



www.akclimatechange.us

MEETING SUMMARY

Alaska Climate Change Mitigation Advisory Group

Meeting #6, April 2, 2009

8:30 AM – 3:45 PM

Anchorage, AK

Attendance:

Mitigation Advisory Group Members (MAG):

Larry Hartig, Chair

Bob Batch

Steve Colt

Jeff Cook

Brian Davies

Steve Denton

Karen Ellis (*by phone*)

David Hite

Kate Lamal

Greg Peters

Sean Skaling

Jamie Spell (*by phone*)

Curt Stoner

Kate Troll

Dan White

Alaska Department of Environmental Conservation (DEC):

Jackie Poston

Sean Lowther

Kolena Momberger

Scott Sloane (*by phone*)

Center for Climate Strategies (CCS):

Brian Rogers, UAF, Co-Facilitator

Ken Colburn, Co-Facilitator

Gloria Flora (*by phone*)

Jeff Ang-Olson

Dick LaFever

Fran Sussman

Nancy Tosta

Alaska Department of Natural Resources (DNR):

Diane Shellenbaum

Others:

Janet Bounds

Katharine Heumann

Caitlin Higgins

Ted Rockwell

Welcome and Meeting Overview

The meeting opened with an overview presentation of EPA's new GHG reporting regulations by EPA representatives Kitty Sibold, EPA D.C. and Madonna Narvaez, EPA Region 10. The goal of the EPA is

to achieve reporting of 85-90% of US emissions, not 100%. There is no intention of pre-empting existing reporting requirements by states.

The GHG reporting regulations are intended to be policy neutral as related to cap-and-trade or carbon tax policies, etc. Region 10 will not serve an active role in developing these regulations. It is as yet undecided whether states will be required to engage in some level of mandatory reporting.

Ken Colburn reviewed the process of developing the policy options as outlined in the powerpoint presentation. The MAG is currently on the steps 5 and 6, quantification and feasibility issues.

There were no objections to the Meeting 5 summary.

Review and Approve Policy Option Documents

Cross-Cutting

CC-1: Establish a Greenhouse Gas Reporting Emissions Reporting Program – *Placed on Hold*

The MAG agreed that, since the EPA has established a reporting system, to delay any recommendation of a state program until federal program has been implemented. The state should be fully prepared to address implementation of the federal program.

Records of levels of captured and sequestered carbon may be useful for trading programs. Currently, there are no proposals for a reporting threshold. The OG TWG recommends assessing the new federal program after a predetermined length of time so as not to have a duplicative reporting environment. A state reporting system should build from the federal program and add any missing necessary data.

Concerns about the costs of reporting programs were expressed. It is felt that such costs are likely underestimated.

Additional concerns were expressed that reporting could be a significant limitation on growth of certain industries.

CC-2: Establish Goals for State GHG Emission Reductions – *TWG asked to return with more information*

The TWG recommends establishing aspirational, rather than conservative, goals for GHG reductions. Many states have established goals for GHG emission reductions as outlined in slides 12 & 13 of the powerpoint. Alaska's goals are based on realistic estimates based on what states are generally targeting and capable of achieving.

Prior to finalizing reduction goals, the MAG will have the opportunity to review the final quantification values against proposed reductions goals. NOTE: These goals are exclusive of gas pipelines.

Concerns were expressed that reporting could be a significant limitation on growth of certain industries.

Discussion involved inventory baseline dates. The TWG will review and recommend an appropriate year to use. EPA is using 2005 as the baseline inventory year. The question of using 1990 for Alaska was raised.

The TWG is asked to review the I&F to ensure that all suggestions for improvement to the methodology have been addressed.

CC-3: Identify and Implement State Government Mitigation Actions - *Consensus to Adopt*

Double-sided copying is already required, as is Step 5. Many lead-by-example are covered in other TWG's.

CC-4: Integrate Alaska's Climate Change Action Plan with the Alaska Energy Plan - *Consensus to Adopt*

There is a strong need to have a coordinated approach in implementing the Action Plan and the Energy Plan. This policy option includes establishing an energy data base in order to track production and consumption of energy, especially with the second phase of the State Energy Plan. The University of Alaska is working on this database at the present time.

CC-5: Explore Various Market-Based Emissions - *Consensus to Adopt*

This policy option recommends a study of cap-and-trade, carbon markets, carbon tax, etc. There are no specific recommendations for implementation, as the impact of these programs on Alaska needs to be determined.

Two members suggest that this is too late, that the federal government will establish the rules. They proposed quicker action by the state, in the event that the feds do not move forward quickly on implementation.

Federal legislation is still resolving some important issues. Alaska should explore the differences in the approaches being taken to develop these programs, especially regionally. Current approaches, like cap-and-trade in Europe, are showing some problems.

CC-6: Create an Alaska Climate Change Program that Coordinates State Efforts for Alaska Climate Change - *MAG wants more clarity on what is included; at least one objection*

This option includes education and outreach, also being addressed by the Adaptation Advisory Group. The Appendix to this policy option is based on work from the AAG. There are two other options on the Adaptation side:

- Creation of a Knowledge Center to organize all information and data about climate change in one place.
- Create an office of Climate Change Coordination that focuses on rural villages. This could be an expansion of work currently being done by Jackie Poston. The costs include Full-Time Equivalent employees to run a small office to coordinate legislation and policy work. Modify the option to remove references to CC-1.

There are some about pursuing this policy option since it may be duplicative. The MAG supports climate change education efforts but want to ensure that this program improves on-going efforts. The MAG is looking for a locus of knowledge to assist in aligning efforts, rather than repeating other work.

General Comments on Cross-Cutting:

A number of recommendations recognize on-going activities, but others ignore work going on at universities, etc. The TWG needs to ensure that all on-going work is recognized.

Note that the TWG does not have to locate funding, but can suggest potential sources.

Forestry, Agriculture and Waste

FAW-1: Forest Management Strategies for Carbon Sequestration – *Several objections to counting biomass in different way than we count fossil fuel*

There are multiple benefits to this option. While some of these benefits can be quantified, the unquantifiable benefits are often likely to be more beneficial. For example, biomass can be directed to beneficial uses, with a very broad beneficial use. Depending on feedstock, this may or may not be cost effective. Utilizing biomass feedstocks for energy is addressed and quantified in FAW 2.

1a – Pre-Commercial Thinning in Coastal Forest. The proximity to the end user is the pivotal point in the quantification of the biomass. The benefits of such thinning include more timber available per acre over time, which go beyond the quantified range (2025) in the durable wood product market and CO₂ absorption from accelerated growth. This has been displayed but not quantified.

1b and 1c – The focus of this element is the reduction of wildfire threat in boreal-adjacent communities. Some very significant benefits include reductions in fire risk which can't be quantified.

1d – Reforestration in boreal forest – There is good cost effectiveness based on the economics of the additional sequestered carbon. The value of carbon in the offset program is not included, just the cost of implementation.

The TWG compared identical stands of forest, one managed and the other not, to assess the balance of harvest with maintaining natural carbon sink. In clear-cutting, all carbon above ground is removed and most put into durable wood products. Soil carbon is not affected.

Non-production fossil fuel use values are based on the Used Inventory and Forecast, non-electrical generation coal/heating oil use in residential and commercial use. The TWG has, however, modified the goal.

FAW-2: Expanded Use of Biomass Feedstocks for Energy Production – *objections to counting biomass in different way than we count fossil fuel*

2a - The original goals suggested that over 400 Combined Heat and Power units need to be deployed. The TWG has now refined the goal to just off-setting heating oil use.

2b – The quantification combines biomass with coal for power production.

2c – Direct biomass feedstocks have been applied to the production of cellulosic ethanol.

Questions were raised about the economic assumptions of total biomass supply versus the actual availability. The overlapping demands for biomass in all the policy options will be resolved in the next (final) phase of quantification.

The sustainability of biomass supplies was not specifically reviewed, but the quantifications are based on the current level of timber production without increase. The assumption is that current harvest levels are sustainable.

Questions were raised about the impact of biomass use on the affordability of the price of firewood over time. The 2008 figures on annual primary mill wastes are most reliable. Transportation costs are based on a forty mile radius in southeast Alaska.

State level analyses are necessarily broad for a state as large as AK. More work is necessary to determine supply and pricing for specific regional and local bases. A focus on the proximity to

population centers would be most profitable, as these centers include greater access to biomass including municipal solid waste.

FAW-3: Advanced Waste Reduction and Recycling – *consensus for approval*

There is a saving realized from waste not being sent to landfills and other disposal mechanisms. The TWG asked for feedback from the MAG regarding the consideration of life-cycle reductions outside of state, which is a majority of the available reductions in this case. The MAG agreed that Alaska should take credit for all reductions taken within the state borders, as other states have done.

General Discussion:

There are adjustments to the scale of quantification that will allow the final figures to be more focused on the sub-sets matching feedstocks with near-by end-users.

It was noted that these calculations are a first-order quantification for planning purposes. The numbers can be refined with more time and effort.

More current costs on biomass in Alaska need to be developed.

All calculations need to be based on sustainable feedstock supplies. As noted above, the underlying assumption is that there is no increase to the current carbon cycle, and this is assumed to be sustainable.

Comments on the major impact of location on cost and feasibility should be included, especially for global impacts.

A reduction from bau in the baselines used could be problematic because this would not account for scrubbing data for overlap.

Do not compare waste and biomass equally with coal or oil.

Waste as a source of power was addressed, and is included in the MSW feedstocks in the table at the front of the POD. However, there has been no effort to pair up individual feedstocks with individual technologies.

Extraction and transportation costs have not been included in calculating footprint.

Carbon from trees is treated differently than carbon from fossil fuels as there is a fundamental difference between the active and inactive carbon cycle. Fossil fuels release sequestered carbon, whereas carbon from plants is already released and moving through the active carbon cycle. It will be released whether it is burned or not.

One member doesn't want to encourage actions to harvest live biomass, but is agreeable to using dead residuals.

Concerns were expressed about the uncertainty of the quantifications.

Energy Supply and Demand

Reference PowerPoint presentation for more detail

ESD-1: Transmission Expansion - *hold on approval until May conference call*

No further discussion beyond presentation

ESD 2-4-6: Energy Efficiency - *hold on approval until May conference call*

These three options all pertain to energy efficiency and were discussed together.

Energy Efficiency is comprised of the costs of implementing the program, the administrative cost, and the infrastructure used to implement the efficiency program.

The average cost of displacement is inflated by about 40% to account for Alaska's special circumstances.

ESD-3: Renewable Energy Implementation - *hold on approval until May conference call*

No further discussion beyond presentation

ESD-4: Energy Supply and Demand - *hold on approval until May conference call*

A comment was made that fully amortizing the cost the dam should be at 5%, not 40%. The 40% figure includes the interest over time, which is quite high (\$600mm per year).

This is a very simplified quantification for a very complex subject. Numbers should be refined over time since outputs are very new. The Integrated Resource Plan won't be completed until November. The POD should state that the dam output figures are a gross estimation and will need to be reviewed when the IRP is released.

There will likely be a sensitivity analysis of CO2 emissions in the IRP.

ESD-7: Implementation of small-scale nuclear power - *Forwarded to Research Needs Group*

ESD-8: R&D for cold-climate renewable technologies - *Forwarded to Research Needs Group*

ESD-9: Implementation of advanced supply-side technologies - *Forwarded to Research Needs Group*

The remainder of the options will be reviewed at the next meeting.

Transportation and Land Use

TLU-1: Transit, Ride Sharing and Commuter Choice - *consensus for approval*

This option is supportive of the other options as well as having inherent benefits.

Cost effectiveness is poor; TWG should look for opportunities to improve the cost effectiveness.

TLU-2: Heavy-Duty Vehicle Idling Regulations and/or Alternatives - *consensus for approval*

Much of the costs of implementation reflect purchasing small auxiliary power units.

The education component is important.

As the stimulus package is released, implementation opportunities for diesel retrofits and other assistance may be created.

TLU-3: Transportation System Management - *consensus for approval, subject to consideration of MAG comments*

The use of roundabouts, signal timing, etc. are all very specific to location so only the reduction of highway speeds from 65 to 60 mph was quantified. Incomplete compliance was assumed. The TWG has not yet incorporated the costs to administer the program (signs, enforcement, etc.).

Should consider the cost associated with lower speeds (longer travel time for trucks).

There are seasonal variations in speed that might affect the GHG impacts.

TLU-4: Smart Growth - *consensus for approval*

There is a demand for more pedestrian opportunities and access. Where market demand exists, barriers to smart growth should be addressed, versus a forced compaction of housing where more density is not desired by the market.

TLU-5: Alternative Fuels- *consensus for approval, subject to consideration of MAG comments*

Three different options were reviewed: compressed natural gas (CNG), plug-in hybrid electric (PHEV) and full-electric vehicle. The quantification does not account for the driving cycle variables: how vehicles are used, the city/highway mix, etc.

The TWG should note the use of national averages versus Alaska-only averages.

TLU-6: VMT and GHG Reduction Goals in Planning - *consensus for approval*

This option overlaps with TLU-4; both aim to reduce light duty vehicle VMT by 3% compared to BAU forecast.

TLU-7: On-Road Heavy-Duty Vehicle Efficiency- *consensus for approval, subject to consideration of MAG comments*

The policy option should address the disposition of obsolete vehicles.

TLU-8: Marine Vessels- *consensus for approval, subject to consideration of MAG comments*

The policy option should address the disposition of obsolete ships.

The option does not account for the variety of season-dependent regulations.

Quantification of GHG benefits needs to be examined. Poor cost effectiveness is not consistent with experience of a large fishing fleet operated by MAG member.

TLU-9: Aviation - *consensus for approval*

The air sector accounts for approximately 75% of emissions from the transportation sector. There are various proposals to reduce these emissions, but these have not been quantified.

Research indicates that promising low-carbon fuels are on the horizon but are not yet viable. No timeline for wide-spread availability was outlined.

TLU-10: Alternative Fuels R&D - *consensus for approval*

Policy design and implementation mechanisms not yet developed. TWG is reaching out to Alaska Center for Energy Power at UAF.

Oil and Gas Technical Working Group

Reference PowerPoint presentation for more detail

OG 1 & 2 are focused on conservation efforts.

OG – 1: Comprehensive Conservation Practices –

This option will not be quantified due to the dependence on what is “not being done”. The TWG is suggesting a wide range of options.

OG- 2: Fugitive Methane –

It appears that the available figures are higher than the actual amount of fugitive methane, but there are no known reliable sources for such data. The source figures are based on emissions from outdoor operations, largely in the lower 48 states, while those in Alaska are primarily from indoor operations.

The estimates do not include flaring. ICF is working with the TWG to determine appropriate values for Alaska.

OG 3 through 6 are focused on energy efficiency efforts.

OG-3: Electrification of Operations

Successful implementation of this option would require that the entire transmission system for the North Slope be reconstructed and expanded.

This is a complex issue, as not every system can be switched to electric motors and/or consolidated. This requires careful analysis. It is worth pursuing, however, due to the efficiencies gained and the levels of potential GHG reductions. The next round of quantification will look at scenarios involving the percentage of equipment that could actually be upgraded or replaced.

The implementation rate is estimated at 50%, with a maximum efficiency of 55% as a stand-alone project. The TWG continues to review the combination of this focus with other approaches, as these conversions are more of a hybrid situation, rather than all one way or another.

OG-4: Improved Efficiency Upgrades for Oil and Gas Fuel Burning Equipment

Gains of 15% in thermal efficiency are expected when this option is fully implemented.

Minor infrastructure development and/or changes to the transmission grid are required for this policy option.

Under current CAA rules, some of the turbines have firing temperature limits to control NO_x levels. Changing these rules to increase firing temperatures might increase NO_x, but would reduce CO₂.

OG-5: Renewable Energy Sources in Oil and Gas Operations

The use of wind power could be used to augment primary power sources, but not serve as a primary source itself. The capture and use of wind power on the North Slope is unproven at present.

OG-6: Carbon Capture and Geologic Sequestration with EOR from High CO₂ Fuel Gas at Prudhoe Bay

The fuel gas at Prudhoe Bay contains an extremely high level of CO₂ (10-12% by volume) to be removed. This issue could be a stand-alone policy option.

~~This policy option can, and likely will, grow in complexity from fuel gas to exhaust gas, to broader efforts where no infrastructure currently exists.~~

The capture costs and EOR are two primary quantification factors. The infrastructure to achieve the goal already partly exists. It makes more economic sense to focus where a field already is in place.

Note that there will be parasitic energy losses: net gains in CO₂ captured, but requiring more fuel to be burned.

OG 7 & 8 are focused on carbon capture and sequestration (CCS) efforts.

OG-7: Carbon Capture and Geologic Sequestration with EOR in and near existing Oil or Gas Fields

This option refers to the post combustion carbon capture, ie from exhaust or flue gases, and would be very expensive to implement and should only be implemented after all other options are exhausted. It only makes sense with centralized power.

The value of CO₂ may drop due to over-supply on the market. The capture cost of CO₂ is also high. Post combustion projects currently only exist in large pilot projects and are expensive.

OG-8: Carbon Capture and Geologic Sequestration away from Known Geologic Traps

This option involves the capture of CO₂ from power plants. Disposal means still must be determined. Extensive infrastructure and resources are required, not just funding.

The TWG does not recommend quantification of this option, as the uncertainties are too great. These include pipeline location and long-term economic issues.

General discussion:

A question was raised about other CO₂ sequestration efforts. Projects putting CO₂ in reservoirs exist in Europe and Africa. Mexico and Kansas are working on partial sequestration with EOR. If Alaska does not work under EOR rules, then sequestration rules will apply. Since these rules have not yet been written, this becomes a long-term option. It would be preferable to let the Feds take the lead on these rules, rather than creating different rules for different jurisdictions/states.

A question was raised about the long term economics about the gas pipeline. The TWG is performing sensitivity testing on gas prices and plans to discuss possible incentives levels. EOR is still the biggest value, but there may not be enough EOR opportunities for all potential CO₂ captured. A price for carbon is required before these would be feasible. Currently, zero is being used as the price for carbon by other TWGs, so for consistency, that value will be used by OG. Other groups have used a value between 10 and 20.

Should ESD address the dropped transmission policy option? No action was taken.

Next Meeting and Closing Remarks

Larry Hartig closed the meeting with thanks to the MAG and TWG members, as well as others who have joined this process and helped to move the project to this near-completion point. All the materials that are and have been developed are very important and will be utilized very soon.

The Climate Change bill is on an aggressive schedule to be through the House by Memorial Day weekend. The Alaska administration is assembling comments on the effects in Alaska.

The next meeting will be held on May 14th at a time to be determined. This meeting will take about 3-4 hours, by web conference or teleconference.

TWGs will work to complete their PODs between now and then.

All PODs will be finalized at the June 18th meeting.