Alaska Climate Change
Mitigation Advisory Group

FAW Technical Working Group
Meeting #3
July 30, 2008
Office of the Governor
The Center for Climate Strategies
Agenda

• Call to order and roll call
• Review and approval of previous call summary
• Review next steps for TWG
• Review discussion from CCMAG meeting #2
• Continued Review of the Catalog of State Actions
• Review of the AK 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

• Identify priorities for analysis prior to the third CCMAG meeting on September 22.
  – Finalize Catalog of State Actions and Brief Descriptions.
  – Review and discuss nominal ratings for each potential action.
  – Balloting process to identify top priorities for further analysis.

• CCMAG reviews and approves TWG priorities
• TWG develops straw proposals for policy design
CCMAG Meeting #2 Discussion

• All Options:
  – Education as a key implementation mechanism. To be considered during “Straw Proposal” phase of Process.

• AFW-2:
  – Land clearing mentioned with the idea that younger forests sequester carbon at faster rates. Implemented as part of AFW-2.4
CCMAG Meeting #2 Discussion, Continued

• AFW-8:
  – CCMAG noted importance of greenhouse operations in AK and that energy efficiency may be improved. Now included as a part of AFW-8.2, but may be broken out into separate option.

• AFW-9:
  – AFW-9.1 – “Yard Waste” changed to “MSW”
  – Plastic bag reduction or ban as a potential element of AFW-9.5
  – Discussion of seafood waste as energy feedstock.
FAW Catalog of State Actions

• Includes default nominal ratings.
  – TWG to discuss and modify nominal ratings.
  – TWG to add text for “Other Considerations” as necessary.

• Please see separate Catalog handout.
GHG Inventory & Forecast
Alaska Gross GHG Emissions By Sector, 1990-2020
Agriculture

![Chart showing emissions from agriculture categories]

- Enteric Fermentation
- Manure Management
- Ag Residue Burning
- Ag Soils - Crops
- Ag Soils - Fertilizer
- Ag Soils - Livestock

Year:
- 1990
- 1995
- 2000
- 2005
- 2010
- 2015
- 2020

MMtCO2e
- 0.00
- 0.01
- 0.02
- 0.03
- 0.04
- 0.05
- 0.06
- 0.07
- 0.08

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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 – 2020.

• 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

The graph shows the increase in MMtCO2e emissions from various sources over the years from 1990 to 2020. The sources include:

- Uncontrolled LFs
- LFGTE LFs
- Flared LFs
- Industrial LFs
- MSW Combustion
- Municipal WW
- Industrial WW

The emissions have been steadily increasing over the years, with the Industrial LFs showing the highest increase.

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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

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

• Key Assumptions
  – Growth Rates
    • Landfills – based on historic emissions growth (2000-2005)
    • Industrial WW – based on historic emissions growth (1990-2005)
    • Municipal WW – AK population projections

• Key Uncertainties
  – Future controls applied to uncontrolled landfills
  – Industrial landfills
    • SGIT default of 7% of municipal landfills
  – Industrial WW
    • Growth for food/vegetable processing
## Forestry

<table>
<thead>
<tr>
<th>Source</th>
<th>CO₂e Flux (MMtCO₂e)&lt;sup&gt;a&lt;/sup&gt;</th>
<th>1990</th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2020</th>
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<tbody>
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<td><strong>State-Level Forest Flux</strong></td>
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<tr>
<td>CO₂ Flux</td>
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<tr>
<td>Non-CO₂ Gases from Fire</td>
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<td>4.9</td>
<td>4.9</td>
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<tr>
<td>CH₄ Flux&lt;sup&gt;b&lt;/sup&gt;</td>
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<td>21</td>
<td>24</td>
<td>26</td>
<td>31</td>
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<tr>
<td>Total State-Level</td>
<td></td>
<td>25</td>
<td>38</td>
<td>41</td>
<td>43</td>
<td>48</td>
</tr>
</tbody>
</table>

| Flux for Managed Forests<sup>c</sup>        |                                  |      |      |      |      |      |
| CO₂ Flux                                   |                                  | -0.3 | -1.4 | -1.4 | -1.4 | -1.4 |
| Non-CO₂ Gases from Fire                    |                                  | 0.0  | <0.01| <0.01| <0.01| <0.01|
| CH₄ Flux                                   |                                  | n/a  | n/a  | n/a  | n/a  | n/a  |
| Total – Managed Forests                     |                                  | -0.3 | -1.4 | -1.4 | -1.4 | n/a  |

Positive values represent net CO₂e emissions. Non-CO₂ 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 MMtCO₂e/yr used for forecast years. See Section on CH₄ emissions from Alaskan ecosystems.

<sup>c</sup> Managed forests are the coastal maritime forests of the state. CH₄ 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 2020
Forestry

• Key Assumptions (managed forests)
  – 2001-2005 carbon stock change representative of current conditions
  – No significant change in carbon flux from 2006-2020

• 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:
  – Final review of nominal ratings and other considerations
  – Establish nominal ratings for Catalog
  – Review TWG suggested updates to the Alaska emissions inventory and projection
  – Discussion of balloting process and instructions for balloting.

Time and Date: August 27, 2008. 10:00 – 11:30 AM Alaskan Time
• Need for another meeting before 8/27?
Public Input, Announcements