

# Climate Pollution Reduction Implementation Grants Competition

## COVER PAGE FOR APPLICATION

### APPLICANT INFORMATION

Organization: Minnesota Pollution Control Agency (MPCA)  
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**TYPE OF APPLICATION:** Individual Applicant

**FUNDING REQUESTED:** \$199,999,999

**APPLICATION TITLE:** **Minnesota Climate-Smart Food Systems**

### BRIEF DESCRIPTION OF GREENHOUSE GAS (GHG) MEASURES

Minnesota Climate-Smart Food Systems (MCSFS) is a transformative initiative to decarbonize the state's food system, advance economic opportunity, fight hunger, and support the health and wellbeing of all Minnesotans and future generations. By empowering growers, makers, partners, consumers, and local communities as agents to develop a clean circular economy from food production to food waste, Minnesota will fortify its role as an influential national leader, showcasing the power of innovation and catalyzing a transition toward a sustainable, equitable, climate-resilient food system. Measures include:

#### Climate-smart lands and production

- Restore 10,000 acres of peatlands, originally drained for agriculture, to transition from carbon sources to carbon sinks through collaboration across Tribal, state-administered, and private lands. Restoring the hydrology of these sites supports culturally significant food sources including wild rice, forage plants, game animals, and fish and reduces mercury production that accumulates in fish. [Measure 2.1: 2.1.1]
- Accelerate adoption of climate-friendly agricultural practices across hundreds of thousands of acres to reduce carbon emissions and sequester carbon in soils. Practices include nitrogen management, low- and no-till farming, diversification of crop rotations, and perennial crops. [Measure 2.2: 2.2.1-2.2.3, 2.2.6]

#### Sustainable food processing, transportation, and storage

- Implement innovative industrial food, energy, and waste systems designed with interlinkages and circular economy principles toward carbon neutrality and zero waste. Technologies may be used alone or in combination, including anaerobic digestion, biochar production, combined heat and power, renewable energy, electrification, fuel switching, and energy efficiency. [Measures 2.3: 2.3.4-2.3.5, 4.1: 4.1.1-4.1.8, 4.1.11; 4.2: 4.2.1, 4.2.5]
- Accelerate the transition to low and ultra-low global warming potential (GWP) refrigerants for food storage in commercial settings, such as groceries, schools, hospitals, and corner stores. [Measure 4.1: 4.1.3]
- Electrify vehicles and equipment in food systems, including terminal tractors, food delivery vehicles, and agricultural equipment such as skid steers and forklifts. [Measure 1.1: 1.1.3]

#### Vibrant local food economies

- Prevent wasted food and manage food scraps through the development of compost facilities and food-to-livestock programs, addressing hunger and recycling nutrients. [Measures 4.3: 4.3.1-4.3.4]
- Strengthen Tribal food sovereignty and vibrant local food economies statewide through projects that prioritize Tribally specific and community-driven greenhouse gas emissions (GHGe) reduction strategies through meaningful engagement. [Measure 2.3: 2.3.1-2]

**SECTORS:**

- ☒ Industry ☒ Commercial and Residential Buildings  
☒ Electricity Generation ☒ Agriculture/Natural and Working Lands  
☒ Transportation ☒ Waste and Materials Management  
☐ Other (please describe)

**EXPECTED TOTAL CUMULATIVE GHG EMISSION REDUCTIONS**

Estimated cumulative GHG reductions for 2025-2030 (in metric tons CO<sub>2</sub>e): **3,506,692**

Estimated cumulative GHG reductions from 2025-2050 (in metric tons CO<sub>2</sub>e): **18,802,207**

**LOCATION:** Within the geography of the state of Minnesota

**APPLICABLE PRIORITY CLIMATE ACTION PLAN (PCAP) ON WHICH MEASURES ARE BASED:**

MPCA, Minnesota PCAP, <https://www.pca.state.mn.us/sites/default/files/aq1-70.pdf>

**Table 1. List of GHG reduction measures and PCAP page reference for each measure:**

PCAP measure
<b>1.1. Accelerate the transition to low- and no-carbon fuels in vehicles and equipment (p. 20)</b> <b>1.1.3</b> Transition fossil-fueled medium-duty, heavy-duty, and nonroad vehicles and engines away from fossil fuels toward low- and no-carbon-fueled alternatives, including but not limited to electricity, renewable natural gas, green hydrogen, green ammonia, and advanced biofuels. Vehicles and equipment include, but are not limited to, transit and school buses, heavy-duty and medium-duty trucks, terminal tractors, construction equipment, agricultural equipment locomotives, ground and maritime freight equipment, landscaping and maintenance equipment and generators. Plan and install supportive charging and fueling infrastructure at individual facilities to support fleet transition. Planning will involve workforce development for electric vehicle charging installation.
<b>2.1. Manage forests, grasslands, and wetlands for increased carbon sequestration and storage (p. 25)</b> <b>2.1.1.</b> Restore peatlands impacted by legacy drainage and other hydrologic disturbances on private, public (including tax-forfeit or county-held lands and School Trust lands), and Tribal Nation lands aimed at acquiring, restoring, and enhancing peatlands. Maintain irrecoverable carbon stocks in peatlands through enhanced protective measures on public lands; deployment of conservation easements and other tools to reduce the risk of habitat fragmentation on private lands; and wider landscape level measures to create buffer zones to reduce threats to peatlands from altered hydrology and other upstream impacts.
<b>2.2. Accelerate soil health and nitrogen, livestock, and manure management practices that reduce greenhouse gas emissions and enhance carbon storage (p. 29)</b> <b>2.2.1.</b> Expand climate-smart practices for soil health, including cover crops, conservation tillage, agroforestry, prescribed grazing, silvopasture, transitioning marginal land to perennials, perennial crops, winter annual crops, and continuous living cover. <b>2.2.2.</b> Support market development, specialized equipment needs, and other infrastructure needed for wide-scale adoption of climate-smart practices. <b>2.2.3.</b> Implement nutrient management practices such as nitrification inhibitors, split nitrogen applications, and optimizing timing of fertilizer application, considering specific regional contexts for application timing and rates as appropriate. <b>2.2.6.</b> Provide planning, workforce development, technical, and financial assistance, as necessary.
<b>2.3. Invest in climate-smart local economies and emerging agricultural and forest technologies and products (p. 33)</b> <b>2.3.1.</b> Build climate-smart local food systems that reduce greenhouse gas emissions from food production, processing, packaging, transportation, storage, retail, and food preparation. Offer planning, technical, and financial assistance; community engagement and education; and workforce development to support implementation.

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**PCAP measure**

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**2.3.2.** Coordinate with Tribal governments and provide grants to Tribal Nations to implement climate-smart food systems projects that reduce greenhouse gas emissions while advancing indigenous food sovereignty.

**2.3.4.** Develop markets for long-lived wood products to store more carbon, such as construction lumber and furniture. Incentivize beneficial uses for waste wood, such as millwork, mulch, and biochar. Support workforce development planning and resources for new industries.

**2.3.5.** Promote the production and use of biochar from wood waste and other sources for various environmental and economic benefits, including mitigation of landfill methane, soil health improvement, carbon offset credits, and remediation of soil contamination. Support workforce development planning and resources for this new industry.

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**4.1. Increase industrial efficiency, transition to cleaner energy sources, and reduce process emissions; switch to climate-friendly refrigerants in commercial and industrial settings (p. 42)**

**4.1.1.** Transition to clean industrial energy sources, materials, processes and products by replacing or upgrading coal, natural gas boilers and heat systems with electric boilers, heat pumps, heat recovery, renewable natural gas, green hydrogen, green ammonia, or other renewable fuels and advanced technologies.

**4.1.2.** Incorporate anaerobic digestion into new or existing industrial facilities, ensuring the on-site or distributed use of renewable biogas as a displacement for fossil fuels.

**4.1.3.** Upgrade equipment to use low-global warming potential refrigerants in commercial and industrial settings.

**4.1.4.** Evaluate and implement energy efficiency upgrades.

**4.1.5.** Expand energy and heat recovery from wastewater and waste heat, implementing measures including, but not limited to, district heating, combined heat and power, and anaerobic digestion.

**4.1.6.** Provide technical and financial assistance to businesses to reduce emissions. Evaluate industrial uses and work with businesses to reduce the use of fossil fuels.

**4.1.7.** Expand workforce training and development programs for energy-efficiency and renewable energy services and the design, installation, and operation of advanced technologies.

**4.1.8.** Provide technical and financial assistance for small business owners and municipalities to advance climate actions in this sector.

**4.1.11.** Provide technical assistance and financial tools to support targeted action across specific types of industrial facilities, such as food processing.

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**4.2. Develop cleaner fuel stocks and supporting infrastructure (p. 45)**

**4.2.1.** Generate renewable natural gas from anaerobic digestion and landfill gas capture, supporting facilities to transform organic waste into renewable energy, providing grants for methane digesters in feedlots, and creating programs to encourage anaerobic digester development for renewable natural gas and fuels.

**4.2.5.** Provide planning, workforce development, technical, and financial assistance, as necessary

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**4.3. Promote waste prevention, reduction, and recycling (p. 47)**

**4.3.1.** Reduce methane emissions from food waste via waste prevention strategies (e.g., meal planning, consumer education campaigns, proper food storage, upcycling of food to new products, the use of food inventory software, and surplus food donation), dehydrating or processing food scraps for animal feed, composting, or other means.

**4.3.2.** Support source-separated organics collection and processing infrastructure.

**4.3.3.** Increase access to organics collection in LIDACs, especially in multifamily dwellings.

**4.3.4.** Support markets, collection, processing infrastructure for recyclable materials (including finished compost) and products made with recycled materials, especially in Greater Minnesota, as well as workforce development.

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