



Catalog of State Actions

Agriculture, Forestry, and Waste Management (AFW) Technical Work Group

A catalog of state-level, greenhouse gas (GHG)-reducing actions and policy options prepared by the Center for Climate Strategies (CCS), Arkansas Governor's Commission on Global Warming, and others based on actions undertaken or considered by Arkansas and other states, including regional, state, local, and private actions.

Important Note: The state actions are numbered in this catalog solely for convenience in referencing them. Their numbers do NOT reflect a ranking or prioritization of the actions.

Key to Future Rankings of Options in the Tables That Follow

Potential GHG Emission Reductions*	Potential Cost or Cost Savings ^{*,†}
High (H): At least 1.0 million metric tons (MMt) carbon dioxide-equivalent (CO ₂ e) per year by 2020	High (H): \$50/tCO ₂ e or above
Medium (M): From 0.1 to 1.0 MMtCO ₂ e/year by 2020	Medium (M): \$5–\$50/tCO ₂ e
Low (L): Less than 0.1 MMtCO ₂ e/year by 2020, or 1 MMtCO ₂ e/year 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

*Several measures may overlap in terms of emissions reductions and/or cost impacts. Estimates assume measures would be implemented independently from other measures.

† Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.

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.

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 AR
AFW-1	AGRICULTURE—PRODUCTION OF FUELS AND ELECTRICITY					
1.1	Expanded Use of Biomass Feedstocks for Electricity or Steam Production	H	H			
1.2	In-State Liquid Biofuels Production	M-H	M-H			See Biodiesel Suppliers and Producers, also Alternative Fuels Development Program
1.3	Manure Digesters/Other Waste Energy Utilization	M	M			
1.4	Encourage Cogeneration at Ag-Biomass Energy Sites	M	L			
AFW-2	AGRICULTURE—LIVESTOCK					
2.1	Manure Management	H	L-H			AR Poultry Litter and Poultry Feeding Management Plans
2.2	Changes in Animal Feed	H	U			University of Arkansas is currently investigating.
2.3	Rotational Grazing/Improve Grazing Crops and/or Management	L	U			
2.4	Utilize Biofilters to Control CAFO Emissions	L	U			
2.5	Increase Pasturing and Lower Densities	L	U			

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AFW-3	AGRICULTURE—CROP PRODUCTION					
3.1	Soil Carbon Management	M	L			
3.2	Nutrient Management	L-M	L			AR Nutrient Management Certification Program
3.3	Technology Improvements To Increase Efficiency	M	U			
3.4	Water Management (including Drainage and Irrigation)	L	U			
3.5	Drainage Management	L	U			
3.6	Promote Use of Surface Water Over Ground Water	M	U			Through Act 341 of 1995 AR has invested significant funding and technical support for these types of projects including: Bayou Meto, Boeuff Tensas, and White River Irrigation District
AFW-4	AGRICULTURE—LAND-USE CHANGE					
4.1	Land-Use Management That Promotes Permanent Cover	L	H			Farm Land Bill may become relevant
4.2	Preserve Open Space/Agricultural Land	L	H			Farm Land Bill may become relevant
AFW-5	AGRICULTURE—FARMING PRACTICES					
5.1	Reductions in On-Farm Energy Use	L	M			

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 AR
5.2	Promotion of Farming Practices That Achieve GHG Benefits	L	U			
5.3	Programs To Support Local Farming/Buy Local	L	U			
5.4	Technical Assistance and Education	L	U			
AFW-6	FORESTRY—PRODUCTION OF FUELS AND ELECTRICITY IN FORESTRY					
6.1	Expanded Use of Forest Biomass Feedstocks for Electricity, Heat, and Steam Production	M-H	H			See Electric Public Utility Renewable Energy Resources
6.2	In-State Liquid Biofuels Production	M-H	M-H			See Alternative Fuels Development Program
6.3	Improved Energy Capture Within the Forestry Products Industry	L-M	M			
6.4	Improved Commercialization of Biomass Gasification and Combined Cycle	H	M-H			
6.5	Encourage The Use of Energy Crops as a Feedstock for Energy Production	M-H	M			
AFW-7	FORESTRY—BIOMASS PROTECTION AND MANAGEMENT					

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 AR
7.1	Forest Protection—Reduced Clearing And Conversion to Nonforest Cover	M	H			
7.2	Urban Forestry	L	H			
7.3	Afforestation/Reforestation	H	M			Linked to 8.3
7.4	Forest Management for Carbon Sequestration	L	H			Linked to 8.3
7.5	Mitigation of Forest Carbon Sequestration Loss and Emissions Due to Forest Fire	L	H			
7.6	Mitigation of Forest Loss Due to Insects/Disease	L	H			
AFW-8	FORESTRY—WOOD PRODUCTS AND WASTE					
8.1	Improved Mill Waste Recovery—Utilization of Sawmill Residues and Emissions	L	H			Education could provide lower cost reductions.
8.2	Improved Logging Residue Recovery	L-M	H			Education could provide lower cost reductions.

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8.3	Expanded Use of Wood Products for Building Materials	H	L			AR Energy and Natural Resource Conservation Act encourages utilization of wood. Option linked to 7.3 and 7.4. Education could provide lower cost reductions.
AFW-9	WASTE MANAGEMENT—WASTE MANAGEMENT STRATEGIES					
9.1	Advanced Recovery and Recycling	M	L			AR Recycling Goals and Solid Waste Management and Recycling Fund
9.2	Promotion of Bioreactor Technology	L	L-M			
9.3	Source-Reduction Strategies	L-M	L			See Revolving Loan Program
9.4	Resource Management Contracting	L	U			
9.5	Waste Coal Recapture	U	U			
9.6	Enhanced Management of Organic Waste	L	U	Already implemented under solid waste management plant		See Statewide Solid Waste Management Plan
9.7	Promotion of New and Existing Technologies for Waste Energy Conversion	L	U			

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9.8	No Net Increase in Imported Waste	L	U	AR is currently a net exporter		
AFW-10	WASTE MANAGEMENT—LANDFILL GAS STRATEGIES					
10.1	Flare Landfill Methane at Non-NSPS (Smaller) Sites	M-H	M-H			
10.2	Methane and Biogas Energy Programs	U	M-H			
10.3	Landfill Methane Energy Programs	M-H	Neg-L			
AFW-11	WASTE MANAGEMENT—WASTEWATER MANAGEMENT ACTIVITIES					
11.1	Energy Efficiency Improvements	L-M	L			
11.2	Lower Waste Processing Needs	L	U			
11.3	Install Digesters and Turbines or Engines	L-M	L-H			
11.4	Restoration of Soil Organic Carbon From Application of WWTP Biosolids	L-M	U	Application of biosolids currently exists.		
11.5	Heat Recovery	L	U			
11.6	Algae and Bio-Oils	L-H	U			
11.7	Engineering Process Improvements	L	U			