Michigan Climate Action Council (MCAC)

Agriculture, Forestry, and Waste Management Technical Work Group (TWG) Meeting #5

May 1, 2008

Michigan Department of Environmental Quality
The Center for Climate Strategies

Agenda

1. Introductions
2. Meeting Purpose and Goals
3. Approval of Summary of Prior Call/ Meeting
4. Review of MCAC Meeting #3- April 25, 2008
5. Review of Policy Option Template
6. Discussion of MI GHG Inventory and Forecast
7. Review of Next Steps
8. Agenda, Date and Time for Next Meetings
9. Public Comments
10. Announcements

Approval of Prior Call Summary

- Review draft meeting summary for AFW TWG meeting #4
- Consider any corrections or additions to meeting summary
- Accept meeting summary with agreed upon changes

MCAC 4/25/08 Meeting

AFW-1	Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production	1.1 Expanded Use of Biomass Feedstocks for Electricity, Heat and Steam Production 6.1 Expanded Use of Forest Biomass Feedstocks for Electricity, Heat and Steam Prod.
AFW-2	In-State Liquid Biofuels Production	1.2 In-State Liquid Biofuels and Feedstock Production 6.2 In-State Liquid Biofuels Production (Forestry) **11.6 Algae and Bio-Oils**
AFW-3	Methane Capture and Utilization from Manure and other Biological Waste	1.3 Manure Digesters/Other Waste Energy Utilization 2.1.2 Manure Management: Methane Capture 11.3 Methane and Biogas Energy Programs
AFW-4	Expanded Use of Bio-based Materials	1.5 Expanded Use of Bio-based Materials 6.5 Expanded Use of New, Used, & Recycled Wood Products for Building Materials
AFW-5	Land Use Management that Promotes Permanent Cover	4.1 Land Use Management that Promotes Permanent Cover
AFW-6	Forestry and Agricultural Land Protection	4.2 Preserve Open Space/Agricultural Land 7.1 Forest Protection – Reduced Clearing and Conversion to Non-forest Cover
AFW-7	Promotion of Farming Practices that Achieve GHG Benefits	5.2 Promotion of Farming Practices that Achieve GHG Benefits 3.1 Soil Carbon Management 5.4 Programs to Promote Organic Farming Practices that Achieve GHG Benefits 3.2 Nutrient Management **5.1 Increase On-Farm Energy Efficiency** **5.3 Programs to Support Local Farming/Buy Local**
AFW-8	Forest Management for Carbon Sequestration and Biodiversity	7.4 Forest Management for Carbon Sequestration and Biodiversity
AFW-9	Source Reduction, Advanced Recycling, and Organics Management	9.1 Advanced Recycling, Source Reduction, and Composting
AFW-10	**Landfill Methane Energy Programs**	**10.2 Landfill Methane Energy Programs**

Stepwise Planning Process

- Get organized
- Review and refine inventory & forecast of emissions
- Identify a full range of possible actions
- Identify initial priorities for analysis
- *Develop straw policy design proposals*
- Quantify initial GHG reductions and costs/savings
- Fully develop policy option templates, including externalities, feasibility issues
- Develop alternatives to address barriers as needed
- Aggregate and integrate results
- Finalize and report recommendations

Priority Policy Options – What Next?

- TWG members volunteer to work on one or more policy options to develop Straw Proposals.
- Sub-groups of volunteers ‘meet’ independently.
- Craft Straw Proposals (outside experts and research can be used.

Policy Option Template

- Policy Description (Concept)
- Policy Design (Goals, Timing, Coverage)
- Implementation Methods
- Related Programs and Policies (BAU)
- Estimated GHG Savings and Costs Per MMTCO2e
  - Data Sources, Methods and Assumptions
  - Key Uncertainties
- Additional (non-GHG) Benefits and Costs, as Needed
- Feasibility Issues, if Needed
- Status Of Group Approval
- Level of Group Support
- Barriers to Consensus, if any

Draft MI Inventory and Forecast

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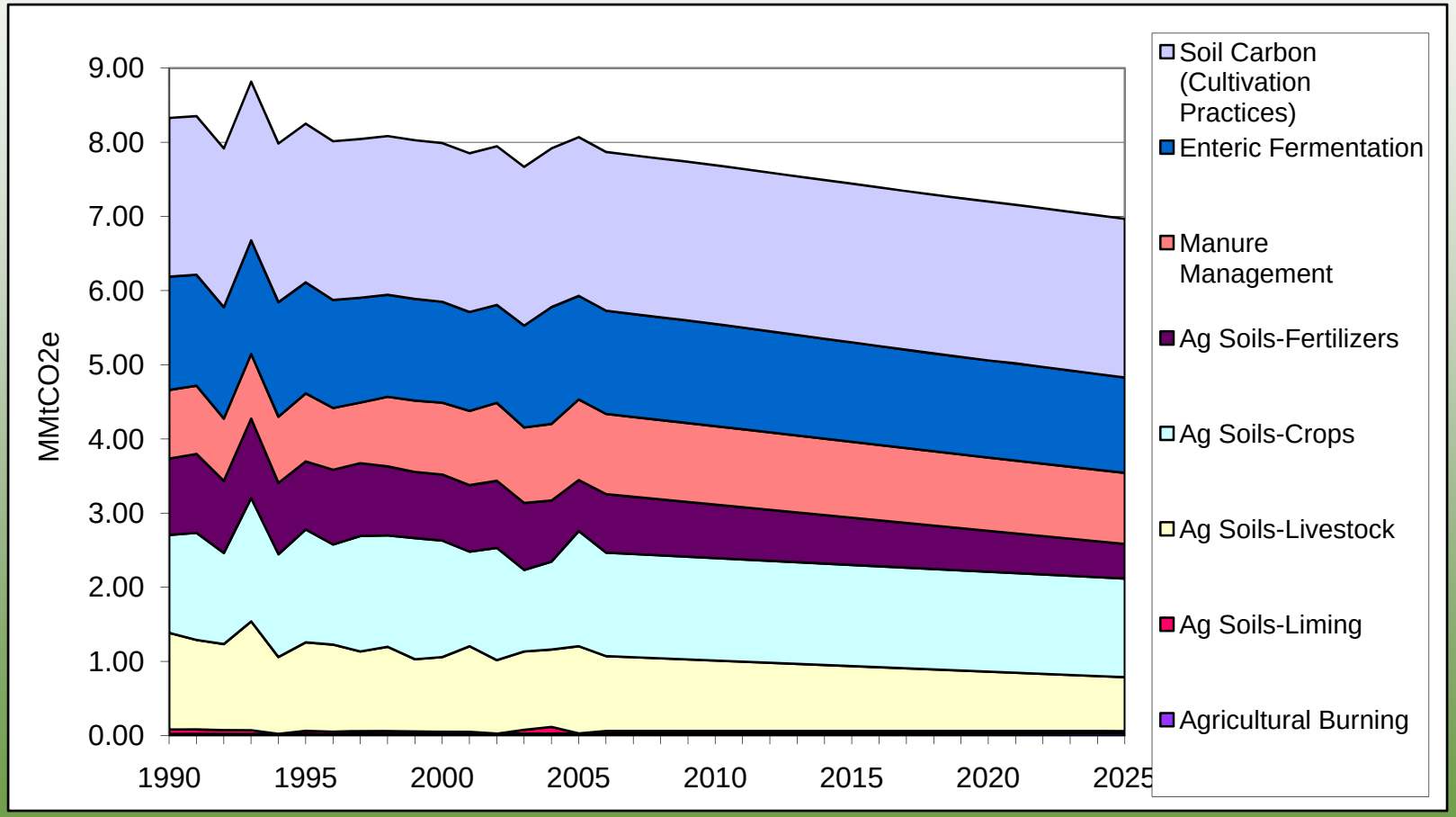
Preliminary Michigan Agriculture Inventory-Gross GHG Emissions



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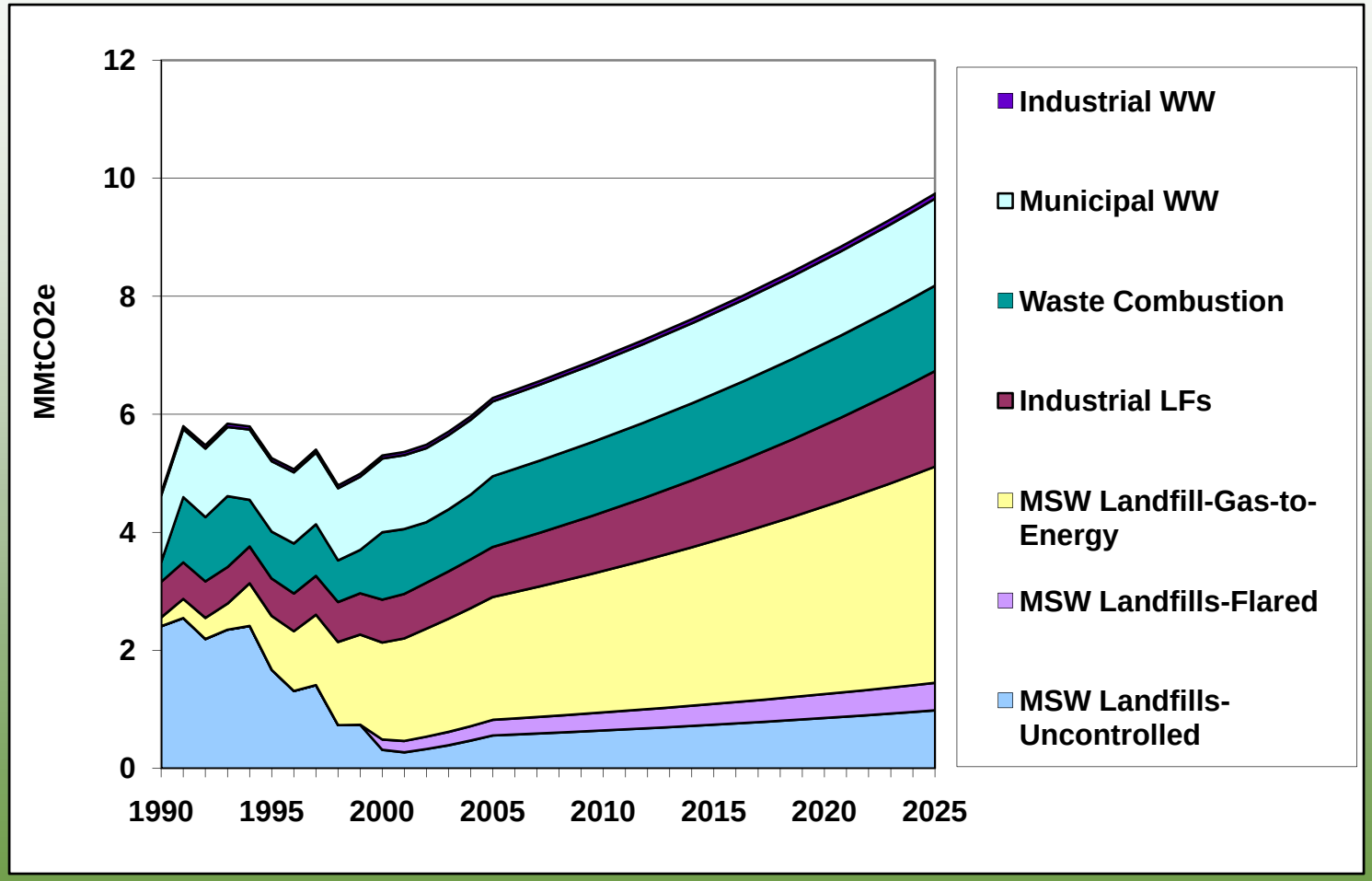
Agriculture

- Data sources
  - Crop production: USDA/NASS
  - Livestock: USDA/NASS
  - Fertilizer: Fertilizer Institute
- Methods
  - Crops: SGIT emission factors and crop production data
  - Livestock: SGIT emission factors and livestock populations
  - Fertilizer: SGIT fertilizer consumption
  - Livestock population projections based on Food and Agricultural Policy Research Institute (FAPRI) & historical growth
  - Projections for other categories based on historical growth trends

Agriculture

- Key Assumptions
  - Future growth for agricultural soils will follow historical trends
  - Livestock population growth will follow state-level FAPRI projections & historical trends
- Key Uncertainties
  - Manure management emission factors derived from limited data sets
  - Livestock numbers based on point estimates for each year to represent populations that fluctuate throughout the year
  - Projection assumptions

Waste Management



Waste Management

- Data sources
  - EPA Landfill Methane Outreach Program Database
  - MI DEQ Annual Disposal Rates, Landfill waste and emissions control data, combustion/incineration data
  - State population and SIT default data for municipal wastewater treatment
- Methods
  - SIT with data sources above and corresponding growth rates

Waste Management

- Key Assumptions
  - Growth Rates
    - Landfill – based on historic emissions growth (1996-2005)
- Key Uncertainties
  - Do not account for future controls applied to landfills due to triggering requirements
  - Industrial landfills overestimated due to inclusion of Type III data in calculation of MSW
  - Industrial wastewater
    - Default data not available for fruits & vegetables and pulp & paper

Forestry

Pool	1980-1993 Flux ($MMtCO_2$/yr)	1993-2004 Flux ($MMtCO_2$/yr)	2004-2005 Flux ($MMtCO_2$/yr)
Forest Carbon Pools (non-soil)	-38.04	6.81	-42.28
Soil Organic Carbon	-11.98	11.67	26.67
Harvested Wood Products	-2.60	-2.60	-2.60
Totals	**-52.61**	**15.88**	**-18.20**
Totals (excluding soil carbon)	**-40.64**	**4.21**	**-44.88**

Forestry

- Data sources
  - USFS carbon stock data for 2001-2005 based onFORCARB2 model
  - USFS also provides modeled estimates for harvested wood products
- Methods
  - Forestry: USFS FORCARB2 carbon stock change model provides carbon pools for each inventory cycle
  - Flux calculated for each pool based on difference in time between inventory cycles

Forestry

- Key Assumptions
  - 1980-1993 and 1993-2004 carbon fluxes represent forest carbon flux prior to 2005
  - Current flux estimates are based on 2005 sample year stock
  - For 2005-2020 projections forest area and carbon densities assumed to remain at 2005 levels
  - Average wildfire acres burned from 1990-2005 assumed to calculate historic emissions. Projected emissions held constant at 2005 levels.
- Key Uncertainties
  - High level of uncertainty associated with soil carbon pool estimates
  - Methodological differences in forest inventory cycles can produce different estimates of forest area and carbon density
  - Effects of future development on forested acreage

Next Steps

- TWG begins Straw Proposal Development
- TWG forwards information to MCAC for Meeting #4
- MCAC reviews, modifies, and approves basic straw proposals
- TWG refines straw proposals for quantification and cost/benefit analysis.
- Continue discussion of MI GHG Inventory-Forecast

Next TWG Meeting

- Agenda:
  - TWG Feedback on straw proposals
  - Make any necessary adjustments
  - Finalize for submission to MCAC for approval
  - Continue working on straw proposals
  - Continue Review of Michigan GHG emissions inventory and forecast
- Time and Date: Thursday, May 29 2008. 1:00-3:00 PM EST.

Public Input, Announcements