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MEETING SUMMARY

Alaska Climate Change Mitigation Advisory Group

Meeting #7, June 18, 2009

8:30 AM – 5:00 PM

Room 105, Carr Gottstein Building,
Alaska Pacific University, Anchorage, AK

Attendance:

Mitigation Advisory Group Members (MAG):

Larry Hartig, Chair
Steve Colt
Jeff Cook
Brian Davies
Steve Denton
Karen Ellis
David Hite
Kate Lamal

Greg Peters
Jim Pfeiffer
Chris Rose
Sean Skaling
Jamie Spell
Curt Stoner
Kate Troll
Kathie Wasserman

Alaska Department of Environmental Conservation (DEC):

Jackie Poston
Alice Edwards

Sean Lowther
Kolena Momberger

Center for Climate Strategies (CCS):

Brian Rogers, UAF, Co-Facilitator
Ken Colburn, Co-Facilitator
Gloria Flora, Project Coordinator
Katie Pasko, Project Support
Jeff Ang-Olson, TLU TWG
Jeremy Fisher, ESD TWG

Dick LaFever, OG, ESD TWG
Steve Roe, FAW TWG
Jackson Scheiber, FAW TWG
Fran Sussman, OG TWG
Nancy Tosta, CC TWG

Alaska Department of Natural Resources (DNR):

Diane Shellenbaum

Others:

Janice Adair, *Western Climate Initiative*
Janet Bounds, *CVX*
Steve Toth, *Anchorage School District*
Mark Shasby, *USGS*
Denny Lassuy, *NSSI*

Erik O'Brien, *DCRA – Climate Change*
Doug Vincent-Lang, *ADFG*
Andrea Sanders, *AK Conservation Solutions*
Steve Davenport, *East Valley Coal Mine*

Welcome and Meeting Overview

All documents for the meeting are posted on the [website](#).

Brian Rogers opened the meeting with a round of introductions.

Larry Hartig welcomed the group and again thanked them for their continuing efforts. He stated that this has been a very positive and enriching effort, generating conversation and thought. This process has been an important step in the larger Sub-Cabinet efforts.

Ken Colburn reviewed the agenda and goals for the meeting. (Slides 2-4 of ppt) The focus of this meeting is to review the final version of each POD and determine the MAG position of the few outstanding options. The Inventory and Forecast will also be reviewed for final approval.

The major discussion of the meeting should be consideration of a GHG reduction goal. The MAG can recommend a specific target or provide guidance to the Sub-Cabinet.

Colburn reviewed the timeline and status of the planning process for completion of the MAG process. The Final Report will be drafted for review by the MAG at a teleconference to be held in July. A summary chapter for each TWG will be written as part of the Final Report. The Sub-Cabinet, once it receives this report and reports from the other Work Groups, will hold public hearings and solicit opinions from other state agencies.

The recommendation of the MAG will be forwarded to the Sub-Cabinet for review and possible further research. All policies, whether approved or not, will be included in the Final Report, so that the work of the TWGs and the MAG will be available to any parties doing further work in these areas. This is pertinent whether or not these options are approved at the present time, as circumstances can and do change. The work of the MAG and TWGs can provide the basis for necessary further research by many different entities.

Approval of Meeting Summaries

The MAG approved the summaries for Meeting 6 and Meeting 6a, with one correction. Jim Pfeiffer was present at Meeting 6a.

Review and Approve Inventory and Forecast

Ken Colburn presented a brief overview of the GHG Inventory and Forecast. Sector analysis is presented in the charts on slides 9-10.

The **Inventory and Forecast was approved**, without objection, with the following notes and revisions:

- Most recent data available was used for this report. Generally, the data is from 2002-04, but some is more recent.
- Ensure that the aviation fuel reference case includes a qualification that a significant amount of the fuel purchased in Alaska is not used in Alaska airspace. The emissions data includes data for some air flights from origination to destination, including those portions of flights not over Alaska air space. Breaking this data out does not follow standard inventory accepted practices, but Alaska also does not control the flight traffic in its airspace.
- Emissions from the Oil and Gas sector are covered in both the Industrial Fuel and Fossil Fuel Industry sections. The definitions of emissions included in these areas needs to be tightened. Clarify where OG industry emissions are illustrated and address the OG industry fossil fuel combustion data in the Industrial section of the report. Members asked that the

sections be recharacterized and redefined as described. The numbers in the report are not accurate. These will be addressed before the next meeting by Diane, Gloria, Maureen Mullen and others.

- Note that the Fossil Fuels industry emissions are primarily fugitive emissions. Mitigation efforts in this area are treated very differently than generated emissions. Inventory data should be structured to be useful to these efforts.
- On page 10 of the OG section of the report, Table 6 shows that actual GHG reductions are occurring in the OG industry. There has been a decline in production in Prudhoe Bay, but the same volume of gas is being processed. The values attributed to fossil fuels need to be reviewed to ensure appropriate applicability, and perhaps, separated from other data.

These changes will be available for review at the final MAG meeting in July.

Review and Approve Policy Option Documents

Forestry, Agriculture and Waste

See slide 13 for the summary table of data.

Jackson Schreiber briefly presented changes to each option. All three were approved at the last meeting.

FAW-1: Forest Management Strategies for Carbon Sequestration – *Unanimous approval*

- a. Coastal Management Pre-commercial Thinning
- b. Boreal Forest Mechanical Fuels Treatment
- c. Community Wildfire Protection Plans
- d. Boreal Forest Reforestation

FAW-1d was quantified, while the other three, FAW-1a, 1b, 1c were left unquantified.

FAW-2: Expanded Use of Biomass Feedstocks for Energy Production – *Unanimous approval*

- a. Biomass Feedstocks to Offset Heating Oil Use
- b. Biomass Feedstocks to Electricity Use
- c. Biomass Feedstocks to Offset Fossil Transportation Fuels

2a - Biomass Feedstocks to Offset Heating Oil Use - The quantification has been revised to include newly available and better electricity pricing data. This resulted in slightly higher cost effectiveness values.

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

This option was approved at the last meeting and no changes were made to the quantification since that meeting.

NS-6: Develop Capacity in New Forestry and Wood Biomass Opportunities – *Unanimous approval*

This policy option was added to the FAW POD at the request of the Adaptation Group, due to the overlap of forest impact with FAW-1 and 2. This option will not be quantified.

General Discussion:

There was discussion about the use of biomass and the balance of atmospheric carbon. All quantifications are performed using standard definitions and according to international convention, e.g. current carbon in equilibrium in atmosphere. Specific issues in Alaska will be addressed in the Final Report chapters.

Extensive discussion centered about the meaning of the columns on the summary tables. The same format is used for all summary tables to assist in comparison of various proposals and scenarios. Details for each option are in the POD.

The year ranges on columns headers represent annual reductions, not cumulative GHG reductions. The exception is the Total 2010-2025 column, which shows cumulative reductions. In the graphs, the total GHG reduction is shown as the area under the curve.

The summary tables demonstrate the implementation design of the policy option, for example, start with early GHG reductions with the reductions tapering off over time or building a program slowly, usually with infrastructure construction, showing greater GHG reductions in the later dates of the analysis.

Overlap Discussion: There is no overlap with TLU biofuel options, as the TLU options focus on research of biofuels, not generation of fuels. The small level of overlap with ESD-3 has been removed from the ESD reduction values, rather than FAW-2. Approximately 17% of FAW-2a and FAW-2b biofuel levels are used in ESD-3. Since FAW-2a has only a small GHG reduction impact to begin with, this is a small impact on the total reductions.

Oil and Gas Technical Working Group

See slide 16 for the summary table of data. Diane Shellenbaum presented the data and led the discussion using a separate power point.

OG 1 & 2 are focused on conservation efforts.

OG-1: Comprehensive Conservation Practices – *Unanimous approval*

The focus is to reduce overall liquid fuel consumption. Any other conservation practices should also be pursued.

There were no objections to recommending this unquantified option.

OG-2: Reductions in Fugitive Methane Emissions – *Unanimous approval*

The focus of the policy is to reduce methane emission leakage primarily from valves and connections. Both wet and dry seals were investigated.

OG 3 though 6 are focused on energy efficiency efforts.

OG-3: Electrification of Oil and Gas Operations, with Centralized Power Production and Distribution at a centralized gas facility - *Unanimous approval*

This policy analyzes the replacement of the North Slope power generation system with new, high efficiency grid and production facilities. The goal is to reduce as many emissions as possible at the

start. There are a number of significant issues to resolve, such as production losses, permitting, etc. The costs for such retrofits are uncertain, as are the responsible parties.

Most of the current fuel use is attributed to compressors.

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

All upgrades will be increase efficiency at some level. Doing upgrades piece-by-piece would avoid multi-jurisdictional issues.

OG-5: Renewable Energy Sources in Oil and Gas Operations at a Centralized Power Facility - *Unanimous approval*

This option focused on a centralized gas facility at Prudhoe Bay.

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

As described in previous meetings, the focus is to remove carbon from fuel gas before use. This is of benefit to the entire supply chain, not just Alaska.

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 - *Unanimous approval*

The difference between OG-6 and OG-7 is the focus on exhaust gases in OG-7.

OG-8: Carbon Capture and Geologic Sequestration away from Known Geologic Traps - *Not recommended at this time*

There were no objections to dropping this recommendation. While OG-8 is not recommended at this time by the MAG, the information gathered will be included in the final report as source material for any future studies of the issue.

There is a significant overlap between all OG options, which will likely be expensive to implement. Expenses would be shared by industry, government and consumers.

The policy options encompass three main areas: Conservation, Efficiency, and Carbon capture and sequestration. Conservation is the easiest and most effective, as little or no energy is consumed by using less fuel. These areas were outlined at previous meetings and are detailed in the Meeting 6a summary.

The easiest to implement would be centralized electrification of the North Slope to ease conservation efforts. There are significant barriers to implementation.

The OG-7 quantification has been adjusted, due to an error in the emission reductions. Reductions had been calculated without any allowance for capital expenditures. This changed the cost effectiveness values from 157 to 192, but not the conclusions.

The costs demonstrate and support the conclusion that significant GHG reductions can be achieved, with significant costs. This will delay any implementation efforts until cost-effective technology can be developed.

The TWG developed two scenarios for quantification:

Scenario #1 focused on the most feasible conservation efforts, with centralized electric: OG-1, OG-2, OG-3, OG-5 and OG-7. The maximum reductions with centralized electrification result in a Net

Present Value of approximately \$15.3B. Wind energy was added since there would be transmission systems.

The estimated capital required to implement are about the same as the NPV. This scenario is the best case.

These efforts do not save money, but do support societal goals to reduce GHG. There are positive costs to implement these options. However, society has not valued carbon on a dollar basis, nor has the damage to Alaska been likewise valued. Therefore, these significant issues are not included in the quantification.

Note that a positive value for cost-effectiveness is an actual cost, with negative values resulting in net savings. This will be explained in the Final Report.

Scenario #2 is a similar analysis without centralized electrification: OG-1, OG-2, OG-4, OG-5 and OG-7.

GHG reductions are lower under this scenario, as opportunities to reduce GHGs are more limited, but still provides benefits by improving all equipment. This scenario has a \$7.5B NPV.

Once the options are fully implemented, the projected GHG emissions levels parallel the business-as-usual levels. Once the initial GHG savings are realized, additional savings are not seen in future years.

There is great variability in the quantifications due to which options are implemented and at what level. The TWG focused on places where large GHG reductions could be achieved. Industry-wide solutions tend to be expensive, and therefore less cost-effective, in early years. For example, piece-by-piece equipment upgrades may take place for savings, but was not quantified.

Studies and advocacy on a national level must take place to reduce emissions in the Oil and Gas sector. None of the options are ready to implement immediately, and all recommendations include this caveat.

The impacts of major mitigation projects, i.e. billions of dollars of capital investment, on state revenues and private investment must be investigated. The state revenue stream is structured very differently than other states'.

The TWG strongly emphasizes that redundant regulatory efforts must be avoided.

Implementation of major mitigation projects will require a larger, more trained workforce at the state and industry level. The state has to be able to attract and retain such qualified people.

On a federal level, the allocations and allowances will be critical to Alaska's current and future viability. Alaska is a major part of the nation's energy security and must communicate this fact.

Low carbon fields will require large natural gas expenses, to produce. This gas is the re-injected gas as outlined in the PODs.

General Discussion:

Total emissions for the Oil and Gas sector is 12 tons on the North Slope, 15 tons total. The scenarios demonstrate potential savings of greater than 50% of emissions.

The concepts outlined in this POD should be used as a basis for further advocacy at the state and federal levels as well as continued thorough research and discussion. For example, removing carbon from fuel provided to the L48 is a benefit to all of US, not just Alaska. Federal support of the costs would enable Alaska to pursue these goals.

One member stated that value of carbon reduction must be established, such as a coal conversion credit for the carbon saved in converting the plants to natural gas. This would give market value to the natural gas produced in Alaska and elsewhere. Market value makes the construction of a pipeline more economically feasible. Programs such as cap-and-trade will establish the value of carbon.

Alaska needs to ensure that the interests of the state are protected within federal processes, especially because AK is 90% dependent on the oil and gas industry.

The TWG did not assume a value to natural gas, except for a small value in 2020. While the natural gas is not just flared off, there is minimal market value at this time. There is value to the industry, when conservation efforts are employed, but no means of effectively determining the market value of the gas at this time. The TWG did run sensitivity quantifications with a \$2, \$4, and \$6 value assigned to natural gas. These are not included in the report.

Concerns were expressed about the language of over-arching issues included in each OG option. Some MAG members strongly object to the negative tone of this language, but support the ideas as shown in the summary table. For example, US CAP, which includes Shell, Conoco-Phillips and BP as members, have supported the position that there are economic opportunities in climate change initiatives. The cost of inaction is huge, but the comments from the OG TWG are too negative about the obstacles.

All other TWGs handled these types of concerns under Barriers to Feasibility, not a separate section. Their approach was balanced, not just focused on the economic costs. The other TWGs have many of the same economic issues, but did not emphasize them as the OG TWG did. The OG TWG created a separate template, rather than following the model used by the other TWGs.

Other members did not share this view. These barriers exist for many sectors, but were not emphasized so strongly. The state is a large stakeholder in all these issues and must understand the complexities it will face in addressing these issues.

OG TWG members stated that these statements are included in every OG option in case readers of the report are selective and don't read the summaries.

Final Report Notations:

The Final Report should emphasize the total context in the Executive Summary and the Chapter Summary. The authors should focus on the notes under the OG Summary Table. There is a lot of potential for GHG reduction, as well as a lot of barriers to achievement.

The chapter and executive summary should reflect the balance of the 'over-arching considerations' with the need for, and opportunities in, climate change initiatives. The context of these chapters is critical, as most legislators will refer to these pages, not the PODs.

Note that these quantifications are for the North Slope only, not industry-wide in Alaska.

The Final Report should also note the 'zero' value of the natural gas, and the calculations should be revisited when a market value is established.

Verify that the Barriers to Consensus includes a note that some MAG members disagree with the over-arching consideration language.

Note that Cross Cutting recommendations include market based approaches. Alaska must promote and work on this issue or will otherwise be out-voted in Congress. The Alaskan economy is not as diversified as it likely should be, but should not be penalized for being an energy supplier to the rest of the nation.

The Final Report needs to be balanced and not biased. Societal benefits need to be addressed. Include references to the economic opportunities from acting on climate change and the cost of inaction. The cost of carbon and the cost of damage to climate change must be addressed in the context of the discussion. The costs to the industry also must be addressed.

Approval of the MAG indicates that the Sub-Cabinet should review each option, but not necessarily accept each one without additional work. The MAG recommends that the Sub-Cabinet carefully review each option with their own goal in mind. The MAG is not recommending implementing them at this time.

Note that Alaska faces unique challenges in addressing climate change.

The MAG will review the context in the report at the next meeting.

Cross-Cutting

See Cross Cutting PowerPoint under Meeting 7 documents on website.

CC-1: Establish a Greenhouse Gas Reporting Emissions Reporting Program – *Unanimous Approval to place on hold pending federal legislation*

The Mitigation Advisory Group (MAG) has agreed that this effort may be needed, but recommends no action until the status of federal legislation is known. No members want to create a parallel program in Alaska. The reasons for keeping these efforts on hold should be clearly outlined in the report.

CC-2: Establish Goals for State GHG Emission Reductions – *Majority Approval*

The TWG recommends that the state set aspirational goals for GHG reductions. It recommends a stringent goal of 20% from 1990 levels by 2020, and 80% below 1990 levels by 2050. The state should establish a GHG emissions baseline and refine it when reporting requirements are established.

The rationale is:

- AK is a premier energy-provider state and the only Arctic state.
- Alaska is experiencing more and is more aware of the effects of climate change than other states.
- Major industry representatives support the creation of a goal.
- National goals will be established, and Alaska needs to address its place in that discussion.

This is an aspirational goal, not a legislatively mandated target. Ten states have legislated goals, and nine have set aspirational goals.

Goal-Setting Discussion:

Focus on factors within Alaska's control.

A motion was made to: "Direct the Sub-Cabinet to set aspirational goals similar to the recommendations and actions of WCI, the CC TWG and other state and regional goals." Take into account those factors beyond Alaska control, such as aviation issues and military bases. Large projects, such as the gas pipeline, should also be considered. There is no desire to force the closure of military bases or to lose freight traffic, such as that of FedEx.

Another suggestion was made that goals should reflect the political reality of Congressional actions. Alaska should be pro-active, rather than reactive, before Congress in demonstrating that Alaska

faces different issues than the rest of the states and that these issues are also to the benefit of the rest of the country.

Some members disagree with simply recommending that the Sub-Cabinet set a goal, without the MAG also setting a goal.

Alaska has little control over many GHG sources compared to other states. Alaska should wait and see what Congress does. Other states can make a large impact with vehicular goals, where Alaska burns more diesel and aviation fuel than any other state.

The Governor set a goal of 50% renewable energy, which has encouraged environmental groups to support big hydro-electric projects. Alaska has the highest per capita emissions in the nation.

Note the IPCC information and goals in the text of the report, next to the CC TWG goal to demonstrate their relationship. IPCC recommended < 450 ppm levels of CO₂. The recommended goal shouldn't be lower than the IPCC goal.

Six members do not support setting any numerical goal. Alaska should follow the federal goals only. This will be listed under Barriers to Consensus.

Eight members are in favor of the option, with some of those members in favor of the MAG creating a numerical goal itself.

The option is Recommended as presented by the CC TWG with a Majority vote.

CC-3: Identify and Implement State Government Mitigation Actions - *Unanimous approval*

This is the Lead-by-Example option. This is a recommendation to set policies to demonstrate reductions in GHG levels, such as No further discussion at this meeting.

CC-4: Integrate Alaska's Climate Change Action Plan with the Alaska Energy Plan - *Unanimous approval*

The intent is that will be an integrated plan in the next 5-6 years. It makes more sense to address these concerns together rather than to move forward with both somewhat independently.

CC-5: Explore Various Market-Based Emissions Reduction Options - *Unanimous approval*

This is a relatively low cost option in study and review of the various programs, such as cap-and-trade, etc. There is no recommendation that Alaska should participate in any specific program.

No further discussion at this meeting.

CC-6: Coordinate Implementation of Alaska's Efforts to Address Climate Change - *Supermajority approval with two objections*

Reference slides 8-10 of the CC power point.

Many actions are proposed under the recommendations for reducing GHG emissions and for responding to the effects of climate change. An approach to coordinating these actions is needed. An Alaska climate change coordinating "program" will help state agencies support ongoing efforts of the Subcabinet.

One purpose of this program would have the agency be proactive with the federal government.

Two members objected to this policy option. One stated that the objection is based on the fact this would result in the growth of another state entity, with duplicative efforts to entities and agencies already in place. This is a 'feel good' effort that will cost Alaskans significant funds with little benefit. The other proposals will already have high costs. The other agreed with this characterization.

One other member supported this option to provide single-point accountability.

General Discussion:

A member asked how aware the Legislature is regarding climate issues. There are varying levels of awareness. The Sub-Cabinet wants to complete its work in time for the next legislative session.

These numbers are similar to major federal legislation. IPCC recommends an 80% reduction over 1990 by 2050 to hold at 450 ppm, which is not a stabilizing value, but trying to avoid major irreversible damage.

One member objects to the inclusion of USCAP in the text of the document as it is an advocacy group. Another member countered with the concept that this group includes strong representation from the oil and gas industry, and would lend context to the discussion. Referencing IPCC is more compelling as it is a scientific group. *The MAG agreed by consensus to drop reference to USCAP.*

Energy Supply and Demand

Jeremy Fisher and Chris James presented the quantification data.

Reference PowerPoint presentation slides 20-22 for more summary table.

Note that ESD-2, 4, 6 have been merged as one energy efficiency policy option for discussion and quantification.

Each quantified option has several sub-scenarios contributing to the values.

ESD-1: Transmission Expansion – *Unanimous approval, with fuel cost note included*

This was quantified in two parts, as transmission systems in rural areas. ESD-1 is the total of separately quantified ESD-1a and 1b, as a weighted average.

The POD should clearly state that fuel costs were not included in the analysis.

ESD 2-4-6: Energy Efficiency - *Unanimous approval for a 2% efficiency goal.*

Energy Efficiency targets were explained. A 1% goal is defined as achieving annual incremental energy savings equal to 1% of energy sales reduced per year, cumulatively. This will ultimately result in a flat line usage curve for Alaska. The same definition applies to the 2% target. Both of these targets have been adopted by several other states.

The MAG agreed to support a 2% efficiency goal for this option.

ESD-3: Renewable Energy Implementation - *Unanimous approval*

A member asked what is taken into account in the renewable energy (RE) quantification. There are three components to the application of the AEA renewable grants. The grants were reviewed and all seed-funded projects move forward at the proposed pace in the grant application. To reach 50% by 2025, the renewable energy state goal, would require looking at a new dam (an example has been evaluated as proxy for cost and returns). Renewable energy based on transmission system accessibility is too difficult to determine.

A member asked what is included in the base curve. Much of the renewable energy infrastructure is nearing 30-35 years old and ready for replacement. BAU should include these replacement costs on the order of \$10-12M, which will also result in greater efficiencies. If using an EIA factor, compare BAU with what's possible under efficiencies.

The uncertainty with regard to large hydro generation must be included in the Key Uncertainties section.

ESD-5 - Efficiency Improvements for Generators - *Unanimous approval with no quantification*

Review the quantification assumptions based on EIA data versus Alaska specific data. Quantification estimates can be performed with a better understanding of the baseline data. Recent Actions can indicate the differences on the graphs.

A member recommended moving ESD-5 forward to encourage State incentives for efficiency improvements.

ESD -6 – Energy Efficiency for Industrial Applications - *Unanimous approval*

ESD-7 - Implementation of Small Scale Nuclear - *Moved to Research Needs*

ESD- 8 – Research and Development for Cold-Climate Renewable Technologies - *Moved to Research Needs*

ESD-9 – Implementation of Advanced Supply-Side Technologies m- *Moved to Research Needs*

General Discussion:

The state has been encouraging the use of more energy efficient equipment for the past 20 years. These actions by the legislature should be included in the Recent Actions section.

Transportation and Land Use

Reference PowerPoint presentation slides 23-24 for the summary table.

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

No further discussion at this meeting.

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

No further discussion at this meeting.

TLU-3: Transportation System Management - *Unanimous approval*

No further discussion at this meeting.

TLU:-4: Promote Efficient Development Patterns (Smart Growth) - *Unanimous approval*

No further discussion at this meeting.

TLU-5: Alternative Fuels - *Unanimous approval*

No further discussion at this meeting.

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

No further discussion at this meeting.

TLU-7: On-Road Heavy-Duty Vehicle Efficiency- *Unanimous approval*

No further discussion at this meeting.

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

No further discussion at this meeting.

TLU-9: Aviation - *Unanimous approval*

No further discussion at this meeting.

TLU-10: Alternative Fuels R&D - *Unanimous approval*

No further discussion at this meeting.

General Discussion:

It is difficult to reduce GHG emission levels in this sector due to linkage of airline emissions levels with the sales of aviation fuel in Alaska.

There have been no substantial changes to the POD. Rounding corrections in the values are the only changes since the last meeting.

The TLU sector has 35% of the GHG emissions in the state. This value includes aviation emissions largely due to freight at Anchorage airport, Emissions are 'charged' where the fuel is purchased. There is no regulatory authority to limit this traffic. Not selling fuel is not an option either.

Review of GHG Reduction Charts and Graphs

Reference PowerPoint presentation slides 25-27.

Ken Colburn reviewed the various charts prepared to summarize the results of the quantifications of all options. These charts are based on the values prior to this meeting and will be updated for the Final Report.

The MAG agreed that:

- The Bar Chart will be redrawn as a line segment cost-curve.
- The 'Alligator jaws' graph will be retitled "Cumulative 2010-2050 Greenhouse Gas Reduction Potential Alaska Policy Options"
- A second graph will be created that does not include aviation fuel. See TLU sector for detail.
- Similar issues exist for ocean shipping and will be treated in a similar fashion.
- Graphs should focus on inventory items that are controllable by Alaska.

Other Presentations to MAG

Lunch Speaker

Janet Adair, *Western Climate Initiative Co-Chair and Special Assistant to Department of Ecology*

See power point presentation under Meeting 7 documents on website.

Janet Adair presented information about Washington State's approach to climate change. This approach is very much like that proposed in CC-6.

Waxman/Markey is structured much like WCI.

In Washington State, what get measured, gets managed. The state's plan includes many aspects: Cap and trade, mandatory reporting, complementary policies (regulatory standards, voluntary actions, incentive-based policies, public/private technology initiatives), Active citizen stakeholder participation, 15% RPS (not counting hydro), utilities incentivized for energy efficiency (smart meters, weatherization, conservation), stringent building standards, strict LEED standards for public buildings. Expect that the current portfolio of actions will get the state halfway there.

WCI members and observers include: Manitoba, Quebec, Ontario, Montana, Utah, NM, CA, AZ, WA, OR – Observers – Nova Scotia, all 6 Mexico border states (Baja CA, Chihuahua, Coahuila, Nuevo Leon, Sonora, Tamaulipas), Saskatchewan, AK, CO, ID, KA, NV, WY. Many of these members have also joined *The Climate Registry*.

Sustainability in FedEx

Karen Ellis, *Director, Environmental Management, FedEx Express and MAG Member*

Karen Ellis gave a brief presentation about the efforts by FedEx to promote sustainability in every aspect of its business. Shipping, customer packaging and charitable efforts are all structured with this in mind. Safety is another focus of these efforts and is reflected publicly in its charitable efforts.

Work efforts in line with business needs and expertise.

The goals are:

- Aircraft Emission Reductions – 20% by 2020 (3.7% there)
- Vehicles – Improve fuel efficiency 20% by 2020 (already 14% there)
- Utilities Emissions – lease most of facilities (4,000), so have to work with property owners
- Philanthropy as a percentage -
- Renewable Energy –

Five focus areas for sustainability: Emergency Relief, Education, Child Safety, Environmental Sustainability, Orbis (aircraft converted to hospital for mobile eye surgery and medical training), etc.

Efforts to reduce Aviation Fuel consumption, emission, and provide more payload capacity include replacing Boeing 727's with 757's, and retiring 727's in 10 years. The first of four Boeing 777 will be introduced in 2010, 18% improvement in fuel economy with a 20% increase in payload.

Fuel Sense Initiative has resulted in the elimination of 1.5 hours of engine use per flight, saving an average of 1mm gal/month. The on-board auxiliary power unit is being replaced with ground based energy, which also reduces noise by 72%.

Efforts to analyze the packages that are being carried has resulted in many changes in ground travel. The focus is on Reduce, Replace, Revolutionize to optimize ground routes.

Smaller packages are being shipped, mostly electronics. This means that smaller vehicles can be used. Hybrids of same size can save 42% fuel, but using a smaller vehicle can save 80-90%. There is still a cost barrier due to the lack of manufacturers. Electric vehicles are being used overseas and in dense urban areas.

Solar buildings are used where incentives exist, in Germany and California, for example. Installations have included geothermal, lighting, solar, and green building standards which yield reductions of 40% energy and 60% GHG emissions.

Packaging has also been changed. Packaging is provided free to customers, and is now bleach-free, 100% recycled material, recyclable materials. They are printed with non-solvent based ink. The traditional envelope is made with Tyvek and is sent back to DuPont for recycling.

Research Needs Work Group Report Review

Douglas Vincent-Lang, *Chair, Research Needs Work Group*

See Draft Report under Meeting 7 documents on website.

The RNWG asks that all comments on the Draft Report be submitted by the end of June.

The MAG and facilitators are asked to review the Mitigation section in particular to ensure consistency with the Mitigation report.

The recommendations included in the report encompass many areas discussed by the MAG:

- Improve local climate models
- Improve baseline assessments and mapping improved research infrastructure
- Improved data integration and sharing
- Multiple level decision making tools
- Adapt legal and policy framework
- Improve outreach and education

The RNWG reviewed all the proposed policy options and added their own recommendations in addition to the MAG recommendations where they felt necessary.

MAG members are encouraged to read the draft report.

Larry Hartig stated that the one major purpose of creating this group was to get all the researchers talking about the research needs to accomplish the goals. A round-table group meets regularly to discuss research needs at the state and federal levels.

MAG Final Report Schedule

Reference PowerPoint presentation slides 30-31.

Ken Colburn reviewed the content and schedule for completing the Final Report.

The facilitators will write chapter summaries, and the CCS team will complete all remaining documents. The MAG will review all the documents for accuracy and approve it at the final teleconference.

The report is to be delivered to the Sub-Cabinet on or before August 1 (subsequently changed to August 7 because teleconference needed to be scheduled later than anticipated).

The dates presented on slide 31 are suggested only. Firm dates will be determined in the next few weeks.

The purpose of the teleconference is to verify the report for accuracy, not to revisit issues.

The schedule does not allow for more than one review and teleconference, so all members are asked to read the drafts carefully.

The Sub-Cabinet will receive this report from the MAG, as well as the other three research groups, review it and issue its recommendations. This draft will likely be published in November and made available for public comment.

There may be some reiteration and clarification necessary that will require contact with MAG members throughout this process.

Much of the implementation work depends on actions taken by individuals, corporations, etc. not just government.

One member expressed the need for a brief, cogent explanation at the beginning of the report underscoring the dire situation in which Alaska currently finds itself. Several other members agreed.

Next Meeting and Closing Remarks

Larry Hartig closed the meeting with thanks to the MAG and TWG members and the support staff from the state of Alaska, CCS and the University of Alaska. Certificates for all participants and Technical Work Group facilitators signed by Gov. Palin were presented.

This was a very successful process, with good descriptions of current issues and situations and an excellent documentation of potential actions.

Ken thanked all the members of the MAG and DEC for their work on this project.

There were no comments by the public.