



CASI
Canadian Agri-food
Sustainability Initiative

IDAC
Initiative de durabilité
agroalimentaire canadienne

CARBON MARKETS

What are Carbon Markets?

Globally, climate change is one of the greatest challenges we face today.¹ Governments, industry, civil society and individuals are working to mitigate the impacts of climate change on our environment, economies and societal wellbeing. Carbon pricing is one policy approach to incentivize reductions in the emissions of greenhouse gases (GHG) such as carbon dioxide, nitrous oxide and methane that cause climate change. Carbon pricing is an effective approach to reduce GHG emissions by creating market signals to shift behaviours towards those that are favourable in a low-carbon economy. For example, a carbon tax on fuel incentivizes the purchase of fuel-efficient or electric vehicles.² Carbon pricing is primarily delivered through carbon taxes, carbon markets or a hybrid of the two.³

Two main types of carbon markets exist:

- **compliance markets**, which are often referred to as cap-and-trade schemes,
- and **voluntary markets**.



KEY TERMS	DESCRIPTION	EXAMPLE
Protocol	A methodology that outlines the GHG accounting rules, and monitoring, reporting and certification requirements of an GHG project. ⁴	Canada Grassland Protocol on Climate Action Reserve's voluntary market registry
GHG project	A practice or suite of practices that produce GHG reductions or removals from a measured baseline. ⁵	Pilot project led by Canadian Forage and Grassland Association and partners for producers to conserve grasslands.
Offset credit	<p>A credit issued by governments or independent bodies to compensate for the reduction or removal of GHG emissions produced through the practice(s) adopted in the GHG project.</p> <p>A carbon credit represents one tonne of carbon dioxide equivalent, which can be sold at a market price (\$/CO₂ tonne). Buyers of carbon credits can retire them to claim the equivalent reductions towards their GHG targets⁶</p>	<p>Offset credit = 1 tonne of carbon sequestered in soils.</p> <p>Current market prices for this carbon offset credit are approximately \$4 to \$25.⁷</p>

How Do Carbon Markets Work?

COMPLIANCE MARKETS

In a compliance market, governments set a cap on GHG emissions from heavy emitting sectors such as oil and gas. Generally, this cap is used to incentivize heavy emitters to innovate to reduce their emissions. If these companies exceed their cap emissions, they can pay penalties, purchase allowance credits from other regulated emitters that emit below their cap, and/or purchase offset credits from other sectors that voluntarily reduce or remove greenhouse gas emissions.⁸ The latter situation is where the agriculture industry can play a role.

In Canada, Alberta's Offset System and [Quebec's cap-and-trade system](#) have approved protocols that enable producers to enroll in GHG projects to receive carbon credits for adopting practices such as implementing anaerobic digesters and adopting conservation cropping. The economic benefit for producers who participate in carbon markets is a dollar value per tonne of carbon dioxide equivalent that was reduced or removed from the atmosphere by adopting a practice. Producers can also experience gains from the co-benefits of adopting climate-friendly practices, such as improved on-farm efficiency and achieving positive outcomes for soil, air, and water quality.

VOLUNTARY MARKETS

Voluntary markets enable private sector actors, governments and even individuals to voluntarily purchase carbon offsets through carbon market registries such as the [Climate Action Reserve](#) or the [Verified Carbon Standard](#). Agricultural producers can also opt to sell carbon credits in voluntary markets, and similar to compliance markets, producers must meet the requirements outlined in protocols such as additionality. Additionality refers to the need to demonstrate that practice adoption extends beyond business as usual, and that the producer was not already incentivized by another mechanism. For example, in the Canada Grasslands Protocol on the Climate Action Reserve's voluntary carbon registry, the goal is to only register GHG projects that yield surplus GHG reductions that would not have happened without the existence of a carbon market.⁹

Cargill Launches Us Carbon Program For 2022 Season

In 2022, Cargill will launch its RegenConnect program. The program will pay farmers for practices that lower emissions and capture carbon in soils and commits to support regenerative agriculture practices on 10 million acres of land in North America by 2030. RegenConnect will use soil sampling and remote sensing to quantify the benefits of practices such as cover cropping and adopting no-till systems. Under the program, participating farmers will be paid \$20 for every ton of carbon captured.

[Nori](#) and [CIBO](#) are leading newer, alternative approaches to voluntary marketplaces that rely on computer models to estimate GHG reductions for agricultural carbon credits. As of Winter 2022, these marketplaces are currently only available to American farmers.

Voluntary markets are often separate from compliance markets, but there is a growing interest to better integrate the two as they can often be complementary.¹⁰ For example, voluntary markets have evolved as a place to develop best practices for investing in nature-based GHG projects, which compliance markets can draw from. Voluntary carbon markets can also be a place to incubate novel offset protocols before compliance markets consider them.



Why Are Carbon Markets Important?

Carbon markets are an important mechanism to incentivize heavy emitters to reduce their emissions and to incentivize the adoption of innovative GHG reduction technologies, practices, and tools across all sectors. Many countries, including Canada, are committed to significantly reduce GHG emissions and to scaling climate solutions to meet net-zero targets.¹¹

The agricultural industry is a source for GHG emissions. For example, in 2019 Canadian agriculture accounted for 78 percent of national nitrous oxide emissions that primarily resulted from nitrogen fertilizer application to agricultural soils.¹² The industry can also be a source for climate solutions by reducing GHG emissions and sequestering carbon in soils. For example, western provinces have made significant strides to convert soils from a source of carbon dioxide emissions to a carbon sink by reducing tillage and summer fallow.¹³ In the agricultural industry, a growing number of incentives exist to encourage producers to adopt practices that can deliver GHG reductions and removals. These practices include cover cropping, conservation tillage, improved nutrient management, and the conservation of grasslands.¹⁴ Carbon markets can incentivize¹⁴ the adoption of these practices.

While governments develop carbon policy portfolios to meet net-zero targets, demand is also growing for the private sector to demonstrate its progress on climate action. As a result, a global movement exists for company-led ambitious greenhouse gas reduction targets and climate action programs. For many companies, this demand is complemented by a recognition that decreasing GHG emissions and transitioning to a low-carbon economy can generate cost savings, create new revenue streams, and reduce the businesses' vulnerability to climate-related risks.¹⁵ These demands are driving an unprecedented growth of activity on voluntary markets as companies such as Shopify and Maple Leaf Foods seek to offset their GHG emissions as part of their efforts to meet their GHG targets.¹⁶

Two Federal Carbon Offset Protocols for Canadian Agriculture Under Development

Environment and Climate Change Canada is in the process of engaging the agricultural sector on the development of two federal carbon offset protocols: The Enhanced Soil Carbon protocol will credit farmers for additional soil organic carbon sequestration and the Livestock Feed Management protocol will enable farmers to gain credit for emissions reductions resulting from livestock feed additives/management practices. As the government begins engaging the agricultural sector on these protocols, the following must be top of mind:

- Commodity groups should collaborate to formulate clear recommendations for policy makers on the eligible activities under each protocol
- Federal governments should place high importance on streamlining reporting requirements and leveraging existing on-farm environmental sustainability programs
- Operators of sustainability programs should incorporate economic considerations for best management practices as they relate to carbon offset markets



How Do Carbon Markets Relate To CASI?

As carbon pricing increasingly promotes behaviours that shift us closer to a low-carbon economy, it will be critical for the agricultural sector to identify how it can contribute to this transition while also seizing new economic opportunities. Canadian Agri-Food Sustainability Initiative (CASI) could enable the agricultural sector to better understand carbon market opportunities. In particular, CASI could help producers identify the requirements for participation in carbon markets and how best to achieve outcomes that contribute to climate change mitigation.

Resources

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Funded in part by the Government of Canada under the Canadian Agricultural Partnership's AgriAssurance Program, a federal, provincial, territorial initiative.

Resources

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