



Michigan Climate Action Council  
Department of Environmental Quality

Michigan.gov

The Official State  
of Michigan Website

# Michigan Climate Action Council (MCAC)

Agriculture, Forestry, & Waste Technical  
Work Group (AFW TWG) Meeting #2  
January 24, 2008

Michigan Department of Environmental Quality  
The Center for Climate Strategies

# Agenda

1. Call to order and roll call
2. Review and approval of prior call summary
3. Review goals for MCAC Meeting #2
4. Review next steps for TWG
5. Review and discussion of Catalog of State Actions
6. Review of Michigan draft Emissions Inventory and Forecast
7. Review of Next Steps
8. Agenda, Date and Time for Next Meetings
9. Public Comments & Announcements

# Timing

Date	Action
December 12, 2007	1 <sup>st</sup> MCAC meeting
<b>February 14, 2008</b>	<b>2<sup>nd</sup> MCAC meeting</b>
April 25, 2008-tentative	3 <sup>rd</sup> MCAC meeting and Interim Report
June 18, 2008-tentative	4 <sup>th</sup> MCAC meeting
September 2008	5 <sup>th</sup> MCAC meeting
November 2008	6 <sup>th</sup> 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

# Catalog of State Actions & Action Descriptions

- Refer to the Documents posted at the AFW Web Page.

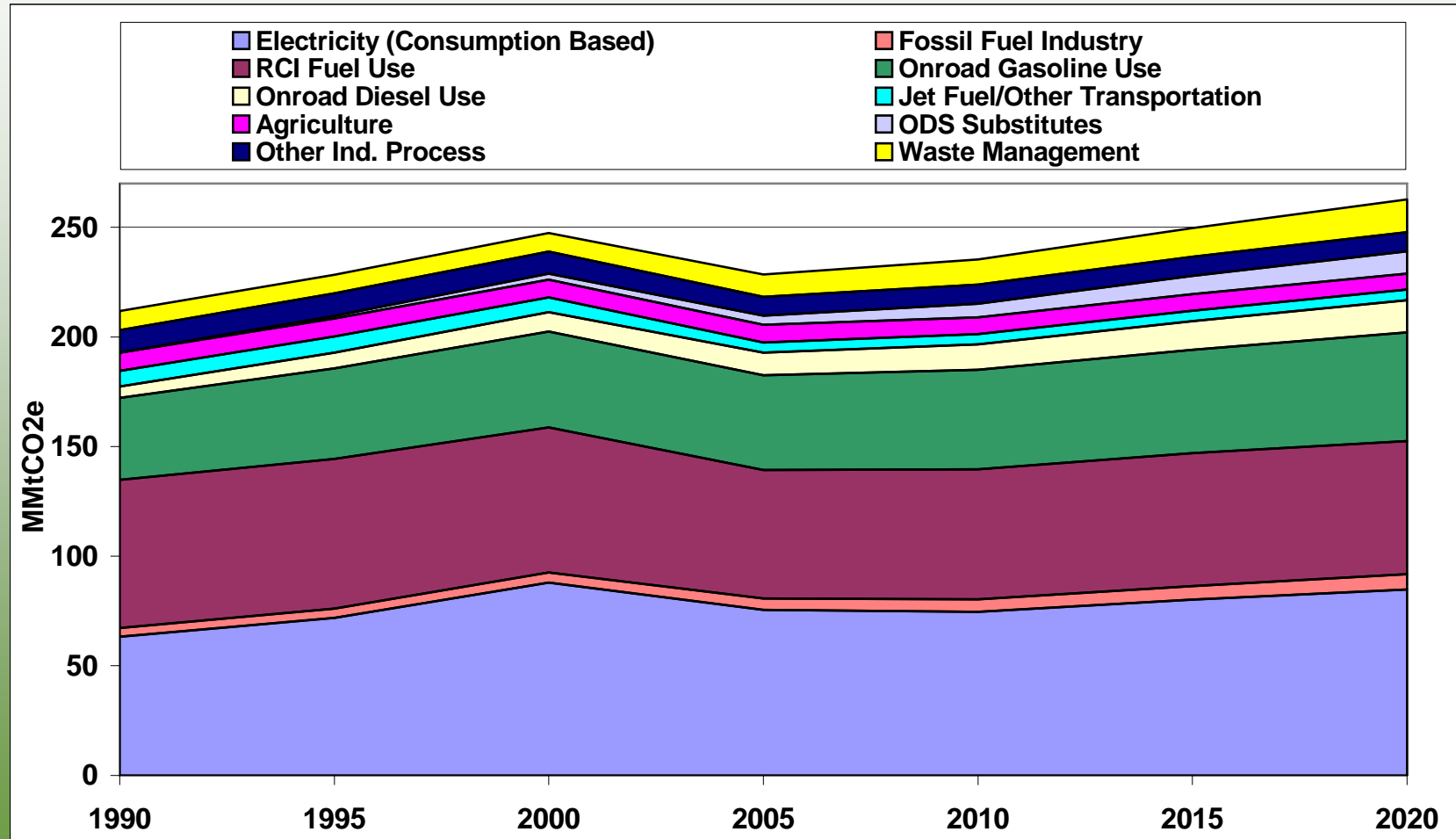
# Next Steps for the AFW TWG

- Complete Catalog for review by the MCAC on February 14
- CCS incorporates comments from the MCAC
- TWG fills in nominal ratings for GHG reductions, costs, and additional information
- TWG recommends priorities for analysis
- MCAC reviews and approves TWG priorities
- TWG develops straw proposals for policy design

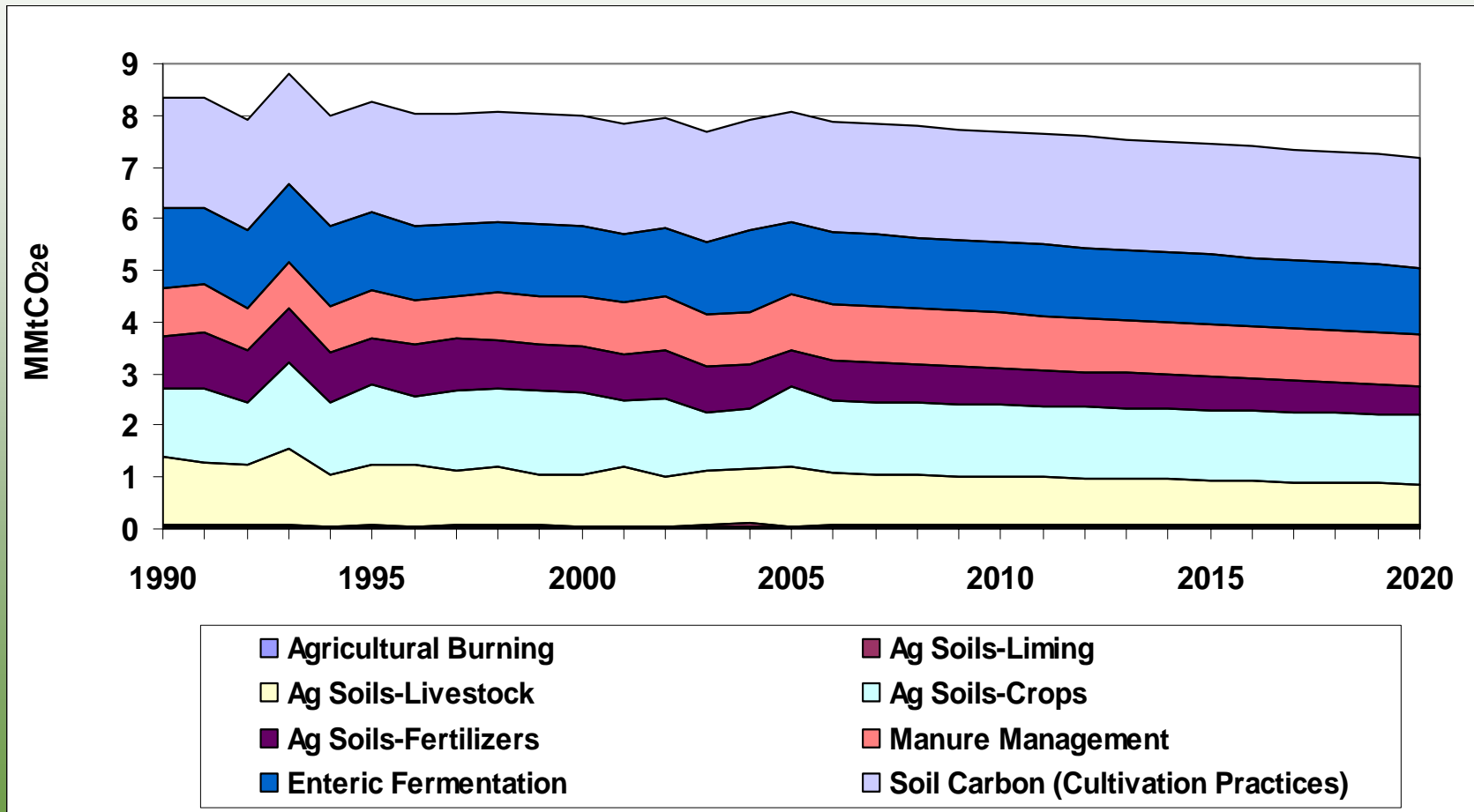
# MI Inventory and Forecast

- Agriculture, Forestry, and Waste appendices posted on website

# Gross Michigan GHG Emissions By Sector, 1990-2020



# Preliminary Michigan Agriculture Inventory-Gross GHG Emissions



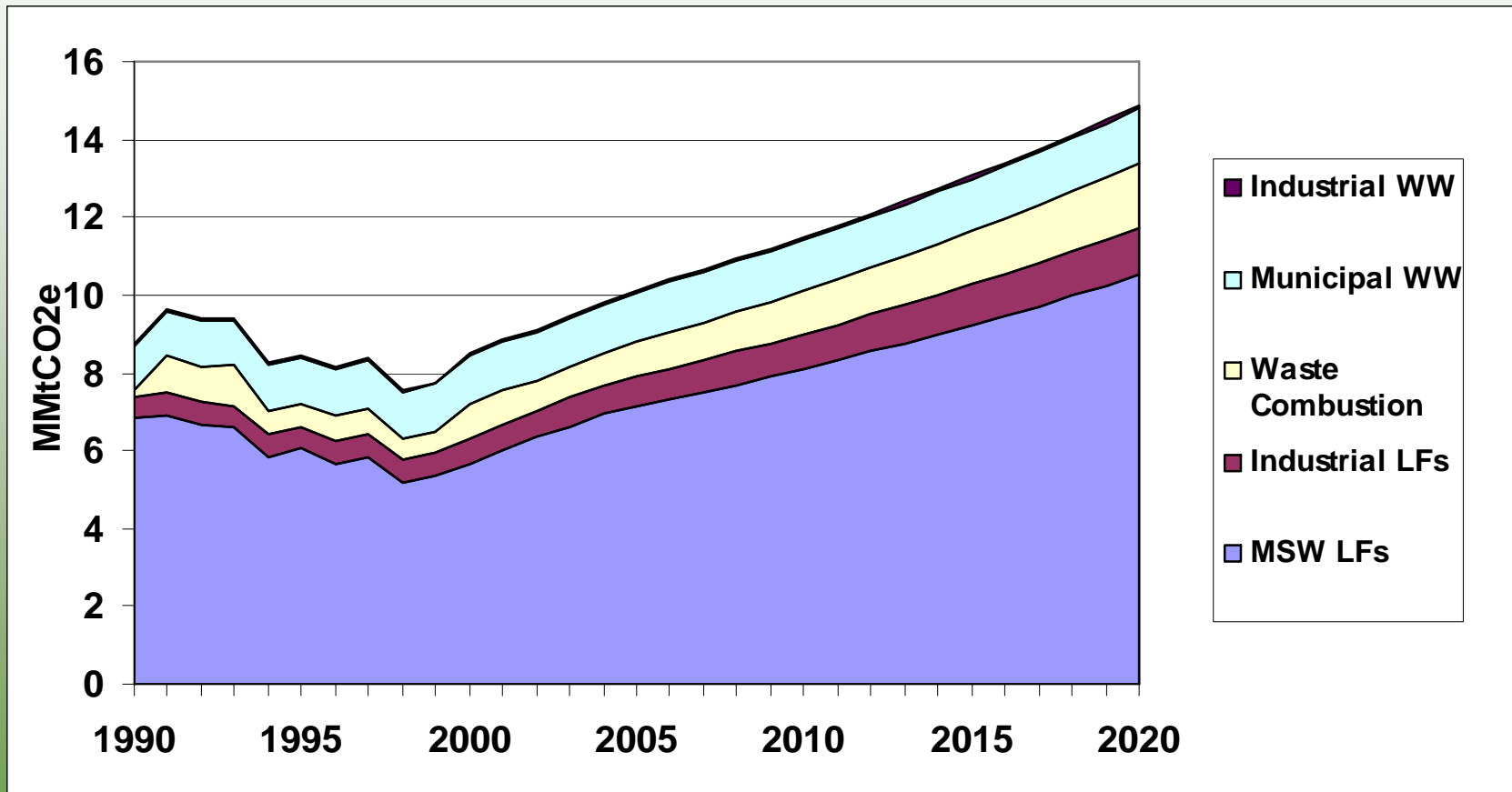
# Agriculture

- 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
  - 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
  - Default data underestimate landfill controls nor account for points in time when controls applied to individual sites
  - 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

<b>Pool</b>	<b>1980-1993 Flux (MMtCO<sub>2</sub>/yr)</b>	<b>1993-2004 Flux (MMtCO<sub>2</sub>/yr)</b>	<b>2004-2005 Flux (MMtCO<sub>2</sub>/yr)</b>
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
<b>Totals</b>	<b>-52.61</b>	<b>15.88</b>	<b>-18.20</b>
<b>Totals (excluding soil carbon)</b>	<b>-40.64</b>	<b>4.21</b>	<b>-44.88</b>

# Forestry

- Data sources
  - USFS carbon stock data for 2001-2005 based on FORCARB2 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

- Review MCAC input on AFW Catalog of Policy Options & Descriptions
- Discuss policy option prioritization procedure
- Continued review and revision of MI GHG Inventory & Forecast

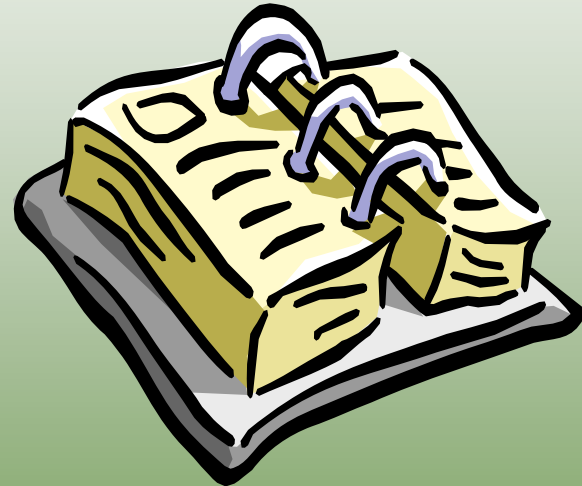
# Next TWG Meetings

- Establish call dates for the rest of the process

Date	Action
February 14, 2008	2 <sup>nd</sup> MCAC meeting
~April 25, 2008	3 <sup>rd</sup> MCAC meeting and Interim Report
~June 18, 2008	4 <sup>th</sup> MCAC meeting
September 2008	5 <sup>th</sup> MCAC meeting
November 2008	6 <sup>th</sup> MCAC meeting
December 31, 2008	MCAC Final Report due

# Next TWG Meeting

- Date and Time
  - TBD
- Agenda
  - Review/revies Policy Options Catalog based on MCAC input
  - Discuss policy option prioritization procedure
  - Continue review and revision of MI GHG Inventory & Forecast



# Public Input, Announcements