

# Alaska Climate Change Mitigation Advisory Group

FAW Technical Working Group  
Meeting #9

January 14, 2009

Office of the Governor  
The Center for Climate Strategies

# Agenda

- Call to order and roll call
- Review and approval of prior call summary
- Review next steps for TWG
- Review Final Straw Proposals
- Review of Quantification Process and Draft Results
- Review of Alaska Draft Emissions Inventory & Forecast
- Agenda, Time and Date for Next Meeting
- Public Input and Announcements

# 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

# Next Steps for TWG

- Complete Straw Proposal Process
  - Submit Straw Proposal Package to MAG for review
- Begin quantification process
  - CCS to work with TWG on data sources, methods
  - Draft FAW-3 quantification complete
- Finalize updates to AK GHG I&F
  - Soil Carbon assumption in permafrost areas
  - Boreal and Coastal forest carbon flux

# Final Review of Straw Proposals

- See Straw Proposal Template
  - Posted on FAW Webpage

# Quantification Process

- See Policy Options Document
  - Posted on the FAW TWG webpage

# Quantification Process – TWG

## Input Needed

- Input needed from each TWG volunteer sub-group for the following sections of the Policy Options Document:
  - **\*\*Implementation Mechanisms\*\***
  - Related Policies / Programs in Place
  - Key Uncertainties
  - Additional Benefits and Costs
  - Feasibility Issues

# Quantification Process – FAW-1

- Quantification methods under development
- Input from TWG?

# Quantification Process – FAW-2

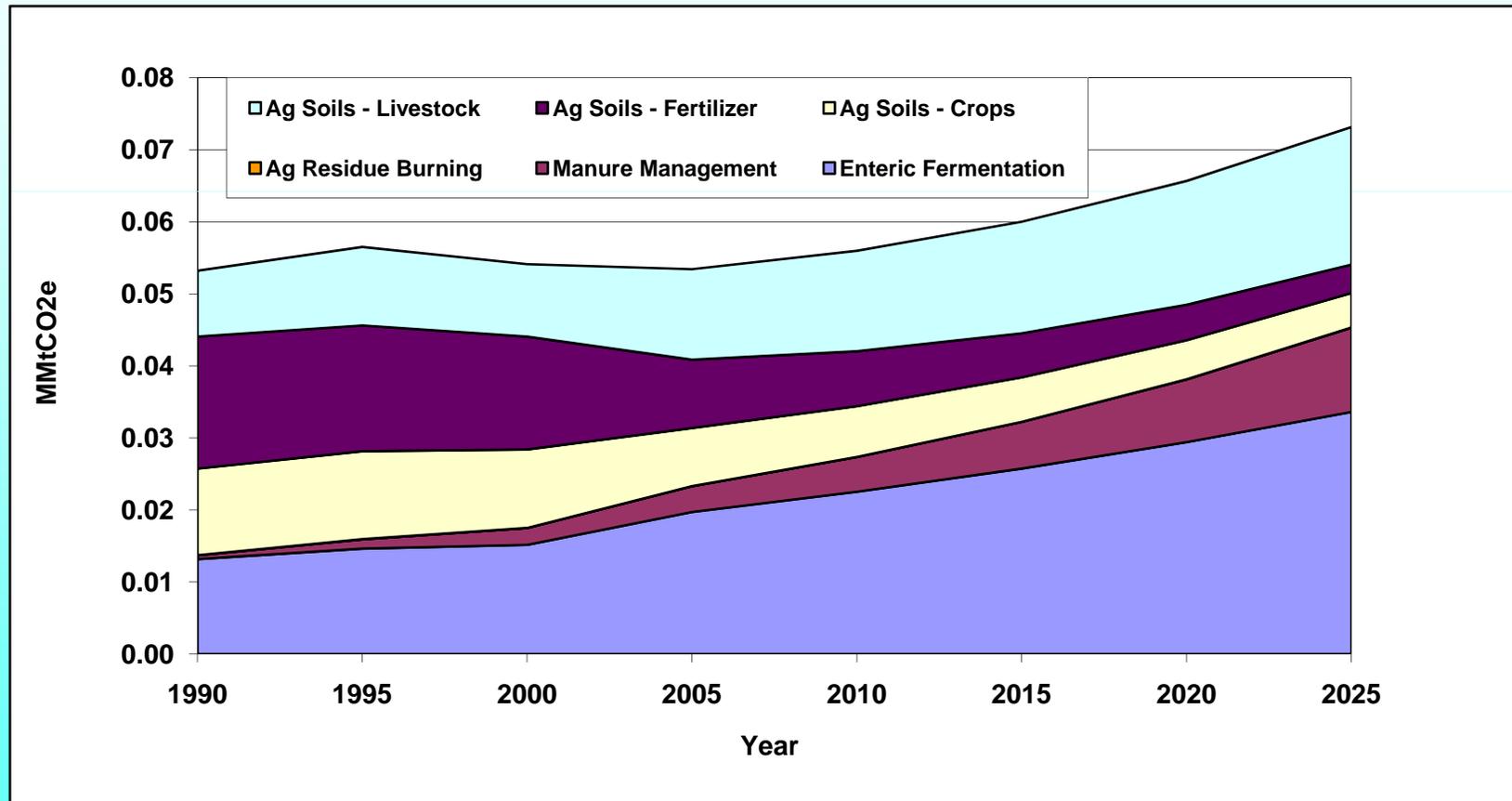
- Issues to Consider:
  - **Biomass to Electricity Information**
    - Biomass Feedstocks to Consider
    - Heat Rate (MMBTU/MWH)
    - Energy Content (MMBTU/dry ton)
    - Cost (\$/delivered ton)
  - **Biomass Heating Oil Information**
    - Extent of Local Biomass in Analysis
  - **Residential vs Commercial Focus**
  - **Biofuel Information**
    - Feedstocks to consider (Cellulosic Ethanol, Biodiesel, Starch Based Ethanol?)

# Quantification Process – FAW-3

- Draft FAW-3 Quantification Available
  - See FAW Policy Options Document
- Cost Parameters Needed:
  - Program cost for Source Reduction
  - Cost of MSW collection
  - Cost of curbside recycling collection
  - Market value of recycled materials

# GHG Inventory & Forecast

# Agriculture



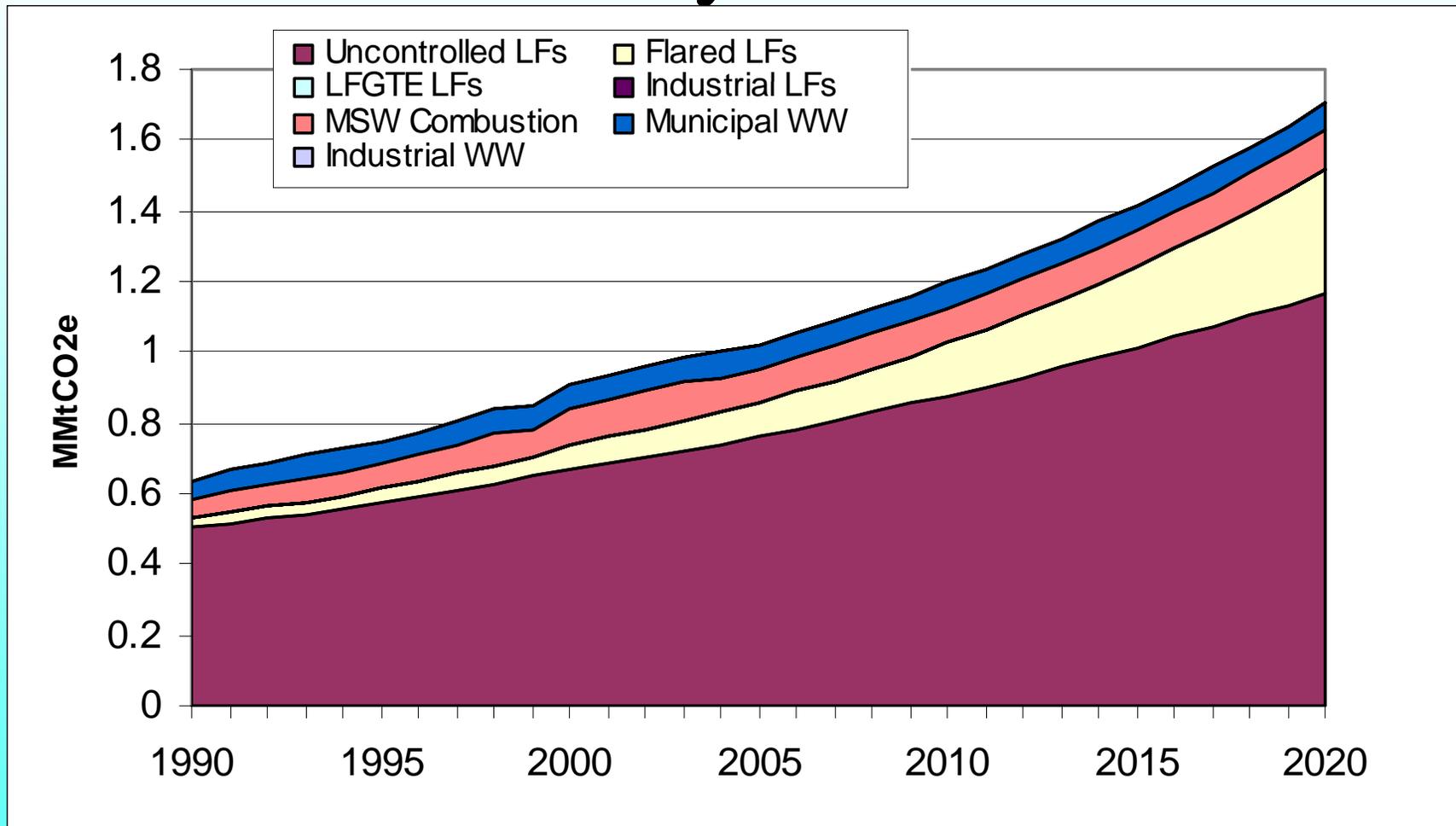
# Agriculture

- 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
  - Projections for other categories based on historical growth trends

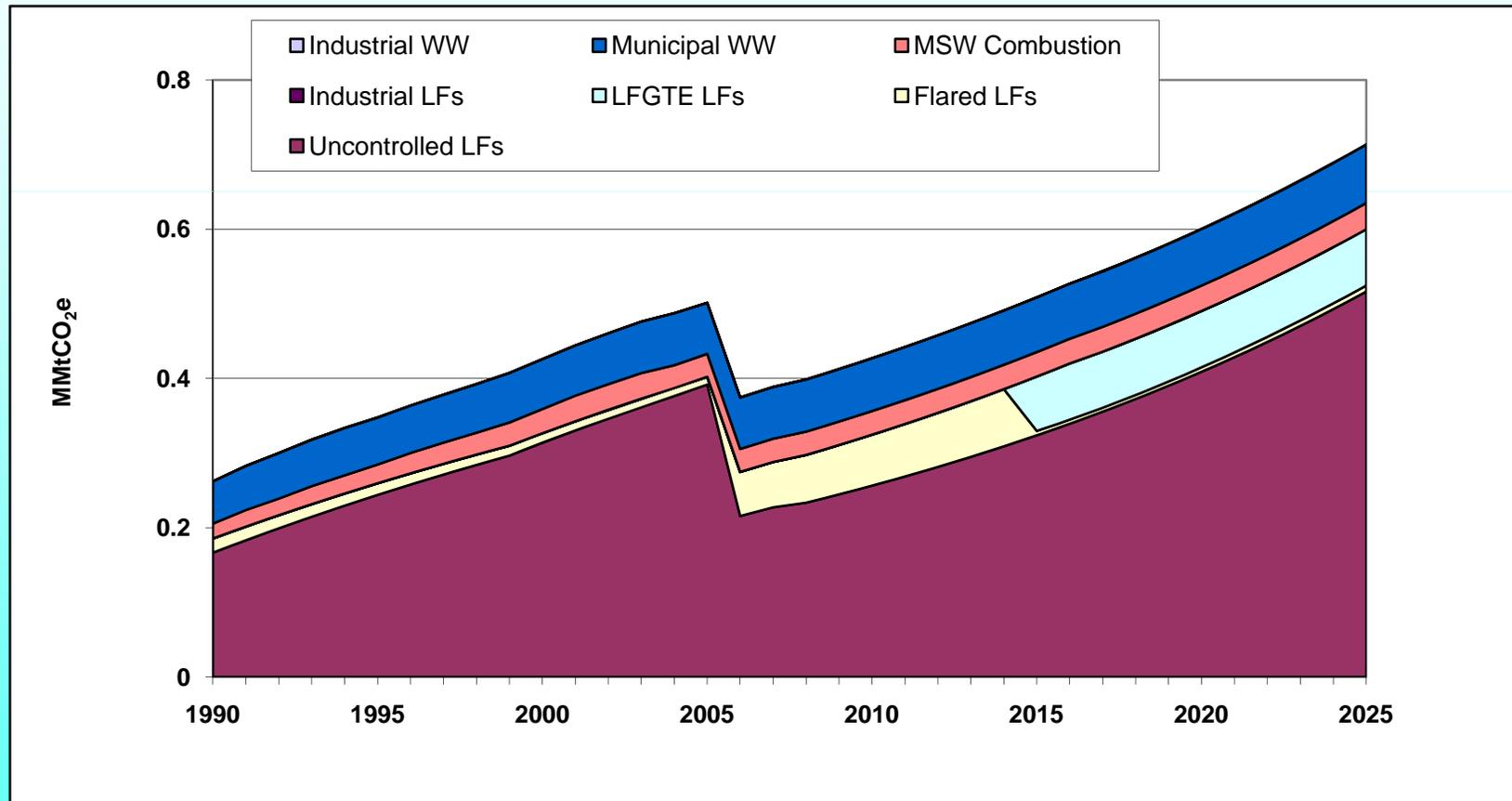
# Agriculture

- Key Assumptions
  - Future growth for agricultural soils will follow historical trends
  - Livestock population growth will follow five-year growth rate from 1997 – 2025.
- 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 – Initial Draft Inventory and Forecast



# Waste Management – Updated Draft Inventory and Forecast



# Waste Management

- Data sources
  - EPA Landfill Methane Outreach Program Database
  - Additional landfill data provided by DEC
  - DEC data on waste combustion
  - State population and SGIT default data for municipal WW treatment
- Methods
  - SGIT with data sources above
  - CCS post-processing to account for controls and growth

# Waste Management

- Key Assumptions

- Growth Rates

- Uncontrolled Landfills – based on historic emissions growth (1995-2005)
    - Controlled Landfills – assumes continuation of current emplacement rates through 2025
    - Waste Combustion and Municipal WW – AK population projections

- Key Uncertainties

- Methods do not account for landfill controls that will be required during period of analysis
  - Many small landfills may be frozen for as much as half the year.
  - Data was not available to estimate industrial wastewater, treatment of fish processing waste, and ballast water.

# Forestry

Source	CO <sub>2</sub> e Flux (MMtCO <sub>2</sub> e) <sup>a</sup>					
	1990	2000	2005	2010	2020	2025
<i>State-Level Forest Flux</i>						
CO <sub>2</sub> Flux	4.6	12	12	12	12	12
Non-CO <sub>2</sub> Gases from Fire	4.5	4.9	4.9	4.9	4.9	4.9
CH <sub>4</sub> Flux <sup>b</sup>	16	21	24	26	31	36
<b>Total State-Level</b>	<b>25</b>	<b>38</b>	<b>41</b>	<b>43</b>	<b>48</b>	<b>53</b>
<i>Flux for Managed Forests<sup>c</sup></i>						
CO <sub>2</sub> Flux	-0.3	-1.4	-1.4	-1.4	-1.4	-1.4
Non-CO <sub>2</sub> Gases from Fire	0.0	<0.01	<0.01	<0.01	<0.01	<0.01
CH <sub>4</sub> Flux	n/a	n/a	n/a	n/a	n/a	n/a
<b>Total – Managed Forests</b>	<b>-0.3</b>	<b>-1.4</b>	<b>-1.4</b>	<b>-1.4</b>	<b>-1.4</b>	<b>-1.4</b>

Positive values represent net CO<sub>2</sub>e emissions. Non-CO<sub>2</sub> gases are methane and nitrous oxide.

<sup>a</sup> Values reported are ten year averages of annual data surrounding the year reported (e.g., 1990 average is the average of data for 1985-1994). For 2000, data only available through 2002. After 2000, flux estimates are assumed to remain constant.

<sup>b</sup> UAF estimate for the 1980-1996 period used for 1990. UAF growth rate of 0.5 MMtCO<sub>2</sub>e/yr used for forecast years. See Section on CH<sub>4</sub> emissions from Alaskan ecosystems.

<sup>c</sup> Managed forests are the coastal maritime forests of the state. CH<sub>4</sub> flux estimates were not available for managed forests.

# Forestry

- Data Sources
  - University of Alaska carbon flux estimates, wildfire acreages
  - WRAP 2002 Wildfire Inventory
- Methods
  - Forestry: UA study used to develop estimates and projections of anthropogenic emissions and sinks
  - Carbon flux data for the 2001-2005 time-period assumed to remain constant through 2025

# Forestry

- Key Assumptions (managed forests)
  - 2001-2005 carbon stock change representative of current conditions
  - No significant change in carbon flux from 2006-2025
- Key Uncertainties (managed forests)
  - Effects of future development on forested acreage
  - Effects of near-term climate change on forest sequestration levels
- Key Uncertainties (unmanaged forests) –
  - Many, including impacts of early thaw (see Forestry appendix)

# Next TWG Meeting

- Agenda:
  - Discuss quantification methods, data sources, and preliminary results
  - Review final revisions to Alaska emissions inventory and projection, if needed



Time and Date: March 18, 2009.  
10:00 AM – 11:30 AM Alaskan Time

CCMAG Meeting: February 5, 2009

# Public Input, Announcements