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AGRICULTURE & FORESTRY SECTOR GHG REDUCTION POLICY OPTIONS

TWG CALL #2, OCTOBER 4, 2005, 10:00 – 11:30 A.M.

| <u>Indicative Potential Emission Reductions*</u> - | <u>Indicative cost (\$/tCO₂e)</u> |
|--|---|
| High (H): Potentially capable of saving at least 1 Million Metric Tons CO ₂ e per year by 2020 (~1% of current NM emissions) | High (H): \$50/tCO ₂ e or above |
| Medium (M): Potentially capable of saving from 0.1 to 1 Million Metric Tons per year by 2020 | Medium (M): \$5-50/tCO ₂ e |
| Low (L): Unlikely to yield more than 0.1 Million Metric Tons CO ₂ e per year by 2020 | Low (L): \$5/tCO ₂ e or lower |
| Uncertain (U): Too many unknowns to estimate at this time | Negative (Neg): Cost Savings |
| * Several measures may overlap in terms of the emissions reductions. Estimates assume measures would be implemented independently from other measures. | |

Indication of Priorities:

- **High:** High priority items are deemed deserving of considerable further analysis.
- **Medium:** Medium priority items will be carried forward, with the extent of further consideration and analysis to be determined later.
- **Low:** Low priority items will be moved to a separate list as options to be potentially considered at a later time.

** Options marked with a double asterisk in the matrix indicate policies that have been considered or undertaken at some level in New Mexico.

| | | Priority: High, Med, Low | Implement. Level & Lead Agency | Potential Emission Reductions | Indicative Cost (\$/tCO2 removed) | Other Information, Co-benefits, Feasibility Consideration, Examples of Current Activities |
|--|---|--------------------------------|---|-------------------------------------|--|--|
| Agriculture – Production of Fuels and Electricity | | | | | | |
| 1.1 | Manure Digesters (methane recovery and electricity production) | | State, Local Ag. Ext. | Medium | Neg to Low | • |
| 1.2 | Biodiesel Production (incentives for feedstocks and production plants) | | State | Medium | Med to High | • |
| 1.3 | Biomass Feedstocks for Electricity or Steam Production | | State | Low | ? | • |
| 1.4 | Ethanol Production | | State | Medium | Med to High | • |
| 1.5 | Convert Diesel Farm Equipment to LNG/CNG or Hybrid Technology | | State | Low | Med to High | • |
| 1.6 | (Additional option, if/as suggested) | | | | | • |
| 1.7 | (Additional option, if/as suggested) | | | | | • |
| Agriculture – Fertilizer and Manure Management | | | | | | |
| 2.1 | Nutrient Management (improve efficiency of fertilizer use) | | State, Local Ag. Ext. | Medium | Low | • |
| 2.2 | Manure Management (practices to reduce methane emissions) | | State, Local Ag. Ext. | Medium | ? | • |
| 2.3 | Change Feedstocks (optimize nitrogen for N ₂ O reduction) | | State, Local Ag. Ext. | Low | Low | • |
| 2.4 | Reduce Non-Farm (Residential and Commercial) Fertilizer Use | | State | ? | ? | • |
| 2.5 | (Additional option, if/as suggested) | | | | | • |
| 2.6 | (Additional option, if/as suggested) | | | | | • |
| Agriculture – Soil Carbon Management | | | | | | |
| 3.1 | Conservation Tillage/No-Till (carbon sequestration and reduced energy use) | | State, Local Ag. Ext. | Medium | Low | • |
| 3.2 | Reduce Summer Fallow (increase soil C content, reduce N ₂ O emissions) | | State, Local Ag. Ext. | ? | ? | • |

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|---|--|--------------------------------|---|-------------------------------------|--|--|
| 3.3 | Increase Winter Cover Crops (increase soil C content, increase soil N content) | | State, Local Ag. Ext. | ? | ? | • |
| 3.4 | Improve Water and Nutrient Use (to minimize soil C loss) | | State, Local Ag. Ext. | Low | Low | • |
| 3.5 | Rotational Grazing/Improve Grazing Crops and/or Management | | State, Local Ag. Ext. | Low | Low | • |
| 3.6 | (Additional option, if/as suggested) | | | | | • |
| Agriculture – Land Use Change | | | | | | |
| 4.1 | Convert Land to Grassland or Forest | | State | Medium | ? | • |
| 4.2 | Reduce Permanent Conversion of Farm and Rangelands to Developed Uses | | State, County, City Planning Offices | High | ? | • |
| 4.3 | (Additional option, if/as suggested) | | | | | • |
| 4.4 | (Additional option, if/as suggested) | | | | | • |
| Agriculture – Farming Practices | | | | | | |
| 5.1 | Organic Farming | | State, Local Ag. Ext. | Medium | Low | • |
| 5.2 | Programs to Support Local Farming/Buy Local | | State, Local Ag. Ext. | Medium | ? | • |
| 5.3 | (Additional option, if/as suggested) | | | | | • |
| 5.4 | (Additional option, if/as suggested) | | | | | • |
| Forestry – Biomass Protection and Management | | | | | | |
| 6.1 | Forest Protection – Reduced Clearing And Conversion to Nonforest Cover | | State, City/ local | High | Low | • |
| 6.2 | Increase Maintenance of Urban and Residential Trees | | State, City/ local | Low | Low to high | • |
| 6.3 | Afforestation of Nonforested Rural Lands | | State, City/ local, federal | Low to high | Low | • |
| 6.4 | Afforestation of Nonforested Urban Lands | | State, City/ local, federal | Low to high | Low | • |

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|------|--|--------------------------------|---|-------------------------------------|--|--|
| 6.5 | Reforestation/Restoration of Forested Lands | | State, City/ local, federal | Low to high | Low | • |
| 6.6 | Reforestation or Increased Stocking of Stands | | State, City/ local, federal | Low to high | Low | • |
| 6.7 | Age Extension of Managed Stands | | State, City/ local, federal | Low | Low to high | • |
| 6.8 | Thinning and Density Management of Managed Stands | | State, City/ local, federal | High | Low to high | • |
| 6.9 | Fertilization and Waste Recycling | | State, City/ local, federal | Low | Low to high | • |
| 6.10 | Expand Short Rotation Woody Crops (for fiber and energy) | | State, City/ local, federal | Low to medium | Low to high | • |
| 6.11 | Expanded Use of Genetically Preferred Species | | State, City/ local, federal | Low | Low | • |
| 6.12 | Modified Biomass Removal Practices (reduced decay and energy use) | | State, City/ local, federal | Low | ? | • |
| 6.13 | Fire Management and Risk Reduction Programs | | State, City/ local, federal | High | Low to high | • |
| 6.14 | Forest Health Risk Reduction Programs (pest/disease, invasive species) | | State, City/ local, federal | High | Low to high | • |
| 6.15 | Drought Management Programs (tree selection, placement, protection) | | State, City/ local, federal | High | Low to high | • |
| 6.16 | Flood and Riparian Management Programs (tree selection, placement, protection) | | State, City/ local, federal | Low | Low to high | • |

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|---|---|--------------------------------|---|-------------------------------------|--|--|
| 6.17 | Watershed Management Programs (stand retention, enhancement and management) | | State, City/ local, federal | Low to high | Low to High | • |
| 6.18 | Habitat Management Programs (stand retention, enhancement and management) | | State, City/ local, federal | Low to high | Low to High | • |
| 6.19 | (Additional option, if/as suggested) | | State, City/ local, federal | | | • |
| 6.20 | (Additional option, if/as suggested) | | State, City/ local, federal | | | • |
| Forestry - Wood Products and Waste | | | | | | |
| 7.1 | Improved Mill Waste Recovery | | State, City/ local, federal | Low to High | Low to High | • |
| 7.2 | Improved Logging Residue Recovery | | State, City/ local, federal | High | Low to High | • |
| 7.3 | Expanded Use of Small Diameter Trees for Wood Products and Energy | | State, City/ local, federal | High | Low to High | • |
| 7.4 | Expanded Use of Wood Products for Building Materials | | State, City/ local, federal | Medium to High | Low to High | • |
| 7.5 | Expanded Use of State and Locally-Grown Wood Products | | State, City/ local, federal | Low to High | Low to High | • |
| 7.6 | (Additional option, if/as suggested) | | | | | • |
| 7.7 | (Additional option, if/as suggested) | | | | | • |
| Forestry – Energy Production | | | | | | |
| 8.1 | Expanded Use of Forest Biomass Feedstocks for Electricity (fuel switching) | | State, City/ local, federal | High | Low | • |

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|-----|--|--------------------------------|---|-------------------------------------|--|--|
| 8.2 | Improve Use and Efficiency of Wood for Direct Commercial Heat and Energy | | State, City/ local, federal | High | Low | • |
| 8.3 | Improved Energy Capture from Wood Waste Combustion | | State, local, private | Low to High | ? | • |
| 8.4 | Expanded Landfill Methane Recapture (wood products waste) | | State, City/ local | Low | Neg to Low | • |
| 8.5 | Improved Commercialization of Biomass Gasification and Combined Cycle | | State, City/ local, federal | Low to High | Medium to high | • |
| 8.6 | Expand Usage and or Efficiency of Wood Waste as Residential Fuel Source | | State, City/ local, federal | Low to Medium | Low | • |
| 8.7 | (Additional option, if/as suggested) | | | | | • |