CLEAN PROSPERITY

Market Force

How Canada's carbon markets can be an engine of growth

July 2025 | Brendan Frank
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About Clean Prosperity

Clean Prosperity is a Canadian climate policy organization that advocates for pragmatic solutions to grow the low-carbon economy.

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Contents

Abbreviations

ACCIP	Alberta Carbon Capture Incentive Program
BOF	basic oxygen furnace
CBAM	carbon border adjustment mechanism
CCUS	carbon capture, utilization, and storage
CDR	carbon dioxide removal
CER	Clean Electricity Regulations
EAC	electric arc furnace
FEED	front-end engineering design
IRA	Inflation Reduction Act
ITC	investment tax credit
OBPS	output-based pricing system
PTC	production tax credit
RUP	recognized unit provisions
TIER	Technology Innovation and Emissions Reduction

Executive summary

Canada has an extraordinary opportunity to build a more resilient and competitive economy. Our country can become a diversified low-carbon energy powerhouse by growing renewables, nuclear, oil and gas, bioenergy, and more.

In so doing, Canada can attract the industries of the future with abundant, affordable, and increasingly clean energy. Getting there will require massive private investment, and the enabling public policy that can help us start building quickly.

Canada's carbon markets, if strengthened, will be an important part of achieving this vision.

Strong carbon markets can unlock major investments across our energy and industrial sectors. They can kickstart regional economies and get projects going, seeding new sectors and high-skill jobs while upholding our environmental commitments. And they can do so without additional investment of public money.

Benefits of carbon pricing

In this paper, we show that strong carbon markets:

- **Can help Canada outcompete jurisdictions like the United States for low-carbon investments** in strategic sectors like electricity, clean fuels, carbon capture, low-carbon steel, and more. An investment in carbon capture at a cement plant in Alberta could derive twice as much revenue as in Texas.

- **Are already driving significant capital investment**, according to a new survey of industry. Strong carbon markets would unlock at least **$50 billion** worth of mostly shovel-ready new investments in strategic sectors.

- **Deliver big benefits at low cost** to both industry and consumers. Industrial carbon pricing adds $3 to the cost of a new pickup truck and $0.12 to the price of a new fridge.

- **Are an accelerator for growing cooperation with trade partners** like the EU that also have carbon markets.

- **Provide the lowest-cost strategy** for reducing Canada's industrial emissions.

Carbon markets need joint provincial and federal commitment

For Canadian carbon markets to reach their full potential, investors must believe that both provincial and federal governments are committed to strengthening markets over the long term.

That is not the case today. The provinces and the federal government are not aligned on market rules. In 2025 Saskatchewan effectively cancelled its industrial carbon pricing system and Alberta froze its headline carbon price. Other provinces are only doing the bare minimum to comply with federal standards.

Solving the impasse will require federal and provincial governments to forge renewed partnerships. Fortunately, a new federal-provincial partnership is now at the top of the national political agenda, and there's talk of a grand bargain on energy infrastructure and climate policy.

This paper describes why and how strong carbon markets should form the foundation of a new cooperative approach between the federal and provincial governments on climate. We believe this approach would complement a deal on new energy infrastructure, though it is also a win-win for both orders of government on its own.

Clean Prosperity recommends:

1. The federal government should cancel the oil and gas emissions cap and the Clean Electricity Regulations.

These policies are unnecessary with strong carbon markets. They have created significant tensions with provinces, especially Alberta and Saskatchewan.

2. The federal government should start its next review of Canada's carbon pricing systems as soon as possible.

The review should adopt a new objective: adopting reforms to secure federal-provincial cooperation on five key principles (below) that will make carbon markets ready to attract billions in capital.

Principles of strong carbon markets and the reforms we need

There are five core principles for strong Canadian carbon markets that can unlock the large-scale investment we need.

First principle: High-value and high-integrity credits.

Investors must be confident that carbon credit values will rise over time. Credit markets must be transparent. Offset credits must satisfy integrity criteria, like additionality and permanence of the emissions reductions they represent.

Recommendations to governments

3. Adopt responsive rules that ensure that demand exceeds supply across carbon credit markets. This will support credit prices and help incentivize investment.

4. Publish transaction data from carbon markets to increase transparency.

5. Refine and harmonize offset protocols to ensure that offset credits are additional and durable (as outlined in Section 4).

Second principle: Credit value guarantees.

Investors must be confident that carbon markets will endure, but that will take years of cross-partisan political support. In the interim governments must offer carbon contracts that guarantee the value of carbon credits, if they want to unlock large-scale investment.

Recommendation to governments

6. Offer standardized carbon contracts to all regulated industrial emitters. Contracts should guarantee the value of carbon credits in order to de-risk and unlock investment. These contracts can be issued at minimal fiscal cost.

Third principle: Free interprovincial trade.

Carbon credits should be tradeable between provinces to create large, deep, and liquid markets.

Recommendation to governments

7. Link Canada's carbon markets as part of the broader effort to remove interprovincial trade barriers.

Fourth principle: Rising headline price.

The headline price of carbon must rise over time to incentivize decarbonization. The long-term trajectory of the price must be clear.

Recommendation to governments

8. Define a path for the headline carbon price through at least 2040, at a level that is sufficient to incentivize large-scale decarbonization.

Fifth principle: Carbon competitiveness.

Policymakers must protect the international competitiveness of Canadian industry against competition from jurisdictions with less ambitious climate policy.

Provincial governments should:

9. Protect industrial competitiveness without compromising the core principles of strong carbon markets, through tools like cost containment mechanisms.

The federal government should:

10. Prepare design options for a carbon border policy to protect Canadian competitiveness that can be implemented within the next two to three years.

Introduction: Canada can build through the storm

Canada has an extraordinary opportunity to reinvent its economy for a new global order. As we fight to preserve our prosperity, sovereignty, and way of life, every option should be on the table.

To seize these opportunities, Canada must make maximum use of its human and natural resources. This includes both securing legacy sectors and also sowing the seeds of future growth and prosperity. We must build at warp speed — houses, infrastructure, new trading relationships, and new industries, products, and services. Low-carbon economic growth is a crucial component of efforts to build a stronger Canadian economy for the long term. Investments in clean energy made up two-thirds of the $3 trillion invested in the global energy sector in 2024. The world is moving towards a low-carbon energy system.

Strong, efficient carbon markets are critical to seizing Canada's potential in this increasingly low-carbon global economy. In a short time, provincial carbon markets have made possible tens of billions of dollars worth of new projects across Canada — with tens of billions more waiting for the right investment conditions. From critical minerals to clean fuels to carbon dioxide removal (CDR) technology, Canada can be a major global low-carbon exporter while creating jobs and sectors of the future here at home.

As policymakers confront current economic crises, the case for strong carbon markets remains compelling. They are of course one piece of a much larger economic puzzle. But, if strengthened, they will be a comparative advantage for Canada in the global competition for capital, as we reconfigure our trade partnerships.

This is just the beginning. With bold policy action and a reset of the relationships between federal and provincial governments and Indigenous rightsholders, Canada can become a diversified energy powerhouse without neglecting our commitments to reduce emissions. This paper shows how we can get there.

With bold policy action and a reset of the relationships between federal and provincial governments and Indigenous rightsholders, Canada can become a diversified energy powerhouse without neglecting our commitments to reduce emissions.

Section 1: Strong carbon markets can drive investment and help Canada build

Carbon markets can help drive investment in low-carbon energy, contributing to the national imperative to build for the future. With the right reforms and stronger investor confidence in their long-term durability, carbon markets can get large-scale, shovel-ready, low-carbon projects going quickly.

In the medium to long run, they can aid economic diversification and accelerate the development of new multibillion-dollar industries. And they can deliver these benefits with manageable costs, particularly if duplicative policies are removed.

In this paper, we use the term "strong carbon markets" to mean markets that fulfill the key principles outlined in Section 5:

1. High-value and high-integrity credits
2. Credit value guarantees
3. Free interprovincial trade
4. A rising headline price
5. Carbon competitiveness provisions

Box 1: An introduction to carbon markets

Industrial carbon markets are regulatory systems that place a price on greenhouse gas emissions produced by large industrial facilities (oil and gas, steel and aluminum, cement, chemicals and fertilizers, pulp and paper, etc.).

With the exception of Quebec, which uses a cap-and-trade system, federal, provincial and territorial governments in Canada use output-based pricing systems (OBPSs) to price industrial emissions.

Under OBPSs, governments assign a performance benchmark to each facility that sets a maximum emissions intensity for its operations, in terms of emissions per unit of production (e.g. per barrel of oil or tonne of cement). Each facility has a total emissions limit based on its total production output. These performance benchmarks typically fall every year.

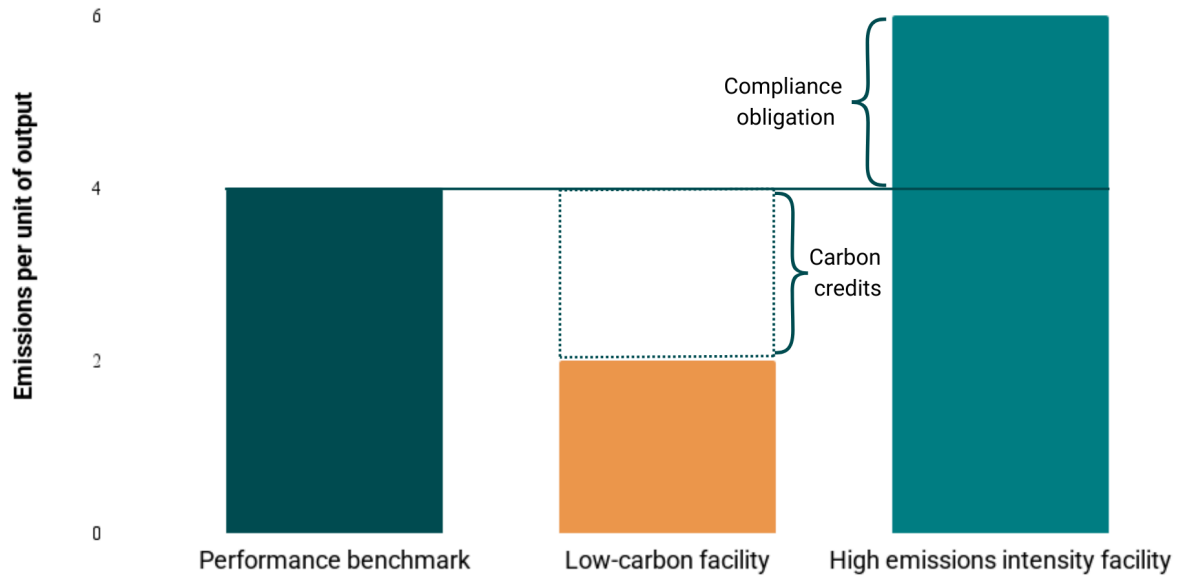
Facilities that beat their performance benchmarks generate credits, which have monetary value. Facilities that overshoot their benchmarks incur a compliance obligation, which means they must pay for their excess emissions. They can do so in a number of ways, including by buying credits from other facilities.

This approach balances environmental and economic objectives and ensures that facilities do not automatically face higher costs for expanding production.

For facilities considering large-scale decarbonization investments, credits can offer revenue streams that make projects financially viable. Different carbon markets allow for different types of credits, depending on the facility and the specific project.

Figure 1 (below) shows how a low-carbon facility can generate carbon credits that it can sell to a facility with a high emissions intensity. The revenue from carbon credit sales can be an important part of the investment case for the low-carbon facility.

Figure 1: Firms generate carbon credits if they beat their benchmarks



Strong carbon markets will help Canada compete for low-carbon capital

Carbon credits are the currency of carbon markets. Firms generate credits through their operations and buy and sell them amongst themselves. Credit revenues will make many new low-carbon projects economic and investible at a time when Canada must build as fast as possible.

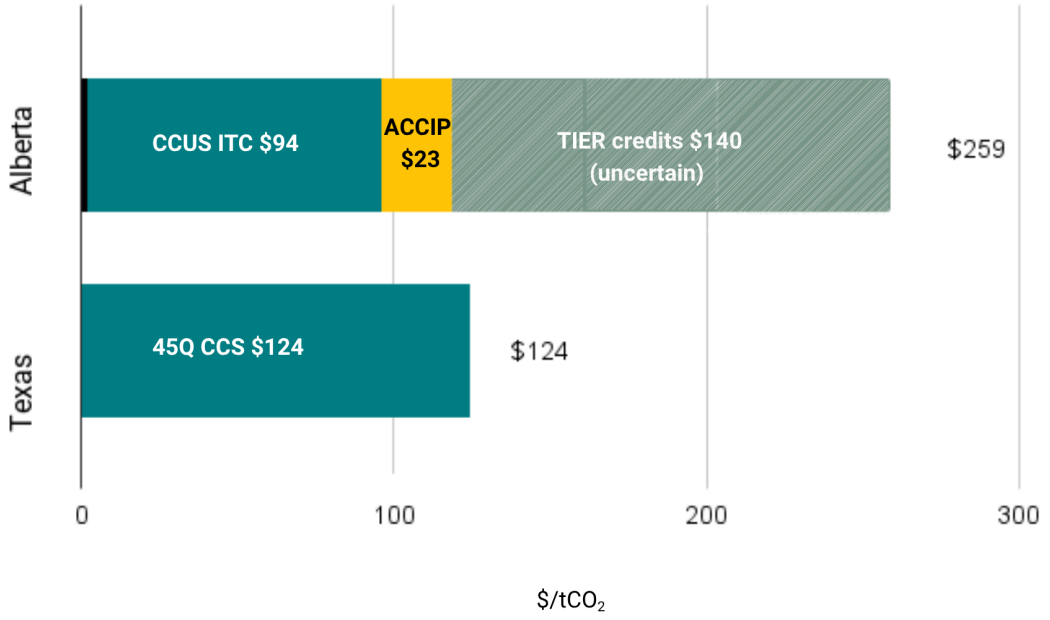
Alberta's Technology, Innovation and Emissions Reduction (TIER) carbon market, Canada's oldest output-based pricing system (OBPS) market, demonstrates the potential upside. Since 2007, Alberta has leveraged TIER and its predecessors to successfully scale hydrogen production, carbon capture, solar and wind generation, and drive efficiency improvements across its heavy industries. Total investments run into the tens of billions of dollars.[1]

Operating at their full potential, carbon markets across the country can repeat that success at scale and help Canada seize an outsized share of the global low-carbon economy, which now exceeds $2

[1] Investment is driven by both credit sales and the recycling of revenues collected through the TIER Fund. For instance, renewable energy investment alone totaled nearly $5 billion between 2019 and 2023. Emissions Reduction Alberta, which administers a portion of the revenues collected from Alberta's TIER market, has catalyzed over $7 billion in low-carbon projects since 2009.

trillion worth of investment per year. Figure 2 (below) offers but one example.[2] It shows policy-based revenues available to a cement plant equipped with carbon capture, utilization and storage (CCUS) capabilities sited in Alberta, versus a plant of the same scale in Texas. Canada's incentives — credits generated in Alberta's TIER market, combined with the federal investment tax credit (ITC) for CCUS and the Alberta Carbon Capture Incentive Program (ACCIP) — are highly competitive with the U.S.'s 45Q production tax credit (PTC) for CCUS.[3]

Figure 2: Carbon credits can make investment in a cement plant with carbon capture more attractive in Alberta than in the U.S.



Strong carbon markets will keep pushing big projects across the finish line

The next wave of projects and technologies are ready to be built, if the right incentives are put in place. Canada has high-profile, shovel-ready industrial projects that rely at least in part on predictable market prices for carbon credits (see Appendix A for full project list). We calculate that these projects represent over $50 billion in potential capital investment. Other estimates are as high as $57 billion.[4]

[2] For more examples, see: Frank, B., Sweet, A., and Allan, B. 2023. The Low-Carbon Playbook: Policies to foster Alberta's competitiveness in a decarbonizing world. Clean Prosperity and the Transition Accelerator. https://cleanprosperity.ca/alberta-can-win-low-carbon-investment-race-new-findings-show-how/

[3] While the Inflation Reduction Act (IRA) remains law, its ITCs and PTCs are facing repeal — including the 45Q credit for carbon capture. Canada should be prepared to opportunistically adapt its policies to soak up capital displaced by U.S. federal and state-level efforts to undermine the IRA.

[4] Linden-Fraser, R. 2025. 440 Megatonnes: https://440megatonnes.ca/insight/industrial-carbon-pricing-major-projects-worth-more-than-57-billion/

Strong carbon markets will unlock tens of billions in new investments

Carbon markets can unlock tens of billions of new investment dollars while reducing emissions more effectively than any other policy instrument.[5]

Using facility-level, bottom-up, technology-specific modelling, our preliminary estimates indicate that at a carbon price of $155 per tonne, Alberta alone has 50 megatonnes of emissions reductions opportunities across just five sectors (see Figure 3 below) — and that's before taking federal and provincial ITCs into account.

The bulk of the emissions reductions opportunities are in carbon capture. Each megatonne of emissions reductions requires over a billion dollars in investment on average.

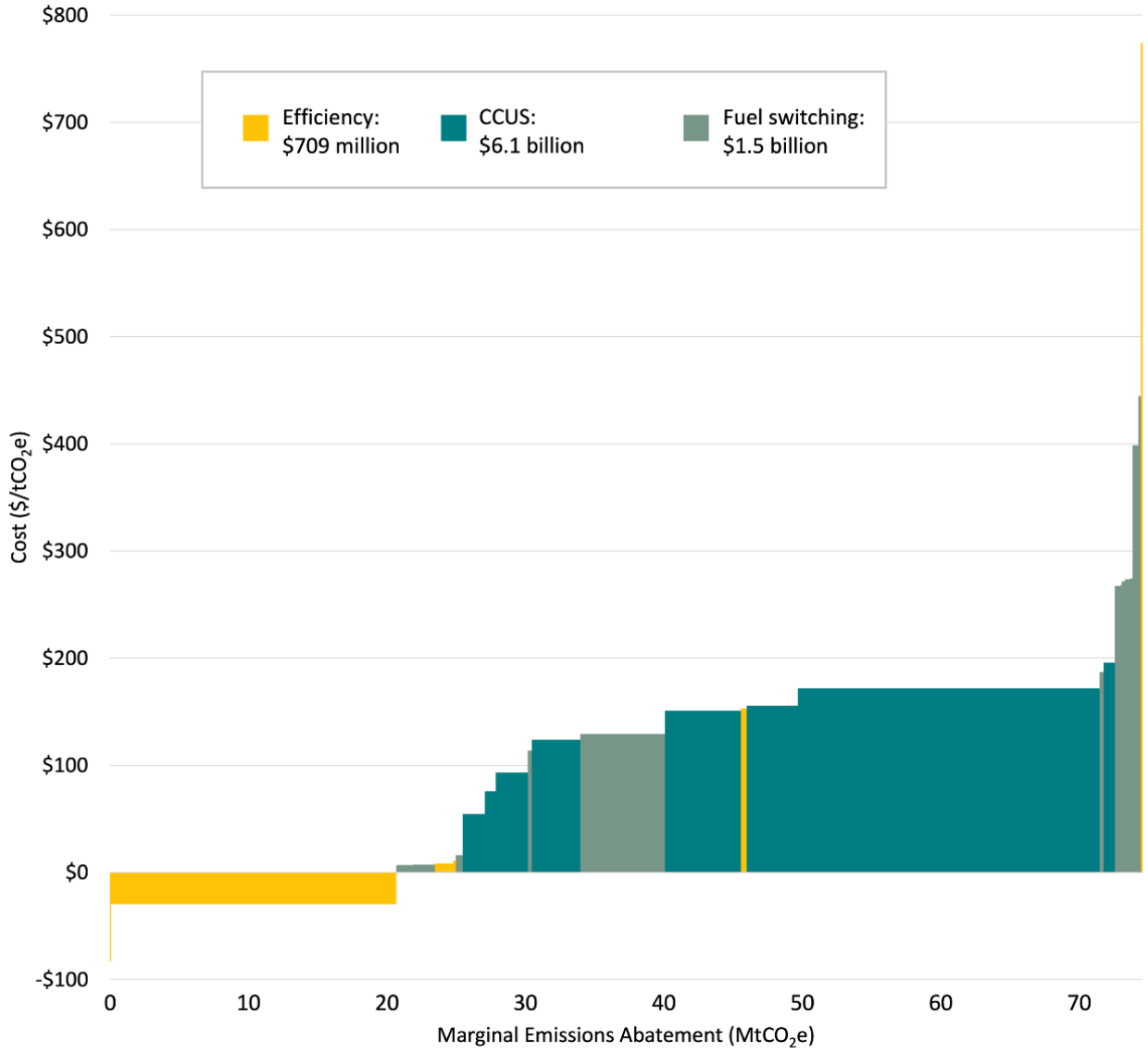
Canada can cost-effectively unlock these investments through carbon markets. We note that Figure 3 does not include the value of federal or provincial ITCs available to project proponents. We estimate that the federal CCUS ITC and Alberta Carbon Capture Incentive Program (ACCIP) would further reduce costs by $14 to $40 per tonne for projects that capture process emissions, and by $38 to $45 per tonne for projects that capture combustion emissions.

In combination with the ITCs, a carbon price of $155 per tonne would make it possible for Alberta to reduce industrial emissions even further: by 71 Mt (37% of industrial emissions), while generating a competitive 10% rate of return for firms.

Using carbon markets to attract this investment, rather than other higher-cost policies, can save scarce fiscal dollars for other provincial priorities — both by avoiding the need for excessive subsidies and through revenue recycling. Carbon costs faced by industry are manageable and any firms that encounter excessive hardships can be supported through cost containment mechanisms, such as the cost containment system already in place in Alberta.

[5] See: Beugin et al. 2024. Which Canadian climate policies will have the biggest impact by 2030? 440 Megatonnes. https://440megatonnes.ca/insight/industrial-carbon-pricing-systems-driver-emissions-reductions/

Figure 3: Alberta can cut industrial emissions by 26% (50 Mt) at a carbon price of $155 per tonne — before investment tax credits[6]



[6] Figure includes mandatory and opt-in facilities participating in Alberta's TIER carbon market. We include the following sectors: oil and gas extraction (635 facilities), chemical manufacturing (24), pipeline transport (6), petroleum refineries (4), and cement manufacturing (2). These sectors account for an average of 110 $MtCO_2e$ in annual emissions, or about 74% of the 150 $MtCO_2e$ covered by TIER. We base marginal abatement costs for each pathway on capital and operating expenses over the project's lifetime, divided by the estimated emissions reductions, based on emissions reported to the federal Greenhouse Gas Reporting Program. Costs and emissions reductions are based on a combination of a) estimates from existing research, b) industry reports, and c) in-house modeling. All costs are in 2025 Canadian dollars and include capital cost financing with a 10% margin of return over the project lifetime. CCUS costs are represented in terms of dollars per tonne of CO_2 captured and stored.

Carbon markets are having a positive overall impact on capital investments

By an almost three-to-one margin, industrial facilities report that carbon markets are already having a positive impact on their overall capital investments.[7] Facilities also report a number of other positive impacts on their business performance (see Box 2 below).

Box 2: Results from a 2024 University of Ottawa survey of 59 industrial emitters in six provinces

Efficiency: A majority of facilities (51%) say carbon markets are having a positive impact on their business efficiency. Only 12% say carbon markets are having a negative impact.

Competitiveness: About three in four facilities say that carbon markets are having a positive impact or no impact on their competitiveness. About one in four report a negative impact. More effective system design, complementary polices and effective revenue recycling can address these negative impacts.

Environmental performance: A majority of respondents said carbon markets are having a positive impact on their environmental performance, including on energy efficiency (73%) and emissions reductions (63%).

For these reasons and more, heavy industry broadly supports the use of carbon markets to induce capital investment and secure large-scale decarbonization. A 2024 open letter from industry associations (see Box 3 below) to provincial environment ministers described industrial carbon markets as "the backbone of decarbonization across this country" and "the most flexible and cost-effective way to incentivize industry to systematically reduce emissions."

[7] Results from: Batu & Rivers. University of Ottawa. 2025. Survey of heavy industrial emitters across six provinces (n=59).

Box 3: Thirteen industry associations, firms, and climate organizations signed a [2024 open letter] to provincial environment ministers in support of carbon pricing

Carbon markets deliver value with manageable costs

For most products, the cost of complying with Canadian carbon markets is a very minor contributor to production costs and, in turn, cost pass-through to consumers (See Tables 1 and 2 below, and Appendix B for methodology).

Table 1: Estimated 2024 carbon costs for select sectors (share of final product prices in brackets)

Positive values (in teal) indicate that the average facility in that sector generates revenue from carbon credits. **Negative values (in black)** indicate that the average facility faces a compliance cost.

	Alberta TIER	Ontario EPS[8]	Federal OBPS[9]
Petroleum refining $/complexity weighted barrel	**- $0.29 (0.3%)**	**- $1.95 (2%)**	n/a
Fossil fuel electricity generation $/kWh	**- $0.01 (9%)**	**+ $0.01 (8%)**	**- $0.02 (16%) (natural gas)** **- $0.01 (2%) (diesel)**
Conventional oil extraction $/barrel of light crude oil	**- $1.07 (1%)**	n/a	**- $1.47 (2%)**
Cement manufacturing $/tonne of grey cement	**+ $10.00 (9%)**	**+ $2.54 (2%)**	n/a
In-situ oil sands extraction $/barrel of bitumen	**- $1.43 (2%)**	n/a	n/a
Steel manufacturing $/tonne of EAF steel product	**- $3.65 (0.3%)**	**+ $0.43 (0.04%)**	**- $3.70 (0.3%)**

Emissions estimates are based on a representative regulated facility in each sector, using median emissions intensity data, except for conventional oil extraction and in-situ oil sands extraction, where we use a sector-wide average emissions intensity. Product prices are based on the average of 2022-2024 prices. Cost estimates exclude potential reductions from credit usage, subsidies or incentives, and taxes or royalties. Material consumer costs (e.g. electricity from natural gas under the federal OBPS) can be paired with targeted relief, such as rebates.

[8] Ontario Emissions Performance Standards (EPS) program.

[9] Federal OBPS currently operates in Manitoba, PEI, Nunavut, and Yukon.

Carbon markets carry negligible costs for households

Table 2: Carbon markets are minor contributors to the final costs of household goods[10]

Positive values (in teal) indicate that the average facility in the upstream sector generates revenue from carbon credits, and therefore does not have any carbon costs to pass on. **Negative values (in black) indicate** that the average facility faces a compliance cost.

	Additional product cost $80/tonne (2024)	**Additional product cost** $170/tonne (2030)
Foundation slab for single family home (3,200 ft^2) Cement	**$0**	**$0**
Stainless steel refrigerator (25 ft^3) BOF steel / EAF steel	**$0 / $0.12**	**$0.68 / $0.50**
Water heater (40 gallon) BOF steel / EAF steel	**$0 / $0.08**	**$0.46 / $0.34**
2025 Chevrolet Silverado pickup truck BOF steel / EAF steel	**$0 / $2.73**	**$15.35 / $11.39**
Fertilizer (5 lb bag) Nitrogenous fertilizer	**$0**	**$0**

Product costs based on average carbon costs across applicable jurisdictions (see Table 1). Note that lower-carbon electric arc furnace (EAF) steel attracted higher carbon costs than higher-carbon basic oxygen furnace (BOF) steel in 2024 due to peculiarities of the industrial carbon pricing system in Ontario, where most of Canada's steel production is concentrated.

These small costs are a built-in feature; carbon markets shield firms from high costs by ensuring they pay for just a small share of their emissions — typically 5% to 20%. With stronger market design (see Section 4), this mechanism can deliver big incentives with very low overall costs for industry and consumers. There is also significant upside for firms and facilities that are first movers on large-scale decarbonization projects.

[10] Cost estimates are based on the assumption that firms pass all carbon costs on to consumers. This is unlikely given that many of the underlying materials subject to carbon pricing are globally traded and thus priced internationally.

Carbon markets are a basis for cooperation with new trade partners

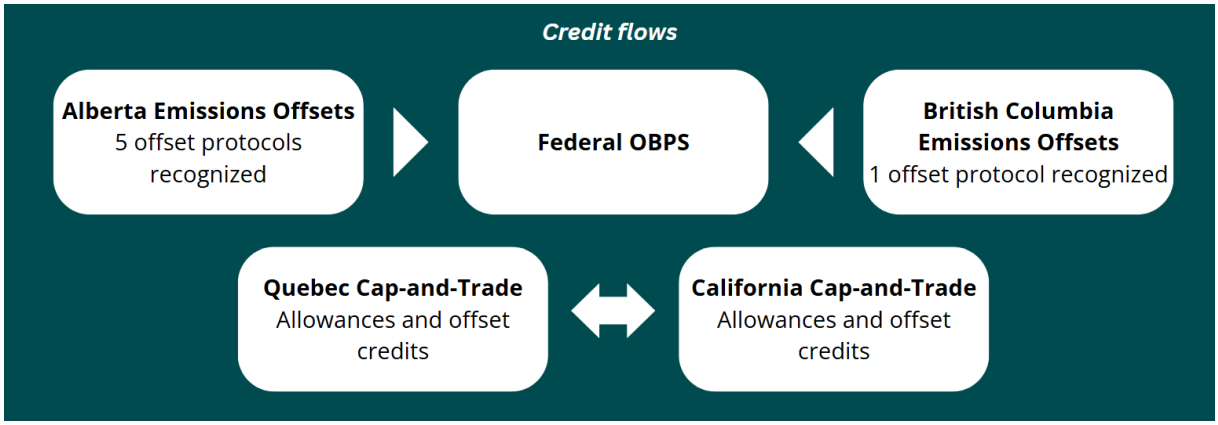
As Canada seeks to diversify its trading relationships, the European Union and the United Kingdom remain natural partners and allies. Both jurisdictions plan to implement carbon border adjustment mechanisms (CBAMs) by 2027, which would apply charges on the embedded emissions in imports. In fact, Canada's 10 largest trading partners after the U.S. all have net-zero goals and carbon markets of their own.[11] Failing to strengthen industrial carbon markets would put Canada's policies offside with the very countries with which it seeks deeper economic ties.

There are 110 carbon markets and pricing systems in operation around the world.[12] Most are new and do not have carbon prices higher than Canada's, but they will develop as CBAMs and other border measures come into place. Canadian companies that are early movers on large-scale decarbonization will develop long-run competitive advantages as global markets increasingly become subject to carbon pricing.

Strong carbon markets will help unify the Canadian economy

Carbon credits can draw in new investments, but these credits currently have some important limitations. Canada's carbon markets vary significantly in their depth, liquidity, and overall maturity, and most credits cannot be traded across provincial borders.

Figure 4: Very few credits in Canada can cross provincial borders



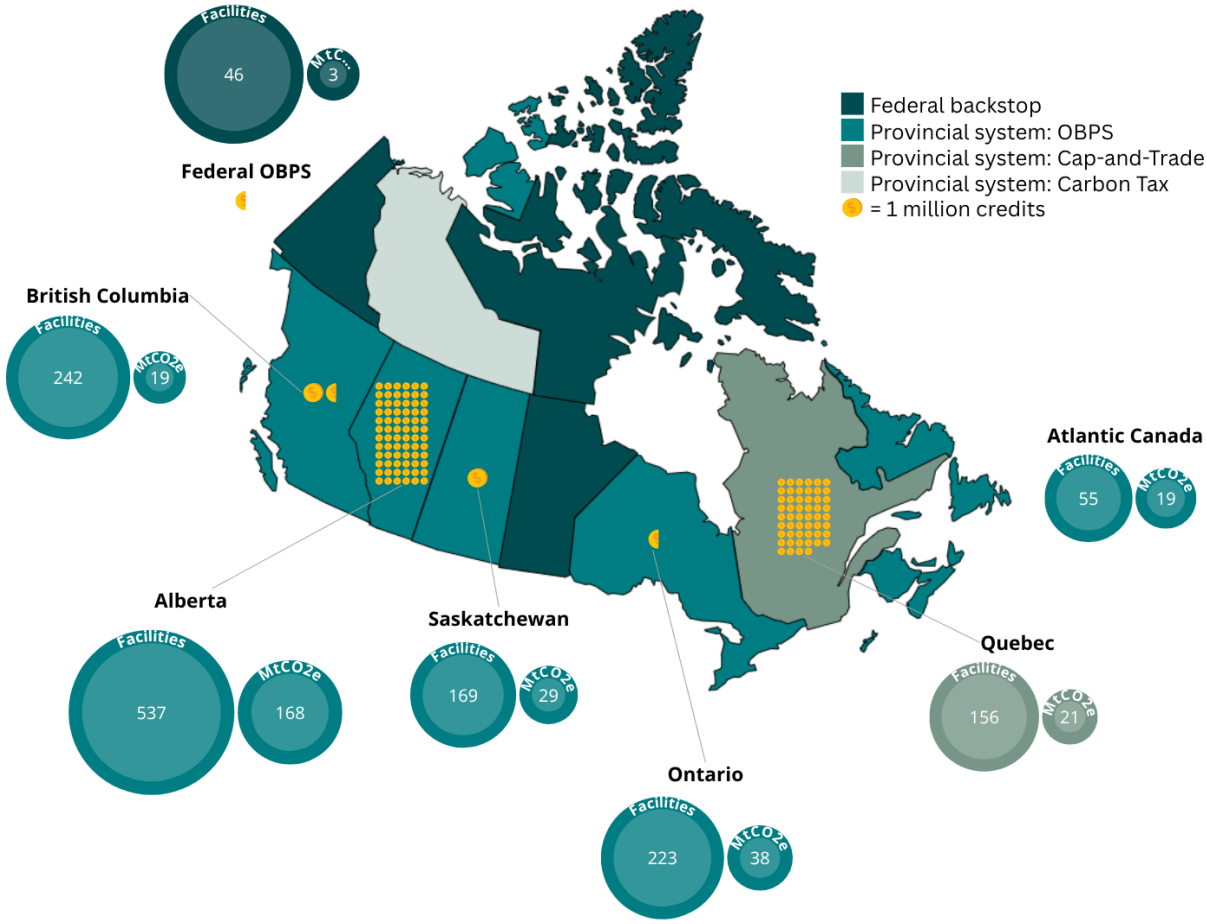
Credit balances vary significantly between markets. For instance, Alberta's TIER program has more than 50 million credits in circulation, while Ontario and the federal OBPS each have closer to half a

[11] Kyriazis et al. 2025. The World Next Door. Clean Energy Canada. https://cleanenergycanada.org/report/the-world-next-door/

[12] World Bank Carbon Pricing Dashboard: https://carbonpricingdashboard.worldbank.org/

million credits in circulation (see Figure 5 below). With proper action to harmonize these imbalances,[13] credit trading across provincial borders would improve market depth and investor confidence, and reduce compliance costs for firms. This would support efforts to unify the Canadian economy by reducing barriers to interprovincial trade.

Figure 5: State of interprovincial trade barriers in credit markets



[13] Fully opening up provincial markets right away would tip smaller markets into oversupply. As such, interprovincial credit trading would need to be phased in gradually. To facilitate development of larger trading programs and more flows across provincial borders over time, provinces can start pilot programs right away. We recommend starting with specific credit classes that represent permanent and durable emissions reductions (e.g. offsets for CCUS and CDR).

Strong carbon markets will unlock investments that can make Canada a global leader in high-potential emerging industries

Strong carbon markets create higher returns for investments in new low-carbon industries — from clean fuels to critical minerals to CDR and beyond. They also drive investment in decarbonizing existing industries, enabling Canadian facilities to serve markets that will increasingly demand low-carbon cement, aluminum, chemicals, and other products.

Case study: Carbon dioxide removal

Carbon dioxide removal (CDR) presents a compelling example of carbon markets' long-term economic potential. This nascent sector presents an enormous economic opportunity for Canada.

Building a large-scale CDR sector could remove hundreds of megatonnes of CO_2 from the atmosphere by 2050, create over 300,000 jobs, add $143 billion in GDP, and support critical industrial sectors like steel, cement, and construction.[14] That would make CDR a key part of our economy, and a larger industry than today's oil sector.

The CDR sector is already growing rapidly. Phlair, a German company, is building a 20,000 tonne-per-year direct air capture facility in Alberta. Deep Sky, a Canadian firm, has attracted $130 million in venture funding and is currently testing a range of direct air capture technologies in Quebec and Alberta. CarbonRun has attracted over $40 million in funding to remove carbon dioxide from rivers in Atlantic Canada. The list goes on.

Stable, predictable carbon markets are essential for carbon dioxide removal to achieve its potential in Canada, because CDR requires a carbon price to make it economic at scale. Once CDR scales up and its costs come down, CDR will support carbon markets by acting as an effective ceiling on the carbon price. No emitter will pay the carbon price if they can instead buy a CDR credit for a lower cost per tonne.

If carbon removal achieves scale, Canada could offer CDR as a service to the world. The globe will need billions of tonnes of CDR in the decades to come. Canada can lead the charge, attracting large investments from other nations that may lack the land, access to water, clean energy or other resources that are necessary to build a large-scale CDR sector.

At a price of $100 per tonne, each gigatonne that Canada removes represents $100 billion of export potential.

[14] Estimates and Figure 6 taken from: Bushman T., & Merchant, N. 2023. Ready for Removal: A Decisive Decade for Canadian Leadership in Carbon Dioxide Removal. Carbon Removal Canada. https://carbonremoval.ca/wp-content/uploads/2023/11/CRC_ResearchReport_Ready_for_Removal.pdf

Figure 6: Overview of various carbon dioxide removal methods[15]

Carbon markets are the lowest-cost way to reduce emissions

There are many strong economic reasons to adopt carbon markets. Carbon markets also offer the most affordable approach to achieving Canada's emissions-reduction targets.

The federal government and almost all provinces and territories have committed to reaching net-zero emissions by mid-century. Canadian policymakers should leverage carbon markets to reach these goals because evidence shows that they offer the lowest-cost way to achieve emissions reductions.

Carbon markets minimize costs because they give the private sector the flexibility to decarbonize at the time and pace that makes the most sense for business. Without carbon markets, policymakers will need to use regulations or subsidies to achieve emissions-reductions targets, both of which are more costly.

[15] *Ready for Removal: A Decisive Decade for Canadian Leadership in Carbon Dioxide Removal*, Carbon Removal Canada, November 2023.

Section 2: A vision for carbon markets in Canada

Carbon markets can be part of a larger long-term economic strategy for Canada. We envision three distinct but overlapping phases in the evolution of Canadian carbon markets.

Phase 1: Startup (2020s)

Carbon markets are still relatively new, shallow, and opaque. Participants are still trying to understand the rules. Policymakers identify challenges and help the markets mature. There is a headline carbon price, but it is inadequate on its own. Firms and investors are attuned to "stroke-of-pen" risks, where changes in government could mean significant changes to foundational policies.

Until firms believe that carbon pricing is a durable policy, they will seek efficiency improvements at the margin but are less likely to make large capital investments aimed at deep decarbonization without a carbon contract (see Box 5 below). The goal in the latter half of the startup phase should be to implement five core principles that can build strong markets and enable scaling: high-value and high-integrity credits, credit value guarantees, free interprovincial trade in credits, a rising headline carbon price, and carbon competitiveness policies.

These principles ensure that carbon markets are strong and stable over the long-term. With the improvements described in this paper, industry demand for decarbonization grows. This demand will be matched by sufficient investments in shared infrastructure that can induce network effects — particularly for electricity, low-carbon fuels, and carbon capture.

Phase 2: Growth (2030s)

Firms now have the confidence to invest in Canada's strengthened carbon markets. Many large decarbonization projects move ahead. As decarbonization efforts scale up, top-performing firms generate large volumes of carbon credits. Governments use responsive rules to adaptively adjust their carbon pricing systems to maintain demand for credits and avoid payouts on carbon contracts.

Many of Canada's trading partners have carbon border adjustment mechanisms (CBAMs) that charge fees on imports with high embedded emissions. Canada is carbon competitive and avoids these charges due to the lower carbon intensity of its industrial production. In some cases, Canada's low-carbon exports offer a competitive advantage.

At this point, Canada will need to put in place a border policy to protect the trade competitiveness of some firms and sectors that face material cost challenges due to carbon pricing (e.g. steel, chemicals, pulp and paper). Options include CBAMs, emissions-intensity standards for imported goods, and multilateral climate clubs. We expand on these options in the next section.

To ensure that the supply of decarbonization technology options keep pace with demand, governments fill any gaps in shared infrastructure that persist from the startup phase. This may imply a combination of government action and private investments in electricity grids, low-carbon fuel production, and CCUS and CDR infrastructure.

At this stage, the CDR industry should be providing megatonne-scale removals in Canada, with costs falling to $200-$300 per tonne and carbon markets offering the bulk of incentives for further scaling. Additional policy support, such as tax credits, can make up the difference as the CDR cost curve continues to fall.

Phase 3: End state (2040s and beyond)

Deep decarbonization is now the default option for most firms and investors. Markets have been working effectively for more than a decade and carbon contracts are no longer needed because the system is durable and investable. Many low-carbon technologies have declined in cost and are widely deployed. For firms that still do not have cost-effective solutions to reduce their emissions, competitiveness protections may still be required.

The CDR industry now provides an attractive and economic option to offset emissions. The CDR sector has scaled to over 100 megatonnes of annual removal capacity, and all-in removal costs are lower than the headline carbon price. Once this line is crossed, firms that still face barriers to decarbonization will buy CDR credits rather than pay the industrial carbon price.

Canadian industry has achieved net-zero emissions.

Section 3: Carbon markets need joint provincial and federal commitment

Most carbon markets in Canada are managed by provinces and territories. Some provinces, like Alberta and Quebec, established markets before the federal government. Provincial leadership is beneficial because it allows markets to be tailored to the unique needs of provinces.

Under the current system, the federal government defines minimum national standards, as set out in the federal carbon pricing backstop. Minimum standards help keep all provinces on a level playing field for attracting industrial investment.

But, importantly, minimum standards need not shape market design. Provinces have the option to design their own systems as long as they meet national standards. In provinces that do not meet the standards, the federal government imposes its OBPS carbon market. Provinces can also voluntarily opt into this system, as some have done in the past (see Figure 5 above).

Markets won't work without cooperation between orders of government

Investment in decarbonization won't reach the levels needed to make Canada into a diversified low-carbon powerhouse unless investors believe that both provincial and federal governments are committed to strengthening their carbon markets over the long term. That is not the case today. The provinces and the federal government are not aligned on market rules. Some provinces question whether there should even be any federal role in these systems.

Saskatchewan's government, for example, set the province's headline carbon price to zero in 2025, effectively cancelling its system. Among the government's concerns are that its carbon market added too much to the price of electricity.

The Alberta government subsequently froze its current headline price at $95 per tonne, citing competitiveness concerns. Alberta and Ontario have also asked the federal government to remove the federal backstop. Several other provinces have shown little enthusiasm for carbon markets, doing the bare minimum to comply with federal standards.

Addressing the impasse will require both the federal and provincial governments to take steps towards a renewed partnership. Fortunately, a new federal-provincial partnership is now at the top of the national political agenda. The federal and Alberta governments have explicitly floated the idea of a grand bargain on energy infrastructure development and climate.

In the rest of this section and the following one, we lay out a vision for how the federal and provincial governments can build a new cooperative approach to climate policy, centered on carbon markets.

Start with removing overlapping regulations

As they build momentum around major new infrastructure, the federal and provincial governments should simultaneously reset their relationship on climate policy. The prime minister is off to a helpful start by indicating his willingness to revisit the Oil and Gas Sector Greenhouse Gas Emissions Cap Regulations. The oil and gas cap is unnecessary and overlaps with carbon markets and is a source of much frustration in Alberta and Saskatchewan in particular.

The Clean Electricity Regulations (CER) have also created significant tensions with the provinces. Like the oil and gas cap, the aims of the CER are better achieved through effective carbon markets. Cancelling both the emissions cap and the CER is table stakes for resetting the relationship between the provinces and the federal government.

Recommendation #1

The federal government should cancel the oil and gas emissions cap and the Clean Electricity Regulations.

Work together to strengthen carbon markets

A reset must find a path forward to strengthened carbon markets. Getting there will require flexibility, creativity and compromise from both federal and provincial governments, who are scheduled to review their markets together in 2026. The review will culminate in the federal government determining whether each provincial system meets its minimum standards for the 2027-2030 period.

The review shouldn't just be an assessment of existing systems against federal standards. Instead, it should be used as an opportunity to reach a more durable agreement that establishes Canadian carbon markets as economic engines that can seed high-potential sectors, generate jobs, and help Canada build.

Recommendation #2

The federal Minister of Environment and Climate Change should broaden the scope of the 2026 carbon pricing review, and start it as soon as possible. The primary aim of the review should be to make Canada's carbon markets ready to attract billions in low-carbon capital.

Accelerating and broadening the review will better align the process with federal-provincial dialogues on removal of interprovincial trade barriers, building one Canadian economy, and unlocking large-scale projects that can reinvigorate the nation.

In the next section, we propose five core principles that will enable Canada's carbon markets to live up to their potential, with recommendations for the federal and provincial governments on how to implement these principles.

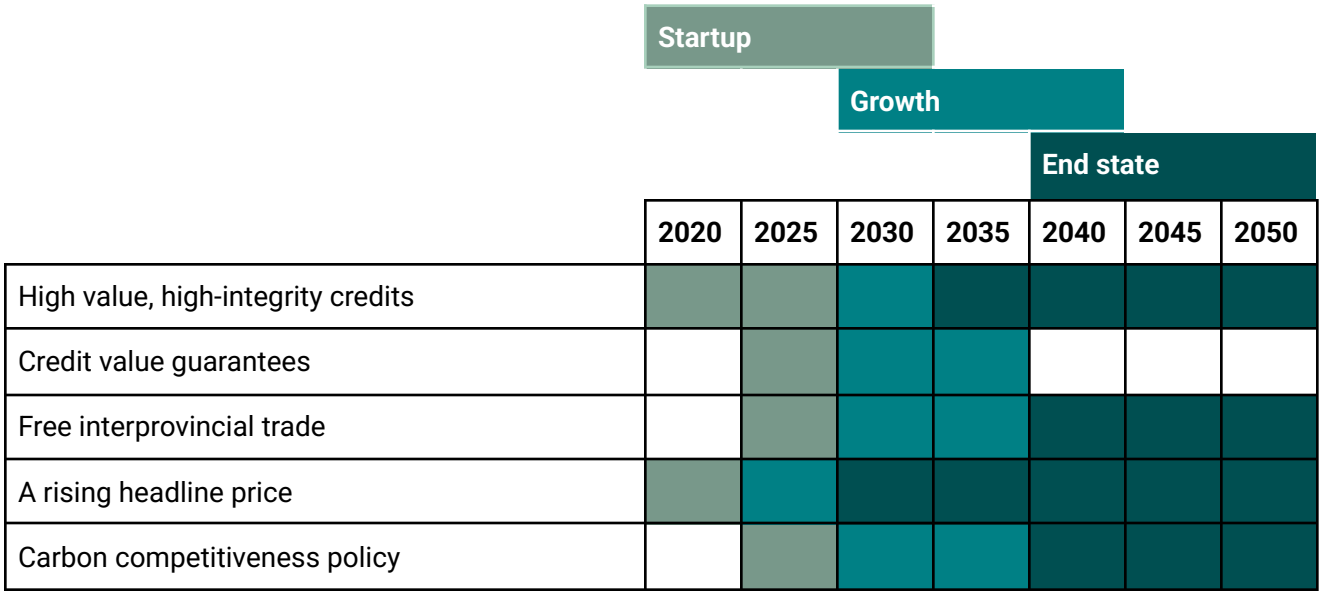
Section 4: Core principles for strong carbon markets

Federal, provincial, and territorial governments can collectively leverage carbon markets as a tool to help Canada build. But this potential will go unrealized unless investors have the confidence to invest billions of dollars into these markets.

In this section, we detail five core principles for effective carbon markets that can unlock the large-scale financing we need. Applying these principles can create fully bankable markets, where investors have certainty about the durability of the markets, and therefore confidence in the economics of their own projects.

In the rest of this section, we describe each principle, propose solutions to obstacles that have hindered past federal-provincial cooperation, and highlight the role that both orders of government should play in applying the principles. (Note that we use "provinces" as a shorthand for both provinces and territories.)

Figure 7: Five core principles for strong carbon markets



Box 4: The Pathways project

The Pathways Alliance is a group of major oil sands producers. Their proposed decarbonization plan includes large investments in carbon capture. It's the largest low-carbon project on the table in Canada, worth an estimated $75 billion in capital investment across all project phases. Pathways has asked for public funding to support two-thirds of the cost, in line with the funding of oil projects in other countries.

The Pathways project would be a significant landmark for decarbonization, but there is a better way to incentivize this project than subsidies. A more practical path forward to secure investments of this scale is strengthening carbon markets, in alignment with the five core principles outlined in this report. Stronger carbon markets (in this case, Alberta's TIER market) would offer most of the incentives needed for Pathways to proceed.

Credible analysis shows that decarbonizing Canada's oil sands sector would cost $2 to $2.50 per barrel.[16] Without decarbonizing, an in-situ oil sands facility would have to pay $3.81 per barrel in carbon charges in 2030, based on a carbon price of $170 per tonne and the performance benchmark. Some carbon costs are offset by royalty payment reductions, but these figures still suggest that carbon markets can provide the bulk of the incentives needed for decarbonization. Complementary policies and ITCs can cover the difference.

However, TIER credits are only trading at $30 per tonne in 2025, against a headline carbon price of $95. The Pathways companies must be confident that they can reliably sell the carbon credits they will generate, at prices that will give the project a reasonable rate of return. For the companies to be confident enough to invest, they likely require a carbon contract guaranteeing the future value of the credits, paired with a rising headline carbon price over the long term.

That combination can provide greater certainty that the project's avoided carbon costs and credit revenues, along with government support, will exceed Pathways' capital and operating costs.

When the Pathways project comes online, it will generate significant carbon credit volumes. There must be enough buyers able to absorb all those credits without crashing prices and undermining the carbon price signal. That requires free interprovincial trade in credits, to ensure sufficient market depth. It also requires that carbon markets employ responsive rules to make sure credit demand consistently exceeds supply.

Stronger carbon markets make the Pathways project more likely, while saving billions of dollars in public funds that would otherwise be required to finance the project through subsidies.

[16] Discounted cash cost, amortized through 2050, based on a cumulative $130 billion in spending — $18 billion by 2030, $56 billion by 2040, $130 billion by 2050. This assumes flat production. However, taking even the Canadian Energy Regulator's most pessimistic oil sands production forecast, the costs only rise to about $2.66-$3.32 per barrel.

Principle #1: High-value and high-integrity credits

Credit value and credit integrity are crucial to strong carbon markets. Most importantly, credits must continuously rise in value in step with the headline price of carbon. If credit prices remain well below the headline price (as they are in most markets in 2025) then the headline price is effectively irrelevant. Firms can purchase cheap credits and avoid paying the higher headline price.

For credit prices to closely track the headline price, market demand for credits must exceed supply. The key determinant of both supply and demand is the emissions performance benchmarks applied to each firm.

Currently, benchmarks are evaluated on a five-year basis and generally tighten over time to ensure that the incentive to decarbonize increases. But rules that remain fixed for five years are not flexible enough for a dynamic market in which the goal is to have many dozens of decarbonization projects completed within the next decade.

Governments need to implement more responsive rules to quickly adjust performance benchmarks to respond to market conditions. They should use adaptive tightening, a mechanism that tightens benchmarks at the pace of industrial decarbonization to prevent credit oversupply. The tightening rate for performance benchmarks should be set annually with adjustments occurring automatically based on supply-demand balance in the carbon market over the previous year.

To implement adaptive tightening in Alberta, for example, the province could apply a rule where TIER benchmarks would be tightened in the next year to the extent that *net obligations* — effectively meaning Alberta firms' total carbon pricing bills under TIER, minus the carbon credits available to pay them — fall below some minimum threshold, say 5% of total regulated emissions. This rule would seek to ensure that there is always more demand for carbon credits than there are credits to satisfy the demand. Committing to this rule would give firms greater confidence in the long-term value of TIER carbon credits.

Credit value and credit integrity are crucial to strong carbon markets. Most importantly, credits must continuously rise in value in step with the headline price of carbon.

Adaptive tightening could resolve disagreements between federal and provincial governments during the carbon market reviews that take place every five years, about what credit supply-demand balances will look like in future years. With adaptive tightening, the rules will respond to actual conditions. The federal and provincial governments don't have to agree on a prediction of market dynamics five years in advance.

Recommendation #3

The federal government and all provinces that oversee their own markets should adopt responsive rules that ensure demand exceeds supply across carbon credit markets.

Responsive rules like adaptive tightening should look at market balance on a regular basis (e.g. annual), and adjust benchmarks according to actual market conditions.[17]

High-integrity credits must also be price transparent. Currently, credit prices across Canadian carbon markets are not publicly accessible. To form clearer expectations about the future value of carbon credits, firms large and small need greater access to public market data. In carbon markets around the world, requiring firms to report credit transaction data is common practice.[18]

Recommendation #4

The federal and provincial governments should publish transaction data from their carbon markets, taking care not to disclose sensitive information.

At a minimum, they should release quarterly data on average, minimum, and maximum prices by credit vintage, and volume of trades by vintage.

Some carbon markets — including Alberta, B.C., Quebec, and the federal OBPS — use classes of credits known as offsets. Unlike performance credits, which only regulated firms can generate by beating their benchmarks, offsets can be generated by any low-carbon project that follows specific regulations, called offset protocols. To play their intended role in driving decarbonization, offsets must also satisfy integrity criteria (see Appendix C).

[17] For a detailed explanation of adaptive tightening, see: Dizon, E., & Bishop, G. 2024. Strengthening TIER for Alberta's Low-Carbon Growth. Clean Prosperity. https://cleanprosperity.ca/wp-content/uploads/2024/07/Strengthening-TIER-for-Albertas-Low-Carbon-Growth.pdf

[18] Many carbon markets publish auction results, including the EU's Emissions Trading System (EU ETS), Regional Greenhouse Gas Initiative (RGGI), and the California-Quebec cap-and-trade program. North American low-carbon fuel standard (LCFS) markets do the same; BC's LCFS publishes a monthly summary with average, maximum, and minimum credit prices; California's LCFS publishes a weekly log identifying individual transactions with volumes and prices; Oregon and Washington similarly publish price and volume statistics for LCFS credit trading promptly after the month-end.

Recommendation #5

The federal and provincial governments should refine and harmonize their offset protocols to ensure that offset credits are additional and durable, phasing out the use of credits that cannot meet these criteria.

Principle #2: Credit value guarantees

High-value and high-integrity credits are key to healthy, investable Canadian carbon markets. But to unlock large-scale projects, investors must also be confident that the markets will endure over the long run. Building that confidence will take years of cross-partisan political support for carbon markets at the federal and provincial levels. In the interim, policymakers will need another tool to secure investor confidence and get big projects moving.

Government guarantees on the future value of carbon credits — in the form of carbon contracts (see Box 5 below) — are the most powerful tool available to achieve these outcomes in the near term. Without a guarantee that their carbon credits will be of sufficient value, firms will not be able to justify making major investments.

Firms across Canada are not investing as if carbon credit prices are going to rise, and haven't for some time. In fact, at the time of publication, credits in the Alberta market are trading around $30 per tonne, despite a headline price of $95 per tonne.

Carbon contracts address these challenges. We propose that governments make standardized carbon contracts widely available to low-carbon project proponents.

Importantly, these contracts can be structured in ways that create little or no direct fiscal cost. Governments can structure carbon contracts to avoid inflating deficits, while still complying with the Public Sector Accounting Standards.

Box 5: Carbon contracts

Carbon contracts — also known as carbon contracts for difference — are agreements between federal or provincial governments and low-carbon project proponents. The contracts offer a government guarantee on the future value of carbon credits generated by a low-carbon project in a carbon market.

A guaranteed carbon price eliminates significant sources of risk and uncertainty for low-carbon projects. The government guarantees a specific credit price for a specific period of time (typically 10 to 15 years) with payment obligations settled on a regular basis.

There are a number of ways to structure carbon contracts. The key differentiator is who ultimately retains control of the credits after the contract is settled.

- With **offtake agreements** the government commits to directly purchasing carbon credits from the proponent at an agreed-upon price.
- With **top-up carbon contracts**, parties set a "strike price" for carbon. If the carbon price exceeds the strike price at the time of settlement, the proponent pays the difference to the government. If the carbon price falls below the strike price, the government pays the difference.

  In this structure, cash changes hands rather than credits. The proponent keeps the carbon credits and so retains the incentive to sell its credits in the open market at the best possible price.
- Other contract designs, such as a **guaranteed price floor for credits**, are possible as well.

Another key consideration in either an offtake or top-up carbon contract is how to set the strike price. To date, the Canada Growth Fund has signed a number of **bespoke carbon contracts** where the strike price and other terms of the deal were based on negotiations with a particular project proponent.

Clean Prosperity favours a different carbon contract design — a **standardized contract** with a standard strike price and standard terms, that can be accessed by any large emitter that participates in an industrial carbon pricing system in Canada.

Regardless of contract type, it is fully within governments' ability to avoid payouts against carbon contracts, provided they make the necessary adjustments to their carbon pricing systems — e.g. ensuring that carbon markers aren't oversupplied with credits, through reforms like adaptive tightening. As long as the government maintains the carbon-price trajectory and ensures that carbon-credit markets operate efficiently, carbon contracts need never be exercised.

Canada is already using bespoke carbon contracts to guarantee credit prices (and, in one instance, headline carbon prices) for specific projects. While this approach has unlocked a few individual projects, it has not created the market-wide certainty required to mobilize private capital at scale.

To show their shared commitment to carbon markets and maximize private sector confidence in the durability of the markets, federal and provincial governments should collaborate to offer carbon credits jointly. To date, however, the orders of governments have not been able to agree on a cooperative approach. Provinces are looking for federal leadership on carbon contracts; the Alberta government in particular has publicly called for the federal government to introduce broad-based carbon contracts to help unlock investments. For their part, the federal government is wary of introducing a large-scale carbon contracts program to guarantee credits in markets that are managed by the provinces.

The solution to this challenge, in our view, is for a joint federal-provincial program. The federal and provincial governments should both backstop a material share of the contracts. It's worth reemphasizing that neither government will need to pay out on these contracts as long as carbon market rules are effective and enforced.

Carbon contracts are only needed during the early stages of carbon market development. Once firms and investors gain comfort and confidence with the carbon market, based on factors like cross-partisan political buy-in, carbon contracts should no longer be necessary to unlock additional low-carbon investments.

Recommendation #6

The federal government should offer standardized carbon contracts to all regulated industrial emitters in partnership with provinces. These contracts should allow any regulated emitter to opt into a deal without protracted negotiations.[19]

The federal and provincial governments should both backstop a material share of the contracts. As long as provinces and the federal government commit to strengthening their carbon markets, the contracts will not require payouts, nor create any long-term fiscal obligations.

To build a pipeline of projects that can take advantage of carbon contracts, the federal and provincial governments should also expand their support for front-end engineering design (FEED) studies that allow firms to fully assess the business case for major low-carbon investments.

[19] Standardized contracts could offer different strike prices by sector or technology, but this isn't essential.

The often high cost of FEED studies can delay the deployment of viable low-carbon projects. Several government bodies, including the Canada Infrastructure Bank, Natural Resources Canada, and Emissions Reduction Alberta, are already supporting early-stage FEED studies for low-carbon projects.

We recommend a concerted national effort to provide financing options for FEED studies, so that companies can accelerate final investment decisions and take advantage of carbon contracts. As carbon markets become established, FEED support should no longer be widely needed. The opportunity to generate carbon credits should become a sufficient incentive for firms to fund FEED studies.

Principle #3: Free interprovincial trade

Unfortunately, Canada's carbon markets are mostly siloed. A credit earned in one province cannot be used in another. This is inefficient, and cumbersome for firms who operate in multiple jurisdictions but cannot optimize their carbon credits across markets. It also presents a particular challenge for smaller carbon markets, such as those in the Atlantic provinces, where one large decarbonization project would quickly create an oversupply of credits.

Interprovincial carbon credit trading would create larger, deeper, and more liquid markets. This would reduce search, compliance, and transaction costs, and increase market confidence. Firms that operate in more than one province could see dramatically lower compliance costs, and new market entrants would have more prospective buyers for their credits.

Barriers to interprovincial trade in carbon credits are inconsistent with building a unified Canadian economy. Removing the barriers need not infringe on provincial authority. Provinces would still be able to maintain control over most components of market design, while agreeing on certain harmonized rules.

Barriers to interprovincial trade in carbon credits are inconsistent with building a unified Canadian economy. Removing the barriers need not infringe on provincial authority.

There is already a template for action on interprovincial trade: recognized units provisions (RUPs). RUPs are rules or regulations that allow certain credits issued by one government to be used for compliance in a carbon market run by another government. The federal OBPS already has a handful of RUPs in operation. About 13% of Alberta TIER credits are eligible for one-way transfer to the federal OBPS under its existing RUPs (see Appendix D).

To date, provinces have not prioritized linking their markets for several reasons. The process of linking markets is complex and could create unintended consequences. Some provinces are concerned that their industries will become net buyers of credits, resulting in an outflow of money to other jurisdictions. Nevertheless, we believe that the benefits of linked markets far outweigh the risks. If some provinces are reluctant, the federal government can take steps to encourage linkages by offering both technical assistance and financial incentives.

Recommendation #7

The federal and provincial governments should create linkages across Canada's carbon markets as part of the broader effort to remove interprovincial trade barriers.

One component of this effort should be to expand the use of recognized unit provisions (RUPs), with a focus on offset classes that represent additional and permanent carbon removals.

The federal government can help motivate this conversation by offering technical guidance on RUP development. It could also consider offering incentives (e.g. investment tax credits) for provinces that develop RUPs.

There are bilateral and multilateral approaches that can make incremental progress towards the ultimate goal of linking all of Canada's carbon markets. For example, the New West Partnership Trade Agreement (NWPTA) between Canada's four Western provinces could be updated to permit interprovincial credit trading. A New West Carbon Market would be much larger and deeper than individual markets, and would cover about 70% of Canada's industrial emissions.

Principle #4: A rising headline price

The certainty of a rising headline carbon price is an essential complement to credits that are high-value and high-integrity, backed by carbon contracts, and interprovincially tradeable.

The headline price underpins the entire system. Firms are only willing to purchase carbon credits to avoid paying the headline price of carbon. The headline price sends an important signal to investors and project proponents about the economics of their projects.

Some provinces have expressed concern about the trajectory of the headline price to $170 per tonne by 2030. The Alberta government, for example, froze its carbon price at $95 per tonne in 2025, citing competitiveness concerns.

A rising headline price shouldn't threaten economic competitiveness. Analysis suggests that most industries face a low risk of carbon leakage — whereby carbon pricing leads to firms leaving Canada for jurisdictions with lower environmental standards. Furthermore, any concerns about competitiveness can be addressed without changing system-wide rules, as outlined under Principle 5.

Nonetheless, a carbon price of exactly $170 by 2030 is not critical to ensuring that there is a business case for major new low-carbon investment. For this reason, the federal government could consider compromising on the pricing schedule — such as a more gradual rate of increase that would see the price reach $170 in 2035 rather than 2030 — if such a compromise enabled a durable deal with the provinces. In particular, if provinces agree to strengthen their carbon markets and jointly commit to standardized carbon contracts, in line with the recommendations in this paper, the federal government should be open to modifying the price schedule to address their concerns.[20] What matters for unlocking investment is for the carbon price schedule — tracked closely by the price of carbon credits — to gradually increase and ultimately reach a level that exceeds the costs of decarbonization.

For this reason, it is also important that the federal and provincial governments soon agree on a price schedule for the period from 2030 to 2040, if not beyond. This agreement could be part of an accelerated 2026 carbon pricing review. At minimum, and assuming the current price schedule to 2030 is maintained, we recommend that the price increase at the rate of inflation after 2030.

[20] One of the risks of modifying the price schedule is that it can create greater uncertainty in the market, which is why we only recommend that the federal government consider modifying the price schedule if it leads to a durable agreement with the provinces that is underpinned by carbon contracts for difference. Such an agreement would enhance market certainty and confidence and thereby incentivize significant new investment.

Recommendation #8

In close collaboration with the provinces, the federal government should define a path for the headline carbon price through at least 2040, at a level that is sufficient to incentivize wide-scale decarbonization.

Principle #5: Carbon competitiveness

Carbon markets can attract investment and help Canada build out new industries, but must strike a balancing act in the long run to protect the international competitiveness of Canadian industry. Policymakers must ensure that carbon markets do not impose costs that put participating firms at a competitive disadvantage relative to international peers in jurisdictions without carbon markets or equivalent regulations. Failure to protect domestic firms would result in carbon leakage, where emissions and economic activity are pushed abroad.

In the near term, performance benchmarks ensure that average costs remain low for most firms. Any firms or facilities that are threatened by unmanageable carbon costs can be addressed on a bespoke basis, rather than by adjusting system-wide rules. Options for bespoke support include cost containment mechanisms (see Box 6 below), and direct financial support for firms, paid for from recycled carbon pricing revenue. In the case of an entire sector facing unmanageable costs, performance benchmarks for that sector alone can be adjusted. What's important is that benchmarks in the rest of the system remain strong enough to avoid a credit oversupply. The system must continue sending a strong decarbonization signal to market participants.

In the long term, as performance benchmarks tighten and the headline price increases, making the cost of carbon emissions more significant, policymakers will need options to address the risk of carbon leakage. There are several policies that can help keep Canadian industry on a level playing field with international competitors.

The most well-known policy is a border carbon adjustment. Some of Canada's largest trading partners, including the EU and U.K., are proceeding with carbon border adjustment mechanisms (CBAMs), which will place charges on the embodied carbon content of imports. CBAMs can also rebate all or part of domestic carbon costs for exported products.

Box 6: Cost containment mechanisms

Cost containment mechanisms (CCMs) protect specific facilities and firms from excessive carbon costs in instances of financial hardship.

Alberta's TIER system already uses a CCM. Facilities with carbon costs exceeding 3% of sales or 10% of profit can apply to the CCM. The Alberta government then decides whether the facility is eligible for admission to the program, for a period of up to five years, after the compliance year has concluded.

Relief takes two forms. The first course of action is to remove a facility's carbon credit usage limit. This allows the facility to meet more of their compliance obligations using tradeable carbon credits, rather than paying the headline price. If this flexibility is not sufficient to alleviate hardship, the facility's performance benchmark is adjusted upwards to reduce compliance costs.

Alberta's CCM design can be adapted by other provinces. Carbon credit usage limits vary by province, so adjusting these limits may not make sense in some markets. Alberta allows facilities to satisfy 80% of their compliance obligations with credits and requires cash payments to satisfy the other 20%.[21] Ontario, on the other hand, permits facilities to use as many credits as they want to meet their obligations. Provinces without credit usage limits could offer cost containment by adjusting performance benchmarks instead.

CBAMs are just one type of border mechanism. Other policy options include:

- Emissions-intensity standards, which ban the import of goods that exceed emissions intensities set by the importing nation;
- International climate clubs, which align participating countries on ambitious climate policies; and
- Enhanced revenue recycling paired with benchmark adjustments or cost containment programs (see Box 6 above).

A central question for any border carbon policy is how it might affect Canada's relationship with the United States. CBAMs and intensity standards would be challenging for Canada to implement unilaterally because they would cause trade friction with the United States. On the other hand, the need to renegotiate a broader economic and security relationship with the U.S. presents an opportunity to explore a cooperative CBAM. While the current U.S. administration does not seem keen on environmental policy, the U.S. Congress has developed several border carbon policies — such as the U.S. PROVE IT Act — motivated largely by concerns about trade with China. It is therefore in

[21] Increasing to a maximum credit usage of 90% in 2026 and beyond.

Canada's interest to quickly develop a detailed menu of potential designs for a carbon border policy, including designs that enable U.S. cooperation, and contingency plans if cooperation proves difficult to secure.

Recommendation #9

Provinces should address competitiveness concerns in at-risk industries or firms through changes that do not compromise on the other core principles of a strong carbon market.

Options include modifications to revenue recycling programs, cost containment mechanisms, or additional bespoke support. If an entire sector is facing unmanageable cost challenges, performance benchmarks can be adjusted for that sector. Provinces can implement all of these options without weakening the decarbonization signal for carbon market participants.

Recommendation #10

The federal government should prepare design options for carbon border policy that can be implemented within the next two to three years. Policy development should consider three scenarios:

1. A cooperative design approach with the U.S. as part of a larger security and economic deal.
2. A scenario where Canada aligns with other trading partners that are interested in carbon border policy, such as the EU and the U.K.
3. A scenario where Canada pursues a carbon border policy independently.

Appendix A: Capital projects supported by carbon credit revenues ($500 million+)

Project name	CapEx ($M)	Location	Status
Pathways Alliance CCS Hub (Phase 1)	$16,500	Wood Buffalo, AB	Proposed - FID expected in 2025
Dow Path2Zero Polyethylene and Ethylene Derivatives Facility	$11,500	Fort Saskatchewan, AB	Construction delayed as of April 2025
FCL Renewable Diesel and Canola Crush Expansion	$4,000	Regina, SK	Paused January 2025 due to rising costs and political uncertainty
Northern Ammonia and Methanol Production Facility	$2,500	Greenview No.16, AB	Proposed
ArcelorMittal Dofasco	$1,765	Hamilton, ON	Construction delayed; future depends on federal election
Recyclage Carbone Varennes (RCV) biomethanol plant	$1,500	Varennes, QC	Construction stalled; company seeking creditor protection and new financial backers
Luna Solar Project (Phase One and Phase Two)	$1,400	County of Newell, AB	Phase One: Proposed Phase Two: Proposed
Rio Tinto AP60 Low-Carbon Aluminum Smelter Expansion	$1,400	Jonquiere, QC	Under construction

Project name	CapEx ($M)	Location	Status
Heidelberg Materials CCUS Hub	$1,360	Edmonton, AB	Proposed, FID expected in 2025.
Future Energy Park RNG and Ethanol Project	$1,200	Calgary, AB	Proposed, FID expected in 2025.
Covenant Energy Renewable Diesel Facility	$920	Lloydminster, SK	Construction is scheduled to commence in 2026.
Algoma Steel Electric Arc Furnace Project	$850	Algoma, ON	Complete. Production started in July 2025.
Rio Tinto iron and titanium	$773	Sorel-Tracy, QC	Demonstration plant complete, scaling-up effort is ongoing.
Strathcona Refinery Renewable Diesel Expansion	$720	Strathcona County, AB	Under construction. Expected to be operational in mid-2025.
Aira Solar Project	$700	County of Forty Mile, AB	Under construction - expected completion in October 2025.
Parkland Low-Carbon Fuel Refinery Expansion	$600	Burnaby, BC	Proposed (BC LCFS, not OBPS)
Saamis Solar Farm	$600	Medicine Hat, AB	Proposed

Appendix B: Methodology for estimating carbon costs

Clean Prosperity modelled the impact of carbon pricing on industrial facilities regulated by the Alberta TIER, Ontario Emissions Performance Standards (EPS), and federal OBPS programs. The model simulates compliance positions for select industrial sectors from 2024 to 2030.

The model uses the current minimum carbon pricing schedule, rising from $80 per tonne in 2024 to $170 in 2030. While carbon credit prices will differ from the headline price, the model treats this price trajectory as a consistent proxy for the value of credits. The model assumes that firms will pass their full carbon costs through to product prices.

To develop our model, we took the following steps:

1. **Identify covered facilities:** We used public emissions data from Canada's Greenhouse Gas Reporting Program and eligibility rules under each carbon pricing program's regulations to identify regulated facilities (mandatory and voluntary) in each selected sector.

2. **Estimate emissions and production:** For each facility, we compiled annual emissions and product output, based on public data where available. If unavailable, we used design capacity, multiplied by a typical utilization rate, or an average sector emissions intensity as a last resort. We calculated emissions intensity as a ratio of reported emissions per annual production. For simplicity and to maintain consistent estimates across sectors and over time, we assume both flat production and emissions over the 2024-2030 period.

3. **Apply performance benchmarks:** We applied benchmark values to each sector to determine the annual emissions limits from the relevant program regulations or standards. Where benchmarks distinguish between industrial process emissions and combustion, we applied them separately with their respective stringency rates (typically 1.5%–2% annual tightening). We multiplied benchmarks by production to calculate allowable emissions for each year.

    - In Alberta TIER, where the facility had the option between a facility-specific benchmark and a high-performance benchmark, we defaulted to the benchmark where the facility had lower compliance costs.

4. **Calculate net compliance position:** We determined the net compliance position by subtracting allowable emissions from actual emissions to determine: a shortfall (payment) or a surplus (credit generation). We multiplied the shortfall or surplus by the annual carbon price to determine the annual dollar value.

5. **Normalize results:** We normalized the results by dividing the total cost/value by the facility's annual production to get a unit cost or value (i.e. $/unit of product). We compared that to an

average product sale price (over 2022-2024 to stabilize annual price fluctuations) to calculate the cost/value as a percentage of price.

To estimate the pass-through of costs to consumer goods, we took the following additional steps:

1. **Source product weights:** We chose a range of products made from materials produced by large regulated sectors, such as steel and cement. We determined the total mass of products from manufacturer or retail specifications.

2. **Source material shares:** We used conservative estimates of material inputs for each product based on public industry reports, e.g. that a pick-up truck is 54% steel by mass.[22]

3. **Convert to material input per item:** We use the percentages of material share and the product's total weight to estimate the total mass of carbon-priced material in each product.

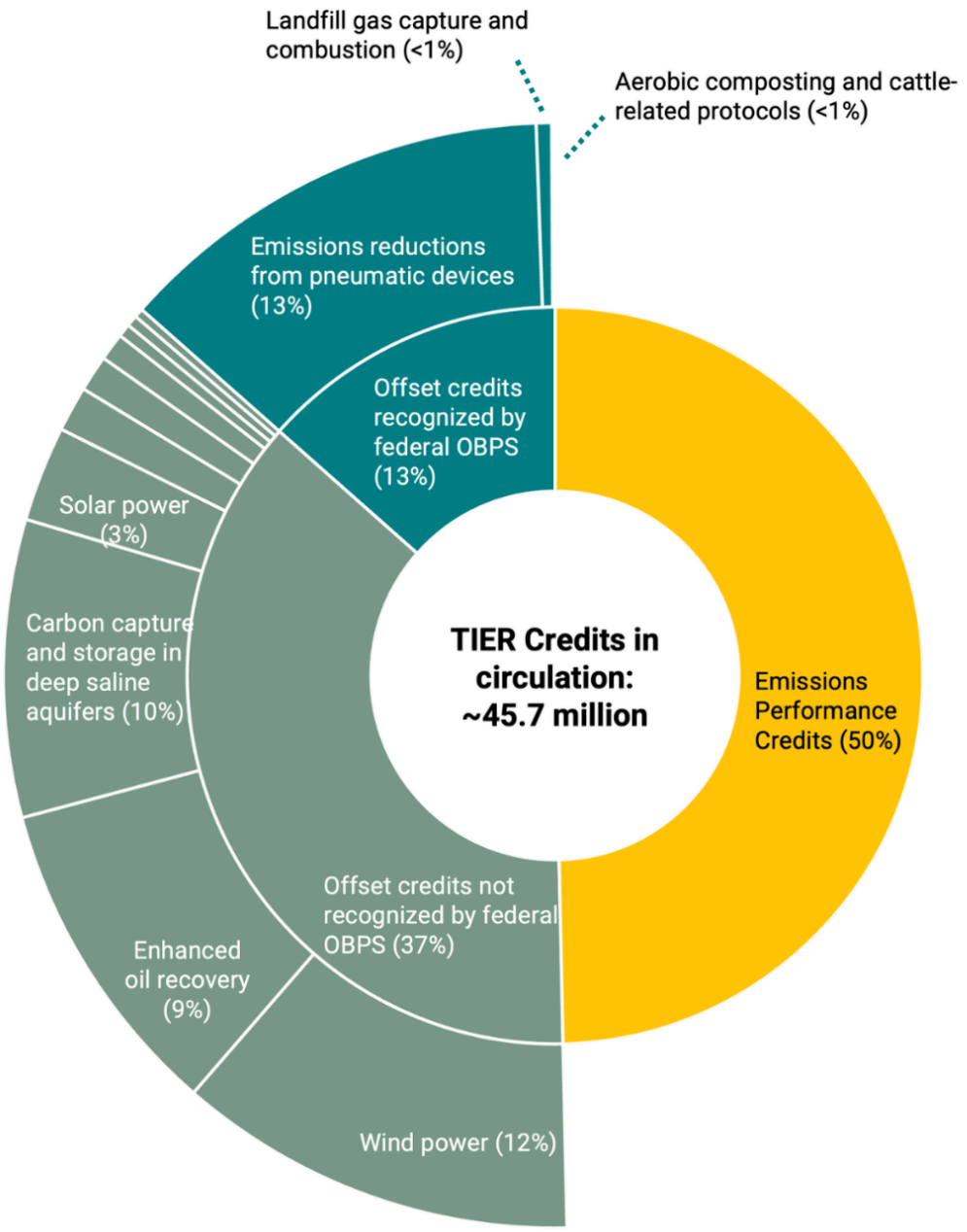
4. **Calculate per-unit cost impact:** We multiplied the material quantity in tonnes by the average carbon cost per tonne to arrive at a per-unit carbon cost estimate. The average carbon costs per tonne were sourced from the analysis above and in Table 1. When possible, we averaged costs across the three carbon pricing systems studied to produce a representative national value. Where data was only available in one jurisdiction, we used that as a proxy. Where a sector is, on average, a net generator of credits, we assumed that there is no passthrough cost.

[22] https://www.steel.org/steel-markets/automotive/

Appendix C: Five attributes of high-integrity carbon offsets

1. **Additional** — the project producing offset credits would not have occurred without the incentive of credit sales.
2. **Permanent** — emissions reductions or removals must be long-lasting (i.e. hundreds of years or longer) and not easily reversible.
3. **Measurable** — emissions reductions or removals should be quantified and verified using rigorous methodologies.
4. **Enforceable** — offset crediting must be overseen by an independent entity that effectively enforces reporting requirements and administers penalties for gaming and other forms of market manipulation.
5. **Avoids negative externalities** — offsets projects should not cause environmental or social harms (e.g. negative impacts on wildlife or communities); ideally, projects produce co-benefits for people and the environment.

Appendix D: 13% of TIER credits are eligible for transfer to the federal OBPS under its Recognized Units Provision (RUP)



Source: Neutral Markets (accessed July 10, 2025)
Figures do not add up to 100% due to rounding