



Michigan Climate Action Council
Department of Environmental Quality

Michigan.gov

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Michigan Climate Action Council (MCAC)

Agriculture, Forestry, & Waste Technical
Work Group (AFW TWG) Meeting #1
January 10, 2008

Michigan Department of Environmental Quality
The Center for Climate Strategies

Welcome and Introductions

- State of Michigan
- MCAC TWG Members
- Members of the Public
- Center for Climate Strategies

Agenda

1. Introductions
2. Purpose and Goals
3. Review of MCAC and TWG Process
4. Development of Michigan Catalog of States Actions
5. Development of Michigan Emissions Inventory and Forecast
6. Review of Next Steps
7. Agenda, Date and Time for Next Meetings
8. Public Comments
9. Announcements

Michigan Executive Order

- Establishes the Michigan Climate Action Council charged with addressing Michigan's climate challenge on all fronts
- Interim Report by April 2008
- Final Report with Action Plan by December 31, 2008



Roles & Responsibilities

- Process convened by Governor Granholm on December 12, 2007 w/ 1st MCAC meeting
- MDEQ oversees and coordinates process
- MCAC makes recommendations to MDEQ
- Technical Work Groups (TWGs) provide guidance to MCAC
- MDEQ ensures timely and full completion of MCAC duties, etc.
- Public input and review for stakeholders
- CCS provides facilitation, technical support, final report

Technical Work Group (TWG) Roles

- Assist MCAC
 - Identify potential state actions
 - Identify potential priorities for analysis
 - Suggest straw policy designs
 - Assist with analysis and review of options
 - Assist with development of policy alternatives
 - Assist with input to and review of MCAC reports
 - Review and assist with the state GHG inventory and forecast

Technical Work Groups (TWGs)

- Energy Supply
 - Heat and power generation; locus for cap and trade or carbon tax policy
- Residential, Commercial and Industrial
 - Energy efficiency & conservation, industrial process, waste management
- Transportation
 - Vehicle efficiency, alternative fuels & demand reduction programs
- Agriculture, Forestry and Waste
 - Land protection, forest restoration, sustainable forest management, bioenergy, sustainable wood products, waste reduction, recycling
- Cross-Cutting Issues
 - Reporting, registries, public education, goals

MCAC Process

Ground Rules

- Supportive of the process
- Attendance at meetings
- Equal footing
- Stay current with information
- No backsliding
- Do not represent the MCAC or TWGs
- Make objective contributions

Timing

Date	Action
December 12, 2007	1 st MCAC meeting
February 14, 2008	2 nd MCAC meeting
April 25, 2008- tentative	3 rd MCAC meeting and Interim Report
June 18, 2008- tentative	4 th MCAC meeting
September 2008	5 th MCAC meeting
November 2008	6 th MCAC meeting
December 31, 2008	MCAC Final Report due
Between MCAC Meetings	TWG conference calls and meetings

Stepwise Planning Process

1. Develop inventory and forecast of emissions
2. Identify a full range of possible actions
3. Identify initial priorities for analysis
4. Develop straw proposals
5. Quantify GHG reductions and costs/savings
6. Evaluate externalities, feasibility issues
7. Develop alternatives to address barriers
8. Aggregate results
9. Iterate to final agreements
10. Finalize and report recommendations

Building Consensus

- Comprehensive
- Stepwise
- Fact based
- Transparent
- Inclusive
- Collaborative
- Consensus driven



Coverage Of Issues



- All GHG's
- All sectors
- All potential implementation mechanisms
- State and multi-state actions
- Short and long term actions

Decision Criteria

- GHG Reduction Potential (MMTCO₂e)
- Cost or Cost Saved Per Ton GHG Removed
- Co-benefits
- Feasibility Issues

Catalog of States Actions

- Over 300 actions taken by US states
- Existing, planned and proposed state level actions
- Wide variety of US states
- All sectors
- Wide variety of implementation mechanisms
- Includes key MI actions
- MCAC will add new potential actions
- Starting place for identification of MCAC priorities

A “Portfolio” of Policy Options...

	Codes & Standards	Market Mechanisms	Funding Mechanisms	Voluntary Agreements	Technical & Financial Assistance	Information & Education	Pilots & Demo Projects	Reporting & Disclosure
Agriculture & Forestry								
Energy Supply								
Residential, Commercial, & Industrial								
Transportation & Land Use								
Waste Management								
Cross-Cutting Issues (Education, Registries, etc.)								

Screening of Potential Actions

- Agriculture Sample

Option No.	Climate Mitigation Option	Priority for Analysis	Potential GHG Emissions Reduction	Potential Cost or Savings	Additional Impacts, Feasibility Considerations	Notes
AFW-1	AGRICULTURE'S PRODUCTION OF FUELS AND ELECTRICITY					
1.1	Manure Digesters/Other Waste Energy Utilization**					
1.2	Biodiesel Production (incentives for feedstocks and production plants)					
1.3	Biomass Feedstocks for Electricity or Steam Production**					
1.4	Ethanol Production					

Policy Design Proposals

- TWGs start with Catalog of states' actions, screen options, and recommend priorities for MI
- MCAC identifies about 50 draft potential priority options for further development
- TWGs develop initial policy option designs (“straw proposals”)
 - Timing
 - Goals
 - Coverage
- CCS quantifies and presents for review
- MCAC revisits list of potential priorities, as needed

Policy Option Template

- Policy Description (Concept)
- Policy Design (Goals, Timing, Coverage)
- Implementation Methods
- Related Programs and Policies (BAU)
- Estimated GHG Savings and Costs Per MMTCO_{2e}
 - 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

Final Report

- Executive Summary
- Background, Purpose And Goals
- MI Emissions Inventory & Forecast
- MCAC Recommendations & Results
 - Agriculture
 - Forestry
 - Energy Supply
 - Residential, Commercial, Industrial
 - Transportation & Land Use
 - Waste Management
 - Cross Cutting Issues
- Appendices



MI Inventory and Forecast

Inventory Approach

- Standard US EPA and UN methodologies, guidelines, and tools
- Emphasis on transparency, consistency, and significance
- Preference for Michigan or regional data, where available
- Consumption and production-basis emissions from electricity generation
 - Very simplified approach used for initial analysis

Projection Approach

- Reference case assumes no major changes from business-as-usual (BAU)
 - Includes approved policies and actions to the extent possible (e.g., Energy Efficiency, Renewable Energy)
- Growth assumptions from existing sources
 - State population and employment forecasts
 - US Census and Bureau of Labor Statistics
 - US Energy Information Administration

Coverage

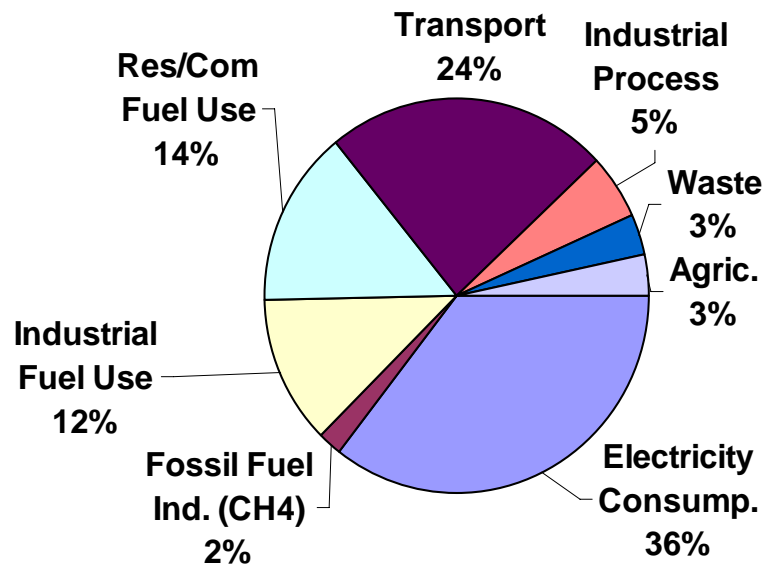
- Six gases per USEPA and UNFCCC guidelines
 - Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF₆)
- All major emitting sectors
 - Electricity Supply & Demand (Consumption Based)
 - Residential, Commercial, Industrial (RCI) Fuel Use and Non-fuel Use Processes
 - Transportation (onroad and nonroad)
 - Natural gas pipeline transmission & distribution
 - Agriculture, Forestry, and Waste
- Emissions expressed as CO₂ equivalent
 - 100-year global warming potentials
 - CO₂ = 1; CH₄ = 21; N₂O = 310; HFC-23 = 11,700; SF₆ = 23,900

Key Points

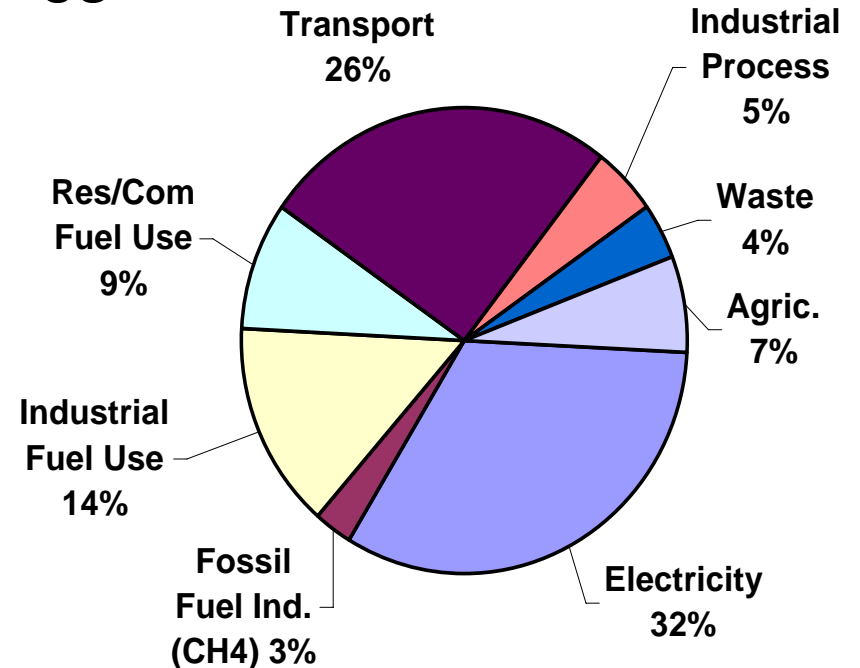
- Preliminary draft for MCAC and TWG review and revision, as needed
- Helpful for diagnosis of GHG emissions, but not a baseline for modeling or compliance for individual options
- Consumption and Production methods
- Gross and Net methods

Michigan & US Emissions By Sector, Year 2000

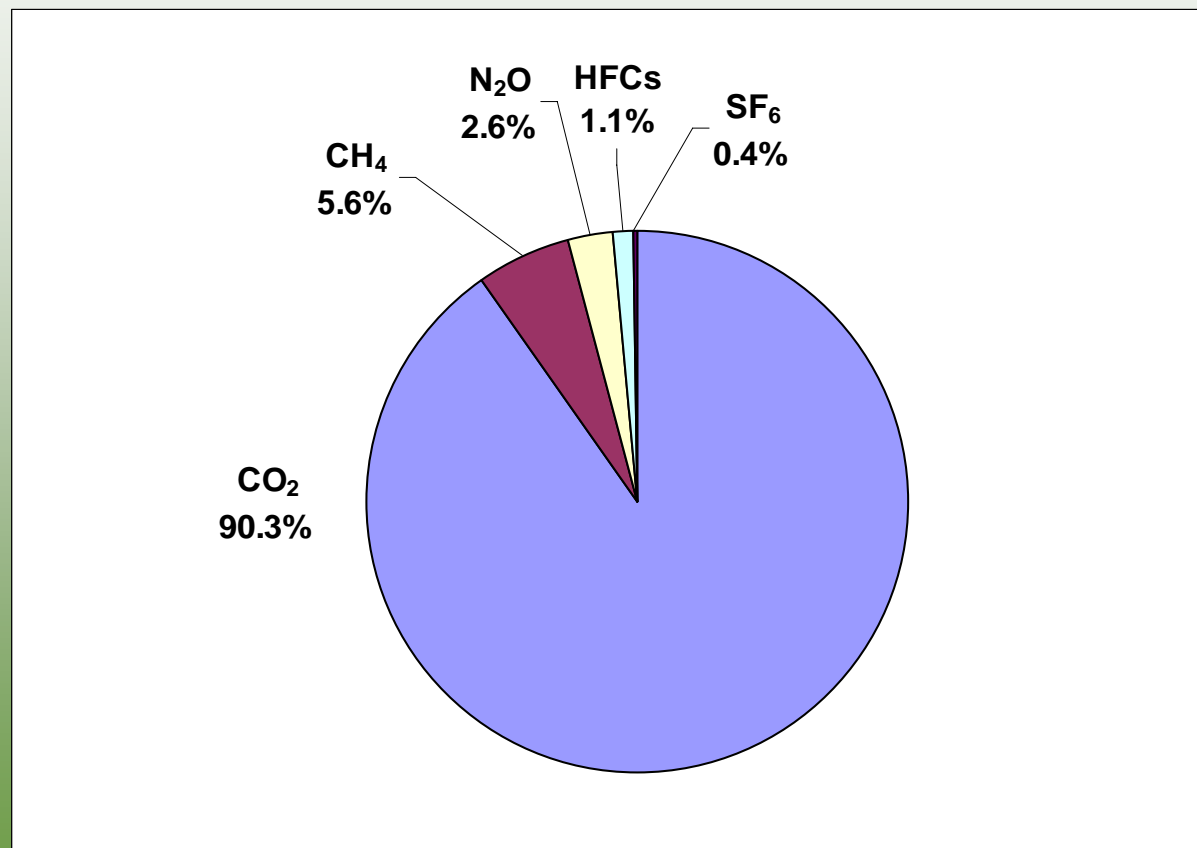
Michigan



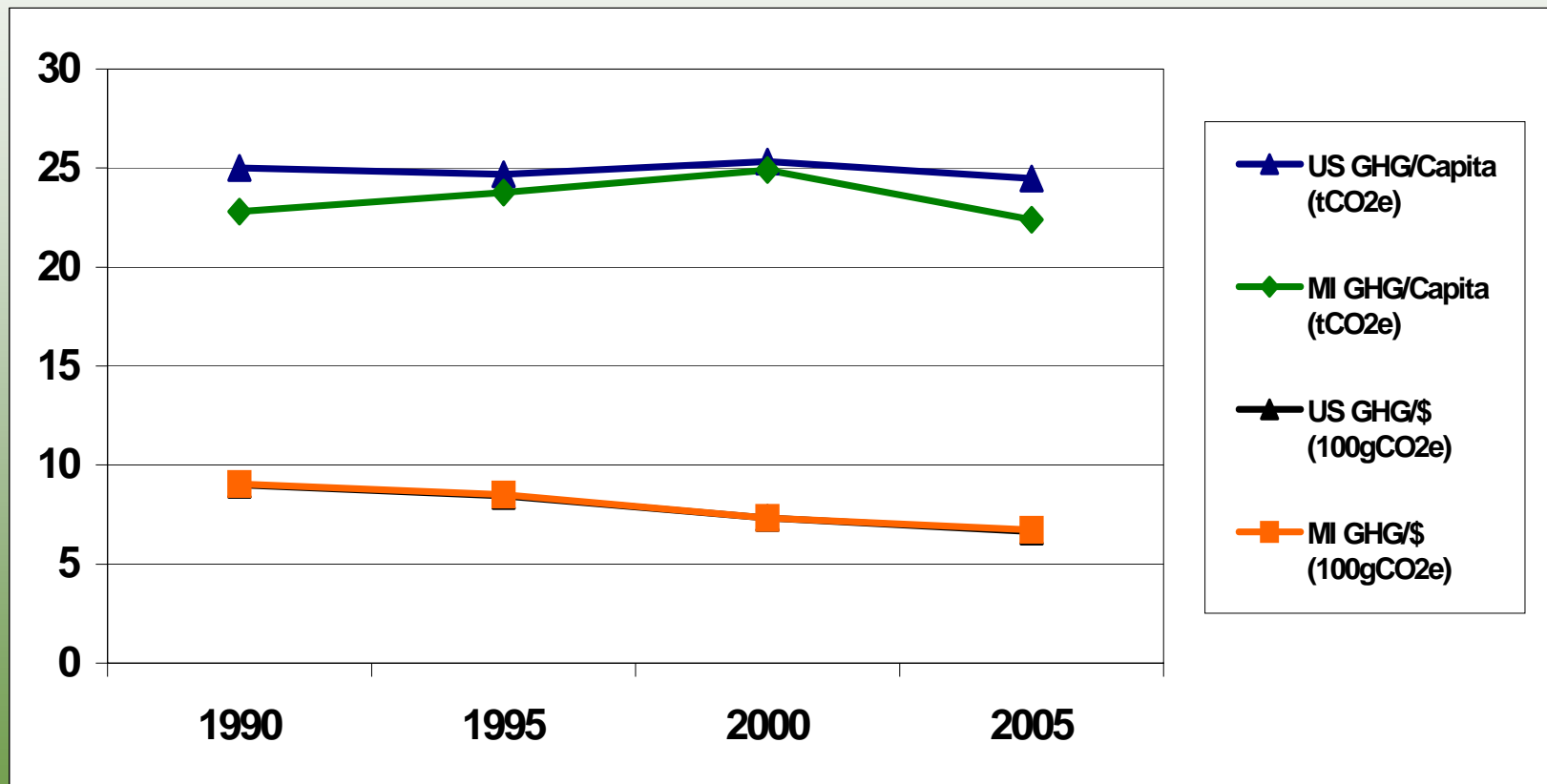
US



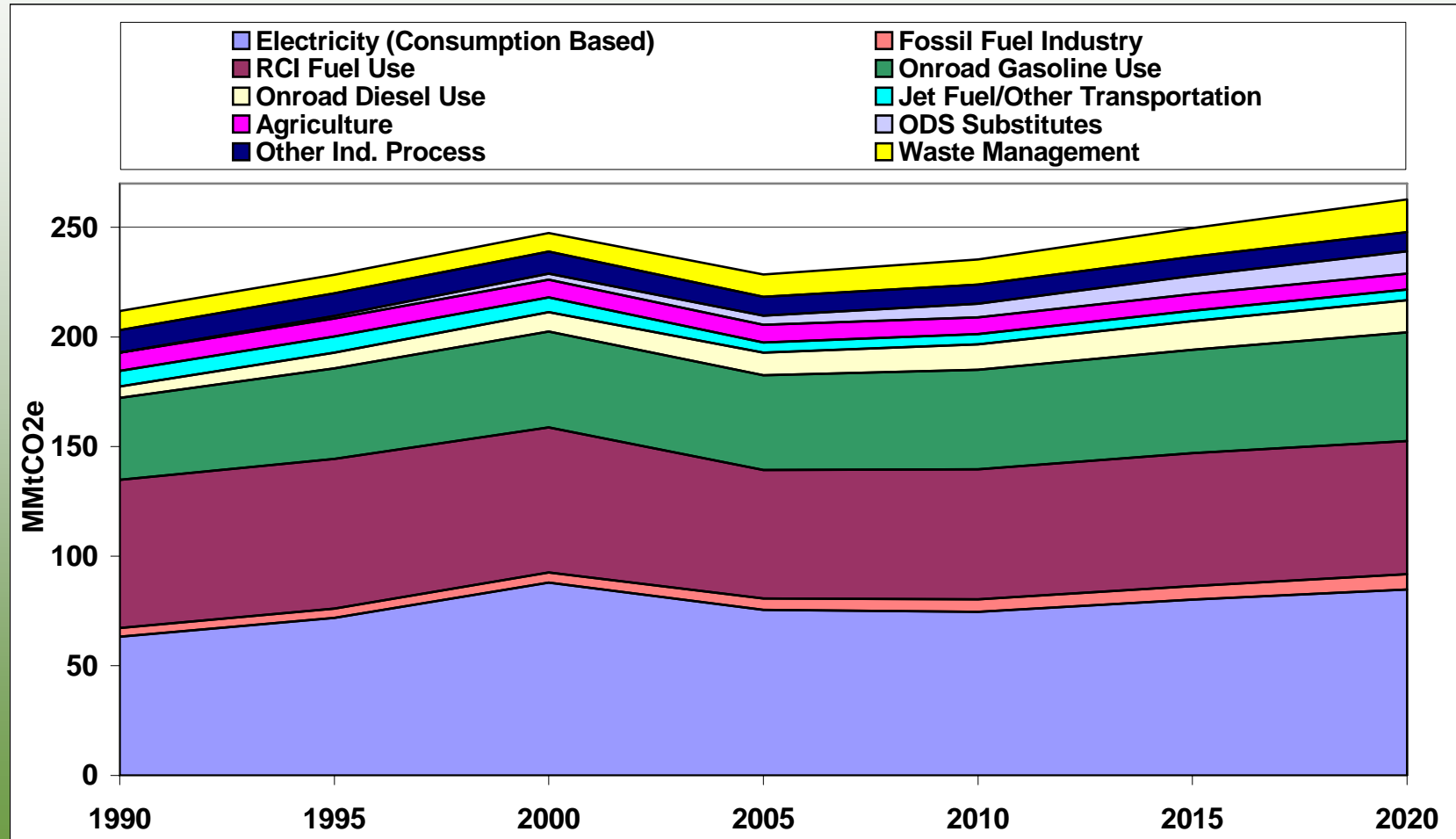
Michigan Emissions By GHG, Year 2000 (MMtCO₂e Based)



Per Capita and GSP/GDP GHG Emissions, 1990-2005



Gross Michigan GHG Emissions By Sector, 1990-2020

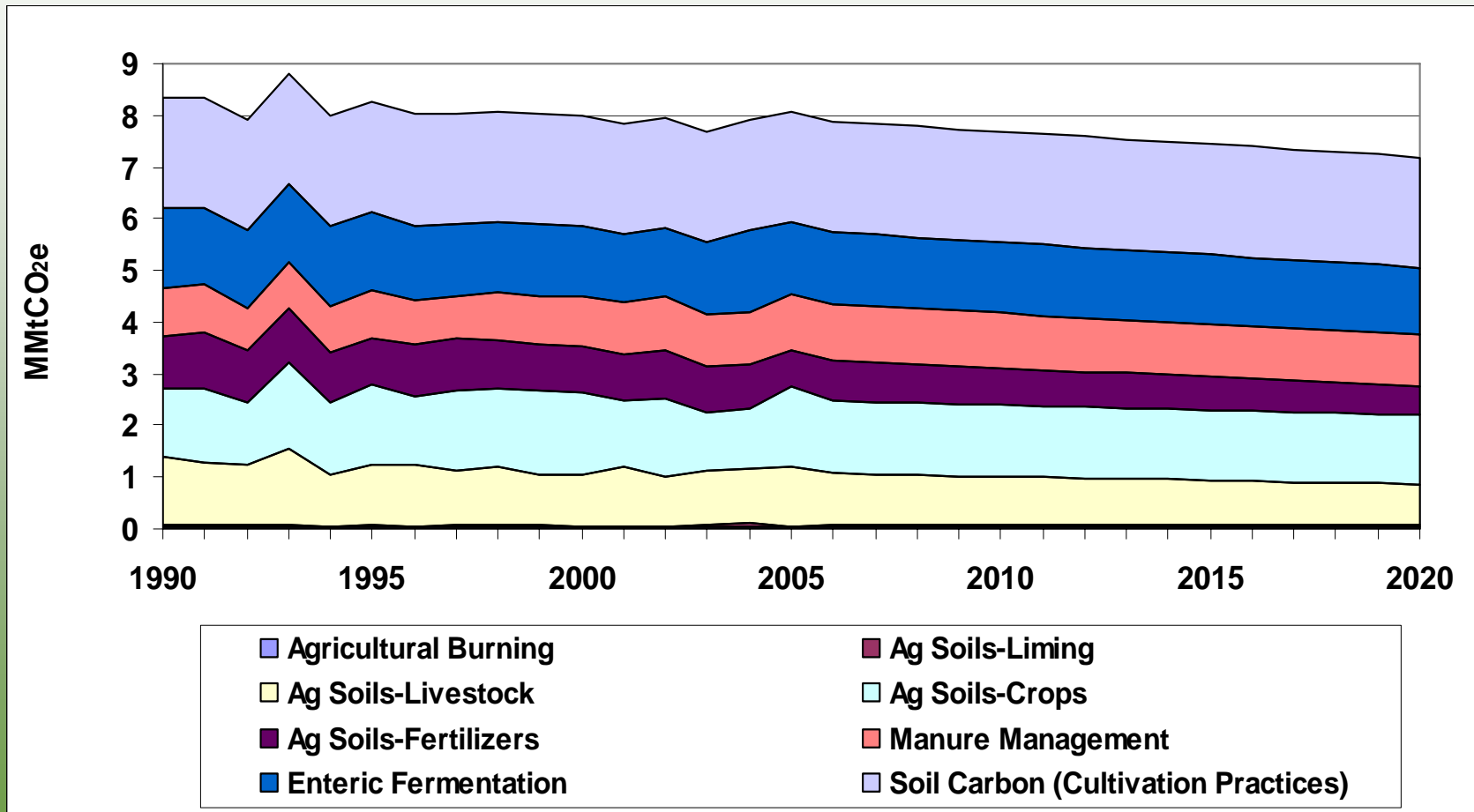


Michigan Emissions Growth (MMtCO₂e Basis)

Agriculture

- Key Assumptions
 - Future growth for agricultural soils will follow historical trends
 - Livestock population growth will follow 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

Preliminary Michigan Agriculture Inventory-Gross GHG Emissions

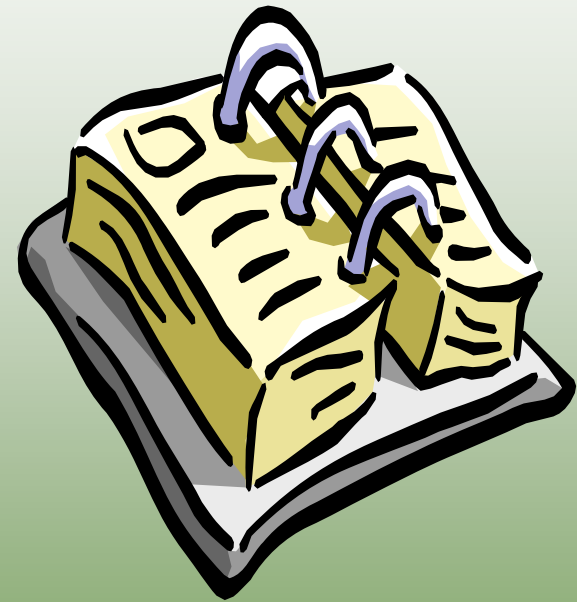


Next Steps

- Schedule next TWG meetings
- Identify potential actions that are missing from the catalog
- Begin Review of Inventory- Forecast for MI

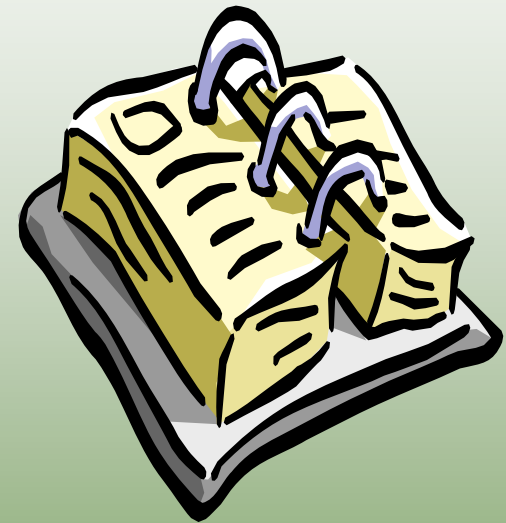
Next MCAC Meeting

- Agenda:
 - Formulate catalog of potential state actions
 - Review TWG suggested updates to the MI emissions inventory and projection
 - Prepare to identify initial priorities for analysis
 - Begin discussion of GHG Reduction Goals for Michigan
- Date: February 14, 2008
in Lansing area



Next TWG Meetings

- Agenda:
 - Add missing actions to catalog
 - Review MI emissions inventory and forecast projections
- January 24, 2008, 1:00pm-3:00pm



Public Input, Announcements