Alaska Climate Change
Mitigation Advisory Group

FAW Technical Working Group
Meeting #12
April 21, 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 Results of MAG Meeting
- Review any POD Changes from TWG
- Final Review of Alaska Draft Emissions Inventory & Forecast
- Agenda, Time and Date for Next Meeting
- Public Input and Announcements

April 21, 2009

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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 quantification process
  – TWG and MAG input on FAW-1 and FAW-2
  – MAG consensus on FAW-3

• Finalize updates to AK GHG I&F
  – Any final comments on text?
Research Needs Work Group

• Update from RNWG member
Quantification Process – CCMAG Input

• FAW-1
  – Objection to counting biomass in different manner than fossil fuels.
• FAW-2
  – Same objection as FAW-1
• FAW-3
  – MAG Consensus
• General
  – Insert comment that location has a major effect on cost and feasibility of implementation
Quantification Process

• See Policy Options Document
  – Posted on the FAW TWG webpage
GHG Inventory & Forecast

• Updated Appendices (posted under Call #11):
  – Agriculture
    • Updated Appendix to reflect extension of forecast to 2025
  – Waste Management
    • Updated emission Inventory and Forecast to reflect changes to waste disposal data provided by TWG.
    • Updated Appendix to reflect extension of forecast to 2025
  – Forestry
    • Inserted brief discussion of uncertainties regarding permafrost and carbon flux
    • Updated Appendix to reflect extension of forecast to 2025
Agriculture

![Graph showing emissions from different agricultural activities from 1990 to 2025. The graph indicates trends in emissions for Ag Soils - Livestock, Ag Soils - Fertilizer, Ag Soils - Crops, Ag Residue Burning, Manure Management, and Enteric Fermentation.](https://www.akclimatechange.us)
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

[Graph depicting waste management trends from 1990 to 2020, showing different categories such as Uncontrolled LFs, LFGTE LFs, Industrial LFs, MSW Combustion, Municipal WW, and Industrial WW with respective emissions in MmCO2e over time.]
Waste Management – Updated Draft Inventory and Forecast

[Graph showing waste management emissions from various sources over time, with emissions data in MMtCO2e]

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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
  – FAW TWG data on landfill disposal

• Methods
  – SGIT with data sources above
  – CCS post-processing to account for controls and growth
Waste Management

• Key Assumptions
  – Growth Rates
    • 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

<table>
<thead>
<tr>
<th>Source</th>
<th>CO$_2$e Flux (MMtCO$_2$e)$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State-Level Forest Flux</strong></td>
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</tr>
<tr>
<td>CO$_2$ Flux</td>
<td>4.6</td>
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<tr>
<td>Non-CO$_2$ Gases from Fire</td>
<td>4.5</td>
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<tr>
<td>CH$_4$ Flux$^b$</td>
<td>16</td>
</tr>
<tr>
<td><strong>Total State-Level</strong></td>
<td>25</td>
</tr>
<tr>
<td><strong>Flux for Managed Forests$^c$</strong></td>
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</tr>
<tr>
<td>CO$_2$ Flux</td>
<td>-0.3</td>
</tr>
<tr>
<td>Non-CO$_2$ Gases from Fire</td>
<td>0.0</td>
</tr>
<tr>
<td>CH$_4$ Flux</td>
<td>n/a</td>
</tr>
<tr>
<td><strong>Total – Managed Forests</strong></td>
<td>-0.3</td>
</tr>
</tbody>
</table>

Positive values represent net CO$_2$e emissions. Non-CO$_2$ gases are methane and nitrous oxide.

$^a$ 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.

$^b$ UAF estimate for the 1980-1996 period used for 1990. UAF growth rate of 0.5 MMtCO$_2$e/yr used for forecast years. See Section on CH$_4$ emissions from Alaskan ecosystems.

$^c$ Managed forests are the coastal maritime forests of the state. CH$_4$ 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:
  – No meeting currently scheduled

Time and Date: N/A

CCMAG Meeting: Teleconference on May 14, 2009.
Public Input, Announcements