



# Energy Supply and Demand TWG

## Teleconference Meeting #1

June 6, 2008 9:30-11:00am

Governor's Climate Change Sub-Cabinet  
Center for Climate Strategies

## Welcome and Introductions

- Technical Working Group (TWG) members
- Sub-Cabinet advisors
- TWG facilitation team
- Public

# Today's Agenda

- Roll call
- Purpose and goals
- Part 1: Purpose of Mitigation Advisory Group and Technical Working Group
- Part 2: Alaska Emissions Inventory and Forecast
- Part 3: Catalog of state actions
- Next steps for TWG
- Public input and announcements
- Agenda, time and date for next meeting

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3

## Part 1

- MAG and TWG process

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4

# Purpose & Key Outcomes

- Purpose of Mitigation Advisory Group
  - Develop recommendations for achieving the goals laid out in Administrative Order 238
- Duties of MAG
  - Review and approve state greenhouse gas (GHG) inventory and forecast
  - Review and assess recent actions taken and impacts on goals
  - Identify actions to meet 2020 goals for GHG emissions, job creation fuel savings
  - Evaluate opportunities for regional collaboration
  - Identify state lead-by-example opportunities
  - Identify ways to coordinate state and local GHG reduction actions
  - Inform and involve the public
- Report to Sub-Cabinet on Climate Change

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5

# Mitigation Advisory Group

Scott Anaya	AK Building Science Network	Paul Klitzke	St. David's Episcopal Church and Interfaith Light & Power
Bob Batch	BP	Byron Mallott	FAI (former AK Perm Fund and First Alaskan Institute)
Steve Coit	UAA	Greg Peters	Alyeska Seafoods
Jeff Cook	Flint Hills Resources	Chris Rose	Renewable Energy Alaska Project
Brian Davies	Nature Conservancy (Former BP)	Jon Rubini	JL Properties
Steve Denton	Usibelli Coal Mine	Sean Skaling	Green Star
Karen Ellis	FedEx	Jamie Spell	3rd Wing Elmendorf AFB
Joe Everhart	Wells Fargo	Stan Stephens	Stan Stephens Charters
Rick Harris	Sealaska	Curt Stoner	Totem Ocean
Jack Hébert	Cold Climate Research Center and Hébert Homes	Kate Troll	Alaska Conservation Alliance
David Hite	Hite Consulting	Kathy Wasserman	Alaska Municipal League
Kate Lamal	Golden Valley Electric	Randy Virgin	Municipality of Anchorage
Meera Kohler	Alaska Village Electric Coop	Dan White	UAF

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6

## Mitigation Advisory Group and Climate Change Challenge

- Climate Change Sub-cabinet oversees and coordinates process
- MAG makes recommendations to Sub-Cabinet
- MAG provides guidance to the Technical Working Groups (TWG)
- TWGs assist the MAG
- CCS & Information Insights provide facilitation, technical support and analysis
- Public provides input and review

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7

## MAG and TWGs

- Mitigation Advisory Group (MAG)
  - Review existing and planned state actions
  - Identify potential options for design and priorities for analysis
  - Recommend actions to achieve the AO goals
- Technical Working Groups (TWG)
  - Analysis, review and early ranking of options
  - Develop initial straw proposals for design
  - Input and review of MAG recommendations and reports
  - Review state GHG inventory and forecast
- TWG process is fully integrated with the MAG
  - TWGs serve in an advisory role to MAG
  - MAG membership on the Technical Working Groups

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8

## TWG Focus Areas

- Oil & Gas
  - Production, processing and transportation/distribution of oil, natural gas, coal and coalbed methane
- Energy Supply & Demand
  - Heat and power generation, supply, transmission/distribution, and use
- Transportation/Land Use
  - Vehicle efficiency, alternative fuels & demand reduction programs and associated land use
- Forest, Agriculture and Waste
  - Forest restoration, sustainable forest management, wood energy, sequestration
  - Biofuels, waste reduction, recycling & energy recovery, solid waste management
- Cross-Cutting Issues
  - GHG sources that overlap two or more focus areas

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9

## Timing

- MAG meetings – every two months approx.
  - July 15, 2008 (Fairbanks)
  - September 22, 2008 (details coming)
- TWG calls
  - Regularly scheduled
  - Two 1.5-2 hour calls between MAG meetings
- Final Product
  - Report to Sub-Cabinet
  - Following last MAG meeting in April 2009

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10

## Ten Step Work Plan

1. Develop initial GHG inventories and forecasts
2. Identify possible GHG mitigation options
3. Identify initial priorities for evaluation
4. Evaluate supply potential, cost effectiveness; additional and feasibility issues as needed
5. Identify barriers, alternative policy design needs
6. Modify, add or subtract options as needed
7. Evaluate cumulative results of options
8. Iterate to consensus, with votes as needed
9. Aggregate options into implementation scenarios
10. Finalize recommendations and report language

## TWG Next Steps

- Review and revise Alaska greenhouse gas (GHG) inventory and forecast
- Identify “priorities for analysis” from catalog of states actions
  - Add existing and new options as needed
  - Rank and screen options
  - Suggest initial “priorities for analysis” to the MAG

# Decision Criteria

- GHG Reduction Potential (tonnes CO<sub>2</sub>e)
- Cost or Cost Saved Per Tonne GHG Removed
- Energy, Commerce and other co-benefits
- Feasibility Issues

# Policy Template



Policy Description: \_\_\_\_\_

Policy Design: \_\_\_\_\_

- Goals:
- Timing:
- Coverage of Parties:

Implementation Methods: \_\_\_\_\_

Related Policies/Programs in Place: \_\_\_\_\_

Estimated GHG Savings and Costs per tCO<sub>2</sub>e: \_\_\_\_\_

- Data Sources:
- Quantification Methods:
- Key Assumptions:

Key Uncertainties: \_\_\_\_\_

Additional Benefits and Costs: \_\_\_\_\_

Feasibility Issues: \_\_\_\_\_

Status of Group Approval: \_\_\_\_\_

Level of Group Support: \_\_\_\_\_

Barriers to Consensus: \_\_\_\_\_

# End Product/Final Report

- Executive Summary
- Background, Purpose And Goals
- Policy Recommendations & Results
  - Oil & Gas
  - Energy Supply & Demand
  - Transportation/Land Use
  - Forestry, Agriculture and Waste
  - Cross-Cutting Issues
- Appendices

## Part 2

- Review Greenhouse Gas Inventory and Forecast



## Alaska GHG Emissions

- Draft Inventory and Reference Case Projections
- Initial analysis by CCS for discussion and final revision
  - Inventory of historical emissions from 1990 to most recent data year (2000-2005, depending on sector)
  - Projection of emissions to 2020

## Coverage

- Six gases per USEPA and UNFCCC guidelines
  - Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF<sub>6</sub>)
  - Black Carbon may be considered separately
- All major sources and sinks
  - Transportation
  - Electricity Generation
  - Residential, Commercial, Industrial Fuel Use
  - Fossil fuel production (fugitive emissions)
  - Agriculture
  - Forestry
  - Industrial Processes and Other Sources

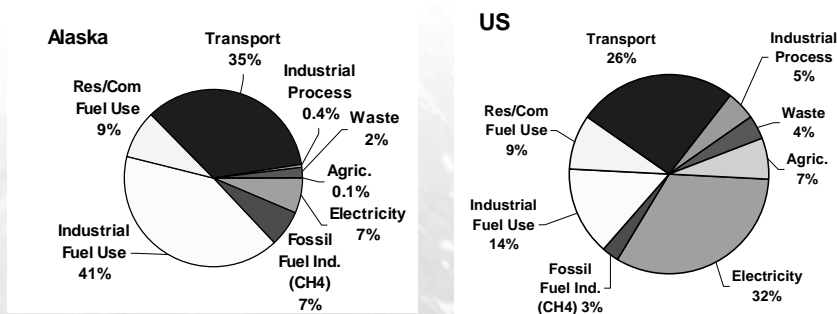
## Inventory Approach

- Based on standard US EPA and UN methodologies, guidelines, and tools
- Emphasis on transparency, consistency, and significance
- Preference for Alaska or regional data, where available

## Projection Approach

- Reference case assumes no major changes from business-as-usual
  - Does not include impact of recent policies
- Growth assumptions from existing sources
  - Alaska Department of Natural Resources production forecasts
  - AK Population Forecast
  - Federal Aviation Administration flight forecasts
  - US Energy Information Administration
  - US Bureau of Labor & Statistics

# Alaska & US Gross GHG Emissions By Sector, Year 2000 (draft)

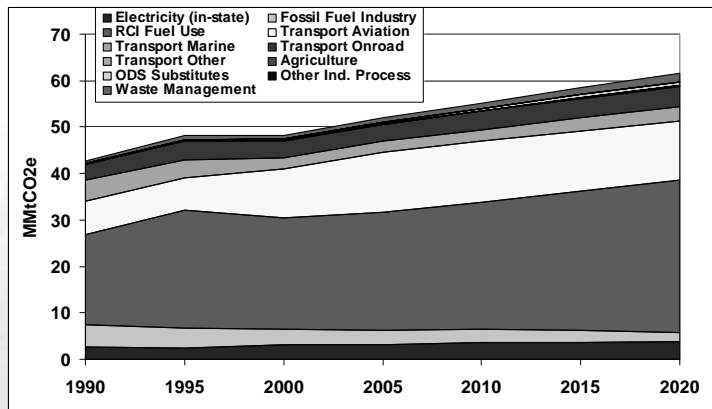


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21

# Alaska Gross GHG Emissions By Sector (draft)

(excludes forestry and soil sequestration)

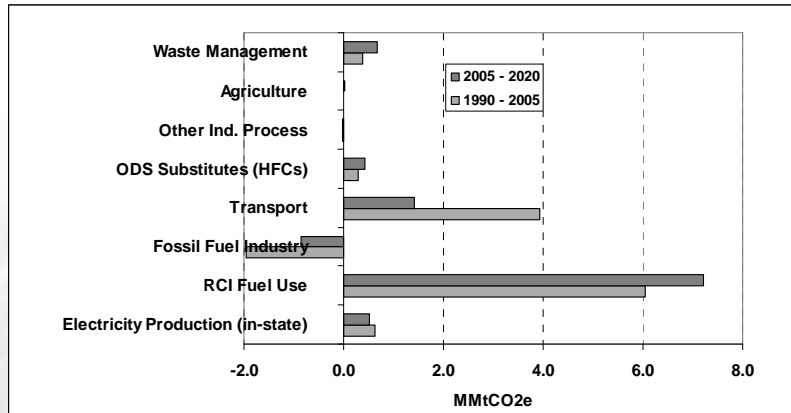


RCI: direct fuel use in residential, commercial and industrial sectors. ODS: ozone-depleting substance

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22

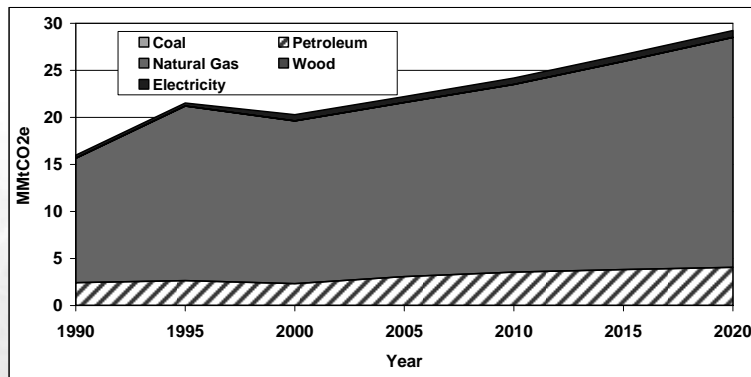
## Alaska Gross GHG Emissions Growth (draft)



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23

## Industrial Sector GHG Emissions from Fuel Consumption

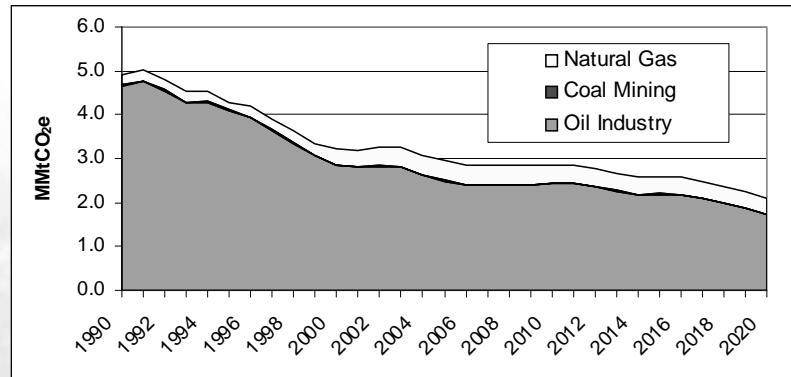


Covers all industry, fuel consumption from oil and gas operations need to be split out

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24

## Fossil Fuel Production GHG Emissions from Fugitive Sources



Coal mining emissions too small to be seen in chart

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25

## Key Points

- Methodology and data gaps currently under review
  - Energy consumption emissions need to be disaggregated from industrial sector (completed for 2002)
  - In other states, discrepancies have been found between EIA estimates and oil and gas industry data on energy consumption
  - Fugitive emissions are based on industry averages
  - Fraction of entrained CO<sub>2</sub> in natural gas is uncertain
  - Challenges in projecting future production of fossil fuels
- Projected emissions savings from recent actions to be estimated separately

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26

## Key assumptions

- Average annual growth rates in energy consumption (all industry)
  - EIA energy + AK employment projections

	1990-2004 <sup>a</sup>	2005-2010 <sup>b</sup>	2010-2015 <sup>b</sup>	2015-2020 <sup>b</sup>
<b>Industrial</b>				
natural gas	2.3%	1.4%	2.0%	2.3%
petroleum	2.2%	3.2%	1.7%	1.1%

- Average annual growth rates in fossil fuel production
  - Natural gas production declines 3.9% per year
  - Oil production declines 1.3% through 2015 then 4.8%
  - Source: Alaska Department of Natural Resources Oil and Gas Annual Report 2006

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27

## ADEC refinements to Alaska GHG Inventory

- In March 2007, Trustees for Alaska requested ADEC require large emitters of GHG to quantify & report their emissions.
- ADEC committed to refine the GHG emission estimates for major industrial and transportation sources.
- ADEC conducted GHG emissions inventory for Title V (major) air permits in Alaska using 2002 fuel usage data.

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28

## ADEC Title V GHG Emissions Inventory Results 2002

ADEC Source Category	GHG Emissions (MMTCO <sub>2</sub> eq)	Percentage of Total GHG Emissions
Electricity Production	2.18	11%
Military	0.97	5%
Mining	0.017	1%
Municipal	0.012	1%
Oil & Gas	15.26	73%
Other	1.76	8%
Seafood	0.16	1%
Totals	20.63	100%

## Part 3

- Draft Potential GHG Mitigation 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

## Public Input and Announcements



## Next TWG Call

- Agenda:
  - Discuss potential priorities for analysis of policy options
  - Further review the emissions inventory and projection if/as needed
- Proposed date/time for Call #2:
  - Tuesday, July 1, 9:30 – 11:00 AM (tentative)

