Green Ammonia Summit

A summary of the event, insights and recommendations

The Green Ammonia Summit convened leaders from agriculture, energy, government and business at the University of Minnesota Morris to discuss the pivotal role green ammonia can play in decarbonizing industries, promoting rural development and advancing sustainable agriculture.

The Summit was organized by Minnesota Farmers Union and was held on Tuesday, December 10, 2024, at the University of Minnesota, Morris. An opening reception dinner was held on Monday, December 9.

The goals of the Summit were to share current science and technology of green fertilizer, including climate benefits; explore the relevance of green fertilizer towards corporate Scope 3 greenhouse gas inventory accounting and new low carbon-intensity fuel markets; identify opportunities for cooperative development and farmer ownership of green fertilizer production; and develop multi-sector recommendations to support the expansion of green fertilizer production and use in Minnesota and beyond.

The Summit was made possible by support from Rocky Mountain Institute and the following sponsors: Walton Family Foundation, West Central Initiative, Climate Imperative, Fresh Energy, M-RETS, and Minnesota Bio-Fuels Association.

Background

The emergence of green ammonia fertilizer introduces a host of opportunities for the agricultural sector. By leveraging green ammonia, it's possible to mitigate the environmental impact of row crop agriculture by more than a third, leading to substantial reductions in greenhouse gas emissions across supply chains and worldwide. Local production further brings opportunities to build wealth and resilience in rural communities.

Green ammonia is a type of ammonia produced using renewable energy sources, such as wind or solar power. Unlike traditional ammonia, which is made from fossil fuels, green ammonia is made by combining hydrogen (obtained from water using renewable energy) with nitrogen from the air.

Fossil fuel derived nitrogen fertilizer accounts for up to two percent of global greenhouse gas emissions and contributes up to 35% of the carbon footprint of corn. The fertilizer industry is also heavily concentrated, with just four companies controlling 75% of the market. Regionally produced green ammonia offers the possibility of decarbonizing the agricultural sector while creating rural jobs and stable, locally produced inputs for farmers.

Summit Overview

More than 115 attendees, including 36 farmers, participated in the Summit, underscoring the growing interest in green ammonia as a solution for reducing greenhouse gas emissions and revitalizing rural economies.

During the event, Minnesota Department of Agriculture Commissioner Thom Petersen announced the launch of the Green Fertilizer Grant Program. "While local production and use of green nitrogen-based fertilizer is only one strategy to reduce greenhouse gas emissions, green fertilizer has a significant climate and sustainability benefit over fossil fuel nitrogen-based fertilizer," Petersen said.

Former North Dakota Sen. Heidi Heitkamp, keynote speaker at the Summit's evening reception, stressed the critical role of bipartisan collaboration and economic incentives in fostering a sustainable future for agriculture and energy. Her address highlighted how rural communities stand to benefit from local green ammonia production through job creation and enhanced economic resilience.

Throughout the Summit, speakers highlighted the importance of cooperatives in deploying green ammonia technologies and closed with a commitment to ongoing collaboration and innovation. Participants agreed that supportive policies, continued dialogue, and cooperative business models are essential for overcoming challenges and unlocking the full potential of green ammonia.

Notably, the Summit received news coverage from AgWeek, Fergus Falls Journal, and MPR News.

Insights and Recommendations

Green Ammonia as a Strategy for Rural Development and Decarbonization

Policy

There is an emerging ecosystem of policies in Minnesota that support green ammonia as a part of the larger state strategy around climate resilience. During the 2023 state legislative session a coalition of partners worked to advance a pilot grant program to support green fertilizer production. In December 2024 the Minnesota Department of Agriculture released the first RFP for the Green Fertilizer Grant Program, which provides funding to agricultural and rural electric cooperatives to invest in green fertilizer production facilities. In 2024 the Minnesota Sustainable Aviation Fuel (SAF) Tax Credit took effect. As one of the production pathways for SAF, the nascent green ammonia industry stands to benefit from this incentive. Policy clearly plays an important role in addressing barriers. Additional policy interventions could include initiatives to derisk project funding and streamline permitting.

Opportunity in Minnesota

Minnesota has the infrastructure that is needed for green ammonia production and storage, along with the end-use industries. Co-locating production with the end use, such as nitrogen fertilizer or steel production, further enhances project viability and lowers carbon intensity. With Minnesota's

current infrastructure, natural resources, ports for international trade, and a strong workforce, the state is well positioned to host a hydrogen economy.

Rural Development and the Cooperative Model

Transitioning to localized and domestic green fertilizer production, coupled with farmer ownership, can enhance economic resilience for family farmers and rural communities. Local production provides a solution to the volatile dynamics of both the national and global markets, as well as insulation from supply chain disruptions. Cooperative ownership of green fertilizer production is an opportunity to build rural wealth, and by using green ammonia farmers will have access to new markets for low-carbon intensive products.

Making Green Ammonia Happen

Financing and project development will be critical to advance new low-carbon fertilizer production. Cost-competitiveness with fossil fuel-based fertilizers is often cited as the number one barrier, underscoring the importance of the federal 45V tax credit. Further research is needed to address the scalability, energy demand, and water usage associated with production. Supportive policies, continued cross-sector dialogue, and cooperative business models will be essential to overcome challenges and unlocking the full potential of green ammonia.

Contact

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