



Energy Supply and Demand TWG Teleconference Meeting #3

July 28, 2008 1-3 pm

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

Today's Agenda

- Feedback from the MAG
- Approach for setting priorities
- Inventory and Forecast
- Public input and announcements
- Next call

Feedback from the MAG

- MAG suggested adding the following: geo polymer component to cement (RCI 2.5); buy-back program for wood stoves; interest rate incentives; technology item to RCI 8; financial incentives for retrofits; appliance buy-back
- MAG suggested that two new policy options are actually criteria rather than policy options *per se*:
 - “Ensure growth of Alaska’s jobs and economy”
 - “Avoid redundancy and conflicting federal GHG program with other programs”
 - Government policy should not encourage energy use
- MAG suggested separating criteria from policies
- Implicit consent to proceed with evaluating policy options

Approach for Setting Priorities

- CCS to estimate relative (H,M,L) costs of implementing policies and emissions reductions potential
 - Review cost of implementing policies in other jurisdictions
 - Review emissions reductions achieved elsewhere or estimated by others
 - Adjust according to relevance to Alaska
- TWG will review and comment on estimates
- TWG will complete ballots on policy options based on revised costs and reductions potential

Update and comments on draft GHG emissions inventory & forecast

- Update on status (if relevant)
- TWG comments

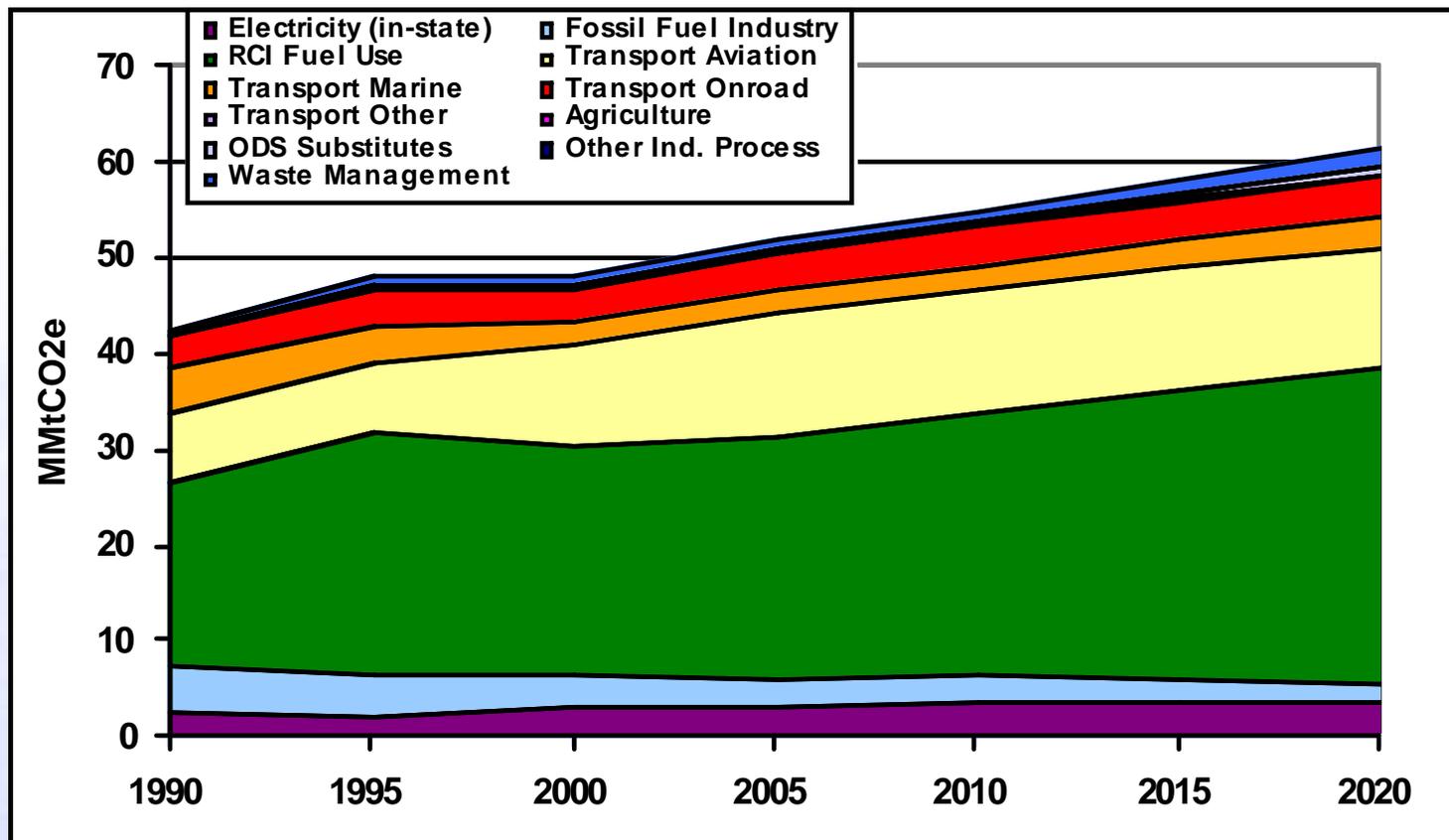
Key Points

- 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 CO₂ in natural gas is uncertain
 - Challenges in projecting future production of fossil fuels
- Projected emissions savings from recent actions to be estimated separately

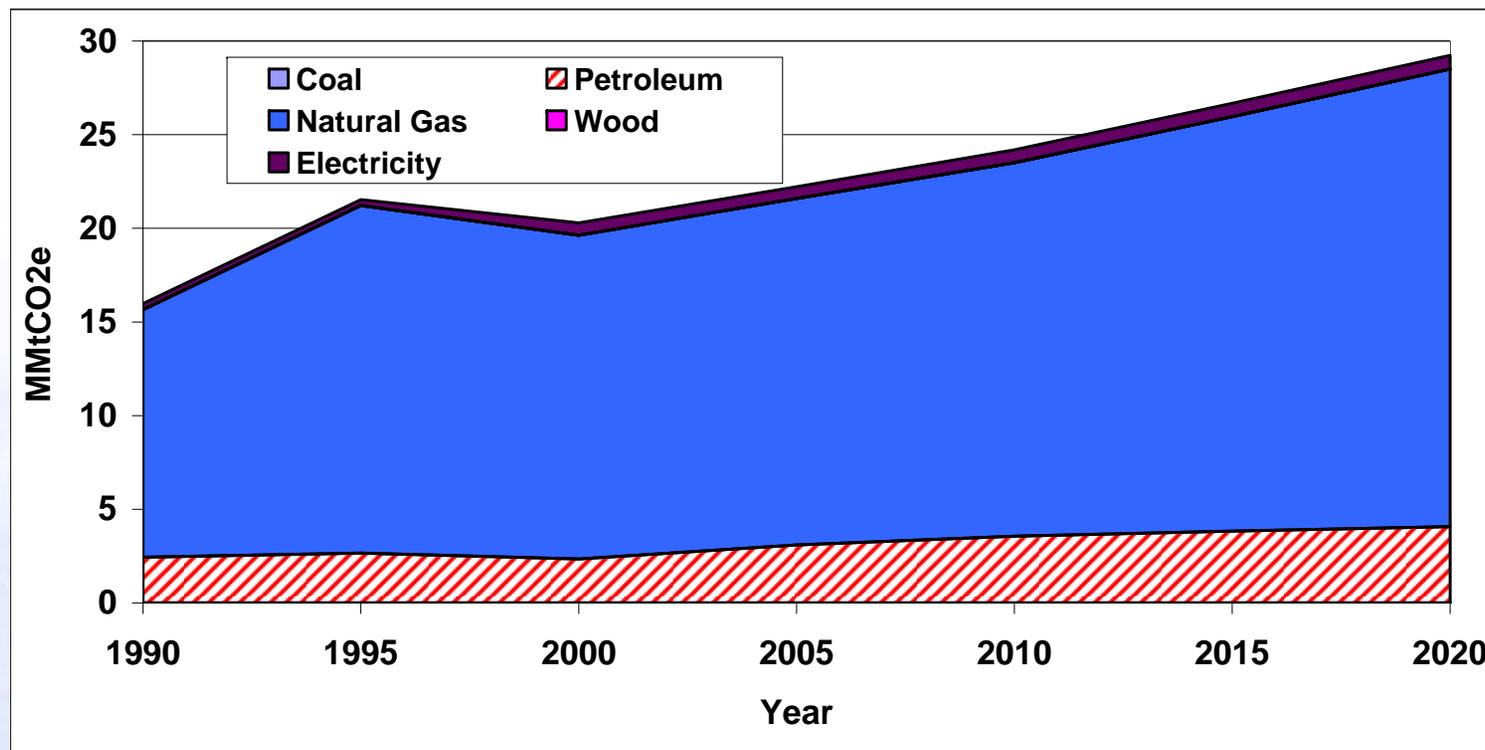
Key assumptions

- Especially refer to the following pages for assumptions, approach and methodologies:
 - Page A-7 electricity
 - Pages B-3,4,5 for RCI
 - Page D-2 for industrial processes

Alaska Gross GHG Emissions by Sector 1990-2020



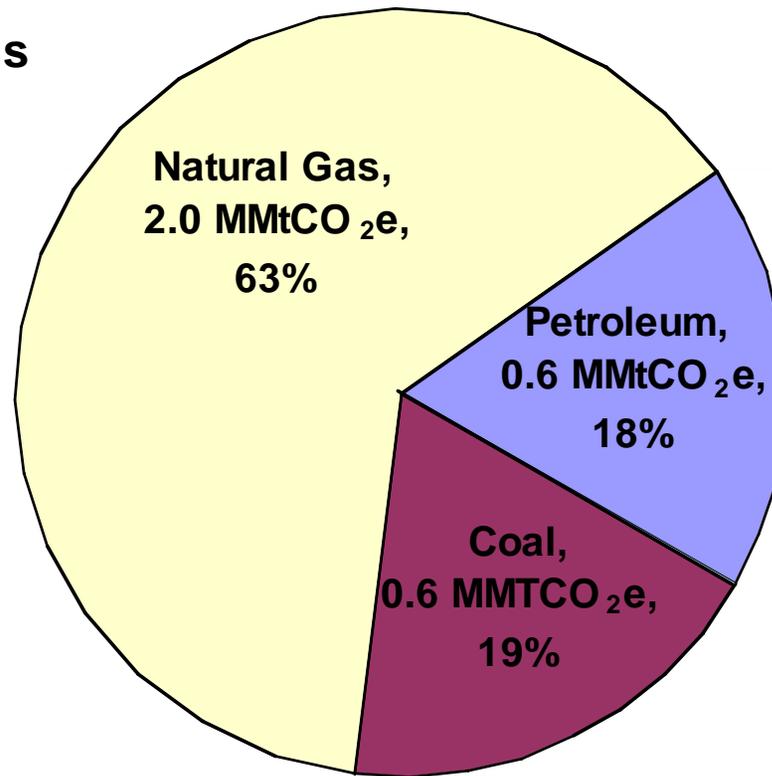
Industrial Sector GHG Emissions from Fuel Consumption



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

GHG Emissions from Alaska Power Plants 2004

**Total GHG Emissions
3.1 MMtCO₂e**



Growth in Electricity Generation in Alaska 1990-2004

	Generation (GWh)		Growth
	1990	2004	
Coal	312	393	26%
Hydroelectric	975	1,498	54%
Natural Gas	2,870	3,475	21%
biomass, wind, geothermal	0	1	n/a
Petroleum	337	682	102%
Total	4,493	6,049	35%

Source: EIA data, generation from electric sector, excludes electricity generation from industrial and commercial sector

New and Proposed Power Plants in Alaska

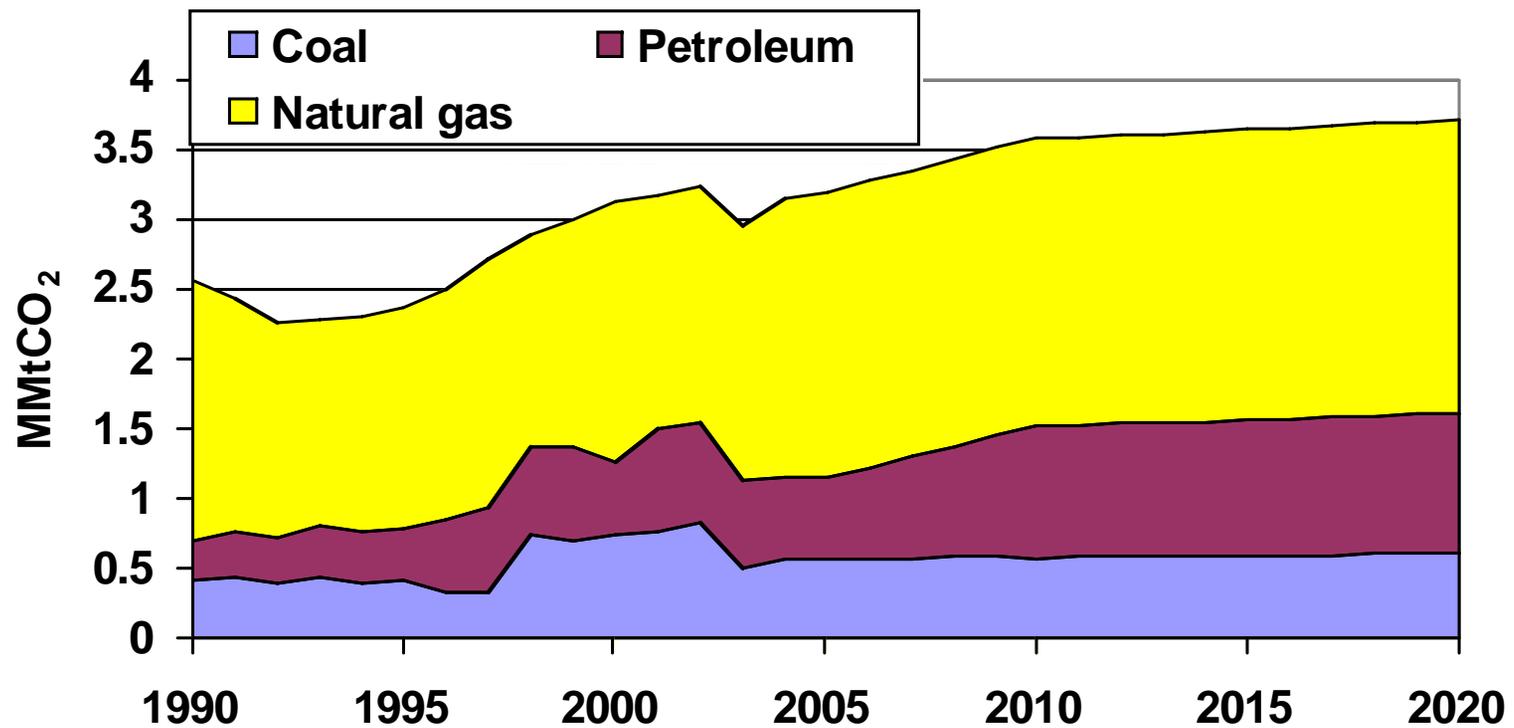
	Plant Name	Fuel	Status	Capacity	Estimated Annual		Notes
				MW	Generation GWh	Emissions MMtCO _{2e}	
New plants	Kotzebue Wind project expansion	wind	2005/2006	0.5	1.1	0.0	This expansion is additional to the 0.5MW built in 1997 and 1999.
	South Fork Hydro	Hydroelectric	In-service 2006	2	6.4	0.0	
	Chena Hot Springs	Geothermal	In-service 2006	0.4	3	negligible	The first geothermal power plant in Alaska. It is a small-scale unit, using organic rankine cycle (ORC) technology to produce power from a low temperature resource.
	North Pole Expansion Project	Naphtha	30 MW tested in 2006 In-service 2007	60	447	0.4	Golden Valley Electric Association. Naphtha is supplied from next-door Flint Hills refinery. Natural gas could be used instead, if it is supplied to the Interior in the future.
Proposed plants	Lake Dorothy Hydro	Hydro electric	under construction	14.3	75	0.0	
	Sand Point	wind	under construction	1	3	0.0	
	Cascade Creek	Hydroelectric	Proposed	80	420	0.0	
	Swan Lake at Thomas Bay	Hydroelectric	Proposed	30	166	0.0	
	Scenery Creek at Thomas Bay	Hydroelectric	Proposed	20	103	0.0	
	Takatz Lake	Hydroelectric	Proposed	20	82	0.0	
	Allison Creek	Hydroelectric	Proposed	5	20	0.0	
	Chakachamna	Hydroelectric	Proposed	430	1,300	0.0	
	Fire Island	Wind	Proposed	80	20	0.0	
	Healy	coal	Proposed	200	1,489	1.3	Usibelli Coal Mine proposed 5/2003, in service TBD
	Kenai	coal - IGCC	Proposed	350	2,606	2.2	feasibility study 2005, board decision 2008, in service end of 2011
	Galena	Nuclear	Proposed	10	74	0.0	Galena city council accepted a proposal from Toshiba to test its "nuclear battery" reactor design

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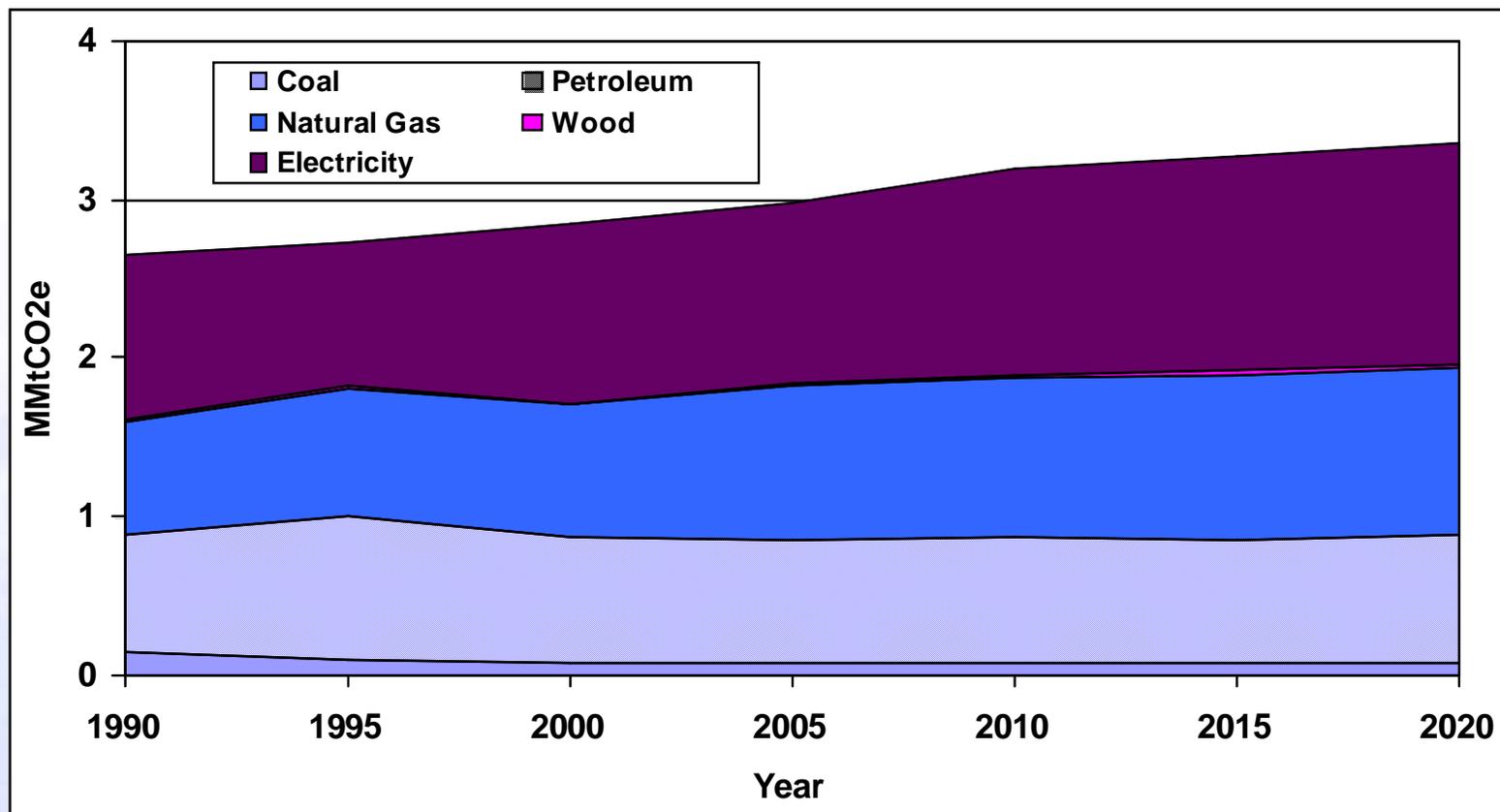
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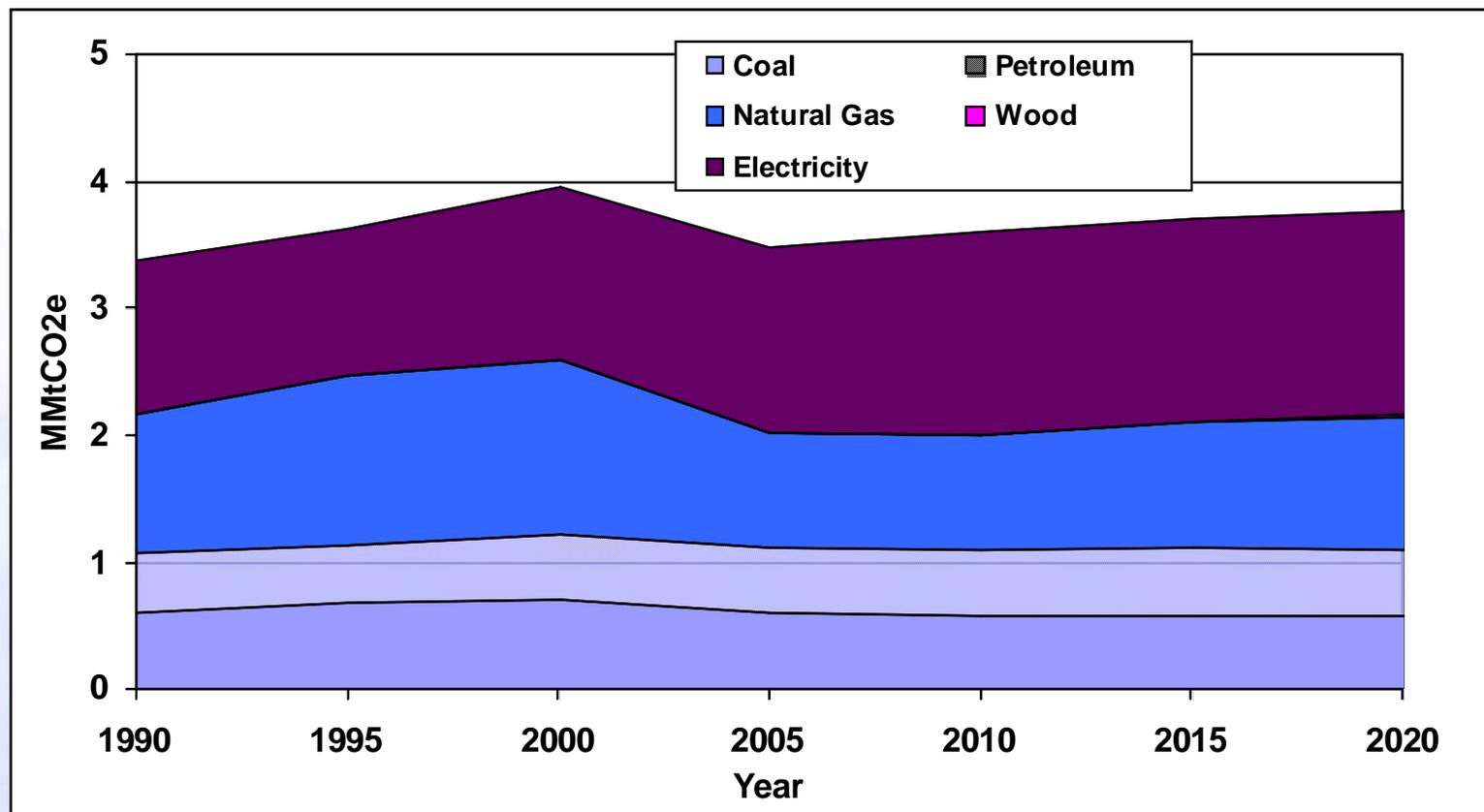
GHG Emissions from Alaska Power Plants



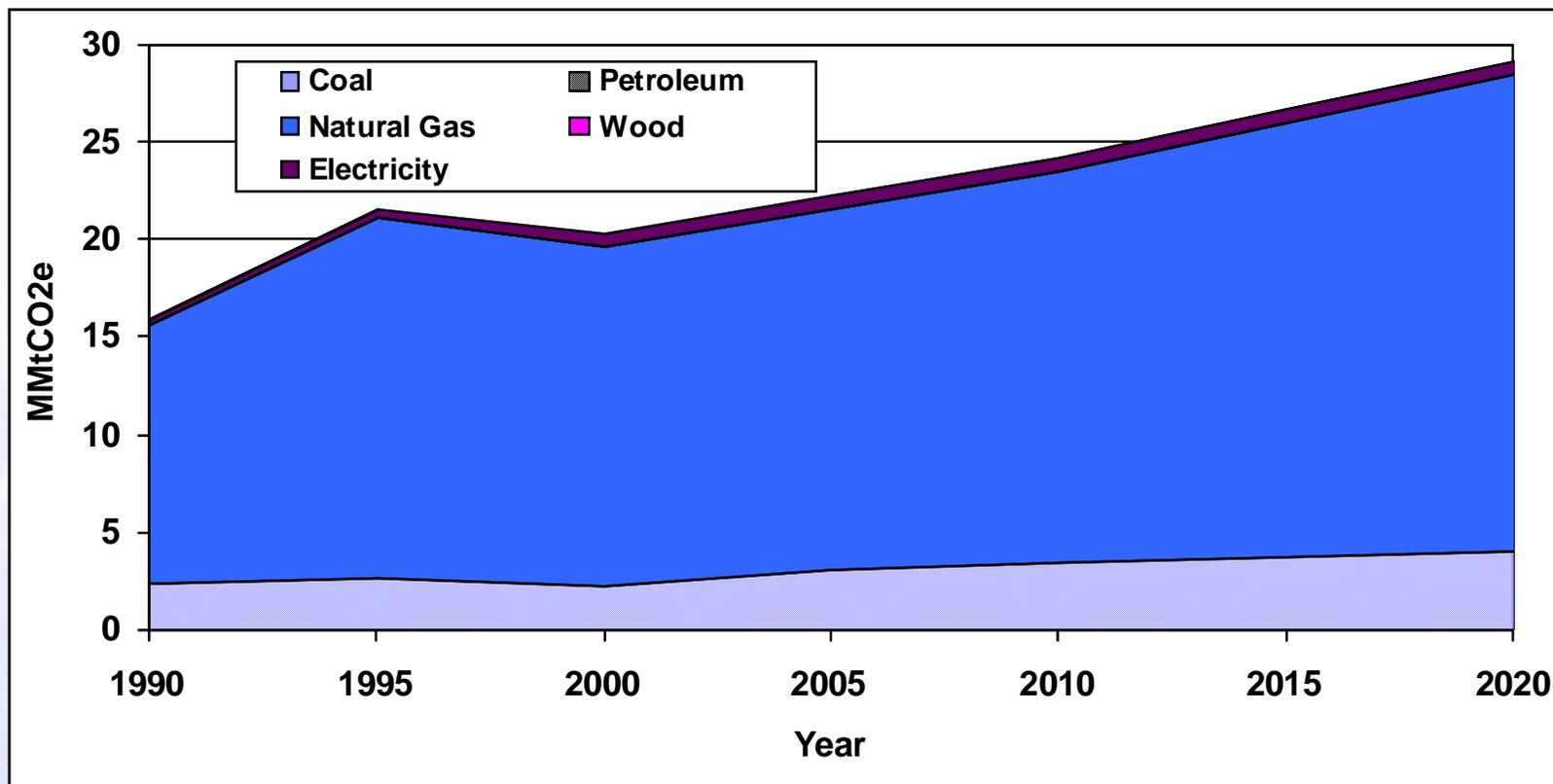
Residential Sector GHG Emissions from Fuel Consumption



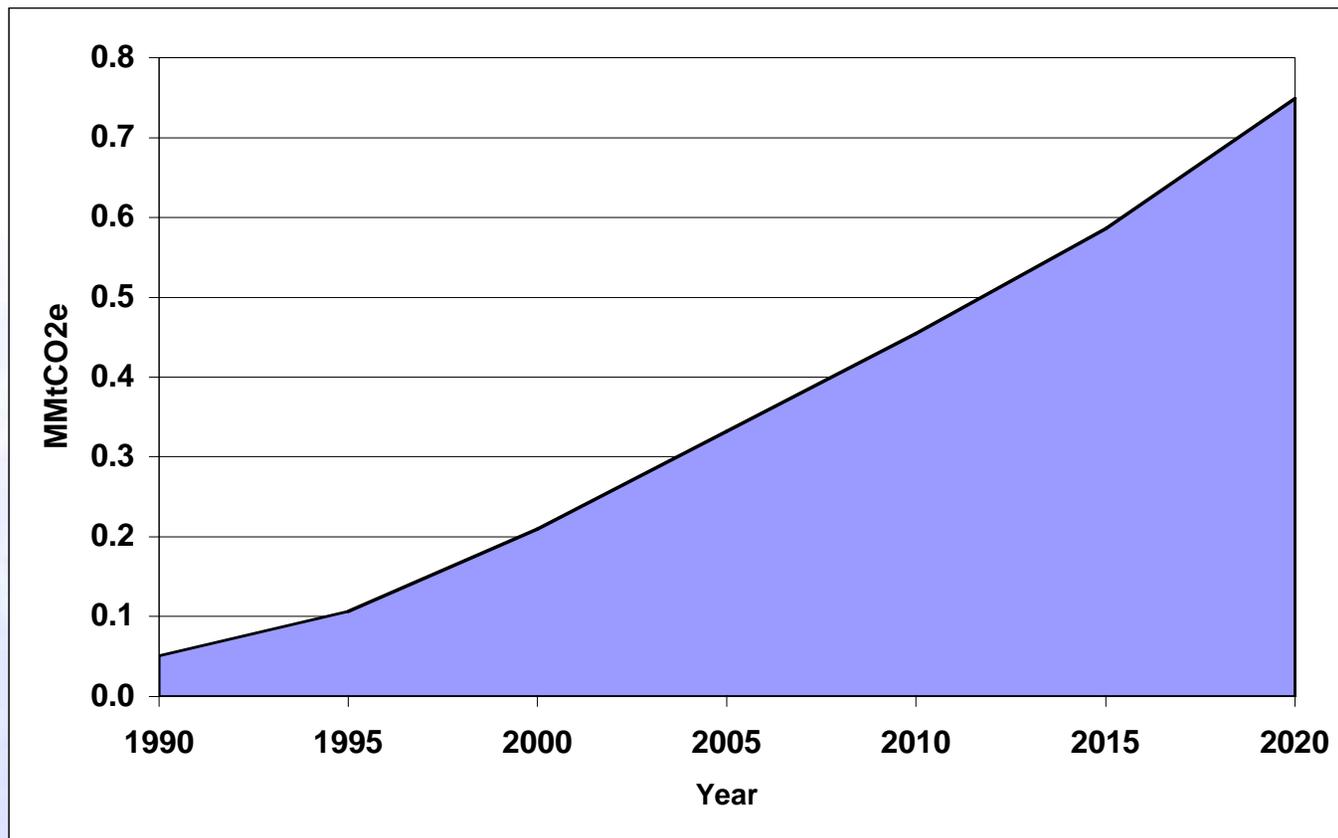
Commercial Sector GHG Emissions from Fuel Consumption



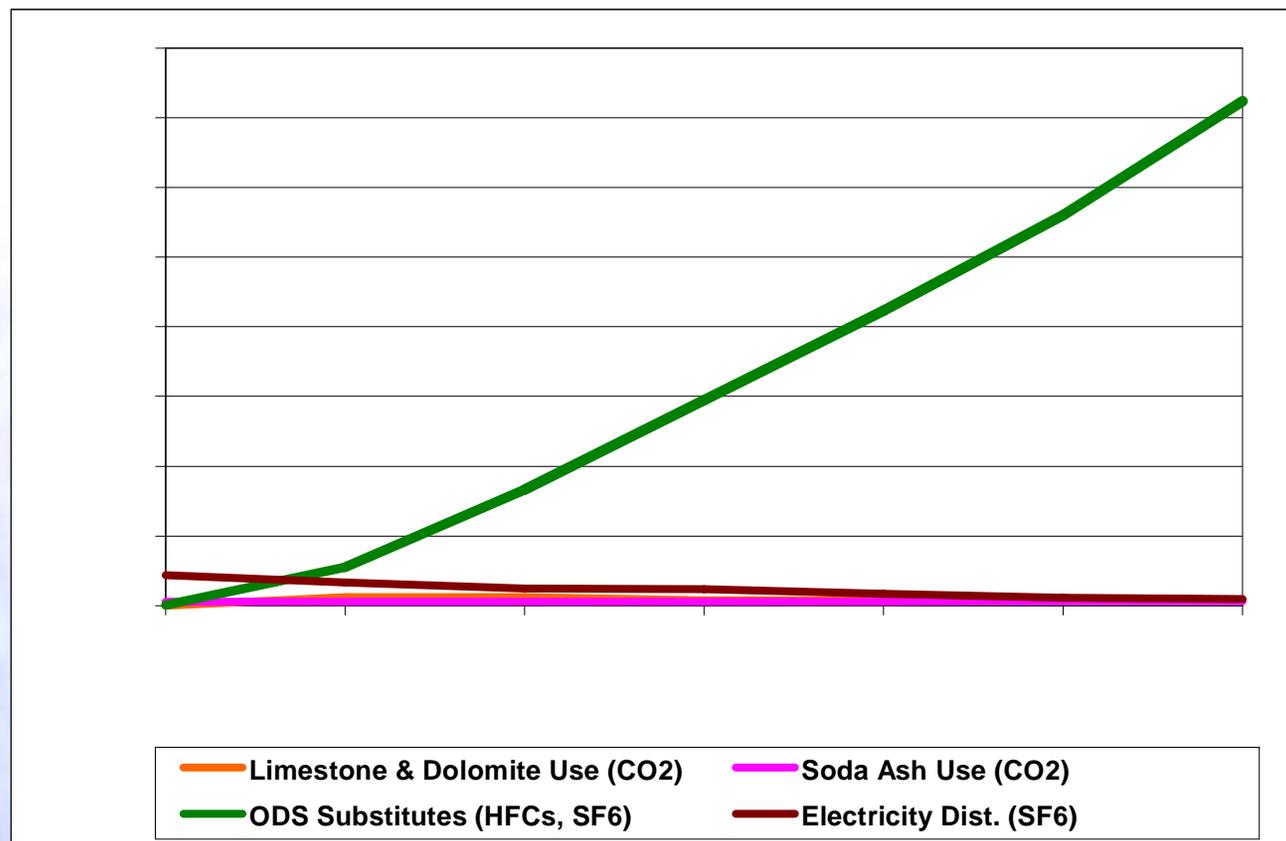
Industrial Sector GHG Emissions from Fuel Consumption



GHG Emissions from Industrial Processes



GHG Emissions from Industrial Processes by Source



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.

ADEC Title V GHG Emissions Inventory Results 2002

ADEC Source Category	GHG Emissions (MMTCO ₂ 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%

Public Input and Announcements

Next TWG Call

- Agenda:
 - Review priority options
 - Explain process for voting on potential priorities for analysis of policy options
 - Further review of the emissions inventory and projection if/as needed
- Proposed date/time for Call #4:
 - Week of August 25th

