



Alaska Climate Change Mitigation Advisory Group

Transportation & Land Use Technical
Working Group Meeting #1

June 5, 2008

2:00 – 4:00 PM

Office of the Governor

The Center for Climate Strategies

June 5, 2008

Welcome and Introductions

- State Agencies
- TLU Technical Work Group (TWG)
Members
- Members of the Public
- Center for Climate Strategies

June 5, 2008

www.akclimatechange.us

2

Agenda

- Introductions
- Purpose and Goals
- Review of TWG Process
- Review and Discussion of the Catalog of State Actions
- Review of the AK Draft Emissions Inventory & Forecast
- Agenda, Date, and Time for Next Meeting
- Public Input and Announcements

June 5, 2008

www.akclimatechange.us

3

AK CCMAG Purpose & Goals

- Purpose
 - Achievement of Administrative Order #238
- Goals
 - Review and approval of a current and comprehensive inventory and forecast of greenhouse gas (GHG) emissions in Alaska from 1990 to 2020;
 - Development and recommendation of a comprehensive set of specific policy recommendations and associated analyses to reduce GHG emissions and enhance energy and economic policy in Alaska by 2020 and beyond;
 - Development and recommendation of a set of recommended statewide GHG reduction goals and targets for implementation of these actions; and
 - Issuance of recommendations in the form of a final report to the Sub-Cabinet convened by the Governor.

June 5, 2008

www.akclimatechange.us

4

Part 1

TWG Process

June 5, 2008

www.akclimatechange.us

5

AK CCMAG Roles & Responsibilities

- CCMAG Process convened by Governor Palin
- Oversight and coordination by the Chair
- CCMAG makes recommendations to the Climate Change Sub-Cabinet
- TWGs provide informal guidance to CCMAG
- Public input and review for stakeholders
- CCS provides facilitation, technical support, final report

June 5, 2008

www.akclimatechange.us

6

TWG Roles

- Assist CCMAG
 - Review and assist with the state GHG inventory and forecast
 - Identify potential state actions
 - Identify potential priorities for analysis
 - Suggest straw policy designs
 - Assist with analysis and review of options
 - Assist with development of policy alternatives
 - Assist with input to and review of CCMAG reports

June 5, 2008

www.akclimatechange.us

7

TWG Composition

- Oil and Gas
 - Exploration, production and refining / processing
- Energy Supply and Demand
 - Clean and renewable energy, combined heat & power, etc.
 - Energy efficiency and conservation, industrial processes, water supply and treatment, etc.
- Transportation & Land Use
 - Vehicle efficiency, alternative fuels, demand management, air, marine, and railroad measures
- Forestry, Agriculture, and Waste Management
 - Forest management, forest restoration, land protection, bioenergy, wood products, waste reduction, recycling
- Cross-Cutting Issues
 - Reporting, registries, public education, goals

June 5, 2008

www.akclimatechange.us

8

Ground Rules

- Supportive of the process
- Attendance at meetings
- Equal footing
- Stay current with information
- No backsliding
- Do not represent the CCMAG or TWGs
- Make objective contributions

June 5, 2008

www.akclimatechange.us

9

Timing: CCMAG Meetings

Meeting 1 - May 15-16 in Anchorage

Meeting 2 - July 15-16 in Fairbanks

Meeting 3 - September 22-23 TBD

Meeting 4 - November 6-7 TBD

Meeting 5 - February 5-6 in Anchorage

Meeting 6 - March 4-5 (tentative) TBD

Meeting 7 - April 29-30 (tentative, if needed) TBD

Between meetings: At least two TWG calls.

June 5, 2008

www.akclimatechange.us

10

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

June 5, 2008

www.akclimatechange.us

11

Coverage Of Issues



- All GHGs
- All sectors
- All potential implementation mechanisms
- State and multi-state actions
- Short and long term actions

June 5, 2008

www.akclimatechange.us

12

Decision Criteria

- GHG Reduction Potential (MMtCO₂e)
- Cost or Cost Saved Per Ton GHG Removed
- Co-benefits
- Feasibility Issues

Catalog of State Actions

- Over 300 actions taken by US states
- Existing, planned, and proposed state level actions
- Wide variety of US states
- Wide variety of implementation mechanisms
- Includes key AK actions
- CCMAG will add new potential actions
- Starting place for identification of CCMAG priorities

Screening of Potential Actions - TLU Sample

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes / Related Actions in AK
T-1 ON-ROAD VEHICLE TECHNOLOGY						
1.1	Clean Car Program ("Pavley" GHG standards for autos)					
1.2	Fuel-Efficient Tires					
1.3	Heavy-Duty Vehicle Fuel Efficiency Improvements					
1.4	Vehicle Purchase or Registration Incentives (registration fees, tax credits, feebates, etc.)			Federal Tax Code provides tax credits for alternative fuel vehicles		
1.5	Incentives to Retire or Improve Older High-GHG Vehicles (passenger or freight)					
T-2 VEHICLE OPERATION AND SYSTEM EFFICIENCY						
2.1	Lower and/or Enforce Speed Limits					
2.2	Vehicle Maintenance, Driver Education (e.g., tire inflation)					

June 5, 2008

www.akclimatechange.us

15

Policy Design Proposals

- TWGs start with Catalog of state actions, screen options, and recommend priorities for AK
- CCMAG identifies about 50 draft potential priority options for further development
- TWGs develop initial policy option designs ("straw proposals")
 - Timing
 - Goals
 - Coverage
- CCS quantifies and presents for review
- CCMAG revisits list of potential priorities, as needed

June 5, 2008

www.akclimatechange.us

16

Policy Option Template

- Policy Description (Concept)
- Policy Design (Goals, Timing, Coverage)
- Implementation Methods
- Related Programs and Policies (BAU)
- Estimated GHG Savings and Costs Per MMtCO₂e
 - Data Sources, Methods and Assumptions
 - Key Uncertainties
- Additional (non-GHG) Benefits and Costs, as Needed
- Feasibility Issues, if Needed
- Status Of Group Approval
- Level of Group Support
- Barriers to Consensus, if any

June 5, 2008

www.akclimatechange.us

17

Final Report

- Executive Summary
- Background, Purpose And Goals
- AK Emissions Inventory & Forecast
- CCMAG Recommendations & Results
 - Forestry, Agriculture, & Waste Management
 - Energy Supply & Demand
 - Oil & Gas
 - Transportation & Land Use
 - Cross Cutting Issues
- Appendices



June 5, 2008

www.akclimatechange.us

18

Part 2

Potential GHG Policy Options

CCS Catalog of State Actions

- Actions undertaken or considered by a wide variety of US states
- Many actions provide GHG reductions coincidentally or as a co-benefit
- Cover all economic sectors
- Cover many implementation mechanisms
- Add to or revise as needed for AK

TLU Catalog of State Actions

- *Please see separate Catalog and Catalog Descriptions handout.*

Part 3

Draft GHG Emissions Inventory and Forecast

Inventory Approach

- Standard US EPA and UN methodologies, guidelines, and tools
- Emphasis on transparency, consistency, and significance
- Preference for Alaska data, where available
- Consumption and production-basis emissions from electricity generation
 - Very simplified approach used for initial analysis

Projection Approach

- Reference case assumes no major changes from business-as-usual (BAU)
 - Includes approved policies and actions to the extent possible
- Growth assumptions from existing sources
 - State population and employment forecasts
 - US Census and Bureau of Labor & Statistics
 - US Energy Information Administration

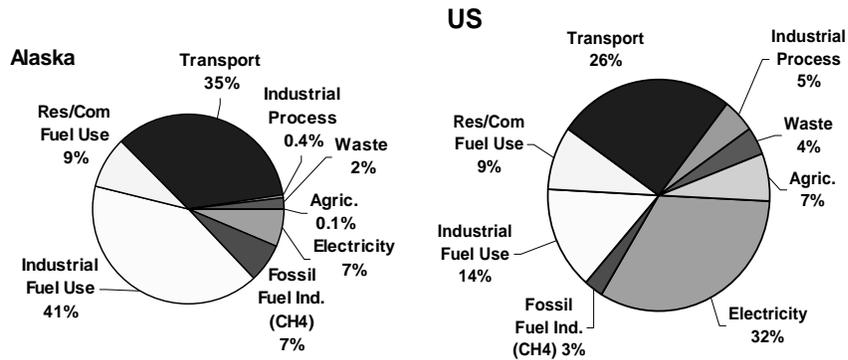
Coverage

- Six gases per USEPA and UNFCCC guidelines
 - Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF₆)
- All major emitting sectors
 - Electricity Supply & Demand (Consumption Based)
 - Residential, Commercial, Industrial (RCI) Fuel Use
 - Industrial Non-Fuel Use Processes
 - Transportation (onroad and nonroad)
 - Natural gas pipeline transmission & distribution
 - Agriculture, Forestry, and Waste
- Emissions expressed as CO₂ equivalent
 - 100-year global warming potentials
 - CO₂ = 1; CH₄ = 21; N₂O = 310; HFC-23 = 11,700; SF₆ = 23,900

Key Points

- Preliminary draft for CCMAG and TWG review and revision, as needed
- Helpful for diagnosis of GHG emissions, but not a baseline for modeling or compliance for individual options
- Consumption and production methods
- Net and gross methods

Alaska & US Gross Emissions By Sector, Year 2000

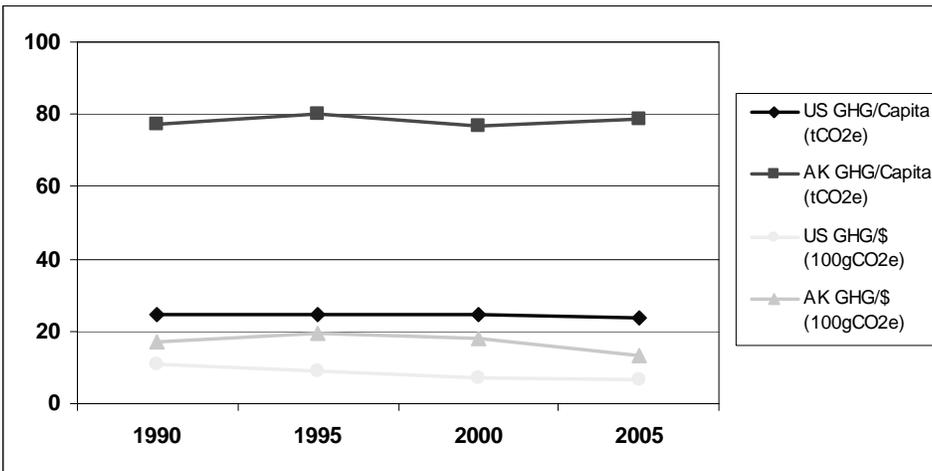


June 5, 2008

www.akclimatechange.us

27

Per Capita and GSP/GDP Gross GHG Emissions, 1990-2005

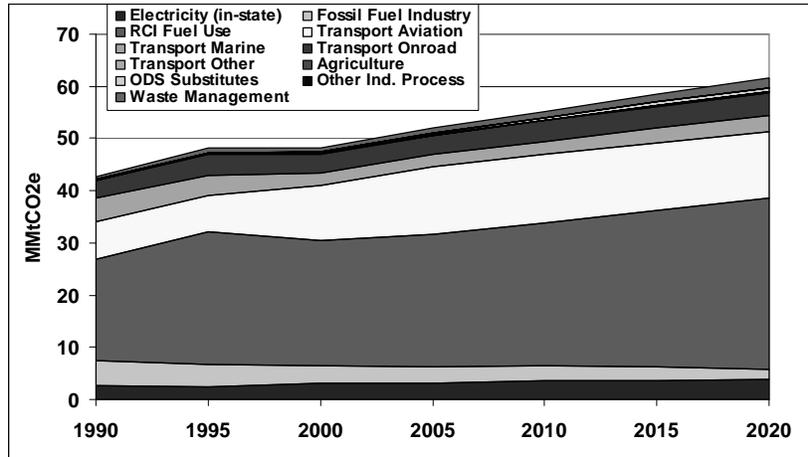


June 5, 2008

www.akclimatechange.us

28

Alaska Gross GHG Emissions By Sector, 1990-2020

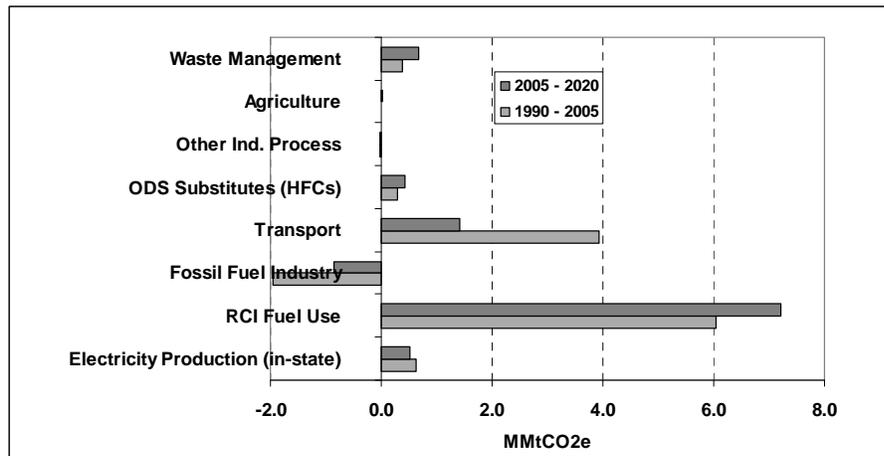


June 5, 2008

www.akclimatechange.us

29

Alaska Gross Emissions Growth (MMtCO₂e Basis)

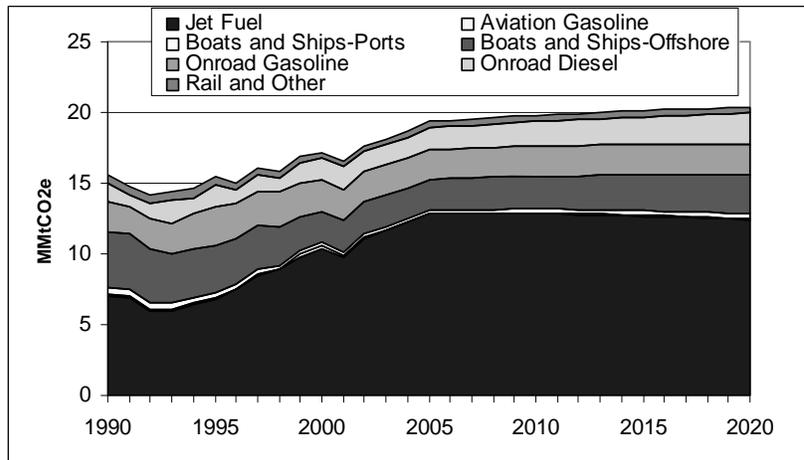


June 5, 2008

www.akclimatechange.us

30

Transportation Inventory & Forecast



June 5, 2008

www.akclimatechange.us

31

Transportation Inventory & Forecast

- Data Sources
 - Onroad Diesel and Gasoline: Western Region Air Partnership (WRAP) Mobile Source Inventory and EIA AEO2006
 - Other Onroad Fuels: EIA
 - Aviation: jet fuel prime supplier sales volumes in Alaska from EIA
 - Marine Vessels: ADEC commercial marine inventory, Commission for Environmental Cooperation in North America inventory, EIA, EPA's National Emissions Inventory, Waterborne Commerce Statistics Center (Army Corps)
 - Rail and Other: SGIT and fuel consumption from EIA

June 5, 2008

www.akclimatechange.us

32

Transportation Inventory & Forecast

- Projection Methods
 - Onroad Diesel and Gasoline: Total VMT projections from WRAP, distributed to vehicle types by AEO2006 figures, adjusted by AEO2006 fuel efficiency projections.
 - Other Onroad fuels: regional fuel consumption projections from AEO2006 apportioned by population
 - Aviation: FAA aircraft operations forecasts by facility, adjusted by aviation fuel efficiency forecasts from AEO2006
 - Marine Vessels: projected using historical growth factors from ADEC inventory
 - Rail and Other: Historical trends and USDOE regional projections

June 5, 2008

www.akclimatechange.us

33

Transportation Inventory & Forecast

- Key Assumptions
 - Ethanol consumption assumed to remain at the 2002 level. Biodiesel and other biofuels not considered.
 - No growth in rail emissions, consistent with historical pattern
- Key Uncertainties
 - Future year vehicle mix
 - Future biofuel consumption
 - Aviation fuel for international travel
 - Aviation fuel efficiency forecasts
 - Consistency of multiple sources for marine fuels

June 5, 2008

www.akclimatechange.us

34

Next TWG Meeting

- Agenda:
 - Add missing actions to catalog
 - Review TWG suggested updates to the Alaska emissions inventory and projection
 - Prepare to identify initial priorities for analysis
- Time and Date: June 24, 2008;
2:00-4:00 PM



Public Input, Announcements