Progress and opportunities to address climate change:

A summary of Minnesota's greenhouse gas emissions

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2/20/2024

MINNESOTA POLLUTION CONTROL AGENCY

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Our path forward: the Climate Action Framework

Carbon-neutral

By 2050, Minnesota substantially reduces greenhouse gas (GHG) emissions and balances any GHG emissions with carbon storage, especially in our landscapes.

Resilient

Minnesota communities, businesses, and the natural environment can prepare, respond to, and recover from the impacts of climate change so all Minnesotans can thrive in the face of these challenges.

Equitable

Minnesotans acknowledge and address inequitable and inaccessible systems that contribute to some communities experiencing disproportionate climate change impacts; ensure fair distribution of the costs and benefits of action now and to future generations; and ensure meaningful participation in planning.

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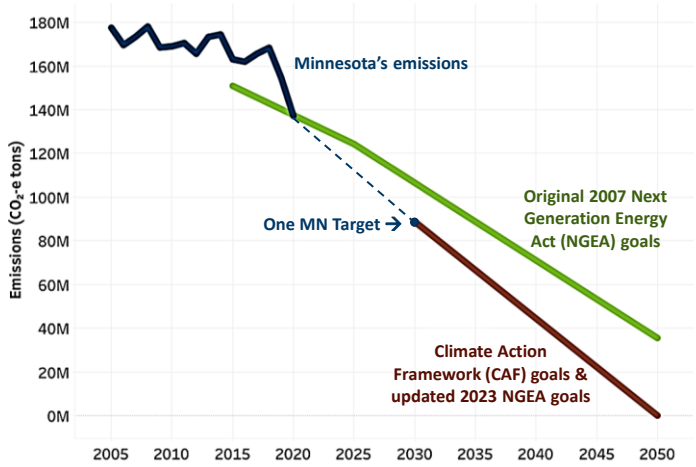
Current Status of the Three-Year Goal

Minnesota's GHG emissions 2005-2020 and goals from the Next Generation Energy Act and Climate Action Framework



Data Source: Minnesota Pollution Control Agency & Department of Commerce

- Minnesota's emissions fell by 23% from 2005 to 2020, putting us on track to meet the 2007 NGEA statutory goals.
- Minnesota's emissions declined significantly in 2020 (following a smaller initial decrease in 2019). Future data will show if this decline is a pandemic-related anomaly or a long-term trend.
- **To meet our One Minnesota 2030 target, we must reduce emissions by 48.5 million CO_2-e tons (-35% from 2020 levels)**

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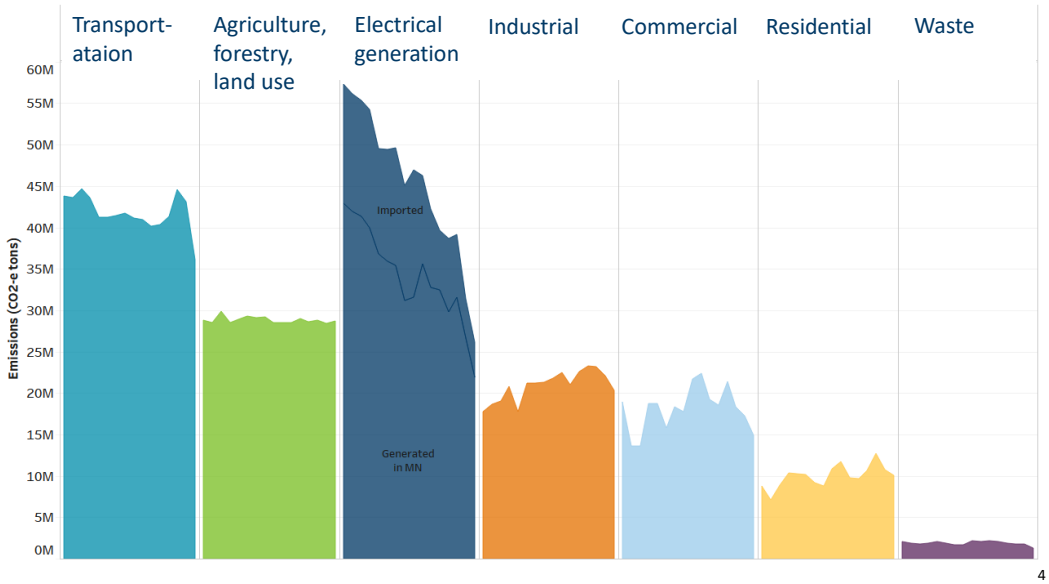
Emissions are trending downward



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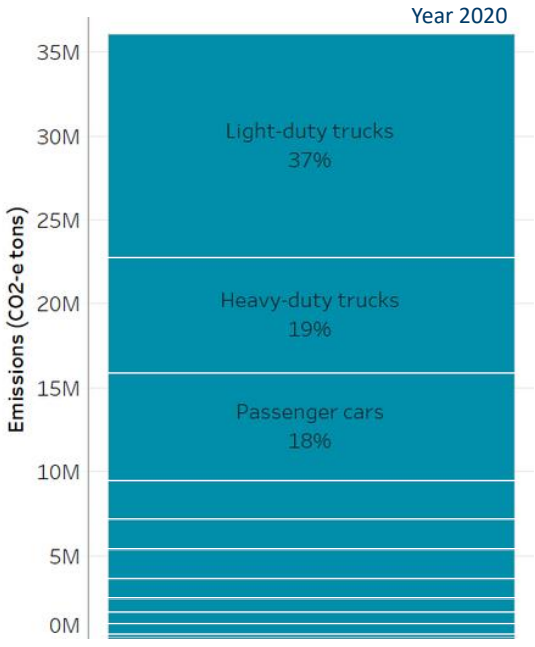
GHG emissions 2005-2020

Transportation

↓ 18%

Largest sources:

- Light-duty trucks
- heavy-duty trucks



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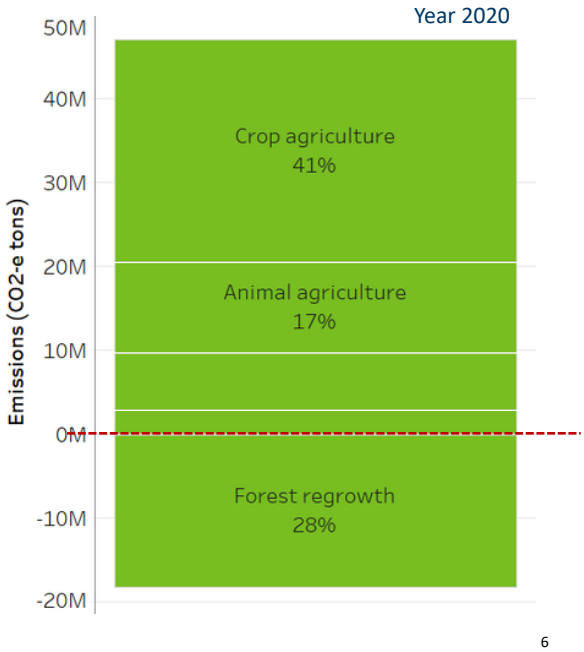
GHG emissions 2005-2020

Agriculture, foresty and land use

↓ 0.5%

Largest sources:

- Crop agriculture
- Animal agriculture



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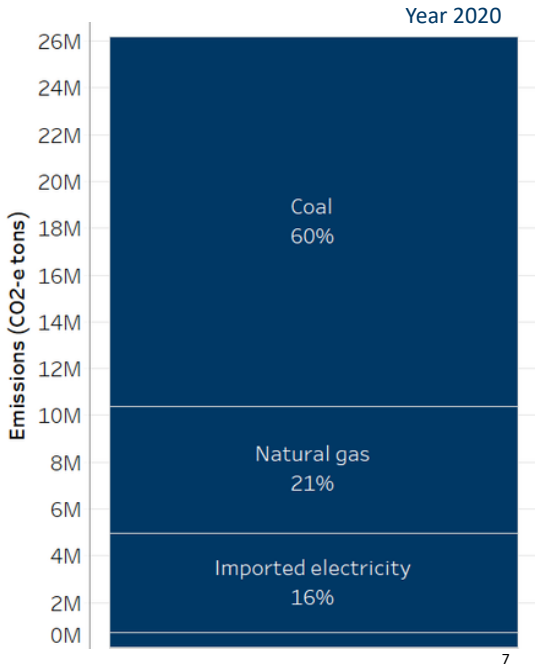
GHG emissions 2005-2020

Electrical generation

↓ 54%

Largest sources:

- Natural gas
- Coal



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Emissions from buildings

GHG emissions 2005-2020

Industrial

↑ 14%

Largest sources:

- Oil
- Natural gas

GHG emissions 2005-2020

Residential

↑ 14%

Largest sources:

- Oil
- Natural gas

GHG emissions 2005-2020

Commercial

↓ 22%

Largest sources:

- Oil
- Natural gas

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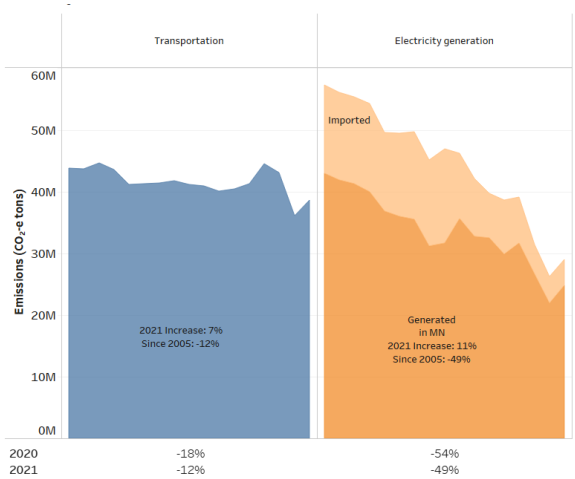
2021 Estimates for Transportation & Electricity Generation

GHG emissions for Transportation and Electricity Generation for 2021



- 2021 emissions for these sectors rebounded from 2020 levels due to more fossil fuel use as COVID-19 restrictions were eased
- This rebound is consistent with estimates at the national level
- 2022 emissions are estimated to be close to 2021 emissions

Data Source: Minnesota Pollution Control Agency

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EPA Draft 2022 National Emission Report

- Net emissions increased by 1.3 percent from 2021 to 2022
- Decrease of 16.6 percent from 2005 for US
- Greenhouse gas emissions driven largely from fossil fuel combustion due in part to increased energy use
- Concentration increases from the pre-industrial era to 2022
  - CO_2: 49.5%
  - CH_4:173.1%
  - N_2O: 24.3%

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EPA Draft 2022 National Emission Report

- Emissions from natural gas use increased by 5.4% from 2021 to 2022
- Emissions from coal consumption decreased by 6.2% from 2021 to 2022
- Transportation emissions increased by 1.6% from 2021 to 2022
- Emissions were partly offset by carbon sequestration in forests, trees in urban areas, agricultural soils, landfilled yard trimmings and food scraps, and coastal wetlands, which together offset 14.5 percent of gross total emissions in 2022

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Rhodium Group Estimates

- Estimate that emissions were down 1.9% in 2023
- US emissions remained below pre-pandemic levels and dropped to 17.2% below 2005 levels.
- Transportation sector emissions rose by 1.6%
- Increases in domestic oil and gas production led to a 1% increase in industrial emissions
- Rate of decline needs to more than triple and sustain at that level every year from 2024 through 2030 to meet the US's climate target under the Paris Agreement of a 50-52% reduction in emissions

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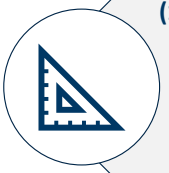
Focus on emissions and storage on Minnesota's Landscapes

Multiple Climate Subcabinet agencies are following a two-prong approach:



(1) We will build a robust and agreed upon measurement system for tracking carbon emissions from and storage in Minnesota's landscapes. This is a foundational step that will allow us to reliably track outcomes, understand and prioritize the most effective actions, and report on our progress to increase carbon sequestration and storage in natural and working lands over the long-term.

(2) We will develop metrics to track the outputs of State actions to increase carbon sequestration and storage in natural and working lands. This is how we will track the State's progress in taking actions to increase carbon sequestration and storage in the short-term—tracking outputs (e.g., acres of wetlands restored) will serve as a proxy measure until we are able to reliably track outcomes (CO_2-e tons sequestered/stored).

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Minnesota Biennial GHG Emission Inventory

- Next report due January 2025
- Reviewing EPA methods to identify efficiencies and consistency
- Will engage with stakeholders in the Agriculture, Forestry, and Land Use sector
- Emission predictions included in the Comprehensive Climate Action Plan and Climate Action Framework 2.0

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Climate Action Framework goal areas

- Clean transportation
- Clean energy and efficient buildings
- Climate-smart natural and working lands
- Healthy lives and communities
- Resilient communities
- Clean economy

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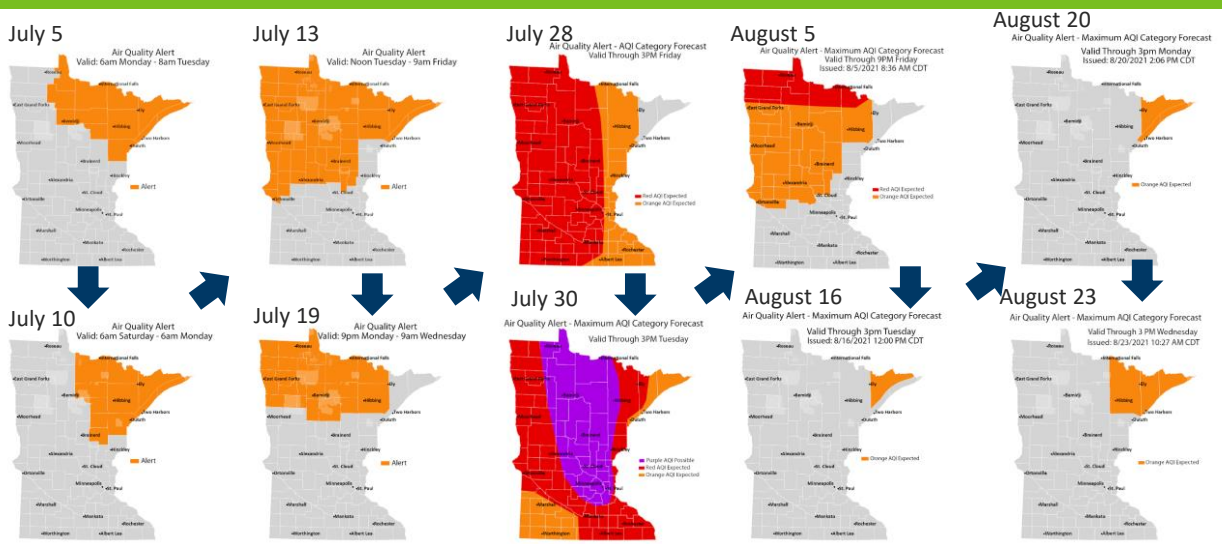
Summer 2021 Recap



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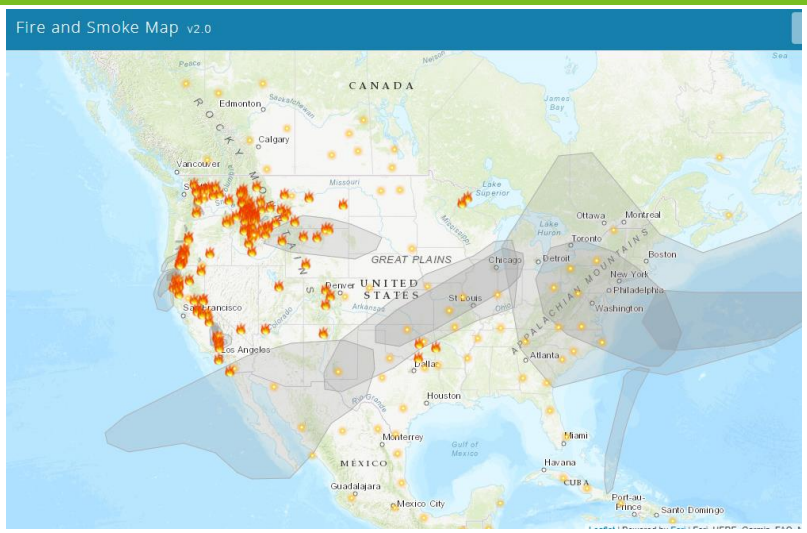
Wildfires in North America August 2021



Data Source: US EPA AirNow

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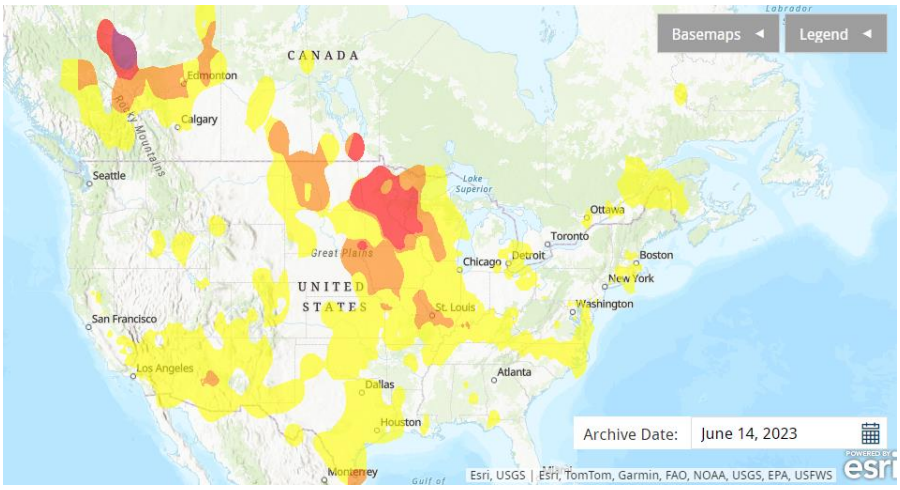
Wildfires in North America June 2023



Data Source: US EPA AirNow

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Wildfires in North America June 2023

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Minnesota's Climate Pollution Reduction Planning Grant

Kate Knuth | Climate Director

MINNESOTA POLLUTION CONTROL AGENCY

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The climate vision for our state

Carbon-neutral

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Climate Action Framework goal areas

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Climate Pollution Reduction Grants

$250M - non-competitive planning grants, including:

- $3M to State of Minnesota
- $1M to Twin Cities metro MSA
- Set-aside for Tribes

$4.6B - competitive implementation grants

- $4.3 billion general competition
- $0.3 billion for Tribal competition

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Planning grant deliverables

Deliverable	When is it due?	What will we create?
Priority Climate Action Plan (*unlocks implementation fund eligibility*)	**March 2024**	• Quantified priority mitigation categories and near-term actions • Benefits analysis for underserved communities • Initial workforce analysis
Comprehensive Climate Action Plan	July 2025	Climate Action Framework 2.0 (adding benefits analysis, workforce analysis, further GHG quantification)
Status Report	July 2027	Framework progress report and next steps

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Required activities for Priority Climate Action

Task	Responsible
Contract for greenhouse gas quantification with University of Maryland and complete quantification	MPCA
Hiring MPCA staff for local government engagement	MPCA
Hiring MDH staff for benefits analysis; completing analysis for disadvantaged communities	MDH, MPCA
Hiring DEED staff for workforce analysis; completing initial analysis	DEED, DLI, Commerce
Agreement for Tribal coordination with University of Minnesota – Duluth	Interagency Tribal Coordination Team
Identify priority mitigation actions and quantify greenhouse gas emissions reduction	Interagency climate goal teams
Conduct engagement (low-income and disadvantaged communities, municipalities, public) to inform the deliverable	MPCA
Develop the document and route it for interagency approvals from Climate Change Subcabinet member agencies	MPCA

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Budget items

MPCA staff

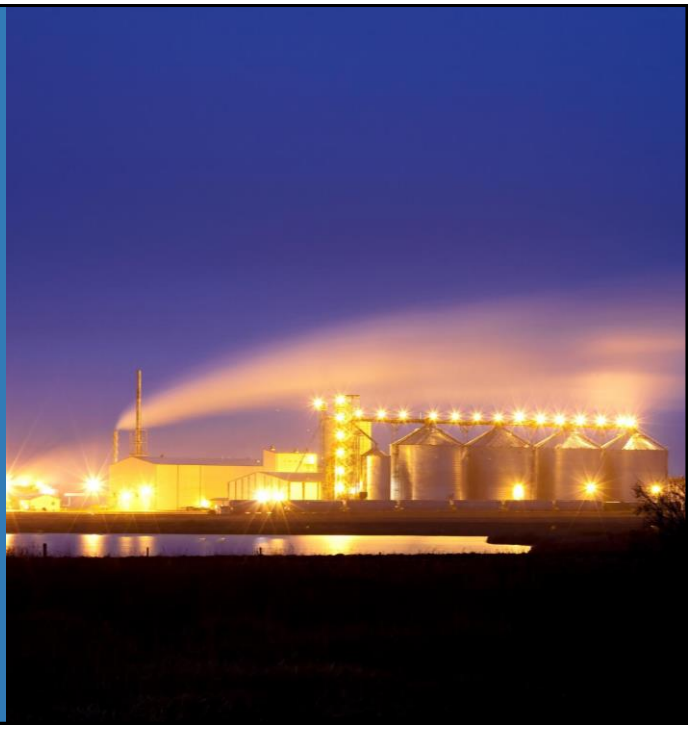
- Grant coordinator/engagement
- Economic policy analyst
- Communications

Subawards

- Benefits analysis/engagement (MDH)
- Workforce analysis (DEED)
- Tribal-state coordinator (UMN-Duluth)

Contracts

- GHG forecasting
- GHG quantification (expanding the framework)



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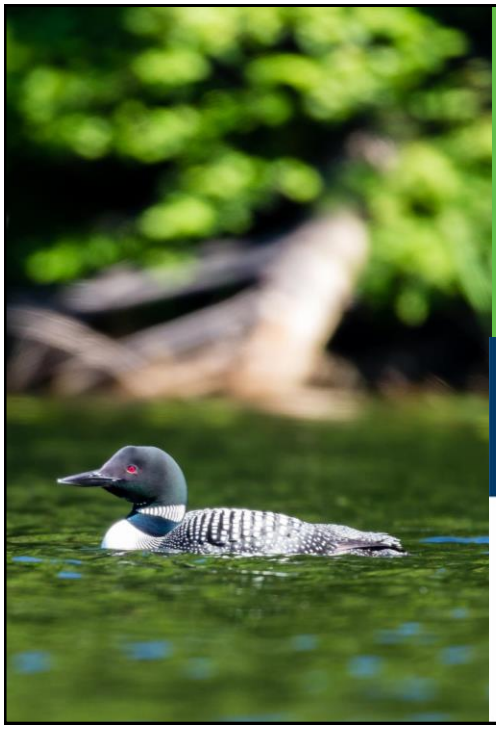

Public engagement

- Minnesotans are very interested in and excited about this work
- https://www.pca.state.mn.us/business-with-us/climate-pollution-reduction-grants

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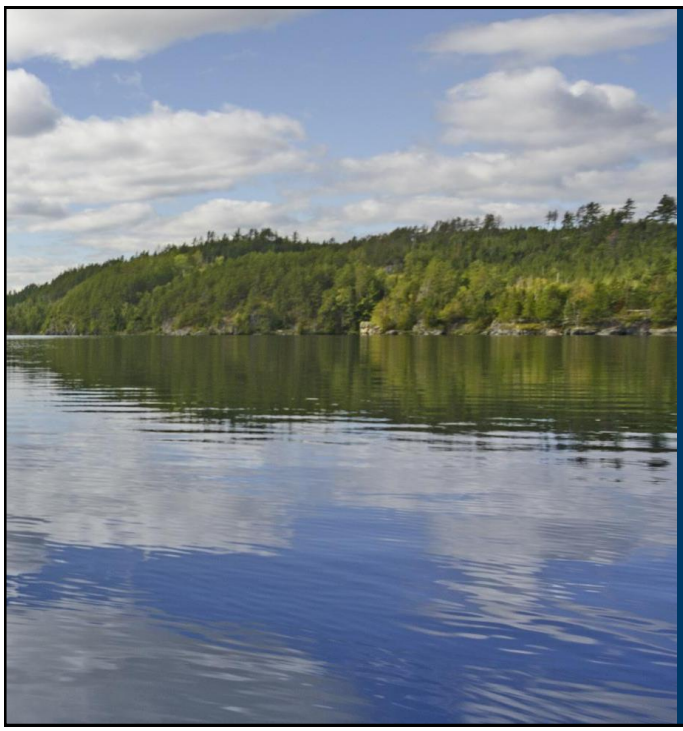

Priority Climate Action Plan (PCAP)

- Due March 1; draft was released in early January
- Contains greenhouse gas reduction measures (priority near-term actions)
  - Greenhouse gas reduction estimates
  - Benefits to disadvantaged communities
- PCAP is required to unlock eligibility for implementation grants
- The PCAP MPCA is working on is for the entire state

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CPRG Implementation Grants Program Objectives

CLIMATE POLLUTION REDUCTION GRANTS
U.S. Environmental Protection Agency

- Implement ambitious measures that will achieve significant cumulative greenhouse gas (GHG) reductions by 2030 and beyond
- Achieve substantial community benefits (such as reduction of criteria and hazardous air pollutants), particularly in low-income and disadvantaged communities
- Complement other funding sources to maximize these GHG reductions and community benefits
- Pursue innovative policies and programs that are replicable and can be "scaled up" across multiple jurisdictions

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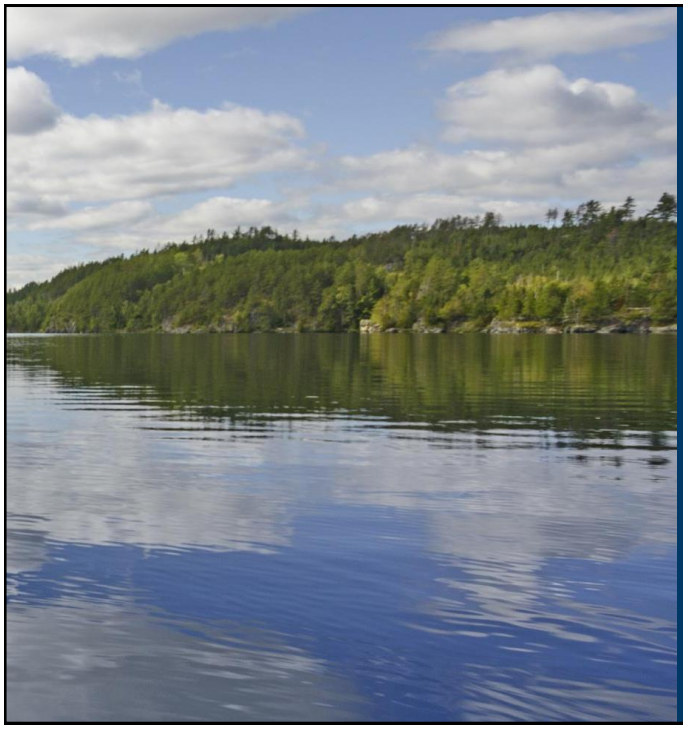

Looking forward to CAF update

Climate Pollution Reduction Grant planning grant requires a comprehensive climate action plan.

Due summer 2025

We will use this process to update MN's Climate Action Framework

Includes funding for quantifying expected GHG emissions reductions (projections)

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