DEPARTMENT OF AGRICULTURE

Credit Market Report

Legislative Report

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Contents

Legislative Language 1

Executive Summary 2

Recommendations 3

- Federal or regional approach preferred 3
- Further analysis needed 3
- Additional investments in existing programs 3

Introduction 4

Background 4

Environmental Impact 5

Economic Efficiency 6

Administrative Feasibility and Equity 6

Alternatives and Complementary Policies 7

Political and Stakeholder Support 7

Recommendations 8

- Federal or regional approach preferred 8
- Further analysis needed 8
- Additional investments in market development 8

Appendices 9

- Appendix A – Stakeholder Working Group Questions 9

Legislative Language

This report was issued to comply with 2024 Laws of Minn., Ch. 126, Sec. 72.

Sec. 72. CREDIT MARKET REPORT REQUIRED.

> The commissioner of agriculture must convene a stakeholder working group to explore the state establishing a market for carbon credits, ecosystem services credits, or other credits generated by farmers who implement clean water, climate-smart, and soil-healthy farming practices. To the extent practicable, the stakeholder working group must include but is not limited to farmers; representatives of agricultural organizations; experts in geoscience, carbon storage, greenhouse gas modeling, and agricultural economics; industry representatives with experience in carbon markets and supply chain sustainability; and representatives of environmental organizations with expertise in carbon sequestration and agriculture. No later than February 1, 2025, the commissioner must report recommendations to the legislative committees with jurisdiction over agriculture. The commissioner must provide participating stakeholders an opportunity to include written testimony in the commissioner's report.

Executive Summary

For the state of Minnesota to reach climate goals set by the Legislature, new and innovative policies must be implemented to drive adoption of climate-smart practices. In the agriculture sector, one tool that has been proposed is the creation of a market to buy and sell credits generated by conservation and climate-smart agriculture practices such as cover crops, livestock grazing, crop rotation, and more. Credit markets are incentive-based platforms that connect buyers and sellers of ecosystem credits. In this marketplace, farmers and other land managers are producers of credits for these markets. Farmers will implement animal and land management techniques proven to meet certain ecosystem benefit criteria that will then be verified and sold on the market, which will be purchased by buyers looking to decrease their pollution footprint.

Credit markets have proliferated in the last 20 years as a market-based solution to address climate change. Multiple private companies run their own credit markets - from carbon markets, water, and biodiversity – that help drive climate-smart farming practice adoption and lessened agriculture's impact on the environment. These markets are not mandated, and few laws exist to ensure the integrity and fairness of the markets for farmers.

While many private markets have developed, there are few examples of state-run credit markets solely for farmers. California and Washington operate cap-and-trade programs but are distinct in how credits are generated. In Michigan, a state forest carbon credit program has been started for owners of forest land that is sequestering carbon and generating credits for sale. In Minnesota, we allow water quality trading within watersheds. As for federal policy, the U.S. Department of Agriculture (USDA) is currently working on guidance for these markets – from measurement, monitoring, reporting and verification to regulating the contracts that private companies are using. If implemented, a state-run credit market would be a novel program.

This report was conducted to comply with 2024 Laws of Minn., Ch. 126, Sec 72 to gather stakeholder feedback on the possibility of a state-run ecosystem services market.

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Over four months, working group members gathered to discuss the conceptual framework of a credit market that would be operated by the state of Minnesota. This report explains these concepts as they apply to credit markets and summarizes working group feedback.

Recommendations

Federal or regional approach preferred

Working group members agreed that a state-run market would be too small to be effective, with too high of an administrative burden to be the most economical. Currently, other state-run credit programs use a regional approach to maintain the scale necessary for the market. The USDA is working to set up federal frameworks for accounting and monitoring, per the Growing Climate Solutions Act passed in 2023. Working group members preferred that the state would build on this work once completed.

Further analysis needed

More in-depth study on a state-run market would be necessary to move forward with state investment in a credit market. A properly functioning market would require interagency agreement and collaboration, as well as major increases in staffing and expertise to build out and run the program effectively. Working group members suggested continuing the work group or a governor's taskforce to continue working on the issue.

Additional investments in existing programs

From the working group discussions, the commissioner recommends that additional funding be added to existing programs at the Minnesota Department of Agriculture (MDA) as opposed to investing in the formation of a state-run credit market. The state can invest in market development through farmer subsidization of practice adoption, information sharing, and policy adoption. The Soil Health Financial Assistance Program and the Minnesota Agricultural Water Quality Certification program currently support farmers with climate-smart practice adoption. Additional funding of these programs could speed practice adoption and support voluntary credit market development. The MDA could also provide more technical assistance to help farmers navigate the market. Finally, policies to support fair contracts for farmers could be implemented to improve participation in the market.

Introduction

For the state of Minnesota to reach climate goals set by the state legislature, new and innovative policies must be implemented to drive adoption of climate-smart practices. In the agriculture sector, one tool that has been proposed is the creation of a market to buy and sell credits generated by conservation and climate-smart practices such as cover crops, livestock grazing, and reduced tillage. These credits generated by farmers are bought by large companies to meet their greenhouse gas reduction targets. These markets are voluntary, incentive-based platforms that connect buyers and sellers of ecosystem credits. Farmers are typically the sellers. Farmers will implement animal and land management techniques proven to meet certain ecosystem benefit criteria, which will then be verified and sold on the voluntary market, to be purchased by buyers looking to decrease their pollution footprint.

Credit markets are systems that allow the trading of credits or allowances, which typically represent the right to emit a pollutant. These markets are designed to help reduce carbon emissions or other pollution by providing an economic incentive for businesses and governments to achieve reductions. There are two primary types of markets: compliance markets and voluntary markets. Compliance markets are regulated by governments and typically involve companies or countries that must meet emissions reduction targets, for instance carbon-equivalent reductions, while voluntary markets would allow organizations or individuals to purchase carbon credits on a voluntary basis to offset their carbon-equivalent emissions.

Voluntary credit markets operate outside the direct control of government, allowing businesses, organizations, and even individuals to buy credits to offset their emissions voluntarily. Voluntary markets provide a platform for entities that wish to go beyond compliance or take on a leadership role in environmental sustainability. However, the voluntary market is currently less regulated, leading to concerns about the quality and legitimacy of some credits.

Currently, voluntary markets exist with companies like Indigo Ag, TruTerra, and Ecosystem Services Market Consortium. Few examples of state-run credit markets exist outside of cap-and-trade programs. This report will provide an overview of important topics to consider when establishing a credit market and working group sentiment of these topics when considering a state-run credit market in Minnesota.

Background

This report was conducted to comply with 2024 Laws of Minn., Ch. 126, Sec 72 to gather stakeholder feedback on the possibility of a state-run ecosystem services market.

Sec. 72. CREDIT MARKET REPORT REQUIRED.

> The commissioner of agriculture must convene a stakeholder working group to explore the state establishing a market for carbon credits, ecosystem services credits, or other credits generated by farmers who implement clean water, climate-smart, and soil-healthy farming practices. To the extent practicable, the stakeholder working group must include but is not limited to farmers; representatives of agricultural organizations; experts in geoscience, carbon storage, greenhouse gas modeling, and agricultural economics; industry representatives with experience in carbon markets and supply chain sustainability; and

representatives of environmental organizations with expertise in carbon sequestration and agriculture. No later than February 1, 2025, the commissioner must report recommendations to the legislative committees with jurisdiction over agriculture. The commissioner must provide participating stakeholders an opportunity to include written testimony in the commissioner's report.

As directed by statute, the working group included 17 members consisting of farmers, representatives of agricultural organizations, agricultural economics, industry representatives with experience in carbon markets and supply chain sustainability, and representatives of environmental organizations with expertise in carbon sequestration and agriculture. Staff compiled a list of questions (Appendix A) to guide discussions to explore the establishment of a market for carbon credits, ecosystem services credits, or other credits generated by farmers who implement clean water, climate-smart, and soil-healthy farming practices. Three meetings were held over four months to present information, gather input, and produce recommendations to the legislature.

Environmental Impact

Credit markets offer financial incentives for farmers to adopt agricultural production methods that sequester carbon, improve soil health, increase biodiversity, and reduce nutrient runoff. By participating in these markets, farmers can generate revenue from ecosystem services provided by their land, encouraging them to move away from conventional agricultural practices. This shift helps agriculture be a climate solution and improve its impact on the climate.

However, carbon credit markets also carry risks that could potentially worsen agriculture's environmental impact. One concern is that these markets may incentivize land-use practices that prioritize carbon sequestration over other crucial ecological factors. For example, large-scale monoculture aimed at generating carbon credits could lead to the loss of biodiversity, disruption of local ecosystems, and negative impacts on water resources. Additionally, the complexity and verification processes of carbon credit markets may sometimes lead to maladaptation, where practices are adopted for credit generation rather than actual environmental benefit. This can result in limited or uncertain climate mitigation outcomes, undermining efforts to address the broader environmental impacts of agriculture.

Working group members expressed general caution about the ability of mandatory and voluntary credit markets to adequately address state climate goals. Credit markets can provide further incentive to adopt climate-smart practices but would not address all problems. Working group members were not aware of other examples of state-run credit markets for agricultural practices.

Credit markets represent a potential opportunity to help accelerate farmer adoption of practices that have soil, water, and climate benefits, but there are numerous obstacles to implementation and uncertainties about the effectiveness of credit markets in helping to promote widespread adoption of conservation practices. Carbon programs face barriers to feasibility and scalability, including their cost to implement, the cost and complexity of measuring outcomes, and the high level of farmer data required to enable credible claims. Many farmers are also confused, skeptical, or lack interest in programs that are focused on climate or carbon. As such, there is not a lot of evidence that carbon credit markets can be a meaningful driver of farmer adoption of new practices in the U.S.

Economic Efficiency

The economic efficiency of a credit market lies in its ability to reduce pollution at the lowest possible cost by allowing market participants to trade credits for an agreed upon cost. This market-driven approach ensures that pollution reductions are achieved where they are most cost-effective, rather than mandating a one-size-fits-all solution. Market participants that can reduce pollution cheaply can sell their surplus credits to those facing higher costs, creating an incentive for innovation and investment in less polluting technologies. This flexibility leads to a more efficient allocation of resources, as businesses can choose how to meet their emission reduction targets based on their unique circumstances.

However, the efficiency of a market depends on a regulatory framework that ensures accurate pricing through verification. The foundation of a successful state-run credit market would rely on its verification process. Sufficient verification of credits produced in agriculture would overcome information asymmetries that could arise in an unregulated market. The USDA is currently planning the implementation and management of the Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Program, which will address many of the issues at the core of operating a credit market.

Working group members expressed skepticism that a credit market is the best economic tool to address pollution reduction. One member stated, “The current global guidance regarding corporate climate goals to which companies must adhere states that many types of credit markets are not suitable for delivering credible claims of progress...” Working group members determined that the startup of a market would be incredibly complex, and the outcomes fairly unknown.

Administrative Feasibility and Equity

Working group members were aligned with the sentiment that the administrative effort of setting up a state-run credit market would be burdensome and not an efficient use of public funds. It is more feasible for the state to participate in a role to help facilitate farmer participation in these markets through information sharing and oversight to ensure contracts are fair, and by supporting under-resourced farmers through grant programs to promote adoption. One working group member noted, “A state-run market will need to be exceedingly quick to stay relevant in the credit market space and adopt at the rate of business. The science continues to evolve, and any lag will make a state program irrelevant for buyers and sellers.”

A state-run credit market requires a complex regulatory framework to establish rules, allocate carbon allowances, and ensure compliance across a range of industries. The state would need to invest in systems that can prevent fraud, manipulation, and non-compliance, which can be particularly difficult in the agricultural sector where emissions vary significantly and are challenging to track. It would also need the flexibility to adapt regulations in response to shifting climate goals or federal policy changes. These challenges can lead to inefficiencies or inconsistent enforcement, diminishing the effectiveness of the market. Multiple state agencies would need to work together to set up and properly fund and staff an entirely new program to monitor and track credits. If done improperly or not to scale, the state could create a market with inefficiencies and a lack of confidence in effectiveness. More research is needed to understand the cost of building the necessary infrastructure in Minnesota to ensure reliable data collection and reporting.

Alternatives and Complementary Policies

Workgroup members considered alternative and complementary policies to a state-run credit market to come to an informed conclusion. Discussion centered around a carbon tax, mandates like a renewable energy standard, and investment in grants like the Soil Health Financial Assistance Grant. As noted by a working group member, “Credit markets need to be voluntary. Carbon taxes can be a blunt tool for a complex system. BMPs [best management practices] provide flexibility and adoption for practices that make sense for the unique circumstances each farmer experiences and manages. From a cost-effectiveness consideration, the amount of resources needed to establish a market far outweigh the investment that could be made to incentivize adoption of additional BMPs.”

Carbon pricing includes mechanisms like carbon taxes and cap-and-trade systems. A carbon tax imposes a fee on the carbon content of fossil fuels, encouraging businesses to reduce emissions by making carbon-intensive activities more costly. Cap-and-trade systems, on the other hand, set a cap on total emissions and allow businesses to buy and sell emissions allowances. Cap-and-trade programs have been successful at reducing pollution, but at a regional or multistate scale. California started a successful program but merged their market with Quebec’s market. Washington state authorized a cap-and-invest program in 2021, but the state is in talks to merge with the California and Quebec market. Both policies create financial incentives for emission reductions, directly addressing carbon emissions in a market-driven way. These policies can complement voluntary carbon markets by providing a regulatory framework that sets a baseline, while voluntary markets allow businesses to offset or reduce emissions beyond regulatory obligations.

Regulatory standards and mandates, such as renewable energy standards and energy efficiency regulations, represent another approach to controlling emissions. These standards set specific, legally binding targets that require businesses or utilities to reduce their carbon footprint, often through increasing the use of renewable energy or improving energy efficiency. Such policies ensure a minimum level of carbon reduction across industries and sectors. When combined with voluntary carbon markets, regulatory standards provide a firm baseline that can drive compliance, while voluntary markets offer companies an opportunity to go beyond these minimum requirements by investing in carbon credits. Together, these policies provide a multi-faceted approach to addressing climate change.

State level grant programs currently exist to incentivize and help farmers bear the cost of climate-smart practice adoption. Grant programs have been successful at increasing climate-smart practices, and more demand exists than funding available. In Fiscal Year 2025, the Soil Health Financial Assistance Program had $2.8 million available, and $9.6 million in requests. Working group members felt that if additional money were to be spent, it should be invested in existing programs that support farmers with adoption of climate-smart practices.

Political and Stakeholder Support

Working group members determined that immense political and stakeholder support would be necessary to implement a program of this magnitude in the state. Sustained collaboration from agencies, corporations, and farmers would be necessary to build a useful market with sufficient supply of and demand for credits. One working group member noted, “While there is enthusiasm for empowering farmers to lead in sustainability, skepticism about a Minnesota-run Climate Market exists due to concerns about flexibility, impact, and oversight.

There would likely be broader support for prioritizing policies that align with existing federal and private-sector programs." Additionally, farmers are still skeptical and not ready to commit to a market unless it can be counted on. If a credit market were to be the only policy solution to address climate-smart practices, much work would have to be done to build confidence in the sellers to achieve market-scale.

Recommendations

Federal or regional approach preferred

Working group members agreed that a state-run market would be too small to be effective, with too high of an administrative burden to be the most economic choice. Current examples use a regional approach in order to maintain the scale necessary for the market. The USDA is working to set up federal frameworks for accounting and monitoring. It would be prudent for the state to build on this work once completed if an ecosystem services market were to be established in the state.

Further analysis needed

More in-depth study on a state-run market would be necessary to move forward on state investment. A properly functioning market would need interagency agreement and expertise and major increases in staffing to build out the program and run it effectively.

Additional investments in market development

From the working group discussions, the commissioner recommends that additional funding be added to existing programs at the Department of Agriculture as opposed to invest in the formation of a state-run credit market. The state can invest in market development through farmer subsidization of practice adoption, information sharing, and policy adoption. The Soil Health Financial Assistance Program and the Minnesota Agricultural Water Quality Certification program currently support farmers with climate-smart practice adoption. Additional funding of these programs could speed practice adoption and support voluntary credit market development. MDA could also provide more technical assistance to help farmers navigate the market. Finally, policies to support fair contracts for farmers could be implemented to improve participation in the market.

Appendices

Appendix A – Stakeholder Working Group Questions

1. Environmental Impact:
    a. Will a carbon or ecosystem-services credit market directly reduce environmental impacts in line with state climate and environmental goals?
    b. How will emission and pollution reductions from the market be monitored and verified?
    c. How does the potential impact of the credit market compare to alternative mechanisms like subsidies, carbon taxes or renewable energy mandates?

2. Economic Efficiency:
    a. What are the expected costs and benefits of a credit market for businesses, consumers, and the state?
    b. How will the market interact with existing industries? Will it promote or hinder innovation in clean energy and sustainable practices?
    c. Will there be safeguards to prevent large emitters from simply buying credits instead of reducing their own emissions and pollution?
    d. Are there any concerns about market volatility or manipulation?

3. Administrative Feasibility and Equity:
    a. What is the administrative capacity of the state to establish, monitor, and enforce a credit market?
    b. How complex is the implementation compared to other mechanisms like direct regulations or taxes?
    c. How will the system be policed to prevent fraud or non-compliance?
    d. How can the state ensure equitable access to the market for small businesses and marginalized communities?

4. Alternatives and Complementary Policies:
    a. How does a credit market compare to carbon taxes, subsidies for clean energy and BMPs, or direct regulations in terms of cost-effectiveness and political feasibility?
    b. Can the credit market be combined with other policies (e.g., renewable energy standards, energy efficiency programs, ag conservation programs) to enhance its effectiveness?

5. Political and Stakeholder Support:
    a. What is the level of political support among lawmakers, businesses, environmental groups, and the public for a credit market versus other mechanisms?
    b. How flexible is a credit market in adapting to future changes, such as new climate science, technological advancements, or federal policies?
    c. What happens if the market fails to meet its emissions and pollution reduction goals?
    d. What role will public participation play in the design and ongoing management of the market?