



**MINNESOTA**  
Climate Change  
Advisory Group



# Minnesota Climate Change Advisory Group

AFW Technical Work Group Meeting #3

June 29, 2007

Minnesota Department of Commerce  
Minnesota Pollution Control Agency  
The Center for Climate Strategies

# Agenda

- Roll Call
- Review and Approval of Previous Call Summary
- Review of MCCAG Input on the Catalog of State Actions & Action Descriptions
- Continued Review of Minnesota Emissions Inventory & Forecast
- Agenda, Time and Date for Next Meeting
- Public Input and Announcements

# Communication Within TWG Meetings

- TWG meetings are primarily for interaction among MCCAG TWG members;
- Other participants should refrain from intervening during MCCAG discussions, until they are called upon (note new Call-In Service);
- Agendas for each call will leave time for input from State agency staff and members of the public;
- State staff with information requiring urgent input, should consult with the State liaison to the TWG (Dave Richfield), before intervening in TWG discussions.

# 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

# MCCAG Input on Catalog of State Actions & Action Descriptions

- Option 1.1: Add “Heat” to the title;
- Option 1.2: note that it includes purpose grown crops for ethanol production;
- Option 3.2: note a potential for decrease in commercial fertilizer use with increased manure application efficiency;
- Option 7.6: Change “Blight” to “Diseases”

# MCCAG Input on Catalog of State Actions & Action Descriptions (cont.)

- Option 8.1: change to – “Utilization of Mill Residues & Emissions” (CO<sub>2</sub> from pulp mills used to produce carbonates);
- Option 9.4: notes added regarding common employment in MN;
- Option 9.5: deleted;
- New 9.5: Incentives for Municipalities to Organize Waste Collection;
- Option 9.6: note the need for control of composting emissions.

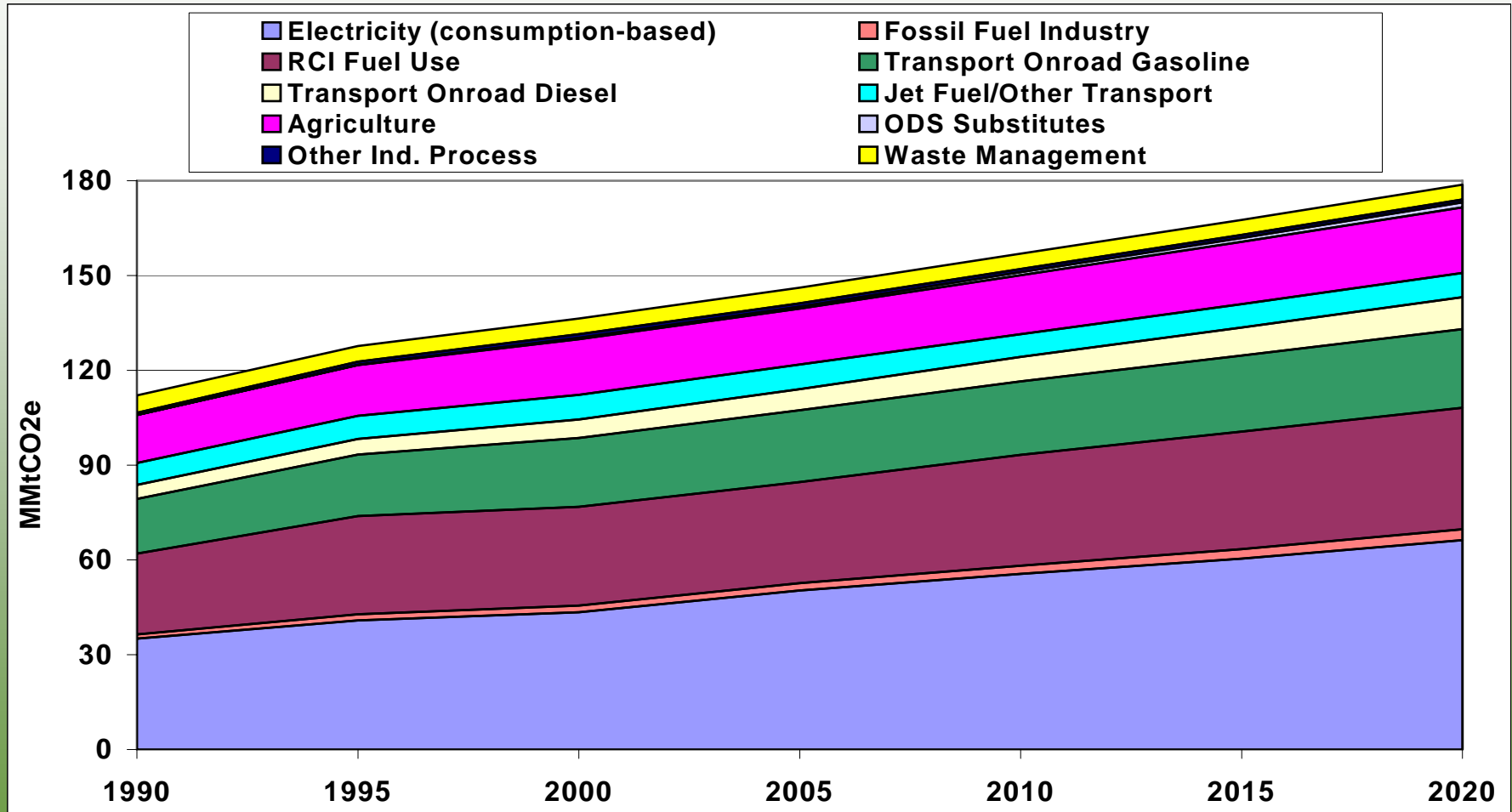
# Next Steps: Priorities for Analysis

- Need to add nominal ratings (reductions and costs) and additional notes to the catalog;
- CCS develops and distributes a ballot via email to the TWG;
- TWG votes on 10 priorities returns ballot to CCS;
- CCS tallies the votes and reviews results during the next TWG call;
- MCCAG reviews and approves TWG priorities;
- TWG develops straw proposals for policy design.

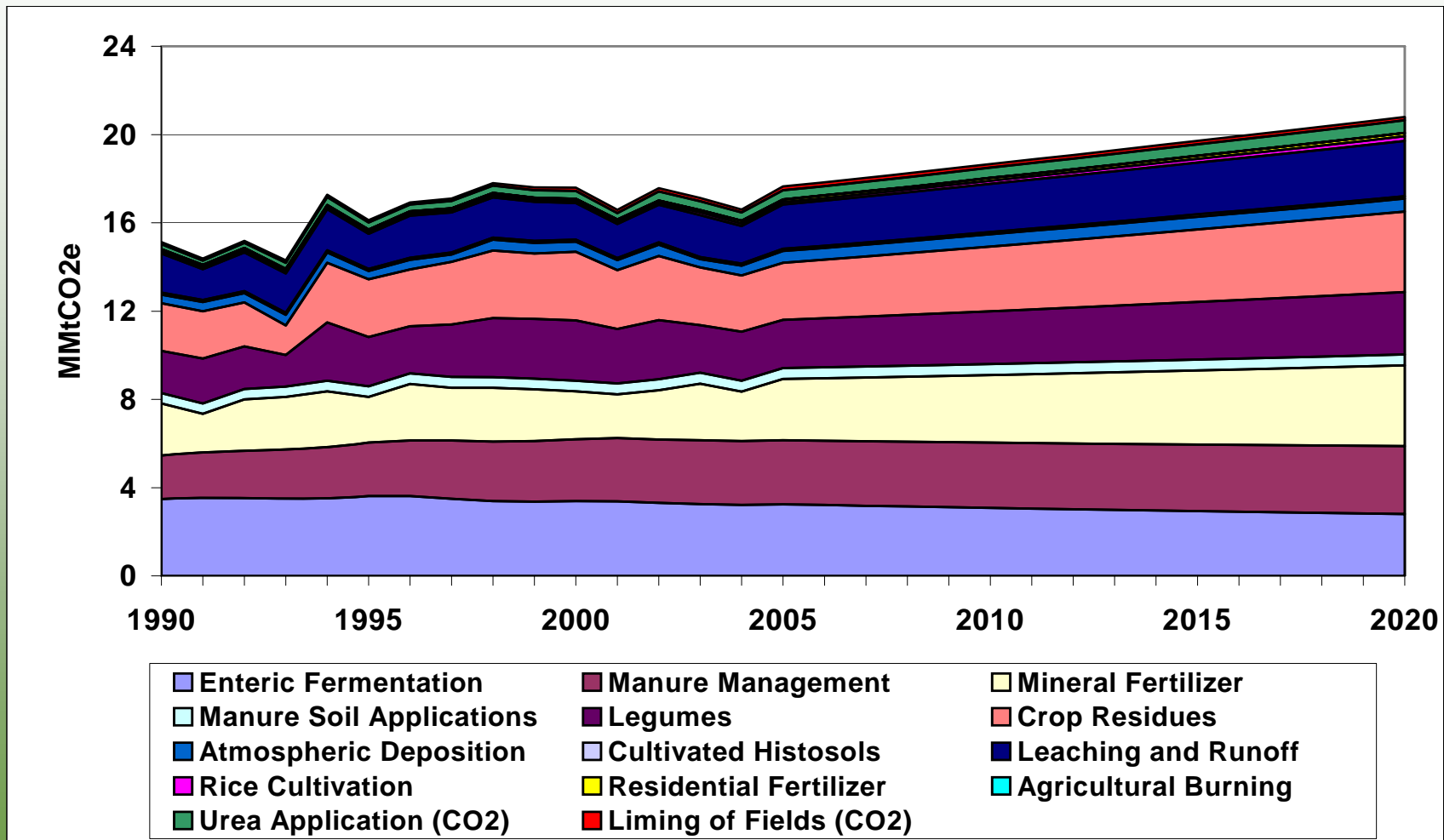
# GHG Inventory & Forecast

- All TWGs need to extend forecast to at least 2025
- Matches time horizon of MN Next Generation Energy Act of 2007:
  - Per capita fossil fuel use reduced 15% by 2015
  - Renewable energy provides 25% of all energy consumed by 2025

# Gross MN GHG Emissions By Sector, 1990-2020



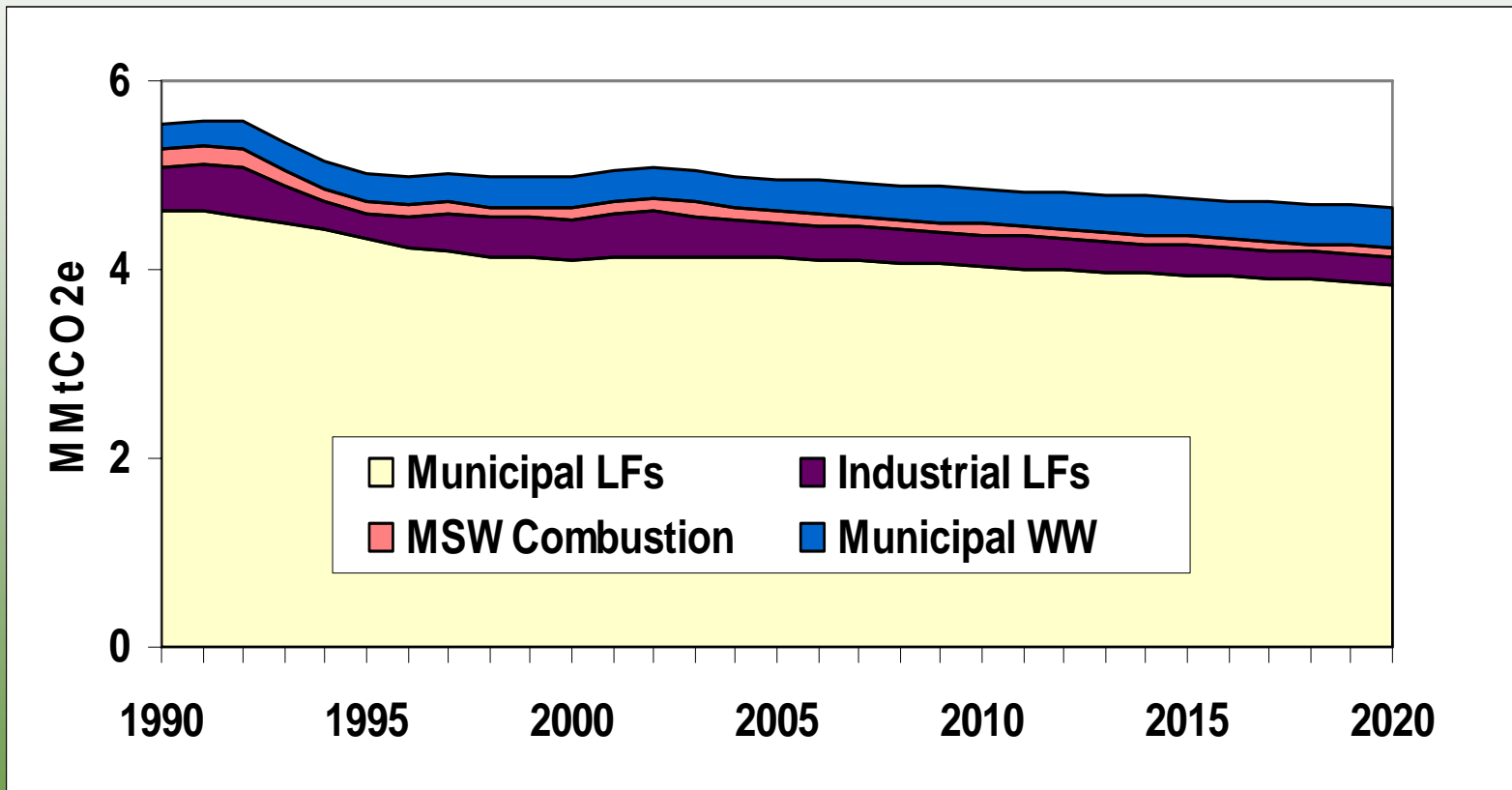
# Agriculture



# Agriculture

- Data Sources: MN PCA Inventory
- Methods
  - Agricultural Soils: Crop production data and EPA emission factors
  - Enteric Fermentation and Manure Management: livestock populations and EPA emission factors
  - Fertilizer: Fertilizer consumption and EPA emission factors
  - Agricultural Burning: SGIT and crop production data
  - Growth based on historical trends
- Key Assumptions
  - Future growth assumed to follow historical trends
- Key Uncertainties
  - Projection data

# Waste Management



# Waste Management

- Data sources
  - Landfills: EPA LandGEM Model with MN PCA inputs
  - Waste combustion: MN PCA
  - Wastewater: State population
- Methods
  - LandGEM Model estimates emissions
  - Waste combustion and Wastewater: EPA emission factors with data sources above

# Waste Management

- Key Assumptions
  - Growth Rates: based on historical emissions trends
- Key Uncertainties
  - Future controls applied to uncontrolled landfills
  - Assumption that future growth will follow historical trends
  - Industrial WW –lack of data for meat/poultry, pulp/paper, and food/vegetable processing

# Forestry

## USFS - Stock Change 1990-2003

Carbon Pool	MMtCO <sub>2</sub> e/yr (positive # net emission)
Live Trees	3.5
Standing Dead Trees	0.56
Live Understory	0.08
Down and Dead Trees	0.33
Forest Floor	1.09
Soil Organic Carbon	22
Harvested Wood Products and Landfills	-4.6
<b>Total (with/without SOC)</b>	<b>23/0.92</b>

# Forestry

## USFS - Stock Change 1990-2003

	1990	2003	Difference (2003-1990)
Forests (1,000 hectares)	6,751	6,568	-182
Timberland (1,000 hectares)	5,958	5,973	15

# Forestry

- Data Sources

- USFS carbon stock for 2 inventories (1990-2003) 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
- Carbon pool data for the 1990-2003 time-period used to quantify flux.

# Forestry

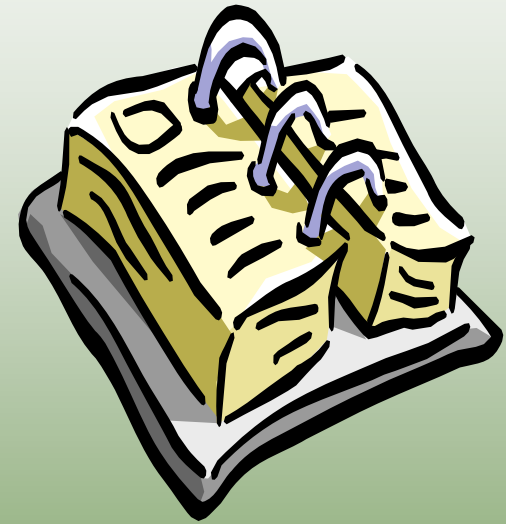
- Key Assumptions
  - 1990-2003 carbon stock trends representative of current conditions
  - No significant change in sequestration trends from 2006-2020
- Key Uncertainties
  - Effects of future development on forested acreage
  - Effects of near-term climate change on forest sequestration levels

# Next Steps

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

# Next TWG Meeting

- Agenda:
  - Review results of TWG voting on priorities for analysis
  - Continue review/revision of Minnesota emissions inventory and projections
- Time and Date (tentative): July 19, 3:00-4:30 pm
- Remaining TWG meetings (all from 3-4:30): August 16, September 6, October 4, October 25, November 29, December 20.



# Public Input, Announcements