

Minnesota policy on climate change and forest resources

Overview

- Mitigation vs. adaptation
- Minnesota statutes and laws that address climate change
- Interstate efforts
- Minnesota's Climate Change Action Plan
- DNR's activities on climate change and renewable energy

Climate Change Mitigation –

Attempts to limit climate change by reducing greenhouse gas emissions and/or enhancing sinks

e.g., Carbon sequestration

Emissions caps

Energy conservation and efficiency measures

Climate Change Adaptation –

Reducing the vulnerability of natural and human systems to actual or expected changes in climate

Resistance

Resilience

Facilitation

Minnesota's climate change policy is based largely on two laws

Next Generation Energy Act of 2007 (MS 216H)

**Green Solutions Act of 2008
(Minnesota Session Laws Ch. 340)**

Next Generation Energy Act of 2007 (MS 216H)

Energy policy goals for the state of Minnesota

- Per capita use of fossil fuel as an energy input will be reduced by 15% by the year 2015, through increased reliance on energy efficiency and renewable energy alternatives
- 25% of the total energy used in the state be derived from renewable energy sources by the year 2025

Next Generation Energy Act of 2007 (MS 216H)

Climate change mitigation goals

- Reduce statewide greenhouse gas emissions to at least 15% below 2005 levels by 2015, 30% below 2005 levels by 2025, and 80% below 2005 levels by 2050
- Directed agencies and stakeholders to work together to come up with a "climate change action plan" that will identify and evaluate a broad range of greenhouse gas reduction strategies, assess the potential costs and benefits of the various options
- Establish a system for reporting and maintaining an inventory of greenhouse gas emissions

Next Generation Energy Act of 2007 (MS 216H)

Reporting requirements

- Each odd-numbered year, Commerce and the PCA report on the level of reductions already achieved and the level necessary to achieve the reductions timetable
- Annually, Commerce and the PCA suggest legislation appropriate to achieve mandated reductions.

Next Generation Energy Act of 2007 (MS 216H)

Regional activities

- Develop and implement a regional approach to reducing greenhouse gas emissions from activities in the region, including consulting on a regional cap and trade system
- Minnesota is a member of the [Midwestern Greenhouse Gas Reduction Accord](#) to establish regional goals and initiatives to increase energy security, promote renewable energy, and reduce greenhouse gas emissions.

Green Solutions Act of 2008

(Minnesota Session Laws Ch. 340)

- Established the Legislative Greenhouse Gas Advisory Group (3 senators, 3 representatives)
- Required studies on
 - The Midwestern Greenhouse Gas Reduction Accords efforts on a cap-and-trade system
 - Economic, environmental, and public health costs and benefits of a cap-and-trade system
 - Governance structures that could be applied to a cap-and-trade system

Interstate efforts

3-Regions effort

- Midwestern Greenhouse Gas Reduction Accord
- Western Climate Initiative
- Regional Greenhouse Gas Initiative

The Climate Registry

- The CR establishes consistent standards for calculating, verifying and publicly reporting greenhouse gas emissions
- The State is committed to annual reporting of it's greenhouse gas emissions

Minnesota Climate Change Action Plan

Developed through a structured, broadly inclusive stakeholder-based review by the Minnesota Climate Change Advisory Group

Includes recommendations for reducing greenhouse gas emissions and/or increasing sequestration in all sectors of Minnesota's economy

Working groups focused on

- Agriculture, forestry, and waste

- Energy supply

- Residential, commercial, and industrial energy use

- Transportation and land use

- Cross cutting issues

- Cap and trade systems

Meeting Next Generation Energy Act targets:

2005 statewide greenhouse gas emissions were about 157.1 million metric tons of carbon dioxide equivalent (MMtCO₂e).

To meet the goal in	Reduction from 2005 (in MMtCO₂e)	Reduction from expected level (in MMtCO₂e)
2015	23.6	43.1
2030	47.1	89

GHG reductions through 2025 if plan recommendations for the Agriculture, Forestry, and Waste Management (AFW) sector are implemented was estimated to be 279 MMtCO₂e.

Action Plan Recommendation	GHG reductions 2008-2025 (MMt CO ₂ e)
Forestry Management Programs To Enhance GHG Benefits (AFW-5)	
<u>Forestation</u> —Increase permanent forestland in the state by 1 million acres by planting trees on converted forestland.	17
<u>Urban Forestry</u> —Increase the canopy cover of urban forest in Minnesota communities by 25%.	26
<u>Wildfire Fuel Reduction</u> —Conduct fuel reduction on all forest areas requiring these treatments. Direct the biomass to the most beneficial use. Primary benefits are displacement of fossil fuel and reduced combustion of live forest stands.	NQ

Action Plan Recommendation

**GHG reductions
2008-2025
(MMt CO₂e)**

Forestry Management Programs To Enhance GHG Benefits (AFW-5) continued

Forest Health and Carbon Sequestration—Develop scientific information for incorporating carbon sequestration into forest management plans. Evaluate the impacts of increased forest harvest on GHG emissions and sequestration. Increase the proportion of harvested wood going into durable wood products. Establish a monitoring program to document the long-term impacts of climate change on Minnesota forests. 15

Increase Stocking of Understocked Lands—Identify understocked forestlands administered by the state and counties in Minnesota, and optimally stock identified lands where appropriate. 15

Action Plan Recommendation

**GHG reductions
2008-2025
(MMt CO₂e)**

Forest Protection—Reduced Clearing and Conversion to Non-Forest Cover (AFW-6)

31

Achieve “no net loss” of forestland or an increase in forest carbon stocks through local land-use planning, conservation easements, technical and financial assistance to family forest landowners, education, revised tax policy, and other appropriate mechanisms.

Action Plan Recommendation

**GHG reductions
2008-2025
(MMt CO₂e)**

Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production (AFW-4) 31

A sustainable quantity of biomass from agricultural lands, land restoration activity, agricultural industry residues, wood industry process residues, those normally unused forestry residues, and agroforestry resources.

Action Plan Recommendation	GHG reductions 2008-2025 (MMt CO ₂ e)
<p data-bbox="104 304 1352 372">Agricultural Crop Management (AFW-1)</p> <p data-bbox="104 391 1329 459"><u>Agricultural Soil Carbon Management</u> -</p> <p data-bbox="104 478 1441 991">Adopt no-till, strip-till, and other conservation farming practices that provide enhanced ground cover, or other cropping management practices that achieve similar soil carbon benefits, for 33% of all annual crop production in Minnesota by 2025.</p>	15
<p data-bbox="104 1100 1398 1258"><u>Nutrient Management</u> - Increase fertilizer application efficiency by 50% by 2025.</p>	15

Action Plan Recommendation	GHG reductions 2008-2025 (MMt CO ₂ e)
Land Use Management Approaches for Protection and Enrichment of Soil Carbon (AFW-2)	
<u>Natural Coverage Protection</u> —Protect 10% by 2015 and 30% by 2025 of lands in natural cover and/or existing conservation programs that would have been converted to intensive agricultural production or urban/suburban development.	3.7
<u>Perennial Production on Working Lands</u> —By 2025, expand the Reinvest in Minnesota—Clean Energy program land to 200,000 acres.	1.8
<u>Protection of Peatlands & Wetlands</u> —Protect or restore northern peatlands and other wetlands to prevent releases of GHGs and fire and to allow existing peatlands to continue to sequester carbon.	NQ

Action Plan Recommendation

**GHG reductions
2008-2025
(MMt CO₂e)**

In-State Liquid Biofuels Production (AFW-3)

<u>Lower the Carbon Footprint of Ethanol Produced From Existing Plants</u>	27
<u>Gasoline Displacement</u>	1.4
<u>Fossil Diesel Displacement</u>	73

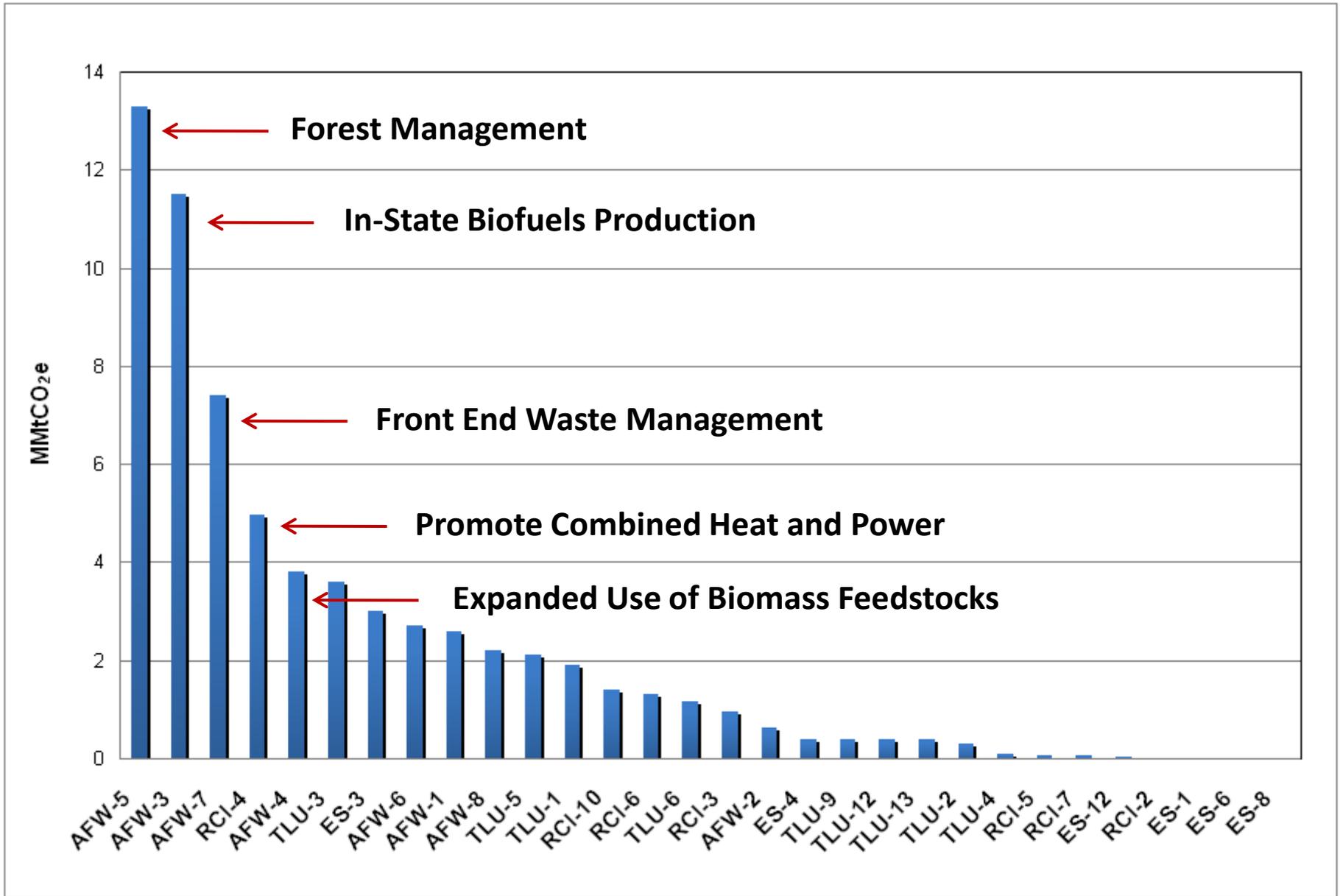
Front-End Waste Management Technologies (AFW-7)

<u>Source Reduction</u>	20
<u>Recycling</u>	49
<u>Composting</u>	4.9

End -of-Life Waste Management Technologies (AFW-8)

<u>Landfill Waste Methane</u>	4.4
<u>Residuals Management</u>	8.1
<u>Waste-To-Energy Preprocessing</u>	7.9

MCCAG policy recommendations ranked by 2025 annual GHG reduction potential



Organization of climate change efforts in the DNR

Commissioner's Office and Senior Managers

Trends that shape the DNR's mission and strategies:

- Changes in outdoor recreation participation
- ***Changes related to energy and climate change***
- Landscape changes related to growth and development

Operations Managers

Direct DNR management actions to address the trends

Climate & Renewable Energy Steering Team

Energy Efficiency Team

- Improve energy efficiency
- Renewable energy sources

Climate Change Adaptation Team

- Vulnerability assessments
- Adaptation strategies

Carbon Sequestration Team

- Tools for managing ecosystem carbon
- Carbon accounting protocols

Biofuels Team

- Foster the use of biomass for energy production

Integration Team

- Coordinate work of teams
- Assimilate and disseminate new information
- Establish working relationships