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The Regional Municipality of Durham Report

To: Planning and Economic Development Committee
From: Commissioner of Planning and Economic Development
Report: #2024-P-14
Date: September 3, 2024

Subject:

Overview of Carbon Offset Opportunities for the Agriculture Sector in Durham Region

Recommendation:

That the Planning and Economic Development Committee recommends:

That this report be received for information.

Report:

1. Purpose

1.1 At the April 2, 2024, Planning and Economic Development Committee meeting, staff were directed to “investigate whether a formula exists to calculate carbon credits for farmers that have naturalized areas on their properties and examine what subsidies a working farm may be eligible to receive at the Provincial and Federal levels to offset the effects of carbon taxes”.

1.2 This report responds to Committee direction by providing an overview of current senior government programs as well as carbon offset opportunities available to the agricultural sector.

2. Context – Agriculture’s contribution to Climate Change in Canada

2.1 Greenhouse gas (GHG) emissions are the main cause of human-induced climate change. Nationally, agriculture represents 9 percent of Canada’s total emissions,

not factoring carbon sequestration, making agriculture Canada's fifth largest emitting sector.

- 2.2 While GHG emissions from the agriculture sector contribute to climate change, the sector can continue to be part of the solution to climate change by adopting best management practices that can reduce the amount of GHG emissions in the atmosphere and sequester carbon. Such practices include planting cover crops after fall harvest or before spring seeding to reduce soil erosion while also sequestering (storing) carbon. Another example is nutrient management strategies that help farmers optimize the amount of fertilizer used and reduce the amount of nitrous oxide emissions released into the atmosphere. These practices have led to an increasing trend of carbon sequestration in Canadian agriculture from 1981 to 2016. In 2021, carbon sequestration in agricultural soils were estimated to offset about a quarter of total annual emissions in Canada's agricultural sector.
- 2.3 The agriculture sector is estimated to represent approximately 7 per cent of Ontario's total annual emissions, and 3 per cent of Durham Region's total emissions. In Ontario, the GHG emissions per tonne of grain, and kilogram of meat produced have decreased over time. Durham Region farmers also play a role in producing low carbon fuels from agricultural operations such as renewable natural gas and ethanol.
- 2.4 Farming and related industries are major contributors to the local economy, and to the health and prosperity of rural communities across Durham Region. In 2021 the 1,200 farms in Durham Region generated more than \$350 million in farm cash receipts. Farmers in Durham play an important role as stewards of natural resources, and in helping to address environmental challenges like climate change and biodiversity loss through implementation of on-farm best management practices. Approximately 350 farms in Durham have Environmental Farm Plans which are renewed every five years by participating in workshops and workbooks through the Ontario Soil and Crop Improvement Association.

3. Federal and Provincial Commitments to Mitigate Climate Change in the Agricultural Sector

- 3.1 In 2016 the [Pan-Canadian Framework on Clean Growth and Climate Change](#), developed in collaboration between the Federal government, provinces, and territories, identified several actions relating to the agricultural sector:
 - a. Increase stored carbon - Federal, provincial, and territorial governments will work together to protect and enhance carbon sinks, including in forests,

wetlands, and agricultural lands (e.g. through land-use and conservation measures).

- b. Generating bioenergy and bioproducts - Federal, provincial, and territorial governments will work together to identify opportunities to produce renewable fuels and bioproducts, for example, generating renewable fuel from waste.
- c. Advancing innovation - Federal, provincial, and territorial governments will work together to enhance innovation to advance GHG efficient management practices in forestry and agriculture.

3.2 Since the finalization of the Pan-Canadian Framework, the Federal government and the Government of Ontario have launched several programs designed to reduce GHG emissions from the agriculture sector:

- a. The [Living Labs program](#) which aims to bring together stakeholders to co-develop and test innovative technologies and on-farm practices to reduce GHG emissions and store carbon. There are currently 14 approved living labs, of which one is in Ontario located in the Lake Erie basin in the southwestern region of the province.
- b. The [On-Farm Climate Action Fund](#) (OFCAF) which is a \$704 million program that provides cost-share funding to farmers to support the implementation of best management practices that store carbon and reduce GHGs. In Ontario the OFCAF is delivered by the Ontario Soil and Crop Improvement Association (OSCIA). The program covers 65% of eligible project costs up to a maximum of \$30,000 per project for cover cropping, nitrogen management, or rotational grazing systems.
- c. The [Nature Smart Climate Readiness Program](#), which is a 10-year \$1.4 billion program delivered through Environment and Climate Change Canada. In Ontario this program is also delivered by the OSCIA, and farmers are eligible for up to \$40,000 in funding for projects that involve restoration or creation of grasslands, riparian areas, and wetlands.
- d. The [Agriculture Clean Technology program](#) which is a \$471 million program administered by Agriculture and Agri-Food Canada that aims to support the installation of commercially available clean technology or equipment upgrades that reduce GHG emissions. Funding ranges from \$25,000 up to \$2 million per project, with the Federal government providing a maximum of 40% of project costs.

- e. The Sustainable Canadian Agricultural Partnership program, which includes \$68 million in funding for the Ontario Agricultural Sustainability Initiative (OASI). A large portion of OASI funding (\$56.7 million over five years to 2029) is for the [Resilient Agricultural Landscape Program](#) that makes funds available to farmers to complete projects such as reducing tillage, creating water retention ponds and other projects to reduce GHG emissions and sequester carbon. Funding is delivered on a per acre basis, and ranges widely depending on the project category. For example, the program will pay farmers \$30-\$50 per acre for reduced tillage projects, but \$10,000-\$25,000 per acre for wetland projects.
- 3.3 In addition to funding support available through senior levels of government, some municipalities in Ontario provide support to farmers for the implementation of environmental best management practices that protect water quality and soil health and contribute to carbon sequestration in agricultural lands. Such programs are typically framed as rural clean water programs and are delivered by Conservation Authorities with funding from upper tier municipal governments. An example of such a program is the [Rural Clean Water Program](#) delivered by the Toronto and Region Conservation Authority (TRCA). The Rural Clean Water Program provides financial assistance to farmers in York and Peel Regions. Similar municipally-funded and Conservation Authority-delivered programs are available in other municipalities across Ontario, including several that involve partnerships with the non-profit agency ALUS (Alternative Land Use Services).
- 3.4 Durham Region provides financial support for rural tree planting initiatives through Conservation Authority partners that farmers can access, but there is currently no dedicated municipally funded program to support the implementation of on-farm environmental best management practices in the region. Staff in the Planning and Economic Development Department, and the CAO Office (Sustainability) are conducting research on existing programs and exploring options to develop a program that would support farmers in Durham Region with the implementation of environmental best management practices.
- 3.5 Beyond government funding programs, there is increasing interest in opportunities to leverage private sector capital to expand the resources available to support farmers with the implementation of initiatives that reduce GHG emissions, and provide important co-benefits such as clean water, climate resilience, and biodiversity improvements. Carbon offsets provide such an opportunity and have emerged as an important GHG reduction tool globally.

4. What are carbon offsets?

- 4.1 Carbon offsets are generated by projects that result in real, quantified and verified GHG emissions reductions. Carbon offset projects are developed using project-specific methodologies, or protocols, which help to ensure comparability and interchangeability between offset credits.
- 4.2 Carbon offsets are bought and sold in both voluntary and compliance markets around the world. Within the voluntary carbon market, entities purchase offset credits on a voluntary basis to offset their carbon emissions as part of their climate commitments and targets, not due to regulatory requirements. Voluntary markets are unregulated and exhibit a high degree of diversity and fragmentation globally. There is also a wide variation in the level of credibility associated with some voluntary offset markets. Because of these challenges, prices for carbon offset credits traded on voluntary markets are typically quite low.
- 4.3 Within compliance markets, participation is mandated by law for certain industries or sectors that emit greenhouse gases. Compliance markets exist where governments have decided to use carbon offsets to supplement climate policies under their regulatory compliance systems. In Canada, the provinces of British Columbia, Alberta and Quebec currently have climate change regulations that allow for the use of carbon offsets. In 2018 the Ontario government decided not to proceed with the planned cap-and-trade program and associated [Ontario Offset Credits regulation](#) that would have linked farmers in Ontario with carbon markets in Quebec and California.

5. Canada's Federal Carbon Offset System

- 5.1 In 2022 the federal government published a regulation to develop a carbon offset system for compliance by large industrial emitters. Currently there are three federal protocols available, and only one that is applicable to farmers – [Improved Forest Management on Private Property](#).
- 5.2 Carbon offsets generated under the federal system could be used by industrial emitters for compliance purposes or purchased by voluntary market participants looking to offset corporate emissions. Environment and Climate Change Canada is developing additional protocols, with several currently being considered that are directly or indirectly relevant to farmers:
- a. Reducing Enteric Methane Emissions from Beef Cattle
 - b. Enhanced Soil Organic Carbon

- c. Avoidance of Manure Methane Emissions through Anaerobic Digestion & Other Treatments

6. Clean Fuel Standards

- 6.1 The federal government's Clean Fuel Regulations (CFR) were introduced in 2023 to help reduce the GHG emissions associated with transportation fuel produced and used in Canada. The CFR requires suppliers of liquid fossil fuels (gasoline and diesel) to gradually reduce the carbon intensity from the fuels they produce and sell for use in Canada over time. One way suppliers can achieve this is through acquiring low-carbon biofuel credits. Credits can be generated and sold by biofuel companies, such as those that produce ethanol from corn or renewable diesel from oilseeds like soybeans. The suppliers then sell the low-carbon biofuel credits to fossil fuel companies to receive value.
- 6.2 In addition to the federal CFR, Ontario's Cleaner Transportation Fuels regulation requires that fuel suppliers blend 10% of renewable content in gasoline. This includes biofuels such as ethanol, and biodiesel which could be sourced from agricultural producers in Ontario. The renewable content requirement is set to increase over the next several years, as follows:
 - a. 11% in 2025
 - b. 13% in 2028
 - c. 15% in 2030
- 6.3 It is anticipated that the CFR and Ontario's regulation will generate increased demand for grain crops to support biofuel production.

7. Relationship to Strategic Plan

- 7.1 This report aligns with/addresses the following strategic goals and priorities in the Durham Region Strategic Plan:
 - a. Goal #1 – Environmental Sustainability
 - Goal 1.1 - Accelerate the adoption of green technologies and clean energy solutions through strategic partnerships and investment;
 - Goal 1.4 - Demonstrate leadership in sustainability and addressing climate change.

- b. Goal #3 – Economic Prosperity
 - Goal 3.5 - Provide a supportive environment for agriculture and agri-food industries.

8. Conclusion

- 8.1 This report responds to a request from the Planning and Economic Development Committee for additional information relating to opportunities for the agricultural sector to generate revenue from carbon offsets, credit markets and cost-share subsidy programs associated with on-farm environmental stewardship and climate action initiatives.
- 8.2 Staff are conducting research on existing programs, and exploring options to develop a program that would support farmers in Durham with the implementation of environmental best management practices. Any recommendations regarding a future program will be brought forward to Committee and Council, with funding commitments considered for future budget years (i.e. likely beyond 2025).
- 8.3 This report was prepared jointly by staff in the Planning and Economic Development Department and the Strategic Initiatives Division of the CAO's Office. For additional information, contact: Ian McVey, Manager of Sustainability, at 905-668-7711, extension 3803.

Respectfully submitted,

Original signed by

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Recommended for Presentation to Committee

Original signed by

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