



DRAFT Catalog of Mitigation Options

Cross-Cutting (CC) Issues Technical Working Group

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 |
| ^{1/} Several options may overlap in terms of emissions reductions and/or cost impacts. Estimates assume options would be implemented independently from other options. ^{2/} Costs are denoted by a positive number. Cost savings (i.e., “negative costs”) are denoted by a negative number. | |

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.

| 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* | | | | | <ul style="list-style-type: none"> - Preliminary draft inventory has been prepared (posted on the CC TWG website) - ADEC recommendations for future emissions inventory work in the “Summary Report of Improvements to the Alaska GHG Emissions Inventory” (posted on the CC TWG website) - ADEC will soon post comments received on the inventory - Having an accurate and specific emissions inventory is necessary to implement other recommendations, such as setting GHG goals or joining a cap-and-trade program, but refinements and improvements to the inventory should not delay development of mitigation strategies. - Questions for the MAG: What is the process for refining the inventory? What baseline should the TWGs use? |
| 1.2 | Establish GHG emission forecasting function* | | | | | <ul style="list-style-type: none"> - Preliminary draft forecast has been prepared (www.akclimatechange.us/ewebeditpr/o/items/O97F17886.pdf) - UAF SNAP (Scenarios Network for Alaska Planning) work might be relevant. |
| 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, energy efficiency and/or renewable energy generation/consumption. | | | | | <ul style="list-style-type: none"> - 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). - This goal links to having an accurate GHG emissions inventory in order to set an accurate baseline year |
| 4.2 | Institute an accountability program to measure and report progress in reducing GHG emissions. | | | | | <ul style="list-style-type: none"> - 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. |
| 4.3 | Coordinate with the State Energy Plan being developed by the Alaska Energy Authority. | | | | | |
| 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) | | | | | <ul style="list-style-type: none"> - CC TWG is collecting initial resources, which are posted on the AK Climate Change website (http://www.akclimatechange.us/Cross_Cutting_Issues.cfm) - Statewide goals for emissions reductions should first be established |

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| 5.2 | Create a multi-agency body to oversee on-going state climate efforts* | | | | | - CCSC established through Administrative Order 238 - This body should develop a Climate Change Strategy for Alaska that includes short-, mid- and long-term actions |
| 5.3 | Disaggregate the State's own GHG emissions to the state-office building level and require annual building reports on GHG reduction progress | | | | | - Refer to examples from city-level experience in Homer and Juneau. |
| 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? - This option could include working with municipalities to convert heat and electrical supplies to renewable sources |
| 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, flexible schedules and/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 | | | | | |
| 5.11 | Lead by example by establishing energy efficiency standards and conservation practices for government owned/operated entities | | | | | |
| 5.12 | Lead by example by establishing goals or targets for renewable energy generation capacity and/or use by government owned/operated entities | | | | | |
| 5.13 | Document lessons learned from Juneau’s experience in reducing energy consumption | | | | | - Has both a government lead by example and public outreach component - Developing a “feedback loop” for employees is important (e.g. posting building energy use data prominently) - Potential to replicate this in other cities, and state office-building level |

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| 5.14 | Develop a list of early-actions the State can implement | | | | | - Potential to develop this into a State “lead by example” strategic plan laying out early actions as well as potential mid and long- term actions that could be taken across all agencies (this would pull together options detailed in this section as well as others (e.g. including incentives for state agencies to weigh consequences of equipment purchase options) |
| 5.15 | Create One Stop shopping for State programs and information on energy efficiency, rebates, tax incentives, etc. | | | | | - See recommendations for consolidation in the March 2008 “Alaska Energy Efficiency Program and Policy Recommendations” - Refer to the Oregon Energy Trust as a model |
| 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 - Consider implications of abrupt climate change |
| 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 | | | | | |

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| 7.2 | Pursue other market-based programs, including cap-and-trade* | | | | | - Alaska is an observer to the Western Climate Initiative. |
| 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. - Objective should include designing a cap-and-trade program to achieve cost-effective emissions reductions, using a systems approach that considers connections across sectors |
| 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 |

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| 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 | | | | | |
| 7.11 | Request a review of the investment strategies used by the Alaska Permanent Fund in light of climate change | | | | | |
| 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 | | | | | |
| 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. |

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| 8.3 | Implement a state program of voluntary business actions to reduce GHGs | | | | | - Green Star offers a voluntary green business certification program based on a series of standards focusing primarily on activities at Anchorage businesses, with some work with North Slope facilities and a small number of other businesses around the state that request assistance. Chapters exist in Kenai and Fairbanks but these are not active in the same programs that the Anchorage Green Star office offers. With resources, Green Star could expand to service the entire state, providing technical assistance to businesses in ways to reduce GHGs. |
| 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, Energy Trust grant & loan program for promoting green technologies and energy efficiency | | | | | -The Alaska Energy Authority may be the place to house this program because it already administers Alaska’s Renewable Energy Fund - Potential to model this on the Oregon Energy Trust [link with 5.15, above] |
| CC-9 | DEDICATE GREATER PUBLIC INVESTMENT TO CLIMATE DATA AND ANALYSIS | | | | | |

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| 9.1 | Consider formation of a state climate data and analysis center to develop and provide objective, state-specific information regarding climate data | | | | | <ul style="list-style-type: none"> - 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). - Quality information is important for informing both mitigation and adaptation activities |
| CC-10 | <p>EDUCATION AND OUTREACH</p> <p><i>Note –The CC TWG will continue to aggregate the education and outreach options in the next phase of work (e.g. development of a climate change communications strategy) to allow for an efficient, effective and comprehensive approach (including identifying the target audience and communication vehicle). Outreach suggestions will have clearly identified and articulated communication objectives.</i></p> | | | | | |
| 10.1 | Conduct public polling to benchmark strength and depth of climate understanding | | | | | <ul style="list-style-type: none"> - Understanding the level of public knowledge and opinion about climate change is an important starting place for directing and tailoring messages. |
| 10.2 | Develop and use a state-based “brand” on climate awareness and action | | | | | <ul style="list-style-type: none"> - It will be helpful considering the public is inundated with information to know where the message is coming from. |
| 10.3 | Keep a high profile on climate change issues and actions through regular public mention by Governor and other public leaders | | | | | <ul style="list-style-type: none"> - Possibilities include instituting annual Governor’s Awards, and ongoing Governor public service announcements, to recognize climate action of several types/categories to recognize individual, private and public agency efforts - The Governor's office is now working on a fact sheet report on the Sub-Cabinet for dissemination. |

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| 10.4 | Develop a state of the environment report that can be used to help educate various interest groups to include climate change information. | | | | | <ul style="list-style-type: none"> - This would put the issue into context with other environmental initiatives. These reports are done on a regular basis on other states. - ADEC could potentially produce such a report - Funding and/or staffing requirements should be assessed. |
| 10.5 | Develop & maintain a state climate change website for the public, including a clearinghouse of climate change information and resources | | | | | <ul style="list-style-type: none"> - CC TWG is collecting initial resources, which are posted on the AK Climate Change website (http://www.akclimatechange.us/Cross_Cutting_Issues.cfm) - Include a "public" link to help people find what's most relevant to their day to day lives, such as energy saving ideas (see 10.8). Identify what's useful and pertinent to the public. - Potential link to 5.15 "One Stop" |
| 10.6 | Develop education and outreach to support implementation of sector-specific MAG recommendations | | | | | <ul style="list-style-type: none"> - Should be done recognizing that the means is as important as the message. - The poll (10.1) should ask how people get their information on climate change -Delivery will be key. |

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| 10.7 | Establish an education and outreach committee and/or “outreach coordinator” to conduct outreach and coordination, and educate audiences regarding climate plan policies and to oversee those relating to education; Include state agencies, state public education, higher education officials and outside entities. | | | | | <ul style="list-style-type: none"> - Ensure that this is not redundant/ is coordinated with other efforts (e.g. Department of Education outreach efforts). - Each department should have an office or program, or division devoted to climate change to better coordinate climate change information. |
| 10.8 | 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 | | | | | <ul style="list-style-type: none"> - These are tangible things that people can do to make a difference and that can be tied to economic savings as well. - This could be one objective of the state climate change website (10.5) and outreach committee/coordinator (10.7) |
| 10.9 | Provide continuing outreach and assistance to Governor’s office, legislature, and implementing agencies on a regular basis | | | | | <ul style="list-style-type: none"> -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 -This might be the job of the outreach committee/ coordinator (10.7) |

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| 10.10 | Educate broadcasters, reporters, editorial boards, etc. about climate change, the risks it imposes, and solutions, and work with state broadcasters and print media associations to develop and run climate change public service announcements | | | | | -This might be the job of the outreach committee/ coordinator (10.7) |
| 10.11 | Organize groups of educators to identify, assemble, and employ climate change curricula appropriate to age groups | | | | | -Coordinate with other efforts, both public, private and non-profit (e.g. Department of Education, science centers, zoos, museums) - 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 |
| 10.12 | Integrate climate change into core college curricula, and 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 |
| 10.13 | 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). | | | | | |

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| 10.14 | Introduce core competencies on climate change into professional licensing programs (e.g. energy efficient in building design and construction, use of recycled materials, etc) | | | | | |
| 10.15 | Engage associations and attend their periodic meetings to reach out on climate change, impacts, sector-specific mitigation actions, and adaptation opportunities | | | | | - Organize and host events that focus on leading by example, sharing “how-to,” illuminating financial risks and opportunities, co-benefits, etc. |
| 10.16 | Work with existing company outreach efforts to customers to enhance awareness of climate change issues and opportunities | | | | | - This would help focus the message to specific interest groups. - This might be the job of the outreach committee/coordinator (10.7) |
| 10.17 | Educate community planning and zoning officials about climate change, impacts, and opportunities | | | | | - Identify what is most relevant and what will have the most effect. |
| 10.18 | Identify individual community leaders who are acting effectively on climate change; showcase and share their successes | | | | | - Sharing success stories is very important in order to show cause and effect and be tangible to the public. Climate change messages need to be very relevant to day to day lives, or they will get lost. - Can also identify individual community leaders who are not yet acting, and make a special effort to educate and encourage them to act. - Develop and provide concrete information on co-benefits to entities to use in boosting their climate efforts - Potential links to 10.3, 10.5 and 10.7 |

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| 10.19 | Develop and coordinate a network of community-based organizations acting on climate change so they can link up, organize, and conduct joint events | | | | | <ul style="list-style-type: none"> - Work with community-based organizations to identify and build upon climate issues related to their core mission - Identify, assist, and leverage community-based organizations that have expertise or interest in climate-related issues - Support and facilitate outreach and education within community-based organizations regarding climate change issues and actions |
| 10.20 | Encourage municipal leaders to join ICLEI's Cities for Climate Protection program and/or the Mayors' Climate Protection Agreement(www.seattle.gov/mayor/climate) | | | | | |
| 10.21 | Develop a statewide voluntary program to structure and assist individuals in undertaking actions to reduce GHG emissions | | | | | - This will take some doing and may be difficult to implement and manage. |