

TABLE OF CONTENTS

Executive Summary	3-5
Introduction	6
SECTION 1: SLASH & BURN	6
1A: Cap-And-Trade Cancellation	7-9
1B: Renewable Energy Projects	10
1C: Green Energy Act	11
SECTION 2: MIRAGE	12
2A: Ontario's New Climate 'Plan'	12
2B: Ontario's Biggest Environmental Plan Failures	13
2C: Ontario's Climate Accomplishments	14-16
SECTION 3: ONTARIO'S EMISSIONS TRAJECTORY	17-18
SECTION 4: Bending the curve	19
Conclusion	20
References	21-24

Researched and Written by Keith Brooks With Additional Research by Dave Sawyer With Contributions by Allen Braude, Sarah Buchanan and Lana Goldberg Designed by Janelle Falconer, Hello Dear Design & Co.

This report is by Environmental Defence.

ENVIRONMENTAL DEFENCE is a leading Canadian environmental advocacy organization that works with government, industry and individuals to defend clean water, a safe climate and healthy communities.

This report was generously funded by The Atmospheric Fund.

© Copyright May 2022. Permission is granted to the public to reproduce or disseminate this report, in part, or in whole, free of charge, in any format or medium without requiring specific permission. Any errors or omissions are the responsibility of Environmental Defence.



Executive Summary

Over the course of the last four years, Ontario has gone from being one of the leading provinces taking action on climate change to becoming a climate pretender. While the provincial government has, on occasion, spoken about the need to fight climate change, it has offered inadequate solutions that it has failed to support with evidence, followed by little action to actually tackle the province's greenhouse gas emissions – the second highest in Canada.

Despite recent claims, Ontario is not on track to reach its 2030 greenhouse gas emissions reduction target - a target that is far too weak, and does not reflect serious climate action.

Ontario's recent track record on climate action is extremely worrisome. Shortly after winning the 2018 election, the government dismantled the cap-and-trade program – and the many emissions reduction programs funded by its revenue – so swiftly that it flouted due process and broke the law, and has been sued for damages by companies ranging from Tesla to Koch Industries.

In doing so, Ontario blew a multi-billion dollar hole in its budget, and missed out on billions more revenue that Ontario could have directed to climate solutions, or other policy priorities. Ontario's ill-conceived attack on the federal carbon pricing law cost taxpayers millions, and a similarly hasty cancellation of hundreds of green energy contracts cost hundreds of millions more.

SUMMARY OF SELECT FINANCIAL COSTS ASSOCIATED WITH ONTARIO'S ATTACK ON CLIMATE POLICY

Budget impacts of cancelling cap and trade	3.0 B
Lost revenue 2018-2022	7.2 B
Money spent fighting the federal carbon price	30 M
Compensation paid to cap-and-trade participants	5.09 M
Cost of green energy contract cancellations	230 M
Damages sought in suit from Koch Industries	30 M

The financial costs were punishment enough, but Ontario added obfuscation to this list of attacks on climate action. With a deadline looming regarding the federal carbon pricing system for industrial emitters, the province published its own climate plan in 2018 to argue that Ontario would address climate change without using emissions pricing. It was not a serious document.

The province's Auditor General (AG), among others, criticized Ontario's plan, stating that the measures in the plan were "not yet supported by sound evidence." The AG's report also revealed that the Minister of Environment, Conservation and Parks presented inflated emissions reduction estimates that counted the impact of policies not actually included in the plan.

Today, most of the policies in the Made-In-Ontario Environment Plan have not been implemented. There has been no increase in natural gas conservation, very little done to support the uptake of zero emission vehicles, and no movement on the Ontario Carbon Trust. These three measures were supposed to deliver 39 per cent of Ontario's emissions reductions.

Only two measures in the plan have actually been implemented: an increase in the renewable content in fuels, now estimated to deliver just 1.2 megatonnes (MT) of emissions reductions (far less than the 3.4 MT originally projected); and the Emissions Performance Standards (EPS), which are necessary if Ontario wishes for its industrial program to stand in lieu of the federal government's industrial carbon pricing system. The EPS has just come into effect in 2022, but the details are unclear, meaning the impact of the policy cannot be accurately assessed, and it cannot reasonably be said to have led to any emissions reductions to date.

Ontario has made some recent moves toward a low-carbon economy. In league with the federal government, the province is investing in retooling automotive manufacturing plants to build electric vehicles. Ontario is also investing in public transit, which it now projects will reduce emissions by 0.58 MT by 2030. The most substantial initiative is one to shift Ontario's steel producers to phase out coal in their operations. And Ontario is also developing a hydrogen strategy, though the province hasn't offered any estimates of the greenhouse gas implications of this effort.

However, despite new modelling released from the provincial government in April 2022, Ontario is not on track to meet its greenhouse gas emissions reduction target. Ontario's new forecast is scant on details and lacking in transparency, and many elements of that plan have not been developed with sufficient detail to enable anyone to assess their potential effectiveness, should they actually be enacted. And whether or not these measures will be enacted is an open question, judging from the lack of follow through on Ontario's 2018 environment plan.

In fact, based on climate policies that have actually been legislated, it's estimated that Ontario will miss its target by 16 megatonnes.

Analysis done for Environmental Defence projects that, based on current legislated policies, Ontario's emissions in 2030 will be 160 MT, essentially unchanged from 2019, 16 MT higher than the province's stated target. Further, Ontario's target to reduce greenhouse gas emissions by 30 per cent by 2030 from 2005 levels is weaker than the previous government's target, weaker than the federal target, weaker than what would be considered the province's fair share under the Paris agreement, and inconsistent with a net-zero emissions pathway. Even if Ontario had a credible plan to reach its target, that would not be indicative of a government doing its part on climate change.

Meanwhile, Ontario's grid manager, the Independent Electricity System Operator (IESO), is misleading the public concerning the viability of phasing out gas powered electricity. The Ontario Energy Board is allowing rate payers to subsidize new natural gas connections for existing homes, building out new fossil fuel infrastructure, when cleaner technology such as heat pumps are less expensive. And Ontario has made no improvements to the building code and is not on track to have a net-zero-ready code for 2030.

The Ontario government continues to promote weak, flawed climate policies that distract from its lack of meaningful action. For example, the province is touting a voluntary program to allow Ontarians to pay a premium for renewable natural gas, even though that program will do next to nothing to reduce emissions. The province also trumpeted new measures to permit the sale of the environmental attributes of renewable power projects - though selling those attributes would mean that another entity would be able to count them (and therefore would not count as part of Ontario's reductions).

And the government even claims that building new highways will reduce carbon pollution by reducing congestion and idling, when all evidence shows that building highways increases the number of vehicles on the roads, which means increased emissions, while doing nearly nothing to ease gridlock.

Ontario's claim that it is on track to sufficiently reduce greenhouse gas emissions is misleading. It is also dangerous because it obscures the need for more action that the province must urgently take.

Ontario can meet this urgent need for climate action as it has ample capacity to reduce emissions. If the government is serious about doing it's part to fight climate change, it would:

- Adopt a stronger greenhouse gas emissions reduction target of 60 per cent below 2005 levels by 2030.
- Finalize the EPS and make it more stringent to ratchet down emissions from industry.
- Cancel plans to build new highways, commit to expand public transit, and support EV purchases in Ontario with incentives and a Zero Emissions Vehicle (ZEV) mandate.
- 4 Adopt a net-zero building code with home efficiency programs to integrate with federal funding.
- Phase out fossil gas for electricity and procure more renewable energy.

Introduction

Ontario is moving backwards on fighting climate change. This report details how, since 2018, the government of Ontario dismantled climate change policy without putting anything serious in its place. It missed out on billions in revenues and is being sued for millions in damages. Yet, the provincial government continues to claim it is taking action and that it's on track to reach its greenhouse gas emissions reduction target when it is not. And even if it were on track, that would not reflect serious climate action because Ontario's current emissions reduction target is far too weak. This, while the world's scientists forecast's grow increasingly dire and the need for urgent actions become clearer than ever.

Ontario has the potential to reduce emissions and lead Canada in the race to a net-zero future. But the province will have to make some significant changes in order for its potential to be realized.

SECTION 1

Slash & Burn

A summary of cancelled climate action policies and programs

The current Ontario government campaigned on the promise to kill the "cap-and-trade carbon tax." It was a promise that the government delivered on swiftly. But Ontarians have paid the cost, both financially and environmentally, for the province's hasty actions to scrap climate programs in 2018. Slashing and burning cap-and-trade, and all of the climate programs it funded, left Ontario with a multi-billion-dollar budget hole, hundreds of millions in contract cancellation costs, and rising greenhouse gas emissions after years of decline.

Four years later, Ontario has no credible climate change plans or programs and uses a federal carbon pricing system which provides no revenue to the provincial government, because it opted not to implement its own system. The 2018 cancellations were a waste of public resources and a setback for climate action in Ontario and Canada.

Here are some of the major programs undone:

Cap-And-Trade Renewable Energy Projects Green Energy Act

1A: CAP-AND-TRADE CANCELLATION

The province illegally cancelled cap-and-trade in July 2018, just weeks after taking power. This was done with a hastily written regulation to immediately revoke cap-and-trade and freeze all accounts for auction buyers and sellers. This included Enbridge and other big fossil fuel distributors who were required by law to participate.

This move caused massive confusion among industry³ and lawsuits from participants who were left scrambling when their accounts were frozen. Many participants never recovered their investments. Multiple legal actions have been filed due to the cancellation including one from global giant Koch Industries.⁴

It was months later that the *Cap and Trade Cancellation Act* officially passed through the legislature, long after the system and its many programs had ground to a halt.

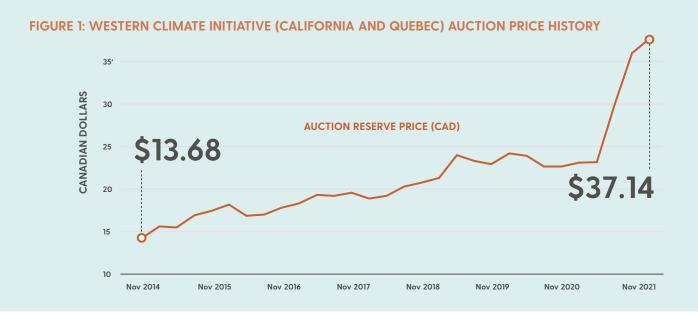
An Ontario divisional court later ruled that neglecting to follow the consultation process set out in the Environmental Bill of Rights was unlawful.⁵ The court did not, however, force the province to reinstate the cap-and-trade program.

Cap-and-trade: lost revenue

The biggest immediate impact of cancellation was a significant loss of government revenue. In 2017 alone, cap-and-trade auctions brought in \$1.9 billion from polluters buying permits to emit carbon.⁶ Every cent of this revenue was set aside for programs to cut greenhouse gas emissions, like the GreenON programs incentivizing homeowners to switch to cleaner heating and cooling systems. Section 2 of this report contains more details on cancelled programs.

If Ontario had kept cap-and-trade, the province would have hauled in an estimated \$7.2 billion in cap-and-trade revenues for the four-year period from 2018-2019 to 2021-2022, according to the province's Financial Accountability Officer (FAO).⁷

However, the true amount of lost revenue will likely be much higher. The price of carbon allowances under the Western Climate Initiative (WCI), which Ontario was part of, has already risen higher than the FAO's estimate of \$23.9/tonne by 2022, with 2021 auctions fetching an average price of \$27.50 through 4 auctions.⁸



Of course, scrapping cap-and-trade in Ontario didn't get rid of carbon pricing in the province, due to the federal backstop that took its place. In fact, cancelling cap-and-trade meant that Ontarians would pay a higher carbon price (\$50/tonne under the federal backstop in 2022 vs \$37/tonne in the most recent WCI auction) and that Ontario would not get the revenue from carbon pricing.

It's worth noting that while the cap-and-trade law required that every cent raised from cap-and-trade auctions had to be spent on emissions cutting programs, the new provincial government could have changed the law to allow the estimated \$7.2 billion to go to other budget lines or to be rebated to taxpayers. This could have funded billions of dollars in areas like health care, education, or public transit infrastructure, or be returned to Ontarians so the government could operate its own revenue-neutral program. This would have been less disruptive than switching to the federal price on carbon and it would have prevented a lengthy court battle.

In fact, the initial 2018 Ontario PC platform under Patrick Brown proposed a carbon levy which was projected to bring in \$4 billion in its first four years. These funds were earmarked for tax cuts, a mental health-care program and other expensive promises. But the levy was scrapped entirely when Premier Doug Ford became the party leader.

Cap-and-trade cancellation: a budget disaster

Ontario left a lot of money on the table when it walked away from cap-and-trade. But the province also paid billions for cancelling the program so abruptly in lawsuits, compensation costs, wind-down costs, and expensive legal battles.

In 2018, Ontario's Financial Accountability Officer (FAO) estimated that the province's annual budget balance would worsen by a total of \$3 billion over fiscal years 2018-19 through 2021-22 due to the cancellation of the cap-and-trade program.¹⁰

This \$3 billion budget hole factored in the savings from cancelled climate programs, as well as expected compensation costs the province would have to pay to cap-and-trade participants and costs to wind down programs. In addition to the \$3 billion hole, there have also been hundreds of millions of dollars in legal liabilities from breaking contracts, as revealed in government documents.¹¹

Cap-and-trade: lost programs

Without the significant revenues from cap-and-trade, Ontario quickly shuttered most of its new programs to fight climate change and cut greenhouse gas emissions.

An internal government list obtained by The National Observer in 2018 tallied 227 cancelled clean energy programs.¹² These included billions of dollars of planned upgrades to hospitals, schools, social housing, and many municipal projects. Ontario lost dozens of commuter cycling programs, retrofits to social housing, electric vehicle (EV) charging stations, and electric bus pilot projects, many of which had already gone through early planning stages. Ontario's abrupt cancellations blocked many municipalities from carrying out their own climate change plans by yanking promised funding for big projects. This will have knock-on impacts and delay climate action at the local level for many years to come.

Ontario also cancelled popular incentive programs to help individuals shift to cleaner technologies. GreenON, an incentive program that helped homeowners switch to clean energy, had been operating for less than a year before cancellation in summer 2018. The program offered rebates for insulation, energy efficient windows, smart appliances, and even up to \$20,000 for clean geothermal heating and cooling systems.

The province also scrapped rebates for electric vehicles (EVs) and charging stations. Ontario saw a corresponding 50 per cent drop in EV sales as a proportion of total new vehicle sales in 2019,¹³ the first full year the incentives were pulled. This made it nearly impossible for the province to meet its own promises for EV uptake in the new Environment Plan, which relied on the cancelled incentives. Tesla successfully sued Ontario for the abrupt and arbitrary cancellation process for electric vehicle rebates.¹⁴

FIGURE 2: PERCENTAGE OF NEW VEHICLE SALES THAT ARE ELECTRIC VEHICLES (EVS), BY PROVINCE

EVs include Battery Electric and Plug-In Hybrid vehicles. Source: Statistics Canada. Table 20-10-0024-01 New motor vehicle registrations N,B. 2021 data is for the first three sales quarters.

In 2016, British Columbia, Ontario and Quebec all had incentives to purchase EVs. Ontario cancelled its incentives for EVs in 2018. British Columbia and Quebec incentives continue to the present. Both provinces also have Zero Emissions Vehicle Sales Mandate, which also helps to drive EV sales.

Ontario also suspended the Industrial Conservation Initiative,¹⁵ a program to help industrial electricity consumers cut consumption at peak times when demand is highest (and most carbon-intensive). These programs and countless others were never replaced with an effective alternative climate plan. This stalled action to reduce greenhouse gas emissions for years to come.

Failed court challenges of federal carbon pricing laws

When Ontario cancelled its cap-and-trade system, it did so knowing that the federal government's carbon price would immediately kick in as per the federal backstop law.

This didn't stop the government from pursuing many costly attempts to block the federal carbon price in court. While the total cost to everyday Ontarians is unknown, we do know that Ontario initially budgeted \$30 million for the legal challenge. The province's efforts failed all the way up to the Supreme Court of Canada, where the court ruled that the federal government does have the authority to apply a minimum price on greenhouse gas emissions in provinces, like Ontario, that opted not to do so on their own.

An estimated \$4 million of this \$30 million was spent on attack ads aimed at the federal carbon price, 198 and approximately \$5,000 was spent to create 25,000 anti-carbon tax stickers the province ordered gas stations to display 19 (which led to more costly legal battles). These were clear political stunts carried out on the taxpayer's dime.

Although it was not a direct cost, the Ontario government lost an estimated \$420 million in federal funding for low carbon programs after cancelling cap-and-trade.²⁰

1B: RENEWABLE ENERGY PROJECTS

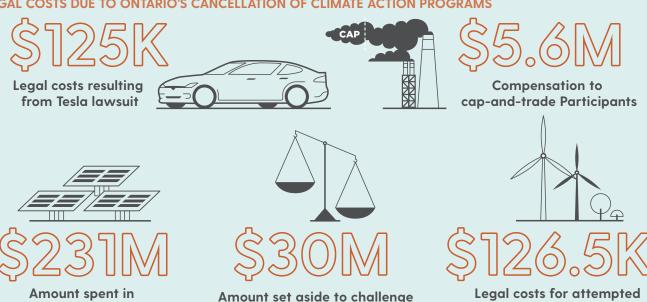
The incoming Ontario government's distaste for carbon pricing was matched only, perhaps, by its distaste for renewable energy.

Spun as a move to lower electricity costs, the province abruptly cancelled approximately 750 renewable energy projects in the summer of 2018. Documents later revealed that the cancellations cost taxpayers a whopping \$231 million (so far).21 These projects included large wind farms as well as small rooftop projects owned by schools, municipalities, and First Nations groups. In fact, First Nations had been participating in 216 of the 752 green energy projects that the government scrapped.²²

The first and largest cancelled project – the White Pines Wind Farm – was located in Cabinet Minister Todd Smith's riding. The turbines were already going into the ground when the new government rushed through a special piece of legislation called the White Pines Wind Project Termination Act in July 2018. This meant that substantial termination costs had to be paid to break the contract with the project developer, estimated at \$100 million.²³

The cancellations didn't stop there. Environment Minister Jeff Yurek later tried and failed to cancel the mostly-built Nation Rise Wind Farm, by claiming it would impact local bat populations (a claim refuted by bat specialists).²⁴ A court later ruled that his claims were not adequately supported by evidence and construction resumed. Once again, Ontario was forced to cover the cost of the initial cancellation.





TOTAL \$266,851,500

federal carbon pricing law

(including a \$4M anti carbon tax ad campaign) **Nation Rise Wind**

Farm cancellation

2018-2019 to cancel

750 green energy contracts

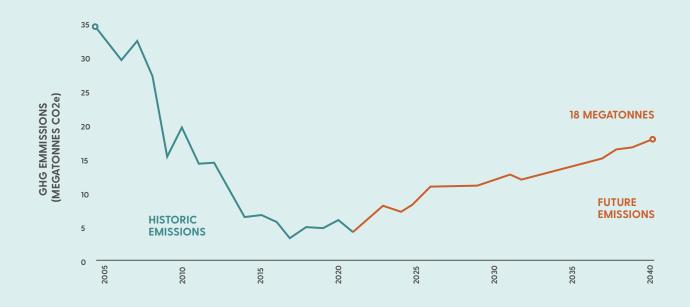
1C: GREEN ENERGY ACT

The new government cancelled the *Green Energy Act* in fall 2018. This was a largely symbolic act, since the contracts for most new clean energy projects had already been ripped up. But the cancellation bill made future clean energy projects more difficult to build, since they would first have to demonstrate the need for the electricity they generate before approval. The same rules would not apply to gas or nuclear projects.²⁵

Opposing new wind and solar projects provided a convenient scapegoat for Ontario's rising electricity costs, but actually made no financial sense at the time. In fact, Ontario cancelled the Act and dismantled hundreds of clean energy projects just as wind and solar were becoming the cheapest new sources of electricity in Canada.²⁶

Instead of working to decarbonize the province's electricity grid, Ontario's electricity system operator, the IESO, forecasts that electricity sector greenhouse gas emissions will nearly triple over the next decade, rising from 4 MTs in 2018 to 12 MTs in 2030,²⁷ an increase of 8 MTs.





The attack on green energy also provided at least some of the rationale for the IESO's recent questionable claim that phasing out all gas-fired electricity by 2030 isn't feasible and would lead to a supply shortfall.²⁸ Recent reports reveal that the government suppressed the publication of modelled scenarios that would have supported closing the carbon-intensive facilities. Furthermore, had Ontario not cancelled those renewable energy projects, and had the province continued to procure more clean power, Ontario would be in an even better position to completely phase out gas in a timely manner, as requested by more than 30 Ontario municipalities.

SECTION 2

Mirage

The made-up-in-Ontario Environment Plan

2A: ONTARIO'S NEW CLIMATE 'PLAN'

Ontario's new provincial government promised to fight climate change without a carbon price in 2018. But how? Their first actions after inauguration were to destroy the programs in place to fight climate change, with no new initiatives to replace them.

In fall 2018, Ontario released the Made-In-Ontario Environment Plan. This was hot on the heels of the IPCC's stunning 2018 report outlining the consequences of climate inaction. Instead of responding to this report by scaling up ambition, Ontario weakened its 2030 greenhouse emissions reduction target when compared with the previous government's target and presented a superficial and unsubstantiated vision for how the province would meet this new, weakened target.

The plan had major flaws, including back-of-the-napkin calculations that didn't hold up to scrutiny. For example, "Innovation" was tasked with achieving 15 percent of Ontario's emission reductions.²⁹ There was no clear explanation of how "innovation" would happen, and the category appeared to include no government actions.

Also missing from the plan were any significant actions to cut emissions from transportation, the biggest source of greenhouse gas emissions in Ontario. Although the "Low Carbon Vehicles" category projected rising EV ownership in Ontario, the plan failed to consider the impacts of cancelling EV purchase incentives. EV sales in fact fell drastically in the year after cancellation. (see Figure 2, page 9)

Auditor General's critique

In 2019, Ontario's Auditor General (AG) concluded that "the Ministry's projected emissions forecast for 2030, and the estimated emissions reductions for all eight areas, are not yet supported by sound evidence." The AG's office carried out their own more thorough modelling which showed that the Made-In-Ontario Environment Plan would fall well short of Ontario's new weaker target to cut greenhouse gas emissions, even if all promised actions in the plan were implemented.³⁰

The AG's report also revealed that the Minister of Environment, Conservation and Parks presented inflated emissions reduction estimates in the final plan. The calculations included in the final environment plan were presented by Ministry staff as part of an "Extended Policy Case" which required enhanced policies beyond the final plan. This bait and switch meant a drastic overstatement of the impact of Ontario's new climate action plan.

The province acknowledged the AG's scathing report and pledged to update and improve the plan in line with their suggestions. But only 27 per cent of actions recommended in the AG's 2019 analysis to improve the climate change plan had been fully implemented at the time of her 2021 assessment.³²

Ontario argued that its environment plan was a draft that would be finalized, though a final version was never posted. Rather, the link to Ontario's Environment Plan on the government's website goes to a page that does not link to the 2018 plan.³³ According to the Auditor General's 2021 report, "The Ministry does not have an expected timeframe for presenting an updated climate change plan to Cabinet for approval."³⁴

In early April of 2022, Ontario posted new modelling forecasting how the province would meet its target.³⁵ This modelling bears little resemblance to the modelling presented in the government's 2018 plan. It has also not been substantiated (more on that below).

2B: ONTARIO'S BIGGEST ENVIRONMENTAL PLAN FAILURES

Some of Ontario's Environment Plan's promised actions could have reduced greenhouse gas emissions. However, most have yet to be implemented. Some of the most impactful broken promises are detailed in this section.

Failure to expand programs to reduce fossil ('natural') gas use

The biggest slice of Ontario's promised emissions reductions was supposed to come from expanding programs to reduce fossil or 'natural' gas use.

This makes good sense; burning fossil gas creates about 30 per cent of Ontario's carbon emissions.³⁶ It's also one of the cheapest and most effective areas to reduce emissions, with tried-and-true programs to help people and businesses reduce energy consumption and save on energy costs. Research shows that every dollar invested in energy efficiency programs generates much more than \$1 in avoided energy costs.³⁷

The commitment to greater gas conservation was the one measure in Ontario's plan that the Auditor General said had merit.³⁸ But Ontario backed away from this promise entirely in 2020. A letter from Energy Minister Greg Rickford to the Ontario Energy Board (OEB) in November clarified that the OEB should not implement natural gas conservation (DSM) programs in line with the promised 18 per cent share of Ontario's emissions reductions as per Ontario's Environment Plan.³⁹ The letter stated that "the plan includes an estimate of the potential for actions related to natural gas conservation...[but]... this estimate is not intended to be a prescriptive target that the OEB would be required to facilitate..." Or, put another way, the letter said the OEB should not interpret the Environment Plan's target as a target.

While the original Made-in-Ontario plan forecast gas conservation to deliver about 3.5 MT in emissions reductions, Ontario's new modelling forecasts just 0.03 MT in reductions from gas conservation.⁴⁰

A 2021 analysis from Environmental Defence estimated that there is a cost-effective pathway to reducing Ontario's reliance on fossil gas by at least 30 per cent by 2030 in order to achieve its overall 2030 target.⁴¹ Efficiency programs are the best and cheapest way to get there, since they lower energy costs and greenhouse gas emissions at the same time.

Failure to launch a promised \$400 million emission reduction fund

The environment plan stated that "Ontario will commit to ensuring funding of \$400 million over four years... The Ontario Carbon Trust should be able to leverage over \$400 million to unlock over \$1 billion of private capital."

The Ontario Carbon Trust is nowhere to be seen. An email from Ministry staff in 2020 confirmed that the \$400 million was never allocated and there is no evidence of any programs or spending related to that fund to date.⁴³

Former Environment Minister Rod Phillips had also promised in 2018 to spend the cap-and-trade revenues remaining in government coffers, estimated at that time to be close to \$1 billion, on emissions cutting programs, stating that "the money will be used for the purpose it was collected." However, there is no evidence that any of these monies were spent on climate-related initiatives. 45

Failure to establish programs to immediately help Ontarians shift away from gas-powered vehicles

Transportation consistently ranks as the top source of greenhouse gas emissions in Ontario, but Ontario has launched no new programs to demonstrably help Ontarians shift to low emissions vehicles. Recently the province has supported automakers in retooling and reinvesting in their facilities to ensure that electric vehicles are built in Ontario. The government is also interested in a mining and minerals strategy that would encourage the mining of raw materials needed for EVs to be sourced from this province. How But, aside from a small commitment of money to support EV charging, Here are still no policies or programs in place in Ontario that will help achieve the projected 15 per cent of Ontario's emissions reductions from EV uptake by 2030.

The federal government is now committed to implementing a Zero Emissions Vehicle mandate for Canada that would require a rising share of vehicles sold be electric, but it's unclear how that mandate will be applied in Ontario, or whether the mandate will require an equal share of EVs be sold in each province. As it stands today, while Ontario may be a future home of EV manufacturing, no measures are being taken to ensure that Ontarians will have access to, or be able to afford to, buy EVs.

2C: ONTARIO'S CLIMATE ACCOMPLISHMENTS

Ontario has almost completely ignored its environment plan. Except for creating industry performance standards and increasing the renewable content in gasoline, essentially none of the measures that were intended to reduce greenhouse gas emissions have been acted on.

Further, the details of the Emissions Performance Standard (EPS) (the industrial standards mentioned above), have still not been finalised. The EPS itself is required by federal law (the law Ontario challenged at the Supreme Court) if Ontario wants to run its own program in lieu of the federal Output Based Pricing System (OBPS). That is to say that, in the absence of a federal obligation, the EPS would likely result in little in the way of emissions reductions.

TABLE 1 - LARGE EMITTERS AVERAGE COSTS FEDERAL OBPS

	COVERED GHGs (kt)	REVENUE (\$M)	AVERAGE
Electricity	4,400	\$17.00	\$3.90
Large Emitters	34,700	\$68.30	\$1.97

Even the OBPS is not a very stringent measure at present. So far, the federal OBPS has largely sheltered industrial emitters from carbon pricing. Electricity generators have paid just \$3.90 per tonne of CO2 emitted and large emitters (e.g. Cement, Steel) have paid just \$1.97 per tonne while individuals are now paying \$50 per tonne of CO2.

And, Ontario's commitment to increase the renewable content in fuels is estimated to reduce emissions by just 1.2 MT,⁴⁸ which is less than originally promised and may actually be redundant with the forthcoming Federal Clean Fuel Standard.

Ontario also launched a voluntary "opt-in" Renewable Natural Gas program. Estimates from Ontario's own Ministry staff claim this program will have almost no emissions impact (0.0049 Mt in 2030).⁴⁹

But Ontario did move forward with some measures that are climate friendly.

1

Invested in EV manufacturing

Ontario has worked alongside the federal government, unions, and automakers to invest in retooling auto plants to build EVs. This includes a commitment to fund almost \$300 million towards Ford's Oakville auto manufacturing complex⁵⁰ alongside a goal to produce 400,000 electric and hybrid cars by 2030.⁵¹

However, it's important to point out that Ontario currently produces about 2 million vehicles total per year,⁵² but if Ontario only makes 400,000 EVs, that would mean only 20 per cent of made-in-Ontario vehicles would be electric by 2030. This is far below the federal target of EVs making up 50 per cent of vehicle sales by 2030.

Investments in EV manufacturing signals a willingness to invest in electrification and the jobs that will come along with it, but will not reduce transportation emissions in the near future.⁵³

Public Transit investments

Ontario has been investing in public transit with a focus on the Ontario Line. Ontario is also proceeding with the electrification of the GO Rail network.⁵⁴ Despite capital investments in large public transit projects, poor land use planning means there will likely be a minimal decrease in emissions from public transit.⁵⁵ Indeed, Ontario's modelling estimates that transit projects will reduce emissions by less than 1 MT by 2030.⁵⁶ Meanwhile, building new 400-series highways like Highway 413 and the Bradford Bypass will increase vehicle traffic and pollution, potentially offsetting the environmental benefits of new public transit.⁵⁷

2 Low Carbon Steel

In early 2022 Ontario announced up to \$500 million in loan and grant support to help shift ArcelorMittal Dofasco's Hamilton plant⁵⁸ from polluting metallurgical coal to low carbon steel production using electricity. This would cut an estimated 3 MT of emissions per year. This Ontario's loan and grant to AcelorMittal Dofasco followed a federal government investment of up to \$420 million to support Algoma Steel doing the same.⁵⁹ Ontario does not appear to have invested in the Algoma project, though the province is counting it toward its emissions reductions. Recent modelling from Ontario projects a total of 5.1 MT of reductions from the two projects.⁶⁰

4 Hydrogen

In April of 2022, Ontario released a Low-Carbon Hydrogen Strategy. The strategy lists reducing carbon emissions as one of its objectives, but the document doesn't include an estimate or target for reducing emissions. The most concrete element of the strategy is a proposal to launch a green hydrogen production pilot program in Niagara Falls. The strategy also references the province's support for low-carbon steel and "hydrogen-ready" industrial equipment.⁶¹

Ontario's Emissions Trajectory

Province not on track to reach its target

There have been new estimates and information about Ontario's trajectory on emissions recently. In April, Canada released a new Emissions Reduction Plan that forecast that in 2030 Ontario will emit 36 per cent less carbon pollution than the province released in 2005, which would exceed Ontario's target of reducing emissions by 30 per cent from 2005 levels.⁶²

Later in April, Ontario released new modelling showing how the province will reach its 2030 target, attributing the bulk of emission reductions to Ontario's Emissions Performance Standard and renewable content in fuels. The chart also shows a significant reduction in emissions from the implementation of electric arc furnaces at the steel mills in Sault Ste Marie and Hamilton, as referenced above.⁶³

Finally, Canada's emissions inventory was released on April 14, 2022, which showed that greenhouse gas emissions in Ontario dropped by nearly 16 megatonnes or almost 10 per cent in 2020 as compared with 2019.⁶⁴

All three of these pieces of information present a relatively rosy picture of emissions for the province, but there are some important details that need to be factored in: First, both of the projections model policies that are not yet in law, and include reductions from policies that have not even been drafted such as the Clean Electricity Standard and Ontario's updated Emissions Performance Standard. Second, Canada's modelling makes a number of assumptions about emissions in provinces (including Ontario) that may or may not come to pass. For example, it states that it assumes a net-zero building code is in effect, though Ontario has not drafted nor stated a commitment to adopt a net-zero code.

The assumptions behind Ontario's new modelling are not disclosed and the data has not been made public. Environmental Defence requested additional information about the data behind Ontatio's newest modelling. A table breaking down the projected impact of the key measures was shared by email, though the province's table combined the impact of the EPS and Renewable Content in Gasoline (see table 2), obscuring the projected impacts of each policy. It's also worth noting that Ontario's new modelling bears slim resemblance to the modelling in the 2018 "Made-in-Ontario" Environment Plan. Further, Ontario's new modelling should be viewed skeptically, given how poorly supported and far from reality the modelling presented in 2018 turned out to be.

TABLE 2 - ONTARIO EMISSIONS REDUCTION MODELLING, 2022

Business as Usual Emissions – 2030 (Mt CO2e)	155.7
Initiative	Projected reductions in 2030 (Mt CO2e)
Emissions Performance Standards and Gasoline Renewable Content	5.35
Supporting Industrial Coal Phase Out	5.10
Transit Initiatives	0.58
Natural Gas Conservation	0.03
Waste Diversion	0.97

With respect to the 2020 greenhouse gas emissions reported in Canada's inventory, most if not all of the decrease can be attributed to the COVID-19 pandemic. A full two thirds of the reductions are from the transportation sector (10.6 MT of 15.9 MT) and is a clear reflection of the multiple "stay at home" orders issued by the province in 2020. The second largest reduction was in "Iron and Steel," which is also a result of depressed demand for steel during the pandemic.

Given that there were no new policies put in place in 2020 (or since 2018 really) in Ontario that could be expected to reduce emissions, it's reasonable to assume that Ontario's carbon emissions will rebound as the province emerges from the pandemic.

In fact, analysis done for Environmental Defence projects that when accounting for current legislated policies, Ontario will emit 160 megatonnes of GHG emissions in 2030, essentially no change from 2019.



FIGURE 4: ONTARIO GREENHOUSE GAS EMISSIONS AND EMISSIONS REDUCTION TARGETS, 1990-2030

That said, it's possible that Ontario will reach the target of 30 per cent below 2005 levels, but if that happens it will be largely a result of federal measures: the Emissions Performance Standard (the stringency of which is determined by the federal government), as well as carbon pricing, the clean fuel standard, clean electricity standard (which are all federal policies), and other federal policy.

Importantly, as Figure 4 shows, even hitting Ontario's target would not be a sign that the province takes climate change seriously. The current government's target is weaker than the previous government's target by 30 MT, it's weaker than the federal target, and weaker than what would be Ontario's fair share to limit warming to 1.5 degrees per the Paris Agreement.

Bending the curve

A prescription for reducing emissions

If Ontario wishes to do its part to fight climate change, here are the top priorities the province needs to pursue:

Adopt a stronger emissions reduction target

Ontario's current greenhouse gas emissions reduction target is weaker than the federal target, and weaker than what would be considered as the province's fair share as part of the Paris Accord. Although Ontario is not a signatory to the agreement, the province has a responsibility to do its part rather than acting as a drag on climate ambition nationally. The Ontario government should adopt a target of reducing emissions by 60 per cent from 2005 levels by 2030 and commit to getting to net-zero emissions by 2050.

Finalize the EPS and make it more stringent

Ontario intends to keep its Emissions Performance Standard in place out to 2030 which is likely preferable to moving industrial emitters back to the OBPS or onto yet another pricing mechanism (this is the third program for industrial emitters in Ontario due to Ontario's desire to have its own program, following the cancelation of cap-and-trade). The province will need to ensure that its program is at least as stringent as the federal program, which is supposed to tighten at a rate of 2 per cent per year, according to the federal government. But given the weak price signal sent by the federal program (as illustrated in Table 2), Ontario should aim for a more stringent industrial pricing system to drive emissions reductions from industry.

Cancel highways, commit to public transit, and support EV purchase in Ontario with incentives and a Zero Emissions Vehicle (ZEV) Mandate

Transportation is the largest source of emissions in Ontario. A holistic approach will be essential to driving down emissions from this sector, which includes shifting more people to public transit and active transit, cancelling plans to build new mega highways, and ensuring that Ontario's vehicle fleet is being electrified at a rate that matches or exceeds the national ambition. The two clearest ways to support this is to put in place purchase incentives for EVs and to develop a ZEV Mandate for Ontario, to ensure there is adequate support of EVs for Ontarians who wish to purchase one.



Net-zero building code with home efficiency programs to integrate with the federal funding

Ontario is in the process of updating its building code, though the province has not signalled an intention to make any improvements with respect to energy efficiency or lowering the carbon emissions associated with the building stock. In fact, the code that Ontario is developing presently may well still be in effect in 2029, though Canada is aiming for a net-zero code by 2030. It will be a giant leap to go from 2014's standards to net-zero in one year. Further, Ontario is lacking in programs to encourage energy retrofits for residential and commercial/industrial buildings. It will be critical to dramatically increase energy efficiency and transition as many buildings as possible to electric heat over the next decade.

5

Phase out gas power and commit to more renewable energy

Over 30 municipalities have called on the province to phase out gas for electricity production, rather than ramp up gas in the decades to come. We now know that there are viable pathways to doing this in a manner that saves consumers money. One of the most essential solutions to climate change is to electrify large parts of the economy – transportation, space heating, and industrial processes – but that strategy hinges on having a low- or no-carbon electricity grid.

Conclusion

The government ran on a promise to undo elements of Ontario's climate policy, and delivered on that promise, which has cost millions of dollars and set us back, during this crucial decade for climate action.

The province has opted to play pretend with climate offered up poorly supported plans, charts and graphs with no publicly available analysis or modelling to support them, while suppressing vital information about the real costs of decarbonization and touting weak measures like voluntary renewable natural gas that will have a negligible impact.

It's time to stop playing pretend and to address the climate crisis with the urgency it demands. Time is running out if the world hopes to limit warming to 1.5 degrees and Ontario has a role to play in keeping this ambition alive. Ontario has ample capacity to reduce its emissions and regain the province's position among Canada's climate leaders. Doing so would also help improve our national ambition to reduce greenhouse gas emissions and ensure that Canada, too, does its part.

- Government of Ontario, O. Reg. 386/18: PROHIBITION AGAINST THE PURCHASE, SALE AND OTHER DEALINGS WITH EMISSION ALLOWANCES AND CREDITS, July 3 2018, https://www.ontario.ca/laws/regulation/r18386.
- ² Environmental Commissioner of Ontario, Introduction to Cap and Trade in Ontario, Appendix A to the ECO's Greenhouse Gas Progress Report 2016, https://www.auditor.on.ca/en/content/reporttopics/envother/env16_other/Appendix-A-Introduction-to-Cap-and-Trade-in-Ontario.pdf.
- Bennett Jones, "The Elimination of Ontario's Cap and Trade Program", (blog), July 31, 2018, https://www.bennettjones.com/Blogs-Section/The-Elimination-of-Ontarios-CapandTrade-Program.
- Fatima Syed, "Doug Ford vowed savings from cancelling cap-and-trade. Now, Ontario faces two lawsuits," The Narwhal, Jan 24, 2022, https://thenarwhal.ca/ontario-cap-trade-lawsuits/.
- Nick Boisvert, "Doug Ford government broke the law when it scrapped cap-and-trade, court rules," CBC, Oct 11, 2019, https://www.cbc.ca/news/canada/toronto/ontario-cap-and-trade-ruling-1.5317611.
- Allison Jones, "Final cap-and-trade auction brings 2017 revenue to \$1.9B," CTV News, Dec 6, 2017, https://kitchener.ctvnews.ca/final-cap-and-trade-auction-brings-2017-revenue-to-1-9b-1.3710293
- Financial Accountability Office of Ontario, Cap and Trade: A Financial Review of the Decision to Cancel the Cap and Trade Program, Oct 16, 2018, https://www.fao-on.org/en/Blog/Publications/cap-andtrade-ending.
- Ministère de l'Environnement et de la Lutte contre les changements climatiques, Feb 24, 2022, Québec and California Current Auction Price History (CAD), https://www.environnement.gouv.qc.ca/changements/carbone/ventes-encheres/historique-prix-encheres-WCI-en.pdf.
- Ontario PC Party. People's Guarantee | Change that works for Ontario, 2017 https://d3n8a8pro7vhmx.cloudfront.net/themes/58386dc76ad5754297000000/attachments/original/1513353728/People's_Guarantee.pdf?1513353728
- Financial Accountability Office of Ontario, Cap and Trade: A Financial Review of the Decision to Cancel the Cap and Trade Program, Oct 16, 2018, https://www.fao-on.org/en/Blog/Publications/cap-andtrade-ending.
- The Canadian Press, "Doug Ford 'proud' of tearing up hundreds of green energy projects," CBC, Nov 21, 2019, https://www.cbc.ca/news/canada/toronto/ford-proud-cancel-green-energy-1.5368745.
- Fatima Syed "EXCLUSIVE: Doug Ford didn't tell you Ontario cancelled 227 clean energy projects," National Observer, July 9, 2019, https://www.nationalobserver.com/2019/07/09/news/exclusive-doug-ford-didnt-tell-you-ontario-cancelled-227-clean-energy-projects.
- Statistics Canada. Table 20-10-0024-01 New motor vehicle registrations, quarterly. https://www150.statcan.gc.ca/n1/pub/71-607-x/2021019-eng.htm.
- Haley Salvian, "Tesla wins case against Ontario government over electric vehicle rebates," CBC, Aug 27, 2018, https://www.cbc.ca/news/canada/toronto/tesla-motors-canada-ontario-government-electric-vehicles-1.4801295.
- Sussex Strategy, "Ontario Announces Immediate Changes to Industrial Conservation Initiative in Response to COVID-19 Pandemic," (blog), June 26, 2020, https://www.sussex-strategy.com/posts/ontario-announcesimmediate-changes-to-industrial-conservation-initiative-in-response-to-covid-19-pandemic.
- Paola Loriggio, "Ontario government to challenge federal carbon tax plan in court," Global News, Aug 2, 2018, https://globalnews.ca/news/4367217/ontario-carbon-tax-court-challenge/.
- Supreme Court of Canada, References re Greenhouse Gas Pollution Pricing Act, March 25, 2021, https://www.scc-csc.ca/case-dossier/cb/2021/38663-38781-39116-eng.aspx.
- Colin D'Mello, "Ford government spent \$4 million on anti-carbon tax ads," CTV News, Dec 4, 2019, https://toronto.ctvnews.ca/ford-government-spent-4-million-on-anti-carbon-tax-ads-1.4714925.
- The Canadian Press, "Anti-carbon tax stickers will cost Ontario government at least \$5K," CBC, Apr 18, 2019, https://www.cbc.ca/news/canada/toronto/gas-pump-sticker-cost-1.5104137.

- ²⁰ Canadian Press, "Federal government to give \$420M climate fund directly to Ontario institutions, businesses," Global News, Nov 8, 2018, https://globalnews.ca/news/4643745/federal-government-climate-funds-ontario/.
- Shawn Jeffords, "Doug Ford's cancellation of green energy deals costs Ontario taxpayers \$231 million," Nov 20, 2019, The Financial Post, https://financialpost.com/commodities/energy/doug-fords-cancellation-of-green-energy-deals-costs-ontario-taxpayers-231m.
- ²² Charnel Anderson, "First Nations say they paid a heavy price when the Tories scrapped renewable-energy projects," TVO, Nov 20, 2018, https://www.tvo.org/article/first-nations-say-they-paid-a-heavy-price-when-the-tories-scrapped-renewable-energy-projects.
- Alexandra Mazur, "Ontario to compensate White Pines wind turbine developers for cancelled contract," Global News, July 8, 2019, https://globalnews.ca/news/5471632/ontario-white-pines-wind-turbine-cancelled/
- Shawn Jeffords, "Court quashes government cancellation of wind farm near Cornwall," CTV News, May 14, 2020, https://ottawa.ctvnews.ca/court-quashes-government-cancellation-of-wind-farm-near-cornwall-1.4939727.
- Environmental Defence, Comments on the Repeal of the Green Energy Act, Oct 2018, https://environmentaldefence.ca/wp-content/uploads/2019/06/Green-Energy-Act-Repeal-ED-Comments-for-ERO.pdf.
- Pamela Fieber, "The era of cheap wind and solar has arrived, U of C researchers find," Nov 18, 2020, https://www.cbc.ca/news/canada/calgary/era-of-cheap-wind-and-solar-has-arrived-says-university-calgary-researchers-1.5807219.
- ²⁷ IESO, Decarbonization and Ontario's Electricity Sector: Assessing the impacts of phasing out natural gas generation by 2030, Oct 2021, https://www.ieso.ca/en/Learn/Ontario-Supply-Mix/Natural-Gas-Phase-Out-Study.
- Matthew Mcclearn, "Documents raise questions about costs to retire Ontario's natural gas power plants," Globe and Mail, April 15, 2022. https://www.theglobeandmail.com/business/article-cost-to-retire-ontario-natural-gas-plants/
- Government of Ontario, Made-In-Ontario Environment Plan, Nov 2018, https://prod-environmental-registry. s3.amazonaws.com/2018-11/EnvironmentPlan.pdf.
- Auditor General of Ontario, 2019 Annual Report, Volume 2, Chapter 3—Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions, Summary, https://www.auditor.on.ca/en/content/news/19_ summaries/2019AR_summary_v2_3.00.pdf.
- Auditor General of Ontario, 2019 Annual Report, Vol2, Ch3, p.156 https://www.auditor.on.ca/en/content/annualreports/arreports/en19/v2_300en19.pdf.
- Auditor General of Ontario, Follow-up on Value-for-Money Audit: Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions, Nov 2021, https://www.auditor.on.ca/en/content/annualreports/arreports/en21/ENV_FU_ClimateChange_en21.pdf.
- Government of Ontario. A Made-in-Ontario Environment Plan. November 27, 2020. https://www.ontario.ca/page/made-in-ontario-environment-plan#section-5
- Auditor General of Ontario, Follow-up on Value-for-Money Audit: Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions, Nov 2021, https://www.auditor.on.ca/en/content/annualreports/arreports/en21/ENV_FU_ClimateChange_en21.pdf.
- Government of Ontario. Ontario Emissions Scenario as of March 25, 2022, https://prod-environmental-registry. s3.amazonaws.com/2022-04/Ontario%20Emissions%20Scenario%20as%20of%20March%2025_1.pdf
- Kent Elson, A Plan for Green Buildings, Jobs and Prosperity in Ontario, Sept 2021, https://environmentaldefence.ca/wp-content/uploads/2021/09/Fossil-Gas-Report-2021-sep-15-v_01.pdf.
- Kent Elson, A Plan for Green Buildings, Jobs and Prosperity in Ontario, Sept 2021, https://environmentaldefence.ca/wp-content/uploads/2021/09/Fossil-Gas-Report-2021-sep-15-v_01.pdf.
- Auditor General of Ontario, 2019 Annual Report, Volume 2, Chapter 3—Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions, Summary, https://www.auditor.on.ca/en/content/news/19_ summaries/2019AR_summary_

- v2_3.00.pdf.
- Ontario Ministry of Energy, Northern Development and Mines. Letter to Ms Susanna Zagar Chief Executive Officer, Ontario Energy Board. November 27, 2020.
- Per Ontario estimates obtained by private correspondance
- Kent Elson, A Plan for Green Buildings, Jobs and Prosperity in Ontario, Sept 2021, https://environmentaldefence.ca/wp-content/uploads/2021/09/Fossil-Gas-Report-2021-sep-15-v_01.pdf.
- Government of Ontario, Made-In-Ontario Environment Plan, Nov 2018, https://prod-environmental-registry.s3.amazonaws.com/2018-11/EnvironmentPlan.pdf.
- Environmental Defence, Yours to Recover: A Progress Report on Ontario's Climate Change Actions, Dec 2020, https://environmentaldefence.ca/wp-content/uploads/2020/12/YoursToRecover_OntarioClimateProgressReport_ EnvironmentalDefence_FINAL.pdf.
- Mike Crawley, "Ford government sitting on \$1B in cap-and-trade money," CBC, Oct 2, 2018, https://www.cbc.ca/news/canada/toronto/doug-ford-cap-and-trade-fund-revenue-1.4841483.
- Fatima Syed "EXCLUSIVE: Doug Ford didn't tell you Ontario cancelled 227 clean energy projects," National Observer, July 9, 2019, https://www.nationalobserver.com/2019/07/09/news/exclusive-doug-ford-didnt-tell-you-ontario-cancelled-227-clean-energy-projects.
- Government of Ontario "Ontario's Critical Minerals Strategy 2022–2027: Unlocking potential to drive economic recovery and prosperity." May 10, 2022. https://www.ontario.ca/page/ontarios-critical-minerals-strategy-2022-2027-unlocking-potential-drive-economic-recovery-prosperity
- Government of Ontario. "Ontario making it easier to access electric vehicle chargers". March 22, 2022. https://news. ontario.ca/en/release/1001827/ontario-making-it-easier-to-access-electric-vehicle-chargers
- Ontario Ministry of the Environment, Conservation and Parks. "Increasing renewable content in fuels." November 25, 2020. https://ero.ontario.ca/notice/013-4598#:~:text=Regulatory%20impact%20statement
- ⁴⁹ Auditor General of Ontario, Follow-up on Value-for-Money Audit: Climate Change: Ontario's Plan to Reduce Greenhouse Gas Emissions, Nov 2021, https://www.auditor.on.ca/en/content/annualreports/arreports/en21/ENV_FU_ClimateChange_en21.pdf.
- Unifor, "Unifor members ratify historic agreement with Ford Motor Company," Sept 28, 2020, https://www.unifor.org/en/whats-new/press-room/unifor-members-ratify-historic-agreement-ford-motor-company.
- Kate Bueckert, "Ontario to ramp up electric vehicle production, but no rebates on sales yet," CBC, Nov 17, 2021, https://www.cbc.ca/news/canada/kitchener-waterloo/ontario-electric-vehicle-production-premier-ford-guelph-1.6252255.
- Government of Ontario, Driving Prosperity: The Future of Ontario's Automotive Sector, 2019, https://files.ontario.ca/auto-strategy-en.pdf
- Kate Bueckert. "Ontario to ramp up electric vehicle production, but no rebates on sales yet." CBC News. Nov 17, 2021. https://www.cbc.ca/news/canada/kitchener-waterloo/ontario-electric-vehicle-production-premier-ford-quelph-1.6252255
- Government of Ontario. "Ontario moving forward with historic GO Rail expansion." April 19, 2022. https://news.ontario.ca/en/release/1002048/ontario-moving-forward-with-historic-go-rail-expansion
- ⁵⁵ Auditor General of Ontario, 2019 Annual Report, Vol2, Ch3, p.155, https://www.auditor.on.ca/en/content/ annualreports/arreports/en19/v2_300en19.pdf
- Ontario modelling per email communication, https://environmentaldefence.ca/report/paving-paradise/

- Government of Ontario, "Province Invests in Clean Steelmaking Technology in Hamilton to Support Future of Ontario's Auto Sector," Feb 15, 2022,
- Government of Ontario. "Province Invests in Clean Steelmaking Technology in Hamilton to Support Future of Ontario's Auto Sector." February 15, 2022. https://news.ontario.ca/en/release/1001604/province-invests-in-clean-steelmaking-technology-in-hamilton-to-support-future-of-ontarios-auto-sector
- ⁵⁹ CBC News, "Algoma Steel in Sault Ste. Marie to get \$420M in federal funding to transition to cleaner technology," July 5, 2021, https://www.cbc.ca/news/canada/sudbury/algoma-steel-420million-feds-clean-technology-1.6090465.
- Mike Crawley. "Ontario quietly revises its plan for hitting climate change targets." CBC News. April 17, 2022. https://www.cbc.ca/news/canada/toronto/ontario-climate-change-carbon-emissions-2030-targets-1.6419671
- Government of Ontario. "Low-carbon hydrogen." April 7, 2022. https://www.ontario.ca/page/low-carbon-hydrogen
- Environment and Climate Change Canada. 2030 Emissions Reduction Plan: Canada's Next Steps for Clean Air and a Strong Economy. 2022. https://www.canada.ca/content/dam/eccc/documents/pdf/climate-change/erp/Canada-2030-Emissions-Reduction-Plan-eng.pdf
- Government of Ontario. Ontario Emissions Scenario as of March 25, 2022, https://prod-environmental-registry.s3.amazonaws.com/2022-04/Ontario%20Emissions%20Scenario%20as%20of%20March%2025_1.pdf
- Government of Canada. Canada's Official Greenhouse Gas Inventory. April 13, 2022. https://data.ec.gc.ca/data/substances/monitor/canada-s-official-greenhouse-gas-inventory/B-Economic-Sector/EN_GHG_Econ_Prov_Terr.xlsx
- Per Ontario estimates obtained by private correspondence