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THE CASE FOR MODERNIZING INDUSTRIAL CARBON PRICING

Large-emitter trading systems are powerful tools for reducing emissions and attracting investment—but they need updates to reach their full potential.

INTRODUCTION

Countries are facing mounting challenges to advance their climate goals with rising protectionism, shifting political priorities, and tighter fiscal pressures—further complicated by the prospect of Trump-era policies returning to the U.S. To address these challenges, Canada will need a policy toolkit that is both flexible and adaptive, while remaining firmly aligned with its long-term economic and emissions goals.

Leading that toolkit is industrial carbon pricing—also known as large-emitter trading systems (LETS)—the country's top driver of emissions reductions and a shield against carbon protectionism.

However, these systems face a critical risk: the oversupply of credits and low prices threaten to undermine their effectiveness. If left unaddressed, Canada could miss out on up to 48 megatonnes of emissions reductions by 2030, slashing the impact of LETS by nearly half. That's about the same as the annual emissions from nearly 15 million cars on the road. This gap is too significant to ignore.

This shortfall would not only jeopardize Canada's ability to meet its climate targets but also create significant uncertainty for industries planning to make long-term low-carbon investments. Moreover, it heightens the risk of border tariffs from other countries, effectively outsourcing Canadian climate policy to foreign governments and eroding the competitiveness of Canadian industries in global markets.

By: Dave Sawyer, Ross Linden-Fraser, and Dale Beugin

Data provided by Navius Research

CANADIAN CLIMATE INSTITUTE | L'INSTITUT CLIMATIQUE DU CANADA

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

Making sure LETS function as intended is essential to maintaining their stringency, effectiveness, and capacity to retool Canadian industry for success in carbon-constrained markets. This research examines a key challenge for Canada's large-emitter trading markets, presenting new modeling and highlighting the need for federal, provincial, and territorial governments to proactively update their LETS.

INDUSTRIAL CARBON PRICING IS DESIGNED TO CONTAIN COSTS—BUT HAS OVERCOMPENSATED

To understand the current challenges in Canadian LETS credit markets, let's revisit the origins and design of Alberta's system, which has shaped many provincial and federal industrial carbon pricing frameworks.

Introduced in the late 2000s, Alberta's carbon pricing system aimed to address industry concerns over high and unpredictable costs. This approach prioritized cost containment, emphasizing reductions in emissions intensity instead of implementing the robust market mechanisms of cap-and-trade, which set a hard limit on total emissions. This intensity-based LETS allowed emissions to grow with production while maintaining low compliance costs by charging only for emissions that exceed a performance standard (sometimes called a benchmark). It then introduced a range of flexibility mechanisms to contain costs below a set price ceiling.

In general, low compliance costs in LETS are a feature, not a bug: they reduce the risk of losing market share to firms in jurisdictions with weaker climate policy. Critically, however, when designed right, they maintain incentives for firms to reduce emissions by improving performance while maintaining production: top-performing firms can generate credits they can sell for cash, while lower-performing firms have an incentive to improve emissions management to avoid paying for excess emissions. In theory, the price of credits in LETS should trade at or above the carbon price set by the regulator, because the credits can serve as a substitute for paying the fixed carbon price.

Yet that principle only holds if *overall* demand for credits—across the full LETS credit market—remains strong. As a result, setting sufficiently ambitious performance standards is crucial: if the limits are too stringent (again, overall limits, not for one specific sector), then compliance costs increase; if too lenient, credit markets become oversupplied, prices of credits (both current and expected) crash, and firms lack incentives to invest in emissions improvements while devaluing credit holdings. This balancing act influences the fundamental value of emission reductions, directly impacting industry costs and competitiveness.

Performance standards in LETS systems are set for sectors or facilities, guided by competitiveness and technical assessments and decisions by elected officials. Often, governments face pressure to reduce the stringency of these standards in response to real or perceived competitiveness risks.

n practice, some facilities receive more credits than they need, enabling them to bank or sell surplus credits without significantly changing their behavior.

While the Alberta blueprint initially struck a balance between enhancing carbon productivity and controlling costs, certain design choices have not kept pace with evolving circumstances. This risks creating an oversupply of credits and lowering prices, undermining the market signals critical for driving emissions reductions.

Currently, performance credits and offsets in Alberta are valued at approximately $40 per tonne—substantially below the national minimum carbon price of $80. This low price suggests a credit glut, undermines the system's effectiveness, and creates ripple effects that influence price expectations in other jurisdictions, like Ontario. As a result, the system's focus on cost containment over market functionality is now limiting its effectiveness.

THE RISKS OF OVERSUPPLIED CREDIT MARKETS

An oversupplied credit market is fundamentally unbalanced, with insufficient scarcity to drive demand or sustain credit value. In LETS, those imbalances often arise from a mix of design choices and unforeseen interactions with complementary policies and emerging technologies:

- **Generous performance standards produce little net demand**. Regulators design LETS markets so that there is more demand for credits than supply—but to contain costs, they tend to err toward more generous performance standards that increase the supply of credits, shrinking the net demand in the system. In practice, some facilities receive more credits than they need, enabling them to bank or sell surplus credits without significantly changing their behavior. While this approach reduces compliance costs and addresses competitiveness challenges, it leads to thin margins of demand. Thin margins leave little cushion to absorb unforeseen impacts on supply or demand that could undermine the overall function of the market.

- **Policy interactions can add to oversupply**. The interaction between federal, provincial, and territorial policies can exacerbate credit market imbalances. Overlapping programs may unintentionally amplify credit supply and depress demand. For instance, investment tax credits make it easier for firms to reduce emissions, making more firms likely to generate credits and fewer firms likely to require additional credits. Likewise, federal policies designed to drive emissions reductions in one sector, such as the Clean Electricity Regulations or the proposed oil and gas emissions cap,

may overlap with provincial LETS. This overlap creates a surplus of credits, further depressing prices and weakening the market's ability to incentivize deeper emissions cuts. These problems can be overcome by adjusting the design of LETS to account for the interactions.

- **Some costs are unpredictable.** The costs of reducing emissions aren't static. For example, global low-carbon innovation has led to rapid declines in the costs of renewable electricity and batteries. As a result, electricity producers can reduce emissions more cheaply—and generate credits in some LETS markets more easily, again slanting credit markets toward more supply and less demand.

- **Large emissions reductions can have big implications.** Technologies like carbon capture, utilization and storage (CCUS) play a critical role in emissions reductions but also contribute to market imbalances simply through scale. Large-scale CCUS projects generate significant volumes of credits, potentially overwhelming market demand. This dynamic further depresses prices, especially if the market has thin net demand.

In summary, if the emissions intensity of regulated industries declines faster (for any reason) than the market-wide average performance standard, there may be no incentive to further reduce emissions.

LETS are intentionally designed to balance cost containment with emissions reductions, but this focus on minimizing costs absent well functioning and transparent markets has created structural challenges. Generous performance standards, overlapping policies, and thin margins between supply and demand all contribute to market imbalances.

CREDIT MARKETS IN CANADA COULD TIP INTO OVERSUPPLY

So far, we've mostly been talking in theoretical terms. How are the actual LETS markets playing out in Canada? We collaborated with Navius Research to model the performance of LETS through 2030. Two scenarios from this modelling illustrate just how vulnerable LETS are to an oversupply of credits—and therefore to losing potential investments and emissions reductions.

In the *legislated policies* scenario, which represents existing federal, provincial, and territorial climate measures, LETS markets remain stable, but only just. Generous performance standards and rapid technology change lead to limited net demand. In this scenario, the demand for credits exceeds supply by about 2 per cent nationally in 2030. This narrow margin means that even a small shift in available credits could lead to an oversupplied market and depressed credit

prices in some jurisdictions. For example, the modelling shows that some markets would risk oversupply even under the existing policy architecture, if technologies like CCUS become cheaper than expected.

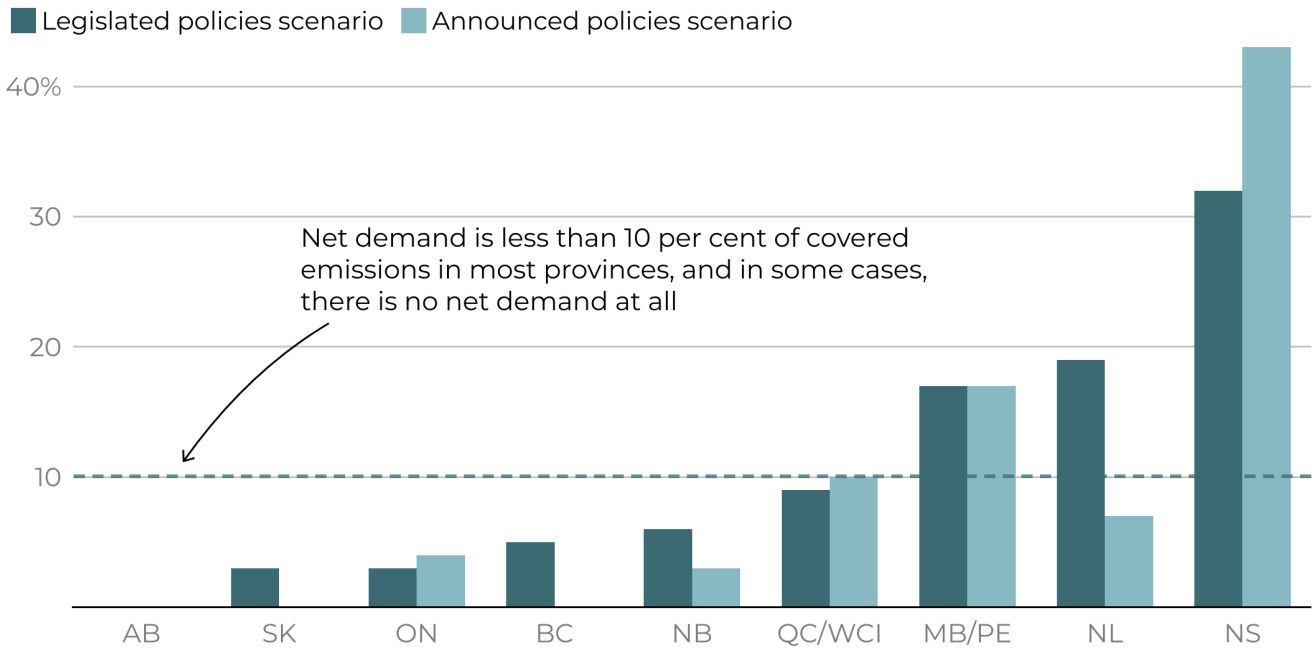
Now, consider a case where new climate policies overlap with carbon pricing. The *announced policies* scenario adds proposed federal policies, such as a cap on emissions from the oil and gas sector and tighter methane regulations. These policies interact with carbon pricing in some jurisdictions, inducing emissions reductions that generate LETS credits. Because LETS markets have not been designed to account for these interactions, some systems develop an oversupply of credits, and prices fall. Lower prices threaten the business case for additional reductions (and could even undermine returns on existing projects).

Figure 1 illustrates the balance between credit supply and demand in these two scenarios. The figure shows net demand, meaning the extent to which demand exceeds supply, expressed as a share of covered emissions in each system.

Figure 1:

Net demand for LETS credits in 2030 could be low or even non-existent

Projected net demand for credits in large-emitter trading system markets across Canada in 2030, as a percentage of covered emissions



Quebec shares a cap-and-trade market with California through the Western Climate Initiative (WCI). The Quebec results represent net demand in WCI only from industry, and not fuel distributors.

Manitoba and Prince Edward Island are shown together because they are part of a linked domestic market through the federal Output-Based Pricing System.

Source: Navius Research

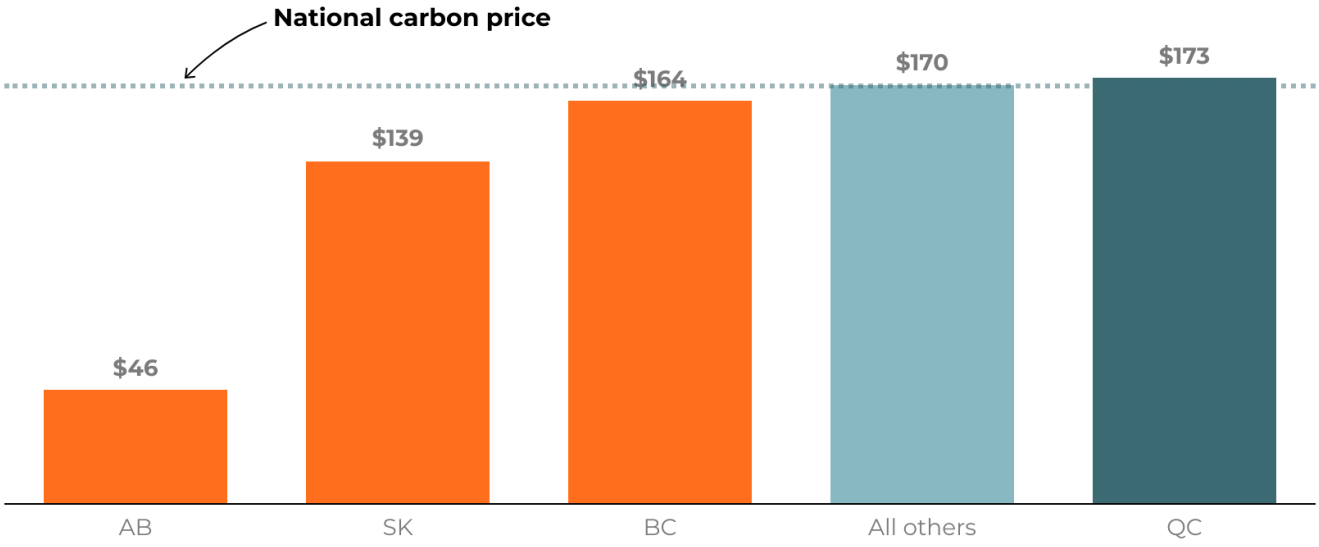
WHEN SUPPLY EXCEEDS DEMAND, PRICES FALL

The modelling above also provides insights into expected prices in Canada's LETS markets. Figure 2 illustrates the projected carbon price in LETS across Canada in 2030 in the *announced policies* scenario. In this scenario, the price of credits in Alberta's TIER system remains very low at $46 per tonne, while the prices in Saskatchewan and B.C.'s systems fall to $139 and $164 per tonne—all below the federally scheduled price of $170.

Figure 2:

Three LETS are at risk of oversupply in 2030

Projected market value of credits in large-emitter trading trading system, 2030 ($/t)



These results are drawn from our *announced, less stringent policies* scenario, which represents existing federal, provincial, and territorial climate policies, plus federal climate policies that are under development or have been announced.

Source: Navius Research

In the *announced policies* scenario, the LETS in three provinces have an oversupply of credits that pushes their prices below the national carbon price. It is significant that these three provinces are Alberta, British Columbia, and Saskatchewan, since together their industrial facilities account for a full third of Canada's total emissions.

The oversupply in these LETS is driven by the challenges described above: generous performance standards and unexpected technology change combined with the impact of interacting policies. But each of these dynamics plays out in regionally specific ways.

In Alberta, the oversupply is a result of interactions between LETS and oil and gas sector policies, combined with excessive credit generation in the electricity sector.

First, Alberta's system already has more credit generation than most systems, thanks to a uniform performance standard for electricity that rewards renewable and low-carbon generators with credits. This approach is best practice and rightly rewards low-carbon generation—but the performance standard may be set at too generous a level. The unanticipated high uptake of renewables has led to widespread crediting that puts Alberta's system on the margin of oversupply.

Second, in this scenario, additional oil and gas sector policies, chiefly the federal cap on oil and gas sector emissions, induce emissions reductions that reduce demand for credits. Alberta's LETS becomes stricter over time, but it does not tighten fast enough to account for these additional credits, leading to excess supply.

In British Columbia and Saskatchewan, the oil and gas sector drives the bulk of oversupply. B.C.'s industrial carbon pricing system, in particular, is highly sensitive to performance standards for the liquefied natural gas (LNG) sector, as electrified LNG facilities could swamp the market if the performance standards are overly generous. The provincial government has not finalized these performance standards.

Other provisions may exacerbate the oversupply. For example, B.C. applies a declining annual cap on the use of tradeable credits for compliance, which could lead to a buildup of unusable excess credits and put downward pressure on credit prices. B.C.'s cap on use of tradeable credits was not modeled, and would further depress credit prices if explicitly included. In Saskatchewan, the system's performance standards are sufficiently generous that small changes in CCUS uptake would be enough to push the system into oversupply, even in our *legislated policies* scenario.

STRONGER SYSTEMS WOULD REDUCE MORE EMISSIONS AT A MANAGEABLE COST

Our modelling shows that if credit prices stay on their current trajectory, Canada could miss out on between 18 to 48 megatonnes (Mt) of emissions reductions by 2030.

In the scenario we've modelled above, with several markets on knife-edge and some facing oversupply, LETS deliver 18 Mt fewer emissions reductions by 2030, compared to markets that function as intended where credits trade at $170 per tonne in 2030 and other federal policies, such as the cap on emissions from the oil and gas sector, are implemented as proposed. Still, that scenario doesn't fully model downside risks, given how the factors we've discussed above can increase

supply of credits, and how thinly balanced LETS markets are in multiple jurisdictions.

We also considered two further scenarios: one in which prices for industrial carbon pricing stagnate at $110 in 2030, and another in which performance standards in Alberta, B.C., and Saskatchewan are substantially tightened and prices hold at $170, with revenue re-invested in low-carbon technologies, and policy overlaps are minimized. In the scenario in which benchmarks are tightened, carbon prices continue to rise, and credit markets are stable, Canada avoids an additional 48 Mt of emissions in 2030.

Even with stronger systems delivering greater emissions reductions, industry costs would remain manageable. With a binding price of $170 per tonne in 2030, and tighter performance standards, average compliance charges paid for industry as a whole would stay modest—at about $30 per tonne—and some sectors would remain net creditors.

BUILDING FUNCTIONAL MARKETS FOR INDUSTRIAL CARBON PRICING

Today's systems promise neither certainty nor competitiveness in the long term. Stricter performance standards would reduce these risks.

Current market data and modelling projections highlight the fragility of credit markets, where overly generous performance standards risk oversupply, credit gluts, and undervalued emission reductions.

Underlying all of these risks is a significant lack of transparency about what is happening in LETS markets. With the exception of Quebec, where credits are auctioned and there are regular market updates, no system publishes the price of credits and only Alberta has a transaction registry.

Fortunately, there are many good options to improve LETS design, and the federal, provincial, and territorial governments are all in a position to take action.

First and foremost, tighter systems would be more likely to deliver emissions reductions and investment certainty. Existing performance standards do not sufficiently account for the risk of faster-than-expected technology change, or the potential impact of policy interactions. While today's systems may offer cost containment in the short term, they promise neither certainty nor competitiveness in the long term. Stricter performance standards would reduce these risks.

Frequent updates are a feature of these systems. Applying minimum federal standards has helped bring LETS across the country into closer alignment

in the past, and future federal reviews could do more to preserve market function. But provincial and territorial regulators can take the initiative as well. Solutions like price floors, market stability reserves, and proactive benchmark adjustments are promising design options.

Greater transparency would also help. To ensure carbon markets function effectively, robust mechanisms are required to track and reveal settlement and future prices. This transparency would help identify imbalances early and allow policymakers to adjust supply and demand dynamics accordingly. Market monitoring should also provide insights into how credits are traded and used, ensuring that prices reflect the true cost of emissions reductions and that the market isn't being distorted by oversupply or unanticipated policy interactions.

Stay tuned as we explore these market fixes in upcoming research.

Dave Sawyer *is Principal Economist at the Canadian Climate Institute.* ***Ross Linden-Fraser*** *is a Senior Research Associate at the Canadian Climate Institute.* ***Dale Beugin*** *is Executive Vice President at the Canadian Climate Institute.*

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