

Catalog of State Actions Agriculture, Forestry, and Waste Management Working Group

A catalog of state-level, GHG-reducing actions and policy options based on actions undertaken or considered by state, local and private actors.

Key to Future Rankings of Options in the Tables that Follow:

Potential GHG Emission Reductions <u>1/</u>	Potential Cost or Cost Savings <u>1/ 2/</u>
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO ₂ e) per year by 2020	High (H): \$50 per metric ton CO ₂ e (tCO ₂ e) or above
Medium (M): From 0.1 to 1.0 MMtCO ₂ e per year by 2020	Medium (M): \$5-50/tCO ₂ e
Low (L): Less than 0.1 MMtCO ₂ e per year by 2020, or 1 MMtCO ₂ e by 2050	Low (L): Less than \$5/tCO ₂ e
Uncertain (U): Not able to estimate at this time	Negative (Neg): Net cost savings
	Uncertain (U): Not able to estimate at this time
<p><u>1/</u> Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.</p> <p><u>2/</u> Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.</p>	

Definition of “Priorities for Analysis”:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.

Notation of Options:

* **Options marked in bold an asterisk (*)** indicate some of the related state actions that are approved or underway, as described further in the companion options description document. TWG members are encouraged to provide information on other relevant actions.

Agriculture, Forestry, and Waste Management (AFW)

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Other Considerations: Jobs, Fuel Imports, Externalities, Feasibility	Priority for Analysis	Notes / Related Actions in MN
AFW-1 AGRICULTURE – PRODUCTION OF FUELS AND ELECTRICITY						
1.1	Expanded Use of Biomass Feedstocks for Electricity or Steam Production*					<ul style="list-style-type: none"> • Biomass for Electricity
1.2	In-state Liquid Biofuels Production					<ul style="list-style-type: none"> • Renewable Fuels Initiative • Ethanol • E85 • Production Incentives • Biodiesel
1.3	Manure Digesters/Other Waste Energy Utilization*					<ul style="list-style-type: none"> • Renewable Energy Production Incentive • Community-based renewable energy development • Biomass for electricity
AFW-2 AGRICULTURE – LIVESTOCK						
2.1	Manure Management					
2.2	Changes in Animal Feed					
2.3	Rotational Grazing (Improve Grazing Crops and/or Management)					
AFW-3 AGRICULTURE – CROP PRODUCTION						
3.1	Soil Carbon Management					
3.2	Nutrient and Water Management					

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AFW-4 AGRICULTURE – LAND USE CHANGE						
4.1	Land Use Management that Promotes Grassland Cover*					<ul style="list-style-type: none"> • Conservation Land Development
4.2	Preserve Open Space/Agricultural Land*					<ul style="list-style-type: none"> • Conservation Land Development
AFW-5 AGRICULTURE – FARMING PRACTICES						
5.1	Reductions in On-Farm Energy Use*					<ul style="list-style-type: none"> • Renewable Fuels Initiative
5.2	Organic Farming					
5.3	Programs to Support Local Farming/Buy Local					
AFW-6 FORESTRY – PRODUCTION OF FUELS AND ELECTRICITY IN FORESTRY						
6.1	Expanded Use of Forest Biomass Feedstocks for Electricity, Heat and Steam Production*					<ul style="list-style-type: none"> • Biomass to Energy
6.2	In-state Liquid Biofuels Production*					<ul style="list-style-type: none"> • Biodiesel • Renewable Fuels Initiative • Ethanol
6.3	Improved Energy Capture from Wood Waste Combustion*					<ul style="list-style-type: none"> • Waste to Energy
6.4	Improved Commercialization of Biomass Gasification and Combined Cycle*					<ul style="list-style-type: none"> • Renewable Energy Production Incentive
AFW-7 FORESTRY – BIOMASS PROTECTION AND MANAGEMENT						
7.1	Forest Protection – Reduced Clearing And Conversion to Nonforest Cover*					<ul style="list-style-type: none"> • Conservation land development

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7.2	Urban Forestry*					• Terrestrial Carbon Sequestration Initiative
7.3	Afforestation and/or Restoration of Nonforested Lands*					• Terrestrial Carbon Sequestration Initiative
7.4	Forest Management for Carbon Sequestration*					• Terrestrial Carbon Sequestration Initiative
AFW-8 FORESTRY – WOOD PRODUCTS AND WASTE						
8.1	Improved Mill Waste Recovery					
8.2	Improved Logging Residue Recovery					
8.3	Expanded Use of Wood Products for Building Materials					
AFW –9 WASTE MANAGEMENT – WASTE MANAGEMENT STRATEGIES						
9.1	Advanced Recycling and Composting*					• Reinvigorate Recycling Campaign
9.2	Promotion of Bioreactor Technology (Advanced Municipal Solid Waste Management Practices)*					• Technical Assistance Program
9.3	Source Reduction Strategies					
9.4	Resource Management Contracting					
9.5	Waste Coal Recapture					
9.6	Prevent Landfilling of Unprocessed Organic Material					

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AFW -10 WASTE MANAGEMENT – LANDFILL GAS STRATEGIES						
10.1	Flare Landfill Methane at non-NSPS (smaller) Sites					
10.2	Methane and Biogas Energy Programs*					<ul style="list-style-type: none"> • Renewable Energy Production Incentive
10.3	Landfill Methane Energy Programs					
AFW-11 WASTE MANAGEMENT – WASTEWATER ACTIVITIES						
11.1	Energy Efficiency Improvements					
11.2	Lower Waste Processing Needs (lower water consumption, waste production)					
11.3	Install Digesters and Turbines or Engines*					<ul style="list-style-type: none"> • Renewable Energy Production Incentive