6 Mt presented in the Plan. We found that the Plan had the potential to achieve between 6.3 Mt and 13.0 Mt of the estimated 17.6 Mt reduction required to meet the target of 30% below 2005 levels.

Our audit also found that:

- The Ministry did not fully estimate costs for more than half of the emission-reduction areas included in the Plan.
- An expert panel had not yet been appointed to provide advice on Ontario's climate change plan.
- Other provincial ministries were making decisions that may increase Ontario's emissions. The Plan gives the Ministry the responsibility to co-ordinate Ontario's actions on climate change. However, many of the emission-reduction initiatives in the Plan are not within the Ministry's control and are the responsibility of other ministries. The government's cross-ministry Climate Change Leadership Team had no authority over whether ministries adopt its recommendations. It was unclear whether the team had the capacity and resources to deliver results.

We made 19 recommendations, consisting of 22 action items, to address our audit findings.

We received commitment from the Ministry and the Secretary of the Cabinet that they would take action to address our recommendations.

Status of Actions Taken on Recommendations

We conducted assurance work between April 2021 and October 2021. We obtained written representation from the Ministry and Secretary of the Cabinet that effective November 4, 2021, they have provided us with a complete update of the status of the recommendations we made in the original audit two years ago.

Unclear If Plan Will Be Updated Based on Comments Received Through the Environmental Registry

Recommendation 1

To help ensure that the public is aware that plans, strategies and policies, when posted for review and public comment on the Environmental Registry are draft, we recommend that, in the future, the Ministry of the Environment, Conservation and Parks label such documents as draft.

Status: Will not be implemented.

Details

In our 2019 audit, we found that, unlike other proposed policies posted on the Environmental Registry for public consultation and comment, the Plan itself was not marked as a draft. By contrast, the supporting materials for all other 10 policy proposals posted on the Environmental Registry by the Ministry between June 2018 and September 2019 were marked with a label indicating that the policies were either proposed, a draft for consultation, or a discussion paper.

In our follow-up, the Ministry indicated that notices posted for consultation on the Environmental Registry are automatically labelled as proposals so that it is clear to the public whether a document attached to a notice has been finalized. As a result, Registry users who access a document through a proposal notice are informed while viewing the notice itself that it is an unfinalized proposal. However, members of the public who access a linked document

from outside the Registry (for example, redirected from a news release, government website, external website, or email), or who are sent a draft document, would not necessarily have that same awareness, and may incorrectly interpret an unfinalized document as final – unless clearly marked as a draft or discussion paper.

The Ministry's templates for drafting proposal notices indicate that supporting materials (like files and links) can be added to provide readers more information about the notice. While these templates specify that saved files should have simple file names that describe what a document is, they do not direct that added draft documents be marked as draft.

We found that, of the 30 policy proposal notices or updates to proposal notices the Ministry posted on the Environmental Registry between December 4, 2019 (when we released our 2019 audit report) and March 31, 2021, 29 (or 97%) of them either had no supporting materials attached or had draft supporting materials that were clearly marked as draft or for discussion purposes. Only one did not – templates for environmental compliance approvals for municipal sewage collection and stormwater management systems (Environmental Registry #019-1080). While the filenames and web addresses for the draft templates indicated that they were drafts, the documents themselves were not marked as draft or proposed. In the subsequent decision notice, posted March 17, 2021, the Ministry indicated that it was in the process of finalizing the environmental compliance approval templates.

In response to our inquiries, the Ministry indicated that it had reviewed its Registry proposal notice templates and determined that further clarification in the templates to direct staff to label draft documents as draft is not necessary. Though members of the public may access linked Registry documents through other means, it is the Ministry's position that labelling draft documents as such is unnecessary as Registry notices specify whether an attached document has been finalized and the status of the notice.

The Ministry told our Office that the Made-in-Ontario Environment Plan remains a draft; the Ministry

has not yet taken the necessary steps to have the Plan approved. However, the Plan, which was attached to the 2018 proposal notice and is posted as the lead on the Ministry's main webpage, is still not marked "draft," and the Ministry has not referred to the Plan as "draft" or explained that it is unfinalized in various communications to the public.

Rather, the Ministry has publicly indicated that it has implemented aspects of the Plan. For example, the Ministry has announced that initiatives, such as reducing waste and expanding recycling services, improving public reporting of pollution, and improving water quality in Lake Erie, are a key part of, and are delivering on commitments made in, its Plan. In 2019 and 2020, the Ministry released public updates on the Plan, outlining steps that had been taken, progress on commitments, accomplishments made, and next steps.

No External Advisory Panel Yet Established to Provide Advice on Climate Change Plan

Recommendation 2

So that Ontario's climate change planning can benefit from external expert advice, we recommend that members be appointed to the Climate Change Advisory Panel to review and provide advice on climate change planning and further refine the Ministry's Plan as needed.

Status: Little or no progress.

Details

In our 2019 audit on Ontario's plan to reduce greenhouse gas emissions, we found that although the Plan contained a commitment to establish an advisory panel to provide advice to the Minister on implementation and further development of climate change actions in the Plan, no appointments had been made as of September 2019. We noted that establishing an advisory panel would help ensure that the Plan is better supported by sound evidence and includes the most effective and innovative emission-reduction

initiatives to reach the 2030 target. We also noted that other jurisdictions, including the United Kingdom and Sweden, have used independent bodies to provide non-partisan, science-based analysis and advice on reducing greenhouse gas emissions.

In November 2018, the government approved the creation of a Climate Change Advisory Panel, but no panel members were appointed at the time of our audit.

In our follow-up, we found that in November 2019 the Minister appointed a 10-member advisory panel with a two-year term. Under the Terms of Reference, the panel's mandate is to provide advice to the Minister on implementing the climate change resilience commitments of the Plan. There is no direction to the panel to provide advice on plans to reduce greenhouse gas emissions, which was the subject of our audit and intent of our recommendation.

Better Methods to Estimate Emissions Reductions Needed Going Forward

Recommendation 3

So that complex interactions between energy, economics and emissions are taken into account when selecting and designing emission-reduction initiatives, and to provide more reliable emissions estimates, we recommend that the Ministry of the Environment, Conservation and Parks:

- *use integrated modelling, where appropriate, to better estimate the impact of planned and future initiatives when updating its Plan to meet the 2030 target;*

Status: Little or no progress.

Details

In our 2019 audit, we found that the Ministry overstated potential emissions reductions from initiatives presented in the Plan, in part, by not modelling the overlap between many of the initiatives presented. Although the Ministry used an integrated energy-emissions-economy model to estimate its business-as-usual forecast and Emissions Performance

Standards (referred to in the Plan as Industry Performance Standards) policy, most of the presented policies and emissions reductions were based on ad hoc, out-of-model estimates.

In our follow-up, we found that the Ministry had incorporated some additional emission-reduction initiatives in its integrated model in response to our Office's 2019 recommendations. The additional policies added to the integrated model were:

- increased renewable content in gasoline (referred to in the Plan as ethanol in gasoline within Clean Fuels);
- improved diversion of food and organic waste from landfills (referred to in the Plan as Organic Waste within Other Policies);
- natural gas conservation (the estimated emissions reductions of which were being evaluated at the time of our audit); and
- the federal Clean Fuel Standard.

The Ministry has not used the integrated model to estimate other potential emissions reductions, including from:

- an Emission Reduction Fund (referred to in the Plan as Ontario Carbon Trust);
- implementing the GO Regional Express Rail (referred to in the Plan as Transit within Other Policies);
- phasing out industrial coal use (which was not in the Plan); and
- landfill gas collection (which was not in the Plan).

As discussed below, policies to achieve the majority of emissions reductions required to meet the 2030 target have not been identified, and thus not modelled. The Ministry notes that additional details are needed to identify whether other policies can be incorporated into the integrated model. At the time of our follow-up, Ministry staff were continuing to seek policy guidance and working to update the climate change plan, including emissions estimates. The Ministry does not have an expected timeframe for presenting an updated climate change plan to Cabinet for approval.

- *annually update its estimates to reflect new information and changes to proposed initiatives, and assess whether it is on track to achieve the targeted reductions.*

Status: Fully implemented.

Details

In our 2019 audit, we found that the Ministry did not use current information for modelling. For example, the Plan's business-as-usual forecast incorporated out-of-date electricity emission forecasts based on cancelled policies, including the cap-and-trade program, renewable energy contracts and electricity conservation programs.

In our follow-up, we found that the Ministry has revised the business-as-usual forecast in its integrated model with updated data:

- The Independent Electricity System Operator's 2020 Annual Planning Outlook was used to update electricity sector assumptions.
- The Ministry of Finance's budget 2020 Outlook was used to forecast gross domestic product.
- Environment and Climate Change Canada's 2021 National Inventory Report was used to calibrate historical emissions.

The Ministry has also updated the business-as-usual forecast in its integrated model to include federal carbon pricing on fuels, but not on industrial emissions. Although the federal carbon pricing for fuels and industrial emissions was announced in October 2016, became law in June 2018, and announced to apply in Ontario in October 2018, the November 2018 Plan did not include 2030 emissions reductions expected from carbon pricing. This is because the Plan was framed as an alternative to the federal carbon pricing system. However, in June 2019, the Ontario Court of Appeal ruled against a constitutional challenge of the federal policy, as did the Supreme Court of Canada in March 2021, so that a carbon pricing system will continue to be applied in Ontario.

Since October 2020, the Ministry has started producing internal, monthly updates on Ontario's

greenhouse gas emissions outlook based on current policy scenarios. In October 2021, the Ministry revised its internal estimate of business-as-usual forecast and estimated Ontario's 2030 emissions to be 160.9 Mt based on the federal government's \$50/tonne (t) carbon price on fuels. This estimate is coincidentally the same as the 160.9 Mt internal estimate shown in the Plan's business-as-usual scenario, despite differences in assumptions. The Ministry continues to exclude from its business-as-usual 2030 emission estimate the potential reductions from the existing federal carbon price on industrial emissions, because the Ministry plans to replace the existing system with the less stringent provincial Emissions Performance Standards.

The Ministry's October 2021 estimates of the impact of other policies suggest Ontario is not on track to achieve the 2030 target. The target is a reduction of 30% below 2005 levels, which is 144.0 Mt based on the latest data. As of October 2021, the Ministry's internal estimates indicate that "committed policies," which are discussed in our follow-up on **Recommendation 13**, could reduce emissions from the business-as-usual forecast by 3.4 Mt in 2030 based on a \$50/tonne carbon price. This results in a 13.5 Mt-gap in meeting the updated 2030 target. For committed policies, the Ministry's internal estimates for a scenario with a \$170/t carbon price, which the federal government has announced for federal policies, could reduce the gap to 6.2 Mt. The Ministry has not committed to increasing the carbon price of the provincial Emissions Performance Standards to match the federal government's.

Emissions Estimates Underlying Plan Not Supported by Sound Evidence

Recommendation 4

To better assess whether Ontario will achieve 2.6 Mt in emissions reductions from the uptake of electric vehicles, we recommend that the Ministry of the Environment, Conservation and Parks, together

with key partner ministries, base its estimates on sound evidence.

Status: Fully implemented.

Details

In our 2019 audit, we found that the Ministry overestimated the emissions reductions expected from the increased uptake of electric vehicles, which were shown in the Plan as part of Low Carbon Vehicles Uptake. The Ministry's Plan estimated emissions reductions from 1.3 million electric vehicles in 2030, despite its integrated energy-emissions-economy model estimating Ontario would have 250,000 electric vehicles. The Ministry took the higher number from a 2016 forecast based on since-cancelled programs, including provincial incentives for new electric vehicles and charging infrastructure. The Ministry was unable to provide any details of planned initiatives that would result in 1.3 million electric vehicles by 2030.

In our follow-up, we found that, in March 2020, the Ministry re-evaluated a scenario with 1.3 million electric vehicles in its integrated model by assuming a sales mandate (a requirement that a certain percentage of vehicles sales be electric vehicles). After accounting for overlap with federal vehicle emission regulations in the business-as-usual forecast, the Ministry's updated integrated modelling estimated potential emissions reductions of 0.9 Mt in 2030 – 1.7 Mt lower than the 2.6 Mt estimate in the Plan.

After receiving direction that the Ministry will not implement zero emission vehicle financial incentives or a sales mandate, Ministry staff revised the emission-reduction estimates in January 2021 to exclude any reductions from low carbon vehicles beyond the business-as-usual forecast.

Ministry staff continue to seek policy direction regarding zero emission freight and fleet vehicles. Ministry Assistant Deputy Ministers also participate in an inter-ministry low carbon vehicle steering committee to gather perspectives, discuss and evaluate opportunities and risks, and set priorities for cross-ministry work.

Recommendation 5

To help reach Ontario's emission-reduction target by 2030, we recommend that the Ministry of the Environment, Conservation and Parks analyze the feasibility and emissions impact of increasing the use of compressed natural gas, taking into consideration the life-cycle emissions associated with compressed natural gas.

Status: Fully implemented.

Details

In our 2019 audit, we found that the Ministry used an illustrative example to estimate 0.2 Mt in emissions reductions from compressed natural gas trucks, which were shown in the Plan as part of Low Carbon Vehicles Uptake. Ontario used only 0.1 petajoules of natural gas energy in freight trucks in 2016, but the Plan estimated an increase in compressed natural gas by 55 petajoules in 2030, based on a submission from the Ontario Energy Association to the Ministry to help inform the development of the Plan. The Ministry did not assess whether this level of compressed natural gas uptake was feasible or cost effective. Further, scientific studies have shown natural gas leaks during fuel production and transportation release methane into the atmosphere, which may increase overall greenhouse gas emissions.

The Ministry determined that the initiative in the Plan to reduce operator requirements for 24/7 compressed natural gas fueling stations along 400-series highways would lead to a negligible impact on uptake and therefore no incremental emissions reductions. In January 2021, the Ministry removed compressed natural gas trucks from its revised emission-reduction estimates.

Recommendation 6

To help reach Ontario's 2030 emission-reduction target, we recommend that the Ministry of the Environment, Conservation and Parks work with the Ministry of Energy, Northern Development and Mines to assess the feasibility of increasing renewable natural gas supply in Ontario.

Status: Fully implemented.

Details

In our 2019 audit, we found that the Plan estimated 2.3 Mt of emissions reductions by 2030 to come from Ontario requiring utilities to offer their customers the option of purchasing renewable natural gas. Internally, however, Environment Ministry staff estimated that “negligible” (0.0049 Mt) emissions reductions would come from this voluntary initiative – a consequence of the higher costs and therefore lower sales of this low-carbon fuel; staff estimated that renewable natural gas would cost customers \$18 per gigajoule versus \$3 per gigajoule for conventional natural gas. Instead of using this internal staff analysis, the Environment Ministry used an illustrative example from the Ontario Energy Association for the Plan's 2.3 Mt of potential emissions reductions.

In our 2020 audit on Reducing Greenhouse Gas Emissions from Energy Use in Buildings, we found that the Ontario Energy Board approved a pilot program application in September 2020 from one utility (Enbridge) to allow customers to purchase renewable natural gas, but there was no requirement for any utility to do so. We also found that the then Ministry of Energy, Northern Development and Mines asked the Environment Ministry to relieve it of any responsibilities related to renewable natural gas in the Plan. In June 2021, the Natural Resources Ministry merged with Northern Development and Mines (a portion of the Energy and Mines Ministry) to form a new Ministry of Northern Development, Mines, Natural Resources and Forestry. A new, separate Ministry of Energy was also formed.

In our follow-up, we found that the Environment Ministry met with the Ministry of Energy in December 2018 and January 2019 to assess a voluntary program. The Ministry of Energy does not plan to place any requirements on utilities to offer a voluntary renewable natural gas program and the utility-led pilot does not subsidize costly renewable natural gas. The Environment Ministry concluded that there would be no significant new incremental emissions reductions from renewable natural gas use in Ontario. Accordingly, the Environment Ministry's latest internal emission-reduction estimates from

October 2021 exclude any potential incremental reductions from renewable natural gas.

Recommendation 7

To better assess the contribution that Industry Performance Standards would make toward Ontario's 2030 emission-reduction target, we recommend that the Ministry of the Environment, Conservation and Parks use best practices, such as integrated modelling, that account for the interactions and overlap with other initiatives.

Status: In the process of being implemented by December 2023.

Details

In our 2019 audit, we found that the Plan overstated emissions reductions from Industry Performance Standards, standards that require industry to pay a carbon price for emissions that exceed pre-established levels, which are now referred to as Emissions Performance Standards. The Plan's estimate of 2.7 Mt in emissions reductions was based on modelling of assumptions that did not match the policy ultimately proposed. The weaker policy was later estimated to reduce emissions by 1.0 Mt. The Ministry's estimate also did not account for the policy's overlap with emissions reductions expected through Natural Gas Conservation and the federal Clean Fuel Standard.

In our follow-up, we found that the Ministry incorporated Natural Gas Conservation and the federal Clean Fuel Standard into the integrated energy-emissions-economy model. The Ministry's internal estimate indicates these two initiatives, in addition to Emissions Performance Standards, Renewable Content in Gasoline and Transit, could reduce emissions by 3.5 Mt in 2030. This estimate is 4.9 Mt less than the combined 8.4 Mt reduction expected in the Plan. Although the Ministry's internal estimate also indicates that a scenario with a \$170/t carbon price, which the federal government has announced for federal policies, could reduce emissions from these initiatives by 5.6 Mt, the Ministry has not committed

to increasing the carbon price of provincial Emissions Performance Standards to match the federal government's.

Because the Ministry has not yet designed Emissions Performance Standards policy details post-2022, its estimates are based on assumptions for the year 2030. At the time of our follow-up, the Ministry expects to finalize Emissions Performance Standards by the end of 2023.

Recommendation 8

To better assess the contribution that the Emission Reduction Fund would make toward Ontario's emission-reduction target, we recommend that the Ministry of the Environment, Conservation and Parks use best practices, such as integrated modelling, that account for the interactions and overlap with other initiatives.

Status: Little or no progress.

Details

In our 2019 audit, we found that the Ministry's estimate of 0.5 Mt in emissions reductions in 2030 from the Emission Reduction Fund (referred to as the Ontario Carbon Trust in the Plan) was overstated. The estimate assumes half of the emissions reductions would come from energy-efficiency loans to reduce natural gas use in buildings. However, the Plan also assumed all cost-effective ways of reducing natural gas use would be funded by natural gas conservation programs. The unaccounted overlap between the two initiatives overestimated the emissions reductions possible.

In our follow-up, we found that the Ministry has determined that its integrated energy-emissions-economy model is incapable of incorporating the Emission Reduction Fund. Still, the Ministry preliminarily revised its emission-reduction estimate to 0.3-0.5 Mt. The Ministry told us that it is continuing to improve its emissions forecasting by making use of more robust integrated modelling approaches, and continues to draft options for the development of an Emission Reduction Fund.

Recommendation 9

To help achieve a reverse auction that contributes toward reaching Ontario's 2030 emission-reduction target, we recommend that the Ministry of the Environment, Conservation and Parks design its reverse auction to achieve additional emissions reductions that would not have happened without government funding.

Status: Little or no progress.

Details

In our 2019 audit, we found that the Ministry estimated that a reverse auction as part of the Emission Reduction Fund would reduce emissions by 0.1 Mt in 2030. Reverse auctions allow bidders to compete for funding to finance projects with the lowest cost reductions. However, research based on Australia's reverse auction suggests lowest cost bids are often for projects that would have happened regardless of government funding. We noted that, unless Ontario's reverse auction is designed to prevent it, government funding could be provided to projects that would have happened anyway, overestimating the emissions reductions achieved through the auction.

In our follow-up, we found that the Ministry has not designed a reverse auction and continues to consider whether to proceed with this initiative. Accordingly, the Ministry has removed the reverse auction from its emission-reduction estimates for the time being.

Recommendation 10

To improve the reliability of estimated emissions reductions associated with organic waste diversion, we recommend that the Ministry of the Environment, Conservation and Parks follow the Inter-governmental Panel on Climate Change Guidelines for National Greenhouse Gas Inventories and transparently account for actions that occur outside Ontario's borders, consistent with international rules.

Status: Fully implemented.

Details

In our 2019 audit, we found that the Ministry overestimated potential emissions reductions in Ontario

expected from increased organic waste diversion by including emissions reductions that are counted outside the province. The Plan estimated 1.0 Mt of emissions reductions in 2030 from this initiative, but this includes waste that would be exported to the United States, which is where any potential reductions in exported waste and their associated emissions would be counted. International guidelines for emissions accounting would not credit Ontario for emissions reductions accounted for in the United States' emissions inventory.

In our follow-up, we found that the Ministry revised its emissions estimates to exclude reductions expected to occur in the United States.

Recommendation 11

So that an increase in Ontario's electricity storage capacity contributes to achieving Ontario's overall 2030 emissions reduction target, we recommend that the Ministry of the Environment, Conservation and Parks work with the Ministry of Energy, Northern Development and Mines to identify and assess the feasibility of energy storage initiatives that are supported by sound evidence.

Status: In the process of being implemented by December 2021.

Details

In our 2019 audit, we found that the Plan expected 0.3 Mt of emissions reductions in 2030 to come from increasing energy storage, but the Environment Ministry did not assess the feasibility or cost of the proposed level of energy storage (750 megawatts) to achieve these reductions. Rather, this assumed reduction was taken directly from a hypothetical example submitted by the Ontario Energy Association for illustrative purposes.

In our follow-up, we found that the Ministry of Energy had indicated that it would require funding from the Environment Ministry for any incremental energy storage. Environment Ministry staff were unable to identify dedicated sources of funding. Accordingly, the Environment Ministry excludes energy storage from its most recent

emission-reduction estimates. However, the Environment Ministry engaged with the Ministry of Energy to review input from a hydrogen discussion paper, which includes energy storage. In November 2020, the Ministry released a discussion paper on a potential hydrogen strategy, with ideas on hydrogen as an energy storage option. At the time of our follow-up audit, the Environment Ministry expects to have worked with partner ministries to develop a hydrogen strategy by December 2021.

Recommendation 12

To help achieve emissions reductions from technological improvements beyond those already accounted for in the 2030 emissions projection, we recommend that the Ministry of the Environment, Conservation and Parks work with key partner ministries to identify and assess the feasibility of initiatives to support the adoption of new and innovative emission-reduction technologies in Ontario.

Status: In the process of being implemented by December 2021.

Details

In our 2019 audit, we found that the Ministry had no evidence to support its assumed 2.2 Mt of emissions reductions in 2030 from Future Innovation within the Plan's broader Innovation category. Emissions reductions expected from technological improvements and price reductions were already included in the business-as-usual forecast. The Ministry was unable to provide any evidence of further reductions beyond that forecast.

In our follow-up, we found that the Ministry had initiated some work with partner ministries to identify and assess new emission-reduction technologies. For example, in November 2020, the Ministry released a discussion paper on a potential hydrogen strategy, with ideas on hydrogen as an energy storage option. A Hydrogen Strategy Working Group is expected to review input received through consultation and propose recommendations for Ontario's hydrogen strategy, expected to be released by December 2021. However, Ministry staff estimated that a hydrogen

strategy would have negligible emissions reductions assuming no funding or regulations. Although the Ministry is also part of on-going, cross-government meetings to support the adoption of innovative emission-reducing technologies, the Ministry has removed emissions reductions from Future Innovation from its forecasts for the time being. At the time of our follow-up, the Ministry expects to have worked with partner ministries to finalize a hydrogen strategy by December 2021.

Internal Ministry Analysis Estimates That Current Initiatives in the Plan Will Achieve Less Than 17.6 Mt of Emissions Reductions

Recommendation 13

To support Ontario in achieving the 2030 emission-reduction target, we recommend that the Ministry of the Environment, Conservation and Parks work with partner ministries to update its climate change plan to include detailed actions, with all estimated emissions reductions based on sound evidence and supported by a comprehensive and transparent feasibility and cost analysis.

Status: Little or no progress.

Details

In our 2019 audit, we found that Ministry staff estimated that the initiatives included in the Plan would not result in the emissions reductions needed to achieve Ontario's 2030 target. Ministry staff estimated the Plan's initiatives could likely reduce emissions by only 10.9 Mt as opposed to the 17.6 Mt shown in the Plan.

In our follow-up, we found that the Ministry had initiated some work to update its Plan to be based on sound evidence. However, it had not yet updated the Plan to include detailed actions with emission-reduction estimates supported by a feasibility and cost analysis.

The Ministry updated its assumptions, and as of October 2021, estimated its “committed policies” could reduce emissions by 3.4 Mt in 2030. These policies include Emissions Performance Standards, Renewable Content in Gasoline, Transit and Natural Gas Conservation. The Ministry estimated 3.4 Mt in total reductions from the first three. The Ministry estimated an additional 0.03 Mt reductions from Natural Gas Conservation (as compared to 3.2 Mt shown in the Plan) based on funding estimated by the Ministry of Energy. This partner ministry was not supportive of initiatives related to Renewable Natural Gas, or Natural Gas Conservation as described in the Plan. Although the Environment Ministry has also estimated additional emissions reductions from a scenario with a \$170/t carbon price, which the federal government has announced for federal policies, the Environment Ministry has not committed to increasing the carbon price of provincial Emissions Performance Standards to match the federal government’s.

The Environment Ministry also updated its internal list of proposed climate change plan initiatives with revised emission-reduction estimates. The Environment Ministry has identified partner ministries and costs for many “uncommitted policies” under consideration. The Environment Ministry does not have an expected timeframe for presenting an updated climate change plan to Cabinet for approval.

Ministry Did Not Request or Receive Assurance on IT Controls of Integrated Model Used to Estimate Emissions

Recommendation 14

To obtain assurance over a vendor’s information technology system used for emissions modelling, we recommend that the Ministry of the Environment, Conservation and Parks obtain and review independent assurance reports annually for information technology weaknesses.

Status: Little or no progress.

Details

In our 2019 audit, we found that the Ministry did not have assurance on the information technology (IT) controls of the integrated model used to estimate and forecast Ontario’s greenhouse gas emissions. Ministry staff use an online connection to access the integrated model’s IT system, which was hosted and stored on servers in Vancouver. Because this system was outside of the Ministry’s IT environment, the Ministry had no oversight of the system’s technology controls, such as security of the stored information, the integrity of the information and reliable access. Although the Ministry had no assurance report on the model vendor’s IT system itself, our Office requested and received from the vendor independent assurance reports (for the period of October 1, 2017, to September 30, 2018) on the system and operating effectiveness of controls related to the data centre that hosted the model.

In our follow-up, we found that the Ministry had obtained subsequent independent assurance reports on the effectiveness of controls of the same data centre’s system (October 1, 2018, to September 30, 2019), as well as the model vendor’s new service provider. While the Ministry did have a description of the security posture of the vendor’s climate modelling platform, it did not have a cybersecurity assessment, penetration testing reports, nor an assurance report on the model vendor’s own technology controls. The Ministry asked for penetration testing and vulnerability assessment reports, but the vendor declined, citing confidentiality concerns.

Plan Leaves Agricultural Emissions Largely Unaddressed

Recommendation 15

So that all major economic sectors are taken into account when designing emission-reduction initiatives, we recommend that the Ministry of the Environment, Conservation and Parks work with the Ministry of Agriculture, Food and Rural Affairs to include agriculture-specific initiatives in an updated Plan to reduce emissions to meet the 2030 target.

Status: Little or no progress.

Details

In our 2019 audit, we found that although the Plan contained eight areas to reduce greenhouse gas emissions that targeted many sectors, it did not explicitly address emissions from the agricultural sector. Agriculture is one of the major economic sectors and contributed 12.1 Mt (7.4%) of Ontario's emissions in 2019. The Environment Ministry agreed with our recommendation and indicated it would work with the Ministry of Agriculture, Food and Rural Affairs to include agricultural initiatives in a future iteration of the climate change plan.

In our follow-up, we found that the Environment Ministry made no progress on this recommendation until January 2021, and even then, progress toward including agriculture-specific initiatives in an updated Plan has been limited. In December 2020, the federal government released an updated climate plan that included funding for various initiatives, such as carbon storage in agricultural lands. In January 2021, the Environment Ministry initiated cross-ministry meetings with the Ministry of Agriculture, Food and Rural Affairs to discuss updating the climate change section of the Plan and how to access federal funding to improve carbon storage in agricultural soils.

Costs of Emission-Reduction Initiatives Were Not Fully Evaluated or Considered

Recommendation 16

To support the selection of emission-reduction initiatives, we recommend that the Ministry of the Environment, Conservation and Parks accurately assess and compare all costs and net emissions reductions associated with all initiatives under consideration for inclusion in the final Plan.

Status: Little or no progress.

Details

In our 2019 audit, we found that the Ministry did not fully evaluate the costs of proposed emission-reduction initiatives. During the development of the Plan, the Ministry's assessment awarded points

to proposals with little or no assumed provincial costs. The assessment did not consider indirect costs to the public and businesses, or to the economy as a whole.

In our follow-up, we found that the Ministry added additional policies into its integrated energy-emissions-economy model (see **Recommendation 3**). The Ministry has also been updating its list of policies under consideration. In addition to the new proposed emission-reduction initiatives described in **Recommendation 3**, Ministry staff are transparent about the potential lack of emissions reductions from other initiatives under consideration:

- Hydrogen and Clean Tech – staff estimate that this initiative (to advance hydrogen technology, production and use) will have negligible reductions without funding or regulations; and
- Government Leadership – staff note that this initiative (to prioritize low-carbon and climate resilience in government investment decisions) could have an impact depending on the scale of targets and investments.

The Ministry has excluded from its updated internal emission-reduction estimates some high-cost initiatives (Renewable Natural Gas), or not-fully-costed initiatives shown in the Plan (Low Carbon Vehicles Uptake and Innovation). The Ministry does not have an expected timeframe for presenting an updated climate change plan to Cabinet for approval.

Decisions Made Separately by Provincial Ministries and Agencies Can Undermine Efforts to Reduce Emissions

Recommendation 17

So that actions and decisions made by ministries support Ontario's ability to meet its greenhouse gas reduction target, we recommend that the Secretary of Cabinet, in conjunction with the Ontario Deputy Ministers' Council, require ministries to use the guidance tools developed by the Climate Change Leadership Team.

Status: Fully implemented.

Details

In our 2019 audit, we found that the Plan contained a commitment to develop tools to help government decision makers understand the climate impacts of government activities. In January 2019, a Climate Change Leadership Team (CCLT) was established. The CCLT is a cross-ministry group responsible for embedding climate change in government procurement, building understanding and capacity within government, and creating a process to update internal directives and guidance to help ensure climate change is considered. It has no direct authority over whether other ministries adopt its recommendations. At the time of our audit, the CCLT was working on several pilot projects to develop tools for the Ontario Public Service, but there were no plans to ensure the results of the pilots would be adopted across government.

In our follow-up, we found that the Secretary of the Cabinet had provided direction that, on a going forward basis, guidance tools developed by the CCLT and shared with the Deputy Ministers' Council will also, where appropriate, be provided to the Office of the Treasury Board in the Treasury Board Secretariat for distribution for use by ministries in the Multi-Year Planning Process.

However, while the requirement from the Secretary of the Cabinet for ministries to use the CCLT's tools has been put in place, the tools themselves have not yet been developed. The Ministry updated the Deputy Ministers' Council on the work of the CCLT in February 2021. The Ministry has advised that four working groups have been established to develop tools and guidance materials:

- **Governance Working Group** – to develop a governance framework for considering climate change in decision making;
- **Economics Working Group** – to develop standard business cases identifying economic drivers for integrating climate change considerations; undertake research on the socio-economic aspects of climate change economic impacts, potential costs and opportunities; and develop standard financial valuation methodology for assessing the costs

and benefits of incorporating climate change into decisions;

- **Research and Knowledge Management and Translation Working Group** – to develop materials that will translate climate change data and expertise into easy-to-read and use resources; and
- **Enterprise Emissions Working Group** – to identify enterprise emissions to begin the development of an emissions inventory for government buildings and assets.

These groups are to report to the CCLT on their progress, and the Secretary of the Cabinet will then invite the Ministry to provide an update to the Deputy Ministers' Council on progress made. The first report back to the CCLT was expected in summer 2021. However, in August 2021, the Ministry advised that there has been no formal report back to date and that the next meeting of the CCLT is to be in fall 2021.

Recommendation 18

So that ministries consider the impact that their decisions may have on greenhouse gas emissions, we recommend that the impact of decisions that affect emissions be evaluated and highlighted in all Treasury Board submissions.

Status: In the process of being implemented by fall 2021.

Details

In our 2019 audit, we found that the Plan included a commitment to “make climate change a cross-government priority,” by developing a Climate Change Governance Framework to establish clear responsibilities and requirements for ministries to track and report on climate change measures and consider climate change in certain government procurement decisions. Our Office acknowledged that the fulfilment of these commitments would be a step forward to support climate-change mitigation efforts government-wide, but noted that climate change must be embedded into all government decision making to ensure progress in reducing provincial emissions. A best practice used by other jurisdictions to embed climate change in government decisions and

operations includes considering climate change in all submissions to Cabinet and the Treasury Board and in regulatory impact analyses.

In our follow-up, we found that in December 2019, Cabinet Office updated the template that is used for Cabinet and Cabinet committee submissions. The template prompts ministries to describe the effect that any proposal has on people, households, communities and the environment, including considerations and impacts relating to climate change.

However, we reviewed a sample of 14 recent Cabinet submissions that could have an impact on greenhouse gas emissions and found that only four actually followed the updated template and considered emissions impacts.

By fall 2021, the Treasury Board Secretariat plans to update all business case templates that ministries use to make submissions to the Treasury Board/Management Board of Cabinet, and provide guidance to ministries to ensure environmental impacts, including greenhouse gas emissions, are identified in relevant submissions and those impacts are highlighted to decision-makers.

Public Reporting on Environment Plan Under Development

Recommendation 19

To help keep Ontarians updated on the status of efforts to reduce emissions, we recommend that the Ministry of the Environment, Conservation and Parks:

- *develop and implement a set of performance metrics that are measurable and cover all key sectors;*
- *report at least annually to the public on the government's performance metrics and overall cumulative progress toward meeting its 2030 emissions target;*
- *explain the outcomes of all initiatives to reduce emissions in the annual report.*

Status: Little or no progress.

Details

In our 2019 audit, we reported that the *Cap and Trade Cancellation Act, 2018* requires the Ministry to regularly prepare and release progress reports on the Ministry's climate change plan. Further, the Plan states that, to ensure progress toward the 2030 target, the Ministry is committed to updating and reporting on estimated greenhouse gas reductions once program details are finalized. The Plan also states that the Ministry is committed to reporting regularly on progress, developing key indicators and reviewing the Plan every four years.

At the time of our 2019 audit, we learned that Ministry staff were preparing advice to government on how to meet the Ministry's reporting obligations, including options for releasing an annual, public-facing web report on progress on Plan initiatives, statistics on outcomes achieved to date, and a focus on the social and economic benefits of initiatives; and a more detailed, web-based update with quantitative results, modelling and analysis of progress toward targets, and timing and performance metrics.

We were told that Ministry staff planned to consult with partner ministries to develop specific performance metrics and align them with best practices. Our audit found that it is a best practice in other jurisdictions to provide timely and useful information about progress in specific sectors to complement regular economy-wide reporting.

In our follow-up, we found that the Ministry had not drafted or implemented performance metrics that cover all key sectors, and had not met or consulted with partner ministries on their development. The Ministry indicated that it is yet to finalize its approach to public reporting, monitoring and evaluating progress against the commitments in the Plan. While the Ministry released public updates in 2019 and 2020 on the Plan (and its climate change plan), outlining steps taken and next steps, these updates do not report on: performance metrics; the outcomes of initiatives undertaken to reduce emissions; the status of Ontario's greenhouse gas emissions; or cumulative progress made since the release of the Plan towards meeting the 2030 target.



Office of the Auditor General of Ontario

20 Dundas Street West, Suite 1530
Toronto, Ontario
M5G 2C2
www.auditor.on.ca

ISSN 1911-7078 (Online)
ISBN 978-1-4868-5563-6
(PDF, 2021 ed.)

Cover photograph credits:
© iStockphoto.com/Alex Potemkin