

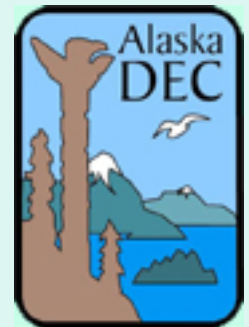
Alaska Greenhouse Gas Emission Inventory

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Presented by:

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Alaska Greenhouse Gas (GHG) Emission Inventory

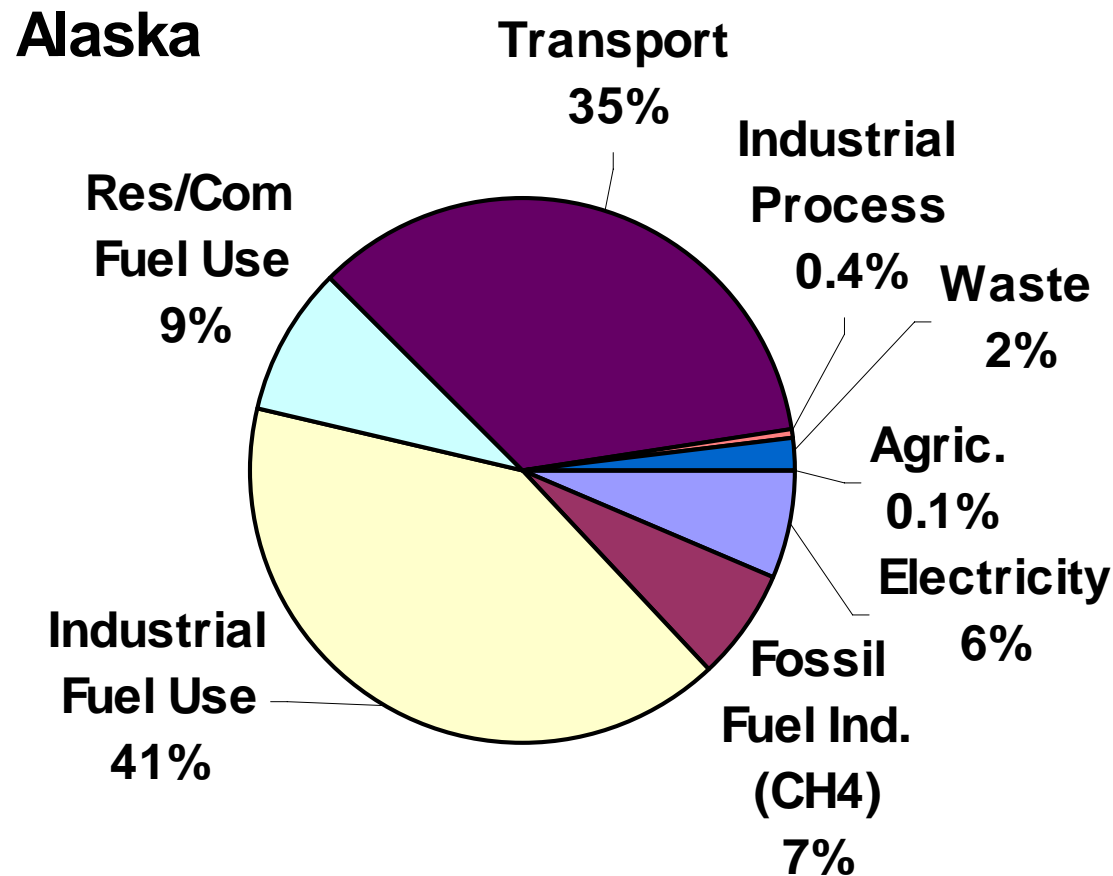
- Developed by Center for Climate Strategies (CCS) for Western Regional Air Partnership
 - Effort included 9 western states
 - Completed in relatively short timeframe
 - First Alaska-specific GHG emission inventory
 - To extent possible, used Alaska data to improve on default assumptions
- Report contains an inventory and forecast of Alaska's GHG emissions from 1990 to 2020
- Comprehensive emission calculations are complicated

Alaska Greenhouse Gas (GHG) Emission Inventory

- Alaska activities generated an estimated 52.4 million metric tons (MMt) of gross carbon dioxide equivalent (CO₂e) emissions¹ in 2005
 - In the CCS study for the WRAP, the total emissions for Alaska, Wyoming, and Nevada were similar in scale
 - Principal source of Alaska GHG emissions is residential, commercial, and industrial (RCI) fuel use
 - Accounts for 49% of total gross GHG emissions in 2005
 - Nearly 85% of the RCI sector emissions come from the industrial subsector
 - The next largest contributor to Alaska GHG emissions is the transportation sector
 - Accounts for 38% of the total State gross GHG emissions in 2005

¹Gross emissions exclude carbon sinks, such as forests

Alaska Gross GHG Emissions by Sector Year 2000



Alaska Greenhouse Gas (GHG) Emission Inventory

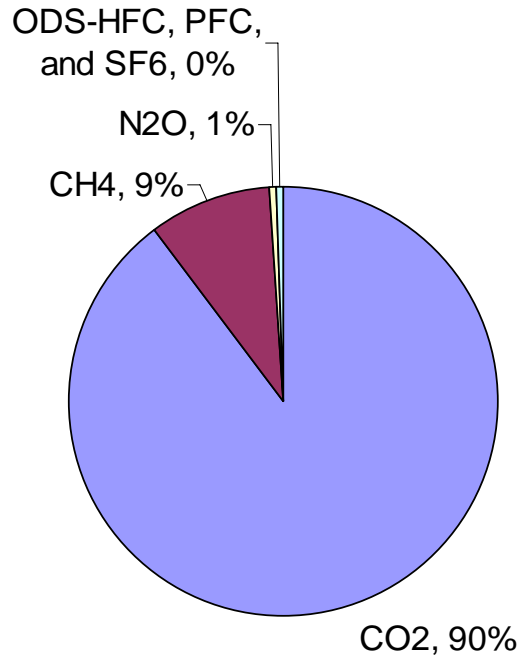
- Alaska's gross GHG emissions¹ increased 12% from 1990 to 2000
 - national emissions rose by 14% during this period.
- Future projection - Alaska's GHG emissions grow to (w/o major new projects. e.g. gas line)
 - 61.4 MMtCO₂e per year by 2020
 - 42% above 1990 levels
- Current Inventory is first rough cut – Need more detail / confidence for good decision making

¹Gross emissions exclude carbon sinks, such as forests

Alaska Greenhouse Gas Emissions

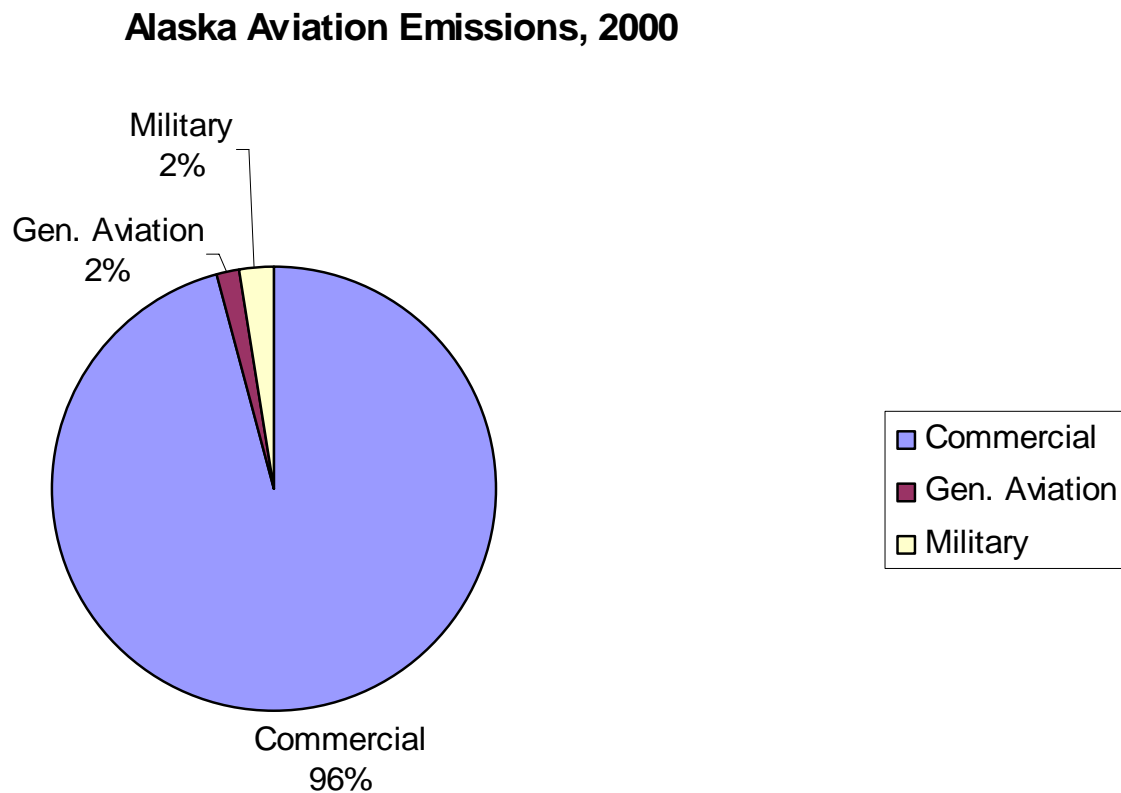
Percent Contribution by Individual Greenhouse Gas Pollutants

**Pollutant Contribution to Year 2000
Alaska Greenhouse Gas Emissions**



Note: Percentages based on MMtCO2e contribution from each pollutant

Alaska Aviation GHG Emissions Year 2000



Note: The split between commercial passenger and cargo flights is not known

DEC's Project to Improve the Emissions Inventory

Air Transport

- Developed rough sub-sector estimates for aircraft emissions
 - Commercial, General Aviation, Military
- Commercial aircraft dominate the CO₂ emissions from the aviation sector
- Fuel purchased in Alaska for international air cargo flights is included in commercial aircraft

DEC's Project to Improve the Emissions Inventory

Industrial Source Emissions

- Developed rough sub-sector estimates for industrial emissions from fuel combustion
 - Oil & Gas, Mining, Seafood Processing, Etc.
 - Provide first cut at impact of various sub-sectors
- Work underway on a detailed historical emission inventory of Alaska industrial sources
 - Larger facilities emissions will be based on air permit data
 - Effort to be completed by the end of 2007

DEC's Project to Improve the Emissions Inventory

Other Sources

- Assumptions and recommendations from CCS report under review
 - Determine sectors to improve emission estimates
 - Prioritize efforts to maximize improvements within available resources
- DEC will undertake additional work based on highest priorities from review and resources available

Projecting GHG Emissions in the Future is Tricky Business

- CCS projection does not account for a number of potential future activities of interest
 - Development of a natural gas pipeline
 - Development of new, large mines or other industrial sources
 - Uncertainty in timing or actual development
- Other, future scenarios could be projected
 - Must be defined
 - May require additional data
- Projections can be developed to analyze the emission reductions from potential controls

Inventory into Action

How other states have planned
action based on Greenhouse Gas
Inventory data

Political Neighbors

- New Mexico, Arizona, Montana, Washington
- Western States Governors Association
- Western Regional Air Partnership
- Center for Climate Strategies (CCS)
- Climate Action Plan (CAP)
- www.azclimatechange.us
- www.nmclimatechange.us

Expected Differences

- Significantly more emissions from industrial fuel use
- Lower on-road transportation
- Much more significant aviation emissions
 - No state-level precedence for regulating aviation
- Diverse renewable energy projects

Greenhouse Gas Registry

- Greenhouse Gas Industrial Reporting
- Greenhouse Gas Registry
 - Tracks current reductions and technology
 - Example: <http://www.climateregistry.org>
- Prevents industry penalization in future carbon markets

Transportation

- Higher per-capita emissions from “ On road” vehicles than Arizona, slightly less than New Mexico
- 11 states, including New Mexico and Washington have implemented the Clean Car Program
 - <http://www.driveclean.ca.gov>
- “Feebates” program to encourage purchase of alternative fuel and high efficiency vehicles

Industrial Emissions

- ~24 MMTons CO2 Equivalent – largest sector of Alaska's GHG Emissions
- Thermal efficiency standards for combustion processes
- Leak reduction in natural gas transport:
 - Methane is 23 times more potent as a warming agent than CO2
- Reductions to be tracked in GHG Registry - better prepares state for possible reduction incentives and taxation

Electricity Generation

- Updated inventory identifies rail belt sources as creating most greenhouse gas emissions
- Continued support of renewable energy
 - Alternative Energy/Conservation Workgroup
- Cost-effective, reliable energy storage for intermittent technology (i.e. wind generated power)
 - New Mexico: Renewable Energy Transmission Authority
- Pricing and Net Meter strategies