



Catalog of Mitigation Options

Cross-Cutting (CC) Issues Technical Working Group

*Draft #2
June 30, 2008*

A catalog of state-level, GHG-reducing actions and policy options based on actions undertaken or considered by Alaska and other states, including regional, state, local and private actions. Options are numbered solely for the convenience in referencing them; numbers do not reflect a ranking or prioritization of the policy options. Options marked with an asterisk (*) have at least partially been considered or undertaken at some level in Alaska. A brief description of these options is available in a companion document.

Key to Preliminary Rankings of Options in the Tables that Follow:

Potential GHG Emission Reductions ^{1/}	Potential Cost or Cost Savings ^{1/2/}
High (H): At least 1.0 million metric tons (MMt) carbon dioxide equivalent (CO ₂ e) per year by 2020 (~2% of current AK emissions)	High (H): \$50 per metric ton CO ₂ e (MtCO ₂ e) or above
Medium (M): From 0.1 to 1.0 MMtCO ₂ e per year by 2020	Medium (M): \$5-50/MtCO ₂ e
Low (L): Less than 0.1 MMtCO ₂ e per year by 2020, or 1 MMtCO ₂ e by 2050	Low (L): Less than \$5/MtCO ₂ e
Uncertain (U): Not able to estimate at this time	Negative (Neg): Net cost savings
	Uncertain (U): Not able to estimate at this time
<p>^{1/} Several options may overlap in terms of emissions reductions and/or cost impacts. Estimates assume options would be implemented independently from other options.</p> <p>^{2/} Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number.</p>	

Definition of “Priorities for Analysis” [these will be assigned by the MAG/TWG as part of this process]:

- **High:** High priority options will be analyzed first.
- **Medium:** Medium priority options will be analyzed next, time and resources permitting.
- **Low:** Low priority options will be analyzed last, time and resources permitting.

~~Red text~~ is deleted text. **Highlighted text** is added text. *Green text* is comments, notes or questions.

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes
CC-1	GHG INVENTORY AND FORECASTING					
1.1	Establish GHG emission inventory function*					- Preliminary draft inventory has been prepared (www.akclimatechange.us/ewebeditpr o/items/O97F17886.pdf) <i>-ADEC has provided several recommendations for future emissions inventory work in "Summary Report of Improvements to the Alaska Greenhouse Gas Emission Inventory"</i> <i>- Having an accurate emissions inventory is necessary to implement other recommendations, such as setting GHG goals or joining a cap-and-trade program</i>
1.2	Establish GHG emission forecasting function*					- Preliminary draft forecast has been prepared (www.akclimatechange.us/ewebeditpr o/items/O97F17886.pdf)
CC-2	GHG REPORTING					

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2.1	Establish or adopt a GHG emissions reporting program					- GHG emissions reporting may be required by future federal legislation: Congress has directed EPA to write a proposed mandatory GHG reporting rule by Sept. 2008, and a final rule by Jun 2009, using EPA’s authority under the Clean Air Act. www.epa.gov/climatechange/emissions/ghgrulemaking.html
2.2	Hire additional staff to run the reporting system, provide training concerning reporting methods to affected entities, conduct compliance & enforcement activities, and verify emission allowances and their trading					- These staff could be added to the ADEC Air Quality Division
CC-3	GHG REGISTRY					
3.1	Establish or participate in a GHG emissions reduction registry					- The Climate Registry will possibly be the repository for GHG emissions data in future EPA regulations, so linking to a program that uses this system may make sense.
3.2	Provide assistance in reporting and registering GHG emissions					
3.3	Recruit members to a GHG registry					
CC-4	STATEWIDE GHG REDUCTION GOALS OR TARGETS					

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4.1	Establish goals or targets for statewide GHG emission reductions					- GHG goals may be required by future federal legislation. (E.g., S. 2191, The Climate Security Act, http://thomas.loc.gov/cgi-bin/bdquery/z?d110:s.02191) proposes declining emissions caps for several GHG sources). <i>- This goal links to having an accurate GHG emissions inventory in order to set an accurate baseline year</i>
4.2	Institute an accountability program to measure and report progress in reducing GHG emissions.					- Purpose is to ensure that overall implementation of the climate plan proceeds toward its targets. - Implementation accountability for individual policy options would be included in policy option straw proposals developed by the TWGs.
CC-5	STATE, LOCAL and TRIBAL GOVERNMENT GHG REDUCTION ACTIVITIES (LEAD-BY-EXAMPLE)					
5.1	Lead by example by establishing goals or targets for reductions in GHG emissions attributable to government owned/operated sources (e.g. public facilities and fleets)					- CC TWG is collecting initial resources, which are posted on the AK Climate Change website (http://www.akclimatechange.us/Cross_Cutting_Issues.cfm) <i>- Statewide goals for emissions reductions should first be established</i>
5.2	Create a multi-agency body to oversee on-going state climate efforts*					- CCSC established through Administrative Order 238 <i>- This body should develop a Climate Change Strategy for Alaska that includes short-, mid- and long-term actions</i>

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5.3	Disaggregate the State's own GHG emissions to the agency level and require annual agency-specific reports on GHG reduction progress					
5.4	Institute an accountability program to measure and report progress in reducing GHG emissions					
5.5	Require inclusion of GHG emissions impacts in Environmental Impacts Assessments and similar environmental studies					- Environmental studies, such as Environmental Assessments (EAs) and Environmental Impact Statements (EISs).
5.6	Require projects funded with State bonding to be climate-neutral					
5.7	Encourage and assist in the development of comprehensive local government planning efforts to reduce greenhouse gas emissions, establish targets, etc.					- Identify state role - How to integrate local land use planning w/ GHG reductions? <i>- This option could include working with municipalities to convert heat and electrical supplies to renewable sources</i>
5.8	Review sources and availability of renewable energy					

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5.9	Establish incentives for state employees that encourage decreased emissions from commuting, such as transit passes, carpooling incentives or telework capabilities					- Several other model activities exist. The CC TWG is collecting resources, which are posted on the AK Climate Change website (http://www.akclimatechange.us/Cross_Cutting_Issues.cfm)
5.10	Use the “Renewable Energy Fund” to convert heat and electrical generators to renewable fuels or to natural gas from North Slope					
CC-6	ADAPTATION AND VULNERABILITY TO CLIMATE CHANGE					
6.1	Assess Alaska’s vulnerability to climate change and adaptation opportunities; Develop a State climate change adaptation plan*					- Being developed through the Adaptation Advisory Group process. - Consider local/regional implementation, and education/outreach activities
CC-7	FINANCIAL POLICIES					
7.1	Institute tax incentives and disincentives for individuals, as well as public and private entities, to encourage GHG reductions or other financial measures, such as revolving loan funds and grants					
7.2	Pursue other market-based programs, including cap-and-trade*					- Alaska is an observer to the Western Climate Initiative.

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7.3	Explore other regional opportunities, both public and private					
7.4	State advocacy of a national market-based system (e.g. national cap-and-trade)					
7.5	Seek and stimulate funding for implementation of MAG recommendations					
7.6	Facilitate the development of an effective carbon credit system					- E.g. Alaska could purchase carbon credits associated with its own activities, function as a purveyor of credits to others, or act as a certification entity of others carbon exchanges.
7.7	Create a Market Advisory Group consisting of experts to provide guidance to the state on the design of market-based compliance programs to manage GHG emissions					- California system is a potential model under its GHG cap law, AB-32. - <i>Objective should include designing a cap-and-trade program to achieve cost-effective emissions reductions, using a systems approach that considers connections across sectors</i>

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7.8	Design and establish a Carbon Trust for Alaska that would create an incentive fund using carbon emission allowance revenues to encourage carbon reductions in sectors inside and outside the cap					- Also supports environmental justice goals, manages the carbon market, and encourages RD&D efforts - Models could include this paper "Central Recommendations: Carbon Trust & Commercialization, http://www.arb.ca.gov/cc/etaac/etaac.htm , the United Kingdom's Carbon Trust, or a Carbon Efficiency Board, as described in the Climate Security Act of 2008
7.9	Establish a regulatory entity to implement a GHG reporting rule or an Alaskan cap-and-trade program					- ADEC Air Quality Division could be this regulatory entity
7.10	Promote clean energy innovation, research & development by balancing the Alaska Permanent Fund with investments in renewable and alternative energy technologies					
CC-8	CLIMATE-RELATED INVESTMENT AND BUSINESS-TO-BUSINESS ENGAGEMENT					
8.1	Create a clearinghouse or other vehicle for entrepreneurs to connect with investors, or otherwise facilitate investment and promote business development opportunities in climate protection					

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8.2	Encourage the creation of a business-oriented organization to share information and strategies, recognize success, and support GHG reduction goals					- E.g. Promote development of a business-oriented entity to help promote and recognize business efforts to reduce GHG emissions, such as a business council for sustainability.
8.3	Implement a state program of voluntary business actions to reduce GHGs					<i>- Is this something that Green Star already does? Would this be redundant?</i>
8.4	Institute a “business incubator” program to attract and support new business development relating to the new energy economy					
8.5	Develop a centralized, state or non-profit, Climate Change grant & loan program for promoting green technologies for expressly reducing GHG emissions					<i>-The Alaska Energy Authority may be the place to house this program because it already administers Alaska’s Renewable Energy Fund</i>
CC-9	DEDICATE GREATER PUBLIC INVESTMENT TO CLIMATE DATA AND ANALYSIS					
9.1	Consider formation of a state climate data and analysis center to develop and provide objective, state-specific information regarding climate data					<i>- It is not clear if this is already occurring, or if this would be a state or federal function since there are several agencies already performing some of these functions (e.g. NOAA’s National Weather Service).</i>
CC-10	GOVERNMENT EDUCATION AND OUTREACH					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes
10.1	Establish an education and outreach committee to educate audiences regarding climate plan policies and to oversee those relating to education; Include state public education and higher education officials					<p><i>- Goal? Does this require a committee? Will it be redundant to other outreach efforts? If there's an outreach coordinator in the Department of Education, could that department implement?</i></p> <p><i>- Each of these outreach suggestions needs a clear communication objective.</i></p>
10.2	Create and maintain one or more “outreach coordinator” positions specifically tasked with climate outreach and coordination among state agencies and outside entities					<p><i>- Each department should have an office or program, or division devoted to climate change to better coordinate this information.</i></p>
10.3	Educate state employees across-the-board, and assign “point persons” to do so on an on-going basis					
10.4	Institute annual Governor’s Awards to recognize climate action of several types/categories					
CC-11	POLICYMAKER EDUCATION AND OUTREACH					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes
11.1	Educate policy makers on MAG policy recommendations, climate change in general, scientific and technological advances, and progress toward state goals through regular briefings in order to promote acceptance and implementation of mitigation and adaptation policies					<i>- Each of these outreach suggestions needs a clear communication objective.</i>
11.2	Provide continuing outreach and assistance to Governor’s office, legislature, and implementing agencies on a regular basis					<i>- Who? Would this be the job of the outreach coordinators?</i>
CC-12	FUTURE GENERATIONS EDUCATION AND OUTREACH					
12.1	Add climate change to public education performance standards for science and social studies; identify (a) gaps in climate change education, and (b) specific curricula to fill any gaps					<i>- Each of these outreach suggestions needs a clear communication objective.</i>
12.2	Organize groups of educators to identify, assemble, and employ climate change curricula appropriate to age groups					

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12.3	Integrate “best practices” into public school design and construction to educate students and parents first-hand in their communities and colleges (i.e., walk the talk).					
12.4	Integrate climate change into core college curricula.					
12.5	Promote research into climate change and solutions at state universities; develop university “Centers of Excellence” on climate issues, new approaches, and technologies*					-Alaska Center for Climate Assessment and Policy at the University of Alaska at Fairbanks was established in 2006
12.6	Work with science centers, zoos, and museums to include a climate science focus appropriate to their core mission.					
12.7	Introduce core competencies on climate change into professional licensing programs (e.g. energy efficient in building design and construction, use of recycled materials, etc)					
CC-13	COMMUNITY LEADERS & COMMUNITY-BASED ORGANIZATIONS EDUCATION AND OUTREACH					

Option No.	GHG Reduction Policy Option	Potential GHG Emissions Reduction	Cost per Ton	Externalities, Feasibility Considerations	Priority for Analysis	Notes
13.1	Educate community planning and zoning officials about climate change, impacts, and opportunities					<p><i>- Identifying opportunities will be of great importance. There's a lot of climate change information out there, and pulling out what's most relevant and what will have the most effect will help the public</i></p> <p><i>- Each of these outreach suggestions needs a clear communication objective.</i></p>
13.2	Identify individual community leaders who are acting effectively on climate change; showcase and share their successes					<p><i>- Sharing success stories is very important so as to show cause and effect. People will need to have tangible things to hang onto. Climate change messages have to be very relevant to day to day lives or they will get lost in the din.</i></p>
13.3	Identify individual community leaders who are not yet acting on climate change and make a special effort to educate and encourage them to act					
13.4	Engage associations and attend their periodic meetings to reach out on climate change, impacts, sector-specific mitigation actions, and adaptation opportunities					
13.5	Identify, assist, and leverage community-based organizations that have expertise or interest in climate-related issues					

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13.6	Work with community-based organizations to identify and build upon climate issues related to their core mission					
13.7	Develop and coordinate a network of community-based organizations acting on climate change so they can link up, organize, and conduct joint events					
13.8	Support and facilitate outreach and education within community-based organizations regarding climate change issues and actions					
13.9	Develop and provide concrete information on co-benefits to entities to use in boosting their climate efforts					
13.10	Organize and host events that focus on leading by example, sharing “how-to,” illuminating financial risks and opportunities, co-benefits, etc.					
13.11	Encourage municipal leaders to join ICLEI’s Cities for Climate Protection program and/or the Mayors’ Climate Protection Agreement (www.seattle.gov/mayor/climate)					

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CC-14	GENERAL PUBLIC EDUCATION AND OUTREACH					
14.1	Educate broadcasters, reporters, editorial boards, etc. about climate change, the risks it imposes, and solutions					<i>- Each of these outreach suggestions needs a clear communication objective.</i>
14.2	Work with state broadcasters and print media associations to develop and run climate change public service announcements					
14.3	Conduct public polling to benchmark strength and depth of climate understanding					<i>- Knowing the level of public knowledge and opinion about climate change is the best place to start so that we can better direct and tailor our messages. Highest priority.</i>
14.4	Keep a high profile on climate change issues and actions through regular public mention by Governor and other public leaders					<i>- The Governor's office is now working on a fact sheet report on the Sub-Cabinet for dissemination. The challenge here is that the polar bear is linked in the public's mind with the climate change issue.</i>
14.5	Develop and use a state-based "brand" on climate awareness and action					<i>- It will be helpful considering the public is inundated with information to know where the message is coming from.</i>

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14.6	Develop & maintain a state climate change website for the public, including a clearinghouse of climate change information and resources					<p>- CC TWG is collecting initial resources, which are posted on the AK Climate Change website (http://www.akclimatechange.us/Cross-Cutting_Issues.cfm)</p> <p>- <i>I think we need a "public" link here to help people find what's most relevant to their day to day lives, such as energy saving ideas. There's a lot of information on this site to wade through, as it serves as a resource for the subcabinet as well as a general source of information. We need to identify what's useful and pertinent to the public.</i></p>
14.7	Work with existing company outreach efforts to customers to enhance awareness of climate change issues and opportunities					<p>- <i>This would help focus the message to specific interest groups.</i></p>
14.8	Work to educate consumers – and home designers, builders, and contractors – to ensure that they are aware of the different choices they have for space heating and cooling (e.g., evaporative vs. refrigerative) and the impacts of those choices					<p>- <i>These are tangible things that people can do to make a difference and that can be tied to economic savings as well.</i></p>

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14.9	Develop a statewide voluntary program to structure and assist individuals in undertaking actions to reduce GHG emissions					<i>- This will take some doing and may be difficult to implement and manage.</i>
14.10	Develop a state of the environment report that can be used to help educate various interest groups to include climate change information.					<i>- This would put the issue into context with other environmental initiatives. I understand there may be funding available for such a report and it is something that is done on a regular basis in other states. DEC would normally produce such a report; however, I'm not sure that funding or staff is available to do so.</i>
CC-15	SECTOR-SPECIFIC EDUCATION AND OUTREACH					
15.1	Develop education and outreach to support implementation of sector-specific MAG recommendations					<i>-Each of these outreach suggestions needs a clear communication objective - Should be done recognizing that the means is as important as the message. - The poll should ask how people get their information on climate change? -Delivery will be key.</i>