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WHICH CANADIAN CLIMATE POLICIES WILL HAVE THE BIGGEST IMPACT BY 2030?

Industrial carbon pricing systems are the single biggest driver of emissions reductions in 2030, and can be even more impactful if design is improved.

INTRODUCTION

Since the 2015 Paris Agreement, Canada's efforts to combat climate change and reduce emissions have accelerated. Governments across the country have increased their ambition, passed laws to help keep climate progress on track, and implemented and announced a suite of climate policies.

But are those policies actually reducing the emissions causing climate change? We worked with Navius Research to model the effectiveness of Canadian climate policy to date, and their projected impacts on emissions out to 2030.

That analysis concluded that a mix of major climate policies across Canada are reducing emissions today, and market-based policies targeting industrial emissions (which we refer to as large-emitter trading systems) are having the biggest impact.

Since some climate policies are still either in their infancy or just being implemented, we expect a bigger impact on Canada's emissions if those policies continue out to 2030 and beyond. But that result depends on governments across Canada staying the course on those existing policies that are making a real impact and following through to implement developing and announced policies, while also identifying and addressing counterproductive policy interactions.

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Data provided by Navius Research

CANADIAN CLIMATE INSTITUTE / L'INSTITUT CLIMATIQUE DU CANADA

440 Megatonnes is a project of the **Canadian Climate Institute**

There are different ways to assess the impact of climate policies on Canada's emissions. In this Insight, we tackle the question from two angles. First, we explore how existing climate policies, including federal, provincial, and territorial carbon pricing systems, are already reshaping Canada's emissions trajectory. Second, we look at the impact of major climate policies between 2025 and 2030 to identify what's at stake in government decisions moving forward.

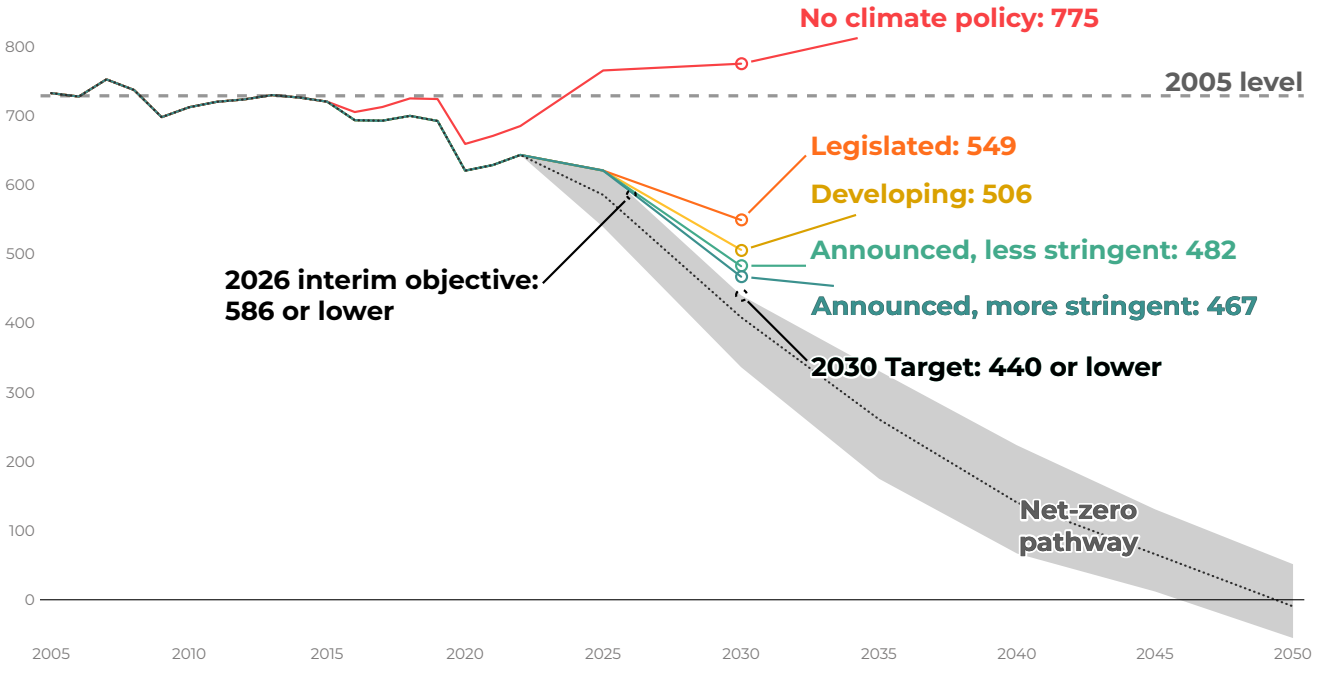
CLIMATE POLICIES ARE WORKING, WITH INDUSTRIAL CARBON PRICING LEADING THE PACK

There's no question that existing ("legislated") policies are working, while those under development have the potential to do much more (Figure 1). Our recent independent assessment of the federal government's 2030 Emissions Reduction Plan Progress Report also looked at what would happen if Canada hadn't implemented any emissions-reducing policies. In this "no climate policy" scenario, emissions would be higher today and rising steadily—reaching 765 megatonnes (Mt) in 2025 and 775 Mt in 2030, or 23 and 41 per cent higher than projected emissions under our legislated policy scenario, respectively.

Figure 1:

Canada's emissions pathways across multiple policy scenarios

Megatonnes CO_2 equivalent



Source: Historical data from ECCC. 2022 data from 440 Megatonnes' Early Estimate of National Emissions. Projections from Navius Research

This means that policies currently in place—from carbon pricing to the vehicle efficiency standards to support for heat pumps—prevent 226 million tonnes (Mt) of carbon emissions in 2030. That's equivalent to the current emissions profiles of Quebec and Ontario combined.

In addition, every tonne of emissions reduced lowers long-term climate impacts and damages. The impacts of climate change are driving up the cost of living for Canadians and are a drag on the Canadian economy.

Of these 226 Mt of avoided emissions, our analysis estimates that federal, provincial, and territorial carbon pricing systems play a leading role. Carbon pricing consists of two distinct types of policies.

The first policy is the **fuel charge** paid by most households and small businesses (often referred to as the "carbon tax"—and accompanied by quarterly rebates). The fuel charge contributes between 8 and 9 per cent (or 19 to 22 Mt).

The second policy focuses on reducing industrial carbon emissions by establishing **large-emitter trading systems** (LETS). This approach varies by region and includes output-based pricing (such as Alberta's TIER system), or Ontario's emissions performance standard. By 2030, these large-emitter trading systems contribute between 23 and 39 per cent (or 53 to 90 Mt) of avoided emissions relative to the no-climate policy baseline. Large-emitter trading systems play a larger role in emissions reductions compared to the fuel charge, in part because they cover a higher share of Canada's emissions.

IMPLICATIONS OF POLICY DECISIONS MOVING FORWARD

Determining the impact of climate policies implemented to date is one thing. But to understand what's at stake in the policy choices happening today and going forward, we also worked with Navius Research to estimate the impact of major federal climate policies in the Emissions Reductions Plan between 2025 and 2030. These policies include:

1. Large emitting trader systems
2. Fuel charge
3. Oil and gas emissions cap
4. 75 per cent methane regulation
5. Waste methane capture
6. Clean Fuel Regulations
7. Investment tax credits
8. Zero emission vehicle standards

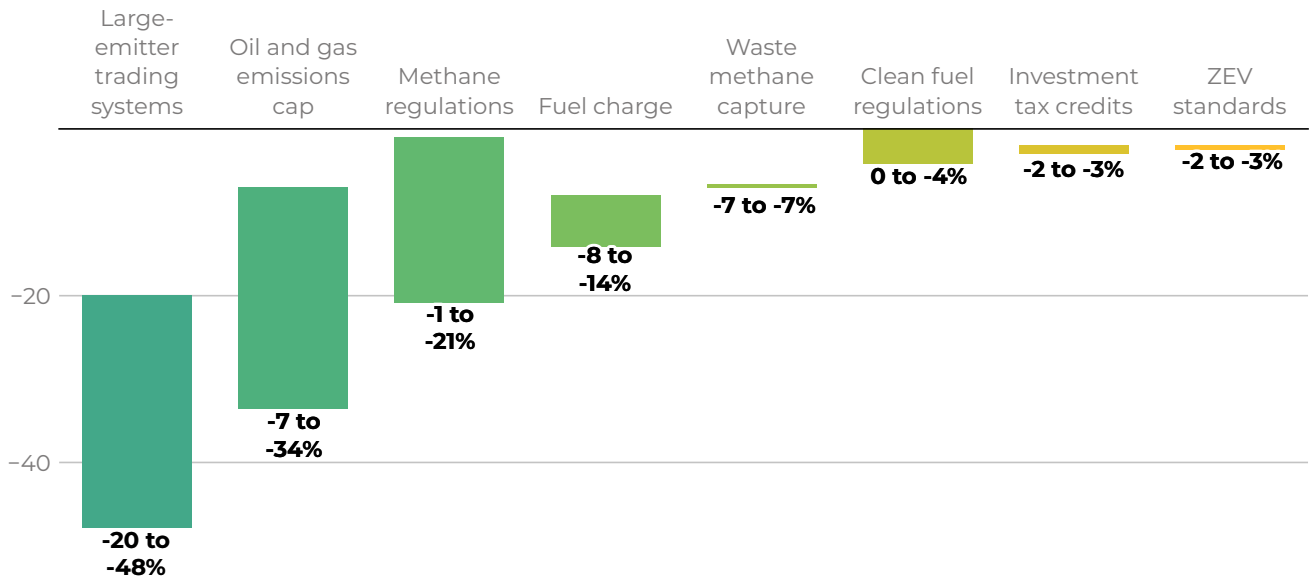
Since policies inherently exist as a package—working together, overlapping, and interacting—isolating a single number of emissions reductions for each policy is challenging. We therefore assessed the impact that each of the analyzed policies could have under two extremes. In the first, the policy is added to a baseline scenario, which does not include the legislated policies we assessed after 2025, namely the large-emitter trading systems, the fuel charge, the clean fuel regulations, and the investment tax credits. This scenario isolates the impacts of the policy without interactions with other ERP policies. In the second, the policy is added to a scenario that includes all other ERP policies. This scenario isolates the impacts of the policy including interactions between ERP policies.

This allows us to estimate the range of incremental emissions reductions attributable to each policy, and demonstrate the implications of policy choices today on future emissions.

Figure 2:

Range of incremental emissions reductions from climate policies in 2025-2030

Share of total emissions reductions between the baseline and the full ERP policy scenarios (%)



The figure shows the impact of each of the analyzed policies under two extremes. In the first, the policy is added to a baseline scenario, which does not include the legislated policies we simulated after 2025. This scenario isolates the impacts of a policy without interactions with other ERP policies. In the second, the policy is added to a scenario that includes all other ERP policies. This scenario shows the impact of the policy including interactions with other ERP policies, with emissions reductions attributable to multiple policies accruing to the larger policy package, rather than the individual policy in question. The values represent the contribution of individual policies as a share of total reductions between the baseline and the full ERP policy scenarios in 2030.

Many of these policies would have a much greater impact in 2035 and beyond, since some will only have been in effect for a few years, and others will increase in stringency after 2030 (e.g. the zero-emission vehicle standards).

Source: Canadian Climate Institute & Navius Research

Large-emitter trading systems are still the biggest driver of emissions reductions in 2030—contributing between 20 and 48 per cent of incremental emissions reductions in 2030.

Counterintuitively, the impacts of individual policies are not entirely additive: the combination of multiple policies will lead to fewer emissions reductions than the sum of emissions reductions each policy would deliver in isolation. While individual policies typically have the greatest incremental impact on their own, in practice, governments rely on combinations of policies that interact and overlap. As more policies are necessarily introduced to drive deeper emissions reductions from a given sector or source, the additional contribution of each policy often decreases. The only exception, of the policies we simulated, is the investment tax credits (ITCs), which work better in reducing emissions when paired with other policies.

These ranges highlight policy interactions and the challenges of attributing emissions reductions to individual policies. But notably, even with maximum overlap and interaction, almost all policies are reducing emissions in 2030. Each policy contributes varying levels of incremental emissions reductions, due to differences in their coverage, stringency, implementation timelines, technological availability, and cost, alongside other market drivers. Table 1 summarizes the impact of each policy in Figure 2. Note that the Clean Electricity Regulations are not included in the figure, as the policy does not bind on emissions until 2035.

Critically, this analysis provides a snapshot in 2030 and does not consider the emissions reductions—often significant—expected in 2035 and beyond. Impacts of policies will increase over time: some will only have been in effect for a few years, and others will increase in stringency after 2030—the zero-emission vehicle sales standards are a good example. Emissions reductions from policies will also accelerate over time, given that policies such as vehicle standards and carbon pricing will have the biggest impacts on new, rather than existing equipment. With more time, policies will affect more decisions and have greater impact.

Our analysis shows that, even in comparison to the full suite of Emissions Reduction Plan policies, large-emitter trading systems are still the biggest driver of emissions reductions in 2030—contributing between 20 and 48 per cent of incremental emissions reductions in 2030.

Even full implementation of every policy in the Emissions Reduction Plan Progress Report leaves a 42 Mt gap to Canada's 2030 target. Weakening or backtracking on individual policies could further increase the gap to 2030 as well as reduce fewer emissions in the longer term, creating a need for new or stronger measures to deliver on targets. We'll return to what else is needed to close this gap in future analyses.

Table 1:

Overview of Policy Impacts and Interactions

Policy and status	Share of incremental emissions reductions	Description
Large-emitter trading systems LEGISLATED	20 to 48 per cent	Large-emitter trading systems (LETS) put a price—rising to $170 per tonne CO2 by 2030—on emissions from industrial emitters, including cement, oil and gas, iron and steel, mining, and chemicals. The objective of LETS is to protect the competitiveness of these large-emitters, while also maintaining an incentive to reduce emissions. These systems include "output-based pricing systems," many of which are provincial and territorial systems, as well as Quebec's cap-and-trade system. The wide range of estimated reductions across our scenarios is the result of interactions with other policies. These interactions, along with relatively weak emissions-intensity thresholds, risk creating a surplus of carbon credits in large-emitter trading markets, thereby reducing their price and making it cheaper to buy credits. The impact is weaker incentives to cut emissions and weaker effectiveness of LETS. Accounting for these interactions and tightening thresholds can address these interaction effects.
Oil and gas emissions cap DEVELOPING	7 to 34 per cent	The federal government published a regulatory framework to cap emissions from the upstream oil and gas sector, including LNG. In our analysis, the proposed policy, which would introduce a cap-and-trade system for the sector, is a major driver of emissions reductions from oil and gas. However, interactions and overlap with other policies, in particular the draft methane regulations in the upstream oil and gas sector, lead to fewer emissions reductions attributed to the emissions cap. Put another way: in the absence of more stringent methane regulations, the emissions cap would drive some methane reductions instead.
Methane regulations in upstream oil and gas DEVELOPING	1 to 21 per cent	The federal government announced draft regulations to reduce methane emissions from the upstream oil and gas sector by 75 per cent below 2012 levels by 2030. These regulations are a significant driver of methane reductions from the oil and gas sector, but overlap in coverage with the oil and gas emissions cap reduces the role of this policy.
Fuel charge LEGISLATED	8 to 14 per cent	The fuel charge puts a price—rising to $170 per tonne CO2 by 2030—on emissions from fuel used by households, large institutional emitters, and small- and medium-sized enterprises. As designed, the fuel charge would have larger impact over time as emitters invest in new technology and assets.
Waste methane capture ANNOUNCED	7 per cent	The federal government has signalled plans to introduce landfill methane regulations, with the goal of reducing waste methane emissions from large municipal solid waste landfills by about 50 per cent below 2019 levels by 2030. While there are several provincial measures to control methane emissions from landfills, this policy does not significantly interact with any of the other seven policies we simulated.
Clean fuel regulations LEGISLATED	0 to 4 per cent	The clean fuel regulations require liquid fuel suppliers to reduce the emissions intensity of their fuels over time to reduce emissions from the transportation sector. While on their own, the regulations drive emissions reductions from the transportation sector, within the full policy mix they overlap with several policies, including light- and medium- and heavy-duty zero-emission vehicle standards, subsidies for renewable natural gas and hydrogen, and the oil and gas emissions cap.

Policy and status	Share of incremental emissions reductions	Description
Investment tax credits LEGISLATED	2 to 3 per cent	The federal government introduced a number of new or expanded investment tax credits (ITCs) for clean technologies, including for clean electricity, hydrogen, and carbon, capture, utilization and storage. Although the emissions impact of the ITCs can be marginal at times, these policies are focused as much, if not more, on broader goals such as supporting economic competitiveness and attracting investment, rather than emissions reductions alone. Total impact will also ultimately depend on the number of large-scale low-carbon projects they enable. And in the longer-term, ITCs could enable additional emissions reduction. ITCs for clean electricity, in particular, could mobilize investment for additional, net zero electricity supply to enable electrification in buildings, transportation, and industry.
Zero-emissions vehicle (ZEV) standards for light, medium-, and heavy-duty vehicles LEGISLATED ANNOUNCED	2 to 3 per cent	The federal government established a light-duty ZEV regulation requiring manufacturers and importers to meet an annual ZEV sales target, starting in 2026. The federal government has also announced plans to develop a medium- and heavy-duty ZEV standard, with the goal of achieving 35 per cent ZEV sales by 2030 and 100 per cent by 2040, in select categories depending on feasibility. While both ZEV standards have an impact on emissions in 2030, we expect their role to grow post-2030 as the stringency of both policies increases, ramping up to 100 per cent, giving industry clear timelines for investment decisions. Importantly, ZEV standards also ensure availability for buyers across Canada.

FIXING ADVERSE POLICY INTERACTIONS CAN BRING CANADA CLOSER TO ITS 2030 TARGET

Achieving Canada's emissions reduction targets requires that governments implement a mix of policy measures—no single policy will get the job done. It's inevitable that these policies will overlap and interact. However, some interactions are helpful, while others are counterproductive.

There are many examples of helpful policy interactions—where policies work together in ways that are mutually beneficial and improve emissions reduction outcomes. Examples include electrifying home heating while also decarbonizing the grid, or mandating the sale of electric vehicles while also investing in charging infrastructure.

However, sometimes combining policies leads to interactions that must be accounted for and reconciled. In previous Institute analysis, for example, we identify the potential for unhelpful interactions between the large-emitter trading systems (LETS) and several other policies because they can create a surplus of carbon credits in the LETS. In many LETS systems (i.e., output-based pricing systems), emitters pay for emissions above emissions-intensity thresholds, and generate credits when their emissions fall below the threshold. Investment tax credits for carbon capture and storage, for example, make it easier for firms to reduce emissions and thus increase the supply (and decrease the demand) for

emissions credits in LETS. The result is lower credit prices and lower the incentives for industry to reduce emissions under the LETS.

The solution to interaction problems isn't to strip away overlapping policies, which have their own economic and emissions reductions benefits. LETS inherently cover a broad range of emissions, so their overlap with other policies is expected. Instead, the goal is to ensure that they work well with other policies as complements. That means accounting for interactions and increasing the stringency of existing policies to ensure that interaction effects aren't creating an oversupply in credits, undermining effectiveness.

Canadian climate policies are already working, and will continue to drive deep emissions reductions into the future—assuming they are maintained or strengthened.

In particular, our analysis finds that a few changes to LETS can minimize the negative impact of policy interactions and drive an additional 15 Mt of emissions reductions by 2030 using Canada's current suite of climate policies. One of the most impactful fixes is to set stricter performance standards in large-emitter trading systems.

Beyond delivering additional emissions reductions, strengthening LETS is also important for other reasons. In particular, when designed effectively, LETS can protect the competitiveness of industries while also maintaining the incentives to lower emissions. With jurisdictions around the world either implementing or exploring border carbon adjustments that could apply tariffs to Canadian exports—including the European Union and the United States—maintaining and strengthening a country-wide industrial carbon price will be especially critical to safeguarding the international competitiveness of Canadian industries.

LARGE-EMITTER TRADING SYSTEMS ARE CENTRAL TO CANADA'S CLIMATE POLICY SUCCESS

The evidence is clear. Canadian climate policies are already working, and will continue to drive deep emissions reductions into the future—assuming they are maintained or strengthened.

Without policies implemented to date, emissions would be higher today and rising quickly—to a staggering 775 Mt in 2030. That's 226 Mt higher than projected emissions under our legislated policy scenario, 296 Mt higher than our scenario where governments finalize developing and announced policies, 43 Mt higher than Canada's emissions in 2005, and 335 Mt higher than Canada's 2030 target.

Simply put, in a world in which federal, provincial, and territorial governments had not taken action on climate change, Canada's emissions would be heading in the wrong direction, and fast.

Simply put, in a world in which federal, provincial, and territorial governments had not taken action on climate change, Canada's emissions would be heading in the wrong direction, and fast.

Yet our analysis shows that if governments follow through and implement planned policies—such as the oil and gas emissions cap and the suite of investment tax credits—while also addressing some unhelpful policy interactions with the LETS, emissions will decline to 36 per cent below 2005 levels by 2030—within reach of Canada's 2030 target.

While the full suite of policies are working to reduce emissions, LETS stand out as especially important for Canada's climate policy success. They are the largest contributor to emissions reductions in 2030 and are essential to protecting the competitiveness of Canadian industries.

LETS can have an even greater impact. Governments should continue to strengthen the systems by tightening emissions-intensity performance thresholds and addressing unhelpful policy interactions with other key climate policies. Doing so can shore up expected emissions reductions and deliver additional ones that bring Canada closer to its 2030 target.

Future emissions reductions, however, are not guaranteed without effective and continuing policy implementation. The decisions governments make today will ultimately determine how close Canada gets to the 2030 target, and how well-positioned the country is to meet future targets and remain competitive in a rapidly decarbonizing world.

While the 2030 target is a critical benchmark for Canada's climate progress, longer-term emissions reductions are also important. Many of the policies discussed—from zero-emission vehicle regulations to investment tax credits—will have growing impact in the longer term that are not quantified in this analysis but that should also inform governments' cost-benefit analysis.

Critically, backtracking on policies that are making an impact or failing to implement planned policies without credible alternatives will set back Canada's emissions reduction progress. Most importantly, real, sustained momentum requires regular in-depth analysis on policy implementation and impact, with transparent reporting on the government's progress.

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