

# Appendix F

## Cross-Cutting Issues

### Policy Recommendations

#### Summary List of Alaska Climate Change Mitigation Policy Recommendations

Policy No.	Policy Recommendation	GHG Reductions (MMtCO <sub>2</sub> e)				Net Present Value 2010–2025 (Million 2005\$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Level of Support
		2015	2020	2025	Total 2015–2025			
CC-1	Establish an Alaska Greenhouse Gas Emission Reporting Program	<i>Not Quantified</i>						Unanimous, but on hold
CC-2	Establish Goals for Statewide GHG Emission Reduction	<i>Not Quantified</i>						Majority
CC-3	Identify and Implement State Government Mitigation Actions	<i>Not Quantified</i>						Unanimous
CC-4	Integrate Alaska's Climate Change Mitigation Strategy With the Alaska Energy Plan	<i>Not Quantified</i>						Unanimous
CC-5	Explore Various Market-Based Systems to Manage GHG Emissions	<i>Not Quantified</i>						Unanimous
CC-6	Coordinate Implementation of Alaska's Efforts to Address Climate Change	<i>Not Quantified</i>						Super-majority

GHG = greenhouse gas; MMtCO<sub>2</sub>e = million metric tons of carbon dioxide equivalent; \$/tCO<sub>2</sub>e = dollars per metric ton of carbon dioxide equivalent.

## CC-1. Establish an Alaska Greenhouse Gas Emissions Reporting Program

*The following policy is not being recommended to the Sub-Cabinet at this time. On March 10, 2009, the U.S. Environmental Protection Agency (EPA) released a draft greenhouse gas (GHG) reporting rule that would require mandatory reporting of GHG emissions from large sources (those emitting at least 25,000 metric tons of carbon dioxide equivalent [tCO<sub>2</sub>e]). Based on action at the federal level, the policy will need to be re-examined in light of requirements that may be established for state reporting.*

### Policy Description

This climate change mitigation policy describes the basic legislative, fiscal, administrative, reporting, and database elements necessary to establish and support an Alaska GHG Reporting Program. The program will be responsible for establishing and administering Alaska's mandatory and voluntary GHG emissions reporting program. It will collect, verify, and analyze GHG emissions data to establish a baseline of anthropogenic (human-caused) GHG emissions for Alaska, and identify the types and magnitude of anthropogenic GHG emission sources in Alaska and their relative contributions. These data will be used to inform state leaders and the public on statewide GHG emission trends, identify opportunities for reducing GHG emissions, and enable the assessment of Alaska's climate change mitigation efforts over time. Pending the approval of the Climate Change Sub-Cabinet, implementation of this policy would also require legislative and executive branch (including departmental) approval. The development of this program would be in conjunction with, but not duplicative of, any federally mandated climate change or GHG reporting legislation or regulations.

### Policy Design

#### Goals:

- Establish a GHG Reporting Program for Alaska that ensures publicly accessible, accurate, verifiable, and transparent reporting of GHG emissions data using well-documented mandatory and voluntary GHG emissions reporting and verification procedures.
- Develop an "energy database" for Alaska that will track commercial, residential, industrial, and transportation energy consumption, GHG emissions, and climate change mitigation actions throughout the state.
- Develop and publish the Alaska GHG Inventory and Forecast (I&F) every 3 years. Use this information to communicate the results of climate change mitigation efforts, and to modify Alaska's climate change mitigation strategy as needed.

To establish an Alaska GHG Reporting Program, the state will have to establish new climate change statutes and regulations, as well as allocate funds for the personnel and infrastructure required to administer the program. The following sections describe some of the legislative, fiscal, administrative, reporting, and database elements that are essential for establishing and administering this program.

**Legislative & Fiscal Requirements:** The State of Alaska and the Climate Change Sub-Cabinet will have to decide on a legislative pathway and the level of funding necessary for establishing and administering Alaska's GHG Reporting Program. Does the state wish to wait for federal climate change legislation or develop Alaska-specific climate change legislation ahead of any federal initiative? It is anticipated that a national, economy-wide, carbon cap-and-trade or tax program will be promulgated by federal law in the near future. Congress may decide to draft new federal climate change legislation outside of the Clean Air Act (CAA) to allow EPA to promulgate GHG mandatory reporting regulations and a carbon cap-and-trade program (e.g., Climate Security Act of 2008<sup>1</sup>).<sup>2</sup> In the event of new federal climate change legislation, Alaska may need to prepare a climate change bill with a fiscal note, new statutes and regulations, and a fee study. This will be a multi-year (2–5 year) legislative process.

If Alaska decides to proceed with climate change legislation, it could be modeled after California's Global Warming Solutions Act of 2006<sup>3</sup> and Oregon's Climate Integration Act of 2007.<sup>4</sup> The Global Warming Solutions Act authorized the California Air Resources Board (CARB) to establish a mandatory GHG reporting regulation<sup>5</sup> and funding to establish CARB's mandatory GHG reporting program. This legislation also authorized CARB to establish California's 1990 GHG emissions baseline and a publicly approved 2020 GHG emissions cap.<sup>6</sup> Oregon's Climate Change Integration Act,<sup>4</sup> which relates to an emergency, established Oregon's GHG reduction goals in statute (e.g., by 2020 reduce GHG levels to 10% below 1990 levels), and provided funding for establishing Oregon's mandatory GHG reporting rule.<sup>7</sup> The Oregon Department of Environmental Quality's 2008 legislative package requested more than \$900,000 for 10 positions to establish a new GHG Reporting Program within its Division of Air Quality.<sup>8</sup> These positions will be dedicated to administering Oregon's GHG reporting rule, developing and implementing a cap-and-trade program, entering and verifying data, and identifying GHG mitigation opportunities.

<sup>1</sup> U.S. Senate, "Lieberman-Warner Climate Security Act of 2008," S.3036, 110<sup>th</sup> Congress, 2<sup>nd</sup> Session, May 21, 2008. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>.

<sup>2</sup> On March 10, 2009, U.S. EPA released a draft GHG emission reporting rule. Available at: <http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>.

<sup>3</sup> State of California, "California Global Warming Solutions Act of 2006," Assembly Bill 32. Available at: <http://cliamtchange.ca.gov/publications/legislation.html>.

<sup>4</sup> State of Oregon, House Bill (HB) 3543, "Climate Change Integration Act of 2007," 74<sup>th</sup> Oregon Legislative Session, June 2007. Available at: <http://www.leg.state.or.us/07orlaws/sess0900.dir/0907.htm>.

<sup>5</sup> California Air Resources Board, "Regulation for the Mandatory Reporting of Greenhouse Gas Emissions," in Title 17 of California's Code of Regulations. Available at: <http://www.arb.ca.gov/regact/2007/ghg2007/frogghg.pdf>.

<sup>6</sup> California Air Resources Board, *California 1990 Greenhouse Gas Emission Level and 2020 Emission Limit*, Staff Report, publicly released November 16, 2007. Available at: <http://www.arb.ca.gov/cc/inventory/1990level/1990level.htm>.

<sup>7</sup> Oregon Department of Environmental Quality, "GHG Reporting Rule," Oregon Administrative Rule 340-215-0010. Available at: <http://www.deq.state.or.us/aq/climate/docs/FinalGHGRule.pdf>.

<sup>8</sup> Scott Sloane, Alaska Department of Environmental Conservation, personal communication with Margaret Oliphant, Oregon Department of Environmental Quality, August 19, 2008.

**Administrative Requirements:** The Alaska Department of Environmental Conservation (DEC) Division of Air Quality's Air Permitting Program currently administers CAA Title V and Title I air discharge permits, conducts air pollution emission inventories using its AIRTOOLS database, and reports these data electronically to EPA. One option for Alaska's future GHG Reporting Program would have that program work closely with DEC's Air Permitting Program because of the need to track GHG emissions as well as cap-and-trade allowances for large permitted industries. Therefore, the design of this policy assumes that at least a portion of Alaska's future GHG Reporting Program be hosted by DEC because most of the necessary permitting, database, and reporting tools for administering the program are already in place. Other state agencies will also play a role in Alaska's GHG Reporting Program. The Alaska Energy Authority (AEA) developed Alaska's Energy Plan, released in January 2009.<sup>9</sup> As this plan is enacted, close coordination between AEA and DEC will be necessary to track energy consumption and climate change mitigation efforts throughout Alaska. The University of Alaska (UA) will also play a large role in climate change mitigation and adaptation research and implementation. Alaska's GHG Reporting Program could eventually be composed of several state agencies with different functions.

To administer a mandatory GHG reporting and carbon cap-and-trade program, the state will need to have sufficient administrative resources to ensure that all GHG emissions reporting occurs on schedule, that these data are audited each year (both centrally and through targeted site audits), and that the public can access emissions data on the Internet.<sup>10</sup> Under a future cap-and-trade program, "accurate measurement and reporting of all GHG emissions will be necessary to assure accountability, establish the integrity of allowances, and sustain confidence in the market. The regulatory agency responsible for the program must track emissions to ensure that (1) emissions match allowances at particular sources and (2) overall emissions match overall allowances."<sup>11</sup> The state will also be responsible for providing certainty through well-recognized civil and criminal penalties.<sup>12</sup>

Alaska's future GHG Reporting Program staff would be tasked to:

- Develop and draft statutes, regulations, fiscal notes, fee studies, position papers, guidance documents, policies, procedures, and standards as necessary to establish and implement federal and state climate change legislation.
- Develop and draft GHG emission reporting and verification protocols, procedures, methods, forms, and reporting guidance documents for regulated industries in Alaska.
- Develop and draft GHG mitigation and reduction goals, priorities, inventories, schedules, and performance measures related to mitigating climate change in Alaska.

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<sup>9</sup> Alaska Energy Authority. *Alaska Energy Report*. January 2009. Available at: <http://www.aidea.org/AEA/PDF%20files/AK%20Energy%20Final.pdf>

<sup>10</sup> "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California." Recommendations of the Market Advisory Committee to the California Air Resources Board, June 30, 2007. Available at: [http://climatechange.ca.gov/market\\_advisory\\_committee/index.html](http://climatechange.ca.gov/market_advisory_committee/index.html).

<sup>11</sup> Ibid.

<sup>12</sup> Ibid.

- Establish Alaska’s GHG emissions baseline and compare it to Alaska’s GHG mitigation goals.
- Conduct and publish Alaska’s GHG emission inventory every 3 years.
- Allocate and track carbon emission allowances for facilities permitted under a future federal cap-and-trade program.
- Provide information on climate change mitigation technology and regulatory guidance to industry and the public.
- Coordinate the Sub-Cabinet’s climate change mitigation policy efforts with Alaska’s Energy Plan, the Alaska Municipal League, industry, the Western Climate Initiative (WCI), and others.
- Conduct compliance and enforcement activities.

**GHG Reporting & Verification Requirements:** Once its GHG Reporting Program is in place, Alaska may then establish a standard protocol for mandatory and voluntary GHG emissions reporting and verification. The state would be primarily responsible for developing these written protocols with assistance from private contractors.

All of the necessary reporting and verification procedures can be obtained from other state and regional GHG reporting rules and initiatives. The California Climate Action Registry’s *General Reporting Protocol*<sup>13</sup> and The Climate Registry’s (TCR’s) *General Reporting Protocol*<sup>14</sup> are good templates for Alaska’s GHG reporting program. Both of these protocols use an online reporting database that provides transparent, consistent, written reporting procedures for industry, as well as third-party verified data for public consumption. It is likely that EPA’s future GHG mandatory reporting protocol will be similar to TCR’s *General Reporting Protocol*. TCR hosts a national climate database. It is anticipated that, under a future national cap-and-trade program, states will be responsible for reporting these data to a centralized national database, such as TCR’s. Most western states are also members of WCI, which is currently developing its *Essential Requirements of Mandatory Reporting for the Western Climate Initiative*.<sup>15</sup> Alaska could choose to join TCR and WCI now to gain familiarity with their reporting and verification procedures and to allow for a more efficient transition of data reporting once a federal GHG reporting rule is promulgated. Essential reporting requirements for Alaska’s future GHG reporting program may include (but are not limited to) the following:

- *GHG Pollutants*—The following GHGs would be included: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. Other newly described GHGs, like nitrogen trifluoride, may also be included under Alaska’s mandatory GHG reporting rule.

<sup>13</sup> California Climate Action Registry, *General Reporting Protocol*, Version 3.0, April 2008. Available at: <http://www.climateregistry.org>.

<sup>14</sup> The Climate Registry, *General Reporting Protocol*, Version 1.1, May 2008. Available at: <http://www.theclimateregistry.org>.

<sup>15</sup> Western Climate Initiative, *Essential Requirements of Mandatory Reporting for the Western Climate Initiative*, second draft dated September 30, 2008. Available at: <http://www.westernclimateinitiative.org/>.

- *Emission Source Categories*—These categories include electricity generation; industrial processes, such as oil and gas process emissions (including vented, flared, fugitive, and accidental emissions); and commercial, industrial, residential, and transportation fuel combustion above the reporting threshold. An Alaska GHG Reporting Program would include industries in Alaska with a Title V permit, but could also include mobile sources, such as marine and aviation fleets, and other transportation sources above the reporting threshold.
- *Reporting Thresholds*—Alaska’s GHG reporting threshold will have to be as stringent as any future federal reporting requirement. The Climate Security Act of 2008<sup>16</sup> captured GHG sources emitting >10,000 tCO<sub>2</sub>e per year (yr) of GHGs, California’s mandatory GHG reporting rule captures sources that emit ≥25,000 CO<sub>2</sub>e/yr,<sup>17</sup> and Oregon’s proposed mandatory GHG reporting program captures sources that emit ≥2,500 tCO<sub>2</sub>e/yr.<sup>18</sup>
- *Point of Regulation*—For industrial facilities, the point of regulation is the point of emission. For electricity sources in Alaska, the point of regulation would also be the point of emission, since electricity is not currently distributed or sold out of state. For transportation sources, the point of regulation could be the point at which fuels enter commerce at the terminal rack, final blender, or distributor.

**Database Requirements:** It is recommended that Alaska develop a statewide "Energy Database" that will enable it to record and monitor the following:

- Residential, commercial, industrial, and transportation fossil fuel energy consumption and production;
- Alternative energy consumption and production;
- Mandatory and voluntary reporting of energy-related GHG emissions;
- GHG emission reductions due to energy-related climate change mitigation actions; and
- Carbon emission allowances and their monetary value under a future cap-and-trade program.

To track Alaska’s energy-related GHG emissions and their abatement, it will be necessary to establish an Energy Database that will monitor statewide residential, commercial, industrial, and transportation fossil fuel energy consumption and production in energy units. The common energy unit used in international reports of GHG emissions is the joule or terajoule (TJ), which is equal to 10<sup>12</sup> joules, while the customary U.S. energy unit is the British thermal unit (Btu). Electric utilities often report their emissions per kilowatt-hour (kWh) or megawatt-hour (MWh), which are interchangeable with TJ and Btu. Knowing both the higher heating values of various fuels (e.g., million [MM] Btu per cubic foot of natural gas) and their carbon content (e.g., teragrams [Tg] of carbon per Btu) allows us to convert a facility’s or fleet’s energy consumption

<sup>16</sup> See Section 4 in U.S. Senate, “Lieberman-Warner Climate Security Act of 2008,” S.3036, 110<sup>th</sup> Congress, 2<sup>nd</sup> Session, May 21, 2008. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>.

<sup>17</sup> California Air Resources Board, *Regulation for the Mandatory Reporting of Greenhouse Gas Emissions*, in Title 17 of California’s Code of Regulations. Available at: <http://www.arb.ca.gov/regact/2007/ghg2007/froghg.pdf>.

<sup>18</sup> Oregon Department of Environmental Quality, *GHG Reporting Rule*, Oregon Administrative Rule 340-215-0010. Available at: <http://www.deq.state.or.us/aq/climate/docs/FinalGHGRule.pdf>.



(Btu, TJ, kWh) to GHG emissions in Tg (1 Tg = 10<sup>12</sup> grams) of carbon, or million metric tons of CO<sub>2</sub> equivalents (MMtCO<sub>2</sub>e).<sup>19</sup> Alaska's Energy Database should be able to record and monitor facility- and fleet-specific energy consumption and production in the form of TJ, Btu, kWh, calories, or other energy unit and easily convert these to GHG emissions in Tg of carbon or MMtCO<sub>2</sub>e.

In addition to tracking energy (Btu, kWh, TJ), this new or modified database may also have to issue and track carbon emission allowances and have banking capabilities. Carbon emissions or energy units will have a monetary value under a future federal carbon cap-and-trade or tax program. It is anticipated that large industries in Alaska will be regulated as "capped sources" in the near future.<sup>20</sup> These large industries are already permitted by DEC's Air Permitting Program through their Title V permit, and are required to report their stack emissions and fuel consumption data. DEC's AIRTOOLS database currently tracks emissions from these large industries and periodically transmits these data electronically to EPA. AIRTOOLS could be enhanced and used for tracking and reporting GHG emissions under a future mandatory GHG reporting rule and cap-and-trade program. However, this database is currently insufficient to monitor statewide energy consumption and production, carbon emission allowances, and potentially the flow of money. The state agency eventually responsible for issuing and tracking carbon allowances may need access to and familiarity with a well-secured, state-insured banking database. Preferably, this database would serve multiple functions and have the statewide capability to accurately and securely monitor the following:

Energy ↔ GHG Emissions ↔ U.S. Currency  
[Btu, kWh, TJ] ↔ [Tg of carbon or MMtCO<sub>2</sub>e] ↔ [\$\$\$]

It will also be important for Alaska to track and mitigate GHG emissions from residential, commercial, light industrial, and transportation sources that are not included under a future cap-and-trade program (uncapped sources). The Center for Climate Strategy's *Alaska GHG Inventory & Reference Case Projections, 1990–2020*<sup>21</sup> estimated that transportation sources in Alaska accounted for approximately 35% of the gross GHG emissions in 2000, while residential and commercial sources accounted for another 9%. Combined, these sources accounted for almost 45% of the total GHG emissions in Alaska for 2000. These GHG emission sources may not be captured under a future mandatory GHG reporting rule or cap-and-trade program. Alaska's climate change mitigation strategy will need to account for both mandatory (capped) and voluntary (uncapped) GHG emission sources, so that all GHG emissions can be tracked as climate change mitigation activities are enacted across the state.

Currently, there is no energy database in Alaska that tracks commercial, residential, light industrial, and transportation energy consumption and production throughout the state.<sup>22</sup> Both

<sup>19</sup> U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990–2006*, Annexes 1–8, EPA-430-R-08-005, 2005. Available at: <http://www.epa.gov/climatechange/emissions/usgginventory.html>.

<sup>20</sup> U.S. Senate, "Lieberman-Warner Climate Security Act of 2008," S.3036, 110<sup>th</sup> Congress, 2<sup>nd</sup> Session, May 21, 2008. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>.

<sup>21</sup> Center for Climate Strategies, *Alaska Greenhouse Gas Inventory and Reference Case Projections, 1990–2020*, July 2007. Available at: [www.climatechange.alaska.gov/doc-links.htm](http://www.climatechange.alaska.gov/doc-links.htm).

<sup>22</sup> Scott Sloane, DEC, personal communication with Peter Crimp, AEA, December 5, 2008.

the State of California and TCR use an online reporting tool for mandatory and voluntary reporting of GHG emissions, which are third-party verified and accessible to the public. The State of Alaska may need to develop a similar new, or modified database and online reporting tool that would enable the state to track energy, carbon emissions, and potentially the flow of money. This new or modified database will play an integral part in tracking Alaska's GHG emissions and energy-related climate change mitigation efforts. AEA may be the agency to house a portion of Alaska's new or modified database, since it is responsible for implementing Alaska's Energy Plan.

**Timing:** The following timeline provides an estimated time frame for establishing Alaska's GHG Reporting Program, including legislation, regulations, and related efforts:

- *2009–2011:* The Alaska Department of Law (ADOL) and other appropriate state departments, in consultation with the Climate Change Sub-Cabinet, develop a climate change bill and a fiscal note to obtain legislative approval and monies for establishing Alaska's GHG Reporting Program.
- *2010–2012:* ADOL and other appropriate state departments, in consultation with the Climate Change Sub-Cabinet, develop statutes and regulations to establish Alaska's mandatory GHG emissions reporting program, and carbon cap-and-trade program.
- *2010–2012:* Alaska develops a database to track energy consumption and energy-related climate change mitigation efforts throughout Alaska.
- *2009:* Alaska joins TCR and WCI to gain familiarity with their GHG reporting and verification procedures and infrastructure.
- *2012:* Covered entities will be required to begin reporting to the state on their GHG emissions for 2011. Thereafter, reporting will occur annually.
- *2012:* The State of Alaska publishes Alaska's GHG emissions I&F. This report will be published every 3 years to guide Alaska's climate protection efforts.

**Parties Involved:** The State of Alaska, in conjunction with the Climate Change Sub-Cabinet, will be primarily responsible for writing Alaska's climate change bill, statutes, and regulations. The state will be primarily responsible for writing the fiscal note, establishing and implementing the mandatory and voluntary components of Alaska's GHG emissions reporting program, and publishing a statewide GHG I&F every 3 years. AEA may play a role in tracking voluntary reporting of energy consumption, energy production, and energy-related climate change mitigation efforts. Close coordination between state agencies, including DEC, AEA, and UA will be required to design and implement energy-related GHG mitigation efforts.

**Other:** None.

## Implementation Mechanisms

The Climate Change Sub-Cabinet would need legislative approval from both houses in the form of a bill prior to moving ahead with developing Alaska-specific climate change statutes and regulations. Alaska's climate change bill could be modeled after California's Global Warming



Solutions Act of 2006<sup>23</sup> and Oregon's Climate Change Integration Act of 2007.<sup>24</sup> State departments would co-write Alaska's climate change bill in conjunction with the Climate Change Sub-Cabinet and ADOL. As part of this legislative approval process, affected state agencies would have to prepare fiscal notes that reflect the costs of a multi-year process, during which the state would hire staff to develop the statutory and regulatory framework for administering a mandatory GHG reporting program and carbon cap-and-trade program. The state would be primarily responsible for developing, writing, and submitting the fiscal note, along with Alaska's climate change bill. The fiscal note would include monies for hiring GHG Reporting Program personnel, developing reporting and verification procedures, and developing a database as presented in this mitigation policy. Obtaining both senate and house approval of Alaska's climate change legislation and fiscal note could take multiple legislative sessions (1–3 years).

Once Alaska's climate change legislation is approved, the fiscal note would provide the monies necessary for the state to hire staff to develop a GHG Reporting Program, climate change statutes and regulations, GHG reporting and verification procedures, and a database. ADOL would be primarily responsible for developing Alaska-specific climate change statutes and regulations in conjunction with the Sub-Cabinet. The state would be primarily responsible for developing a GHG mandatory reporting rule, by amending and adopting GHG reporting regulations developed in other states. The state would develop the GHG reporting and verification protocols and regulatory guidance documents for industry, with assistance from private contractors. The state would be solely responsible for conducting a fee study to determine the monetary fees associated with administering its mandatory GHG reporting rule. It is anticipated that any new positions would eventually be funded through fees generated via the implementation of Alaska's GHG mandatory reporting rule and carbon cap-and-trade program.

One of the primary implementation tasks will be developing a database, new or modified, that tracks energy and carbon allowances. Carbon emissions will have a monetary value under a future carbon cap-and-trade program. The state agency eventually responsible for issuing and tracking these carbon allowances will need access to and familiarity with a well-secured, state-insured banking database. AEA may be the agency to house a portion of Alaska's new or modified database, since it is responsible for implementing Alaska's Energy Plan.

### Related Policies/Programs in Place

- **Federal Climate Change Initiatives:** EPA has released a draft GHG emissions reporting rule. This draft rule, as written, would regulate large sources of GHG emissions ( $\geq 25,000$  tCO<sub>2</sub>e), including those not currently regulated by EPA. The rule is currently under discussion.
- **Regional Climate Change Initiatives:** TCR maintains a national climate database. It is likely that future federal GHG mandatory reporting legislation will include methods very

<sup>23</sup> State of California, "Global Warming Solutions Act of 2006," Assembly Bill 32. Available at: <http://cliamtechange.ca.gov/publications/legislation.html>.

<sup>24</sup> State of Oregon, "Climate Change Integration Act of 2007," House Bill 3543, 74<sup>th</sup> Oregon Legislative Session, June 2007. Available at: <http://www.leg.state.or.us/07reg/measpdf/hb3500.dir/hb3543.en.pdf>.

similar to TCR's *General Reporting Protocol* because most U.S. states and Canadian provinces belong to TCR and already employ its reporting and verification procedures. Alaska could join TCR now to gain familiarity with TCR's reporting and verification procedures. Alternatively, Alaska could develop state-specific reporting and verification procedures or wait for federal GHG legislation and adopt the federal GHG reporting and verification procedures.

- **State Climate Change Initiatives:** The western states of California, Oregon, and Washington have already promulgated or are in the process of developing a GHG mandatory reporting rule. Under California's and Oregon's GHG reporting rules, covered entities are industries that produce, consume, transport, or manufacture  $\geq 25,000$  and  $\geq 2,500$  tCO<sub>2</sub>e, respectively. EPA will likely employ GHG reporting and verification procedures similar to those developed by California, TCR, and WCI.
- **Alaska Climate Change Initiatives:** AEA has developed an Energy Plan for Alaska, published in January 2009.<sup>25</sup> The Climate Change Sub-Cabinet could work with AEA and the Alaska Municipal League to integrate these organizations' alternative energy plans into Alaska's Climate Change Mitigation Strategy. To integrate Alaska's Energy Plan and Climate Change Mitigation Strategy, a new or modified database that can track energy and carbon will need to be developed for the state.

#### Type(s) of GHG Reductions

Not applicable.

#### Estimated GHG Reductions and Net Costs or Cost Savings

Not applicable.

#### Key Uncertainties

A key uncertainty regarding development of a GHG Reporting Program for Alaska is coordination and interaction with EPA regulations. Previous federal attempts at climate change legislation gave a 2% emission allowance for states with GHG reporting programs that exceed federal GHG emission reduction targets (see section 3302 Climate Security Act<sup>26</sup>), though the current draft of EPA's rule does not provide this allowance.

Another key uncertainty centers on developing an Energy Database for Alaska. Where will this database be housed and who will develop it? What data elements are required? Close coordination between affected state agencies, AEA, and UA will be required to develop this database. This coordination process should begin immediately following the climate change bill and fiscal note approval. A list of policy questions follows:

- Should an Alaska GHG Reporting Program include both mandatory and voluntary reporting of GHG emissions, and what emission sources and thresholds should be included?

<sup>25</sup> Alaska Energy Authority, *Alaska Energy Report*. January 2009. Available at: <http://www.aidea.org/AEA/PDF%20files/AK%20Energy%20Final.pdf>.

<sup>26</sup> See Section 3302 in U.S. Senate, "Lieberman-Warner Climate Security Act of 2008," S.3036, 110<sup>th</sup> Congress, 2<sup>nd</sup> Session, May 21, 2008. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>.

- Should Alaska develop an Energy Database to track GHG emissions, carbon allowances, and energy-related climate change mitigation efforts throughout the state?
- Should Alaska join TCR and WCI now to gain familiarity with their reporting and verification procedures, or wait for future federal mandatory reporting requirements?
- Does Alaska have existing statutory authority to implement a GHG cap-and-trade program, or do new statutes and regulations have to be developed prior to implementing this program?
- Does Alaska have the monetary resources to hire additional staff as needed to develop and manage a GHG Reporting Program?

## **Additional Benefits and Costs**

### **Benefits**

Establishing a GHG Reporting Program in Alaska would allow the state to ascertain an accurate, verifiable, and transparent baseline of GHG emissions for Alaska, and subsequently develop a technically feasible GHG mitigation goal. This program could collect, verify, and analyze GHG emissions data to establish a baseline of anthropogenic (human-caused) GHG emissions for Alaska, and identify the types and magnitude of anthropogenic GHG emission sources in Alaska and their relative contributions. These data could be used to inform state leaders and the public on statewide GHG emission trends, identify opportunities for reducing GHG emissions, and enable the assessment of Alaska's climate change mitigation efforts over time.

### **Costs**

The estimated 5-year (fiscal years [FY] 2010–2014) operating expenditures for establishing and administering Alaska's GHG Reporting Program are presented in Table F-1.1. Personnel salary and benefit funds are presented for five full-time positions, including one Environmental Program Specialist (EPS) IV, three EPS III, and one Analyst Programmer.

**Table F-1. GHG Reporting Program 5-year estimated operating expenditures**

<b>Operating Expenditures</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>	<b>FY 2013</b>	<b>FY 2014</b>
Personnel Salary & Benefits for 5 Full-Time Positions	\$425,000	\$425,000	\$425,000	\$425,000	\$425,000
Travel	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Equipment	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Contractual					
ADOL	\$100,000	\$100,000	\$100,000	\$0	\$0
Reporting/Guidance Documents	\$100,000	\$100,000	\$100,000	\$0	\$0
Energy Database Development	\$100,000	\$100,000	\$100,000	\$0	\$0
Database Maintenance				\$50,000	\$50,000
<b>Totals</b>	<b>\$775,000</b>	<b>\$775,000</b>	<b>\$775,000</b>	<b>\$525,000</b>	<b>\$525,000</b>

ADOL = Alaska Department of Law; GHG = greenhouse gas.

During the first 3 years of this transition period (FY 2010–2012), \$300,000 is allocated as follows: \$100,000 for ADOL to develop a climate change bill, statutes, and regulations; \$100,000 for private contractors to develop mandatory GHG reporting and verification procedures and other regulatory guidance documents; and \$100,000 for developing an Energy Database. Over the 2010–2014 transition period, annual program receipts from routine fees associated with administering the GHG Reporting Program are expected to increase. The state will have to conduct a fee study to ascertain the fee structure necessary to pay for the increased level of effort associated with administering a mandatory GHG reporting program, the carbon cap-and-trade program, and compliance and enforcement activities. It is anticipated that eventually most of the personnel salary and benefit costs will be paid for by permit fees and the trading of carbon under a future cap-and-trade program. Final cost estimates may differ from those presented above, depending on the final options for and design of a state GHG Reporting Program.

### **Feasibility Issues**

In developing an Alaska-specific reporting program, the feasibility issues to note are how it would interface with any federal or regional program, and where and how funding would be available for the staff positions and infrastructure required.

### **Status of Group Approval**

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.

### **Level of Group Support**

Unanimous.

### **Barriers to Consensus**

Not applicable.

## CC-2. Establish Goals for Statewide GHG Emission Reductions

### Policy Description

Alaska should set goals that recognize both the state's unique emissions profile and the emerging dynamics of a federal GHG emission regulatory program. In addition, the state should set a baseline of emissions that will help measure progress toward these goals. This policy recommends that the state adopt a goal starting now to reduce emissions, with reductions of 20% below 1990 levels by 2020, and 80% below 1990 levels by 2050.

Countries, regions, states, cities, counties, and companies worldwide committed to reversing the effects of climate change have set goals or targets as a mechanism to ensure that emission reductions are achieved. Many of these governmental and corporate entities have done so in response to the United Nations' Intergovernmental Panel on Climate Change (IPCC), which has determined that an 80% reduction below 1990 levels in GHG emissions by 2050 is necessary to keep CO<sub>2</sub> levels below 450 parts per million and avoid major irreversible damage.

Almost half of all U.S. states have established state-specific goals and targets to reduce their emissions, with many setting aspirational goals of reducing emissions by up to 80% below 1990 levels by 2050.<sup>27</sup> In the federal budget released in February 2009 for fiscal year 2010, the Obama Administration proposed a 14% reduction in emissions below 2005 levels by 2020.<sup>28 29</sup> One hundred and fifty-two members of Congress have signed a letter expressing strong support for these same levels of emission reductions. In addition, the American Clean Energy and Security Act of 2009, commonly referred to as the Waxman-Markey bill, proposes a number of measures related to U.S. climate policy, including the establishment of nationwide goals associated with a cap-and-trade system. The current language proposed in the bill calls for a 20% reduction in GHG emissions below 2005 levels by 2020, a 42% reduction by 2030, and an 80% reduction by 2050.<sup>30</sup>

In Alaska, the Center for Climate Strategies found that, as of 2005, Alaskan sources most likely generate over 50 million metric tons (MMt) of gross GHG emissions. More than 40% of these emissions result from burning carbon-based fuels at industrial sites. Another major finding of

<sup>27</sup> States with state-specific goals and targets include Arizona, California, Colorado, Connecticut, Oregon, Florida, New Mexico, Illinois, Minnesota, Utah, and Washington. At this time, California is the only state with a mandatory economy-wide emissions cap that includes enforceable penalties. The Pew Center's Global Climate Change Web site contains detailed information on emission targets and other activities at the state level. See: [www.pewclimate.org/what\\_s\\_being\\_done/in\\_the\\_states/state\\_action\\_maps.cfm](http://www.pewclimate.org/what_s_being_done/in_the_states/state_action_maps.cfm).

<sup>28</sup> U.S. Office of Management and Budget, *A New Era of Responsibility: Renewing America's Promise—Budget for Fiscal Year 2010*. Available at: [http://www.whitehouse.gov/omb/assets/fy2010\\_new\\_era/a\\_new\\_era\\_of\\_responsibility2.pdf](http://www.whitehouse.gov/omb/assets/fy2010_new_era/a_new_era_of_responsibility2.pdf).

<sup>29</sup> U.S. Office of Management and Budget, *A New Era of Responsibility: Renewing America's Promise—Budget for Fiscal Year 2010*. Available at: [http://www.whitehouse.gov/omb/assets/fy2010\\_new\\_era/a\\_new\\_era\\_of\\_responsibility2.pdf](http://www.whitehouse.gov/omb/assets/fy2010_new_era/a_new_era_of_responsibility2.pdf).

<sup>30</sup> American Clean Energy and Security Act of 2009. Available at: [http://energycommerce.house.gov/Press\\_111/20090331/acesa\\_discussiondraft.pdf](http://energycommerce.house.gov/Press_111/20090331/acesa_discussiondraft.pdf).

the report is that nearly 40% of the statewide GHG emissions come from the transportation sector, mostly from jet fuel consumption. Of the remaining 20%, about 7% is non-combustion-related emissions from the fossil fuel industries, and 7% is from electricity consumption/generation (for all uses). The remainder is divided between commercial and residential (non-electrical) energy needs. On a per-capita basis, Alaska activities emit about 82 tCO<sub>2</sub> annually, significantly higher than the national average of 25 tCO<sub>2</sub> per year.

Given that almost half of Alaska's emissions are a result of fossil fuel industrial activity, it is important to note that BP America, ConocoPhillips, and Shell Oil have all issued strong statements regarding climate change and emission goals. For example:

- Robert Malone, President of BP America, noted before the House Select Committee on Energy and Global Warming (April 2008) that “Congress should set climate policy goals and allow the market to decide which technologies best deliver upon the objectives it sets.”<sup>31</sup>
- In 1998, BP America set a target to cut emissions from operations to 10% below 1990 levels by 2010—a target reached 9 years early.<sup>32</sup>
- Jim Mulva, Chairman and Chief Executive Officer of ConocoPhillips, noted in his remarks at an energy conference (February 2008) that “the industry must also recognize that the ways it provides energy must change. For example: in the near term, we should reduce the carbon intensity of our own energy consumption. We can do this by continually improving efficiency and using more low-carbon and renewable fuels.”<sup>33</sup>
- Shell Oil notes on its Web site that Shell was one of the first energy companies to acknowledge the threat of climate change; to call for action by governments, its industry, and energy users; and to take action itself.<sup>34</sup> Shell America has reduced its GHG emissions by nearly 25% compared to 1990.

It is also important to note the following indisputable facts:

- Alaska is a premier energy state and the only Arctic state.
- Alaska is experiencing the effects of climate change more than other states.
- Alaska's major industry and source of GHG emissions supports policy goals to begin reducing GHG emissions by 2012, with reductions of up to 10% by 2017 and incremental goals thereafter that reduce GHG emissions by 60%–80% below 1990 levels by 2050.

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<sup>31</sup> Robert Malone, BP America, written testimony to U.S. Congress, April 1, 2009. Available at: <http://globalwarming.house.gov/tools/assets/files/0456.pdf>.

<sup>32</sup> BP America, *BP Sustainability Report 2001*, April 2002. Available at: [http://www.bp.com/liveassets/bp\\_internet/globalbp/STAGING/global\\_assets/downloads/E/Environmental\\_and\\_social\\_report\\_2001.pdf](http://www.bp.com/liveassets/bp_internet/globalbp/STAGING/global_assets/downloads/E/Environmental_and_social_report_2001.pdf).

<sup>33</sup> Jim Mulva, Chairman & CEO, ConocoPhillips. CERAWEEK Energy Security and Climate Change Speech. “Energy Security and Climate Change: The Case for Engagement,” February 12, 2008. Available at: [http://www.conocophillips.com/newsroom/other\\_resources/CERA\\_speech.htm](http://www.conocophillips.com/newsroom/other_resources/CERA_speech.htm).

<sup>34</sup> Royal Dutch Shell, “Responding to Climate Change: Responsible Energy.” Available at: [http://www.shell.com/home/content/responsible\\_energy/environment/climate\\_change/](http://www.shell.com/home/content/responsible_energy/environment/climate_change/).



- There is a strong likelihood that national legislation will contain similar goals, and that Alaska will strive to be part of the national solution.

Alaska should set goals that recognize both its unique emissions profile and the emerging dynamics of a federal GHG emission regulatory program. “Goals” in this context is meant as an aspiration for the state as a whole and does not imply that the goals should become mandatory. It should be noted that these goals (1) will be reviewed after waste energy audits have been completed for Alaska’s major emission sources, and (2) do not account for emissions that may be added as a result of the operation of the natural gas pipeline. Once the emission effects of the natural gas pipeline are known, then these goals will be modified to account for this important energy project.

In addition, obtaining an accurate baseline of GHG emissions or energy consumption in Alaska will be necessary to measure Alaska’s success in combating climate change and meeting its GHG emission reduction goals. Under any future carbon cap-and-trade program, carbon emission allowances may be allocated based on the GHG emissions baseline established. It will be crucial to have accurate data when establishing a cap-and-trade program to “avoid over-allocation of carbon allowances and to create the necessary market scarcity.”<sup>35</sup>

## Policy Design

### Goals:

- The state adopts a goal starting now to reduce emissions, with reductions of 20% below 1990 levels by 2020, and 80% below 1990 levels by 2050. The 2050 goal is the recommendation of the IPCC.
- The state establishes a GHG emissions baseline and refines it based on updates from any mandatory reporting program and GHG inventories to measure progress on goals.

**Timing:** It is expected that the Sub-cabinet will review this policy and either recommend the MAG-recommended goal, develop their own, or determine an appropriate implementation mechanism.

**Parties Involved:** MAG, Climate Change Sub-Cabinet, other stakeholders as deemed necessary.

**Other:** None.

## Implementation Mechanisms

This policy could be implemented either through legislation or as an executive order. In Oregon, the Climate Change Integration Act established the state’s GHG reduction goals in a statute (e.g., by 2020, reduce GHG levels to 10% below 1990 levels), as well as provided funding for

<sup>35</sup> *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*. Recommendations of the Market Advisory Committee to the California Air Resources Board, June 30, 2007. Available at: [http://www.climatechange.ca.gov/.../2007-06-01\\_MAC\\_DRAFT\\_REPORT.PDF](http://www.climatechange.ca.gov/.../2007-06-01_MAC_DRAFT_REPORT.PDF).

establishing Oregon's mandatory GHG reporting rule.<sup>36</sup> In Washington, the state's GHG reduction goal was established in 2007 when Governor Gregoire issued Executive Order 02-07.

### **Related Policies/Programs in Place**

See the Policy Description section for goals that have been set by other U.S. states, organizations, and members of industry in Alaska.

### **Type(s) of GHG Reductions**

Not applicable.

### **Estimated GHG Reductions and Net Costs or Cost Savings**

Not applicable.

### **Key Uncertainties**

The key uncertainty associated with this policy is how it could interface with any federal legislation that may occur in the near future. It is possible that the U.S. Congress will pass legislation that would require a GHG emission cap across all states. If this were to happen, Alaska would decide whether to meet the cap as a minimum or set a goal for further reductions.

### **Additional Benefits and Costs**

#### **Benefits**

By setting GHG emission goals, Alaska would be on par with many other U.S. states. Working to meet these goals could put Alaska in a more advantageous position if and when national rules on emission reductions are enacted.

#### **Costs**

The costs of adopting this policy could be zero if the MAG and Sub-Cabinet agree to these proposed goals. If additional work is needed to help stakeholders agree to goals for GHG emission reductions, there would be some moderate costs (\$10,000–\$50,000) to facilitate a workgroup of these stakeholders and develop a decision.

### **Feasibility Issues**

These goals should be evaluated against other MAG recommendations for reducing GHG emissions to ensure the goals are feasible for the state to undertake.

### **Status of Group Approval**

Approved.

### **Level of Group Support**

Majority.

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<sup>36</sup> Oregon Department of Environmental Quality, *GHG Reporting Rule*, Oregon Administrative Rule 340-215-0010. Available at: <http://www.deq.state.or.us/aq/climate/docs/FinalGHGRule.pdf>.

## Barriers to Consensus

Of the fourteen MAG members in attendance at the final meeting, six objected to and eight supported the setting of a numeric goal for reducing GHG emissions in Alaska. Objections to setting a specific goal included:

- Many of Alaska's emissions come from activities that are not in its control, such as fuel and airplane emissions from refueling and overflights. Further, some activities are under federal—not state—control, including military base operations.
- Some MAG members stated that this policy should not include specific goals but, rather, that the Sub-Cabinet should recommend a specific aspirational goal.



## CC-3. Identify and Implement State Government Mitigation Actions

### Policy Description

Alaska can lead by example in responding to climate change and reducing GHG emissions by identifying potential GHG reduction activities and implementing specific and tangible changes in its operations. Leadership on the part of the state to both identify and implement these early actions<sup>37</sup> will accomplish two primary goals:

- Alaska can quickly make reductions in GHG emissions.
- The demonstrated success of state action can be an incentive for private citizens, businesses, nongovernmental organizations (NGOs), and local governments to take action. Identifying early actions and then acting on them is the essence of “leading by example” and a necessary first step for more ambitious goals. Initial successes can also help convince the public and state legislature to move forward with actions that may require more significant changes in behavior, regulation, and public funding.

### Policy Design

#### Goals:

- Lead by example by implementing no-cost and low-cost early actions that can be taken without new funding or legislative approval in the immediate future to reduce the state’s GHG emissions, and actions that must be completed as a first step toward state implementation of more complex and expensive goals.
- Publicize successes quickly through a “Report Card” to encourage others to act and to generate political momentum.

The objective of this policy is for state agencies to implement actions within their purview and authority, with a priority toward immediate and meaningful reductions in GHG emissions by changes in day-to-day state activity. To facilitate this, the MAG developed a preliminary matrix (Table F-2) outlining potential lead-by-example actions, time frames, needed resources and authorities, potential GHG reductions, and potential savings. In developing this list of actions, Alaska can learn from the examples of other state governments that have taken steps to reduce their GHG emissions.

The list of early actions that the state should pursue includes:

- Require the establishment of audiovisual conferencing facilities and their use by state employees to reduce the economic and GHG emission costs associated with state employee airline travel.
- Convert state-owned fleets to use lower-carbon fuels and/or have more energy-efficient vehicles.

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<sup>37</sup> Actions that can be taken without new funding or legislative approval.

- Develop expansive incentives for environmentally friendly commuting and comprehensive telecommuting policies for state employees.
- Develop an environmentally preferred purchasing program for state procurement.
- Conduct an energy audit and implement identified changes to improve energy efficiency for the Governor’s mansion and other key government buildings (require that all state computers be set at “sleep” mode or switched off when not in use for long periods of time, use light-emitting diode (LED) holiday lights on state-owned buildings and venues rather than conventional lights, switch to more energy-efficient lighting, etc.).<sup>38</sup>
- Encourage creative ideas from state employees by offering incentives for energy conservation recommendations in state facilities.

Alaska will establish an annual Report Card to describe the GHG reduction goals and the progress that each state agency is making toward these goals<sup>39</sup> (related to CC-1 and CC-2). In addition, to publicize success and encourage a culture of energy conservation, state agencies will release Web updates and public service announcements when undertaking GHG emission reduction measures.

**Timing:** State lead-by-example activity should be implemented as soon as possible after the Sub-cabinet approves it as part of the Alaska Climate Change Strategy.

**Parties Involved:** DEC would take the lead initially to communicate and implement the immediate actions, using ideas and feedback from other state climate offices and relevant NGOs. If any state climate change program or coordinating body is established, it would take over the function of implementing and coordinating state lead-by-example actions, including identifying, tracking, and implementing more complex and expensive actions.

**Other:** None.

## Implementation Mechanisms

- DEC should initiate activity through the Climate Change Sub-Cabinet, identifying those actions to address immediately. The Sub-Cabinet can agree to specific activities and recommend to the Governor’s Office issuance of executive orders or other administrative mechanisms to implement immediate actions pertaining to specific departments. Funding may be needed in some instances to achieve early action goals, though it is assumed that these policies would have a short energy payback period.
- If any state climate change program or coordinating body is established, it would take on the responsibility of communicating, educating, and providing resources for state agencies to continue to reduce their GHG emissions.

<sup>38</sup> For examples, see California Environmental Protection Agency Air Resources Board, “Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California,” October 17, 2007. Available at: <http://www.arb.ca.gov/cc/ccea/reports/reports.htm>.

<sup>39</sup> For example, see California Environmental Protection Agency Air Resources Board, “State Agency Greenhouse Gas Reduction Report Card,” 2007. Available at: <http://www.arb.ca.gov/cc/cc.htm>.

- Identifying early actions—and then implementing them—will serve as the catalyst for many other policies and goals identified in Alaska’s Climate Change Strategy.
- Using “lessons learned,” the state can work with municipalities (boroughs, cities, and villages), possibly through the Alaska Municipal League, to develop their GHG mitigation plans. The state can also look for opportunities to apply and expand the work developed at the municipal level to the state level (e.g., expanding the City of Homer’s climate change plan).

Additional implementation approaches may be developed based on specific actions.

### **Related Policies/Programs in Place**

None noted.

### **Type(s) of GHG Reductions**

Not applicable.

### **Estimated GHG Reductions and Net Costs or Cost Savings**

Not applicable.

### **Key Uncertainties**

The ability of Alaska state agencies to implement GHG reduction policies that may require additional funding or time is unknown. The amount of funding and time required will vary by action.

### **Additional Benefits and Costs**

#### **Benefits**

Changes in state procedures or employee behavior could significantly reduce GHG emissions in Alaska. Successful implementation at the state level can also set the stage for citizens and businesses to follow. Both leading by example and taking “first-step” actions will create momentum that can launch the state’s entire Climate Change Program.

#### **Costs**

The costs of developing and implementing these actions will vary, depending on the specific actions. The intent of these actions is that they be relatively low cost to implement and/or will create cost savings over some period of time. Additional work is needed to determine the specific costs of the initial actions outlined in this policy, and not-yet-developed policies will require some amount of staff time to scope and cost for inclusion in this effort.

### **Feasibility Issues**

For each action, feasibility issues will vary. For developing further ideas for early action, there may be some need for staff time, though most actions that would fit in this policy should be relatively simple to implement, thus not requiring a great deal of staff time.



**Status of Group Approval**

Approved.

**Level of Group Support**

Unanimous.

**Barriers to Consensus**

Not applicable.



**Table F-2. Initial list of lead-by-example actions**

#	Action	Timing	Needed Resources	Implementation Needs	GHG Savings	Cost or Cost Savings	Question/ Notes
1	Require the use of audiovisual (A/V) teleconferencing between state employees.	Immediate implementation using available resources; increased use as more A/V centers are made available.	Some A/V resources are already available; Increased facilities needed; may need education/training.	Educate state employees about available resources; establish new A/V centers.	Elimination of air or ground travel GHG emissions.	Elimination of cost of air or ground travel; cost of increased use of A/V resources.	Is there any education related to Alaska's current A/V resources? Are there additional barriers to use that should be considered?
2	Convert state-owned fleets to use lower-carbon fuels and/or have more energy-efficient vehicles.	Phased implementation: older vehicles are replaced with more efficient vehicles or those that can use lower-carbon fuels.	New, more energy-efficient vehicles; lower-carbon fuels.	Develop purchasing protocol to identify fleet vehicles for replacement and direct appropriate conversion.	GHG savings as a result of using lower-emission fuels and/or vehicles.	Initial higher cost of upgrading vehicles to more efficient models; likely decreased costs over the life of the vehicle, depending on the cost of fuel.	How many state vehicles are there? Does Alaska have an obligation to purchase cars from American companies? Is there a central purchasing authority that this policy should be tailored toward?
3	Develop expansive incentives for environmentally friendly commuting and comprehensive telecommuting policies for state employees.	Immediate implementation.	Incentives for carpooling and transit; increased infrastructure to support telecommuting.	Develop incentives for carpooling and use of transit, such as transit passes or preferred parking; develop telecommuting policies.	State employees commuting less or more efficiently reduces GHG emissions.	Decreased driving could reduce parking lot needs and costs. Increased telecommuting can decrease office space needs.	Does Alaska have a telecommuting policy for any state employees?
3a	State managers will immediately authorize certain employees to telecommute.	Immediate implementation.	Infrastructure to support telecommuting.	Develop telecommuting policy; identify priority employees for telecommuting (e.g., those who commute more than 5 miles, those who do not have regular field or customer work).	State employees commuting less or more efficiently reduces GHG emissions.	Decreased driving could reduce parking lot needs and costs. Increased telecommuting can decrease office space needs.	Does Alaska have a telecommuting policy for any state employees?

#	Action	Timing	Needed Resources	Implementation Needs	GHG Savings	Cost or Cost Savings	Question/ Notes
3b	State sets up satellite work sites for those who commute long distances, but are unable to telecommute, such as in the Mat Su Borough.	Few months to years.	Property and services for satellite work sites.	Identify locales that would be best served by satellite work sites (e.g., Mat Su Borough).	State employees commuting less reduces GHGs.	Cost of setting up satellite work sites; could be offset by having less employees in central location	May be more long-term
3c	State provides or subsidizes commuter buses from park-and-ride sites in far suburbs from metropolitan areas.	Almost immediate.	Buses or bus service to provide commuter service; parking lots.	Identify locales that would be best served by commuter buses.	State employees commuting more efficiently (e.g., fewer single-occupancy vehicles) reduces GHG.	Cost of buses or alternate transportation; reduced cost of parking for employees	Could there be enough voluntary use to make the system pay for itself? Would particular amenities encourage ridership?
4	Develop an environmentally preferred purchasing program for state procurement, including energy-efficient products.	Implementation following development of program and policies.	Time needed for developing new policy.	Develop new policy on procurement of environmentally preferable products.	Reduced environmental footprint, including GHG emissions, in the purchase of environmentally preferable products.	Reduced operational costs of using more energy-efficient products; some products may have higher costs than conventional counterparts.	See MA: <a href="http://tinyurl.com/9qcfnr">http://tinyurl.com/9qcfnr</a> . Are there any policies in Alaska about environmentally responsible purchasing? What is the appropriate implementation vehicle?
5a	Conduct an energy audit and implement identified changes to improve energy efficiency for key government buildings.	Immediate energy audit; phased implementation of identified changes.	Resources for making identified changes to government buildings.	Identify buildings for energy audit; implement energy audit.	Minor and major GHG savings, depending on buildings that were audited and upgraded; high-profile building could encourage energy audits among the public.	Initial cost of making identified changes in buildings, though many of the changes (insulation, lighting upgrades, etc.) will have a short payback period.	Who will have primary responsibility? What resources/tools do they need?

#	Action	Timing	Needed Resources	Implementation Needs	GHG Savings	Cost or Cost Savings	Question/ Notes
5b	Encourage creativity and new ideas by soliciting energy conservation ideas from state employees and providing an incentive for the best ones (e.g., paid time off).	Immediate.	No resources needed.	Identify incentives for proposing good ideas.	Employees are often aware of the best places to make energy conservation changes, so providing a goal could encourage large savings in GHG emissions.	Costs would depend on incentive. Cost savings could be significant, depending on energy conservation measures suggested and implemented.	

GHG = greenhouse gas.

## CC-4. Integrate Alaska's Climate Change Mitigation Strategy With the Alaska Energy Plan

### Policy Description

This climate change mitigation policy describes the basic strategy and reporting tools necessary to integrate Alaska's Climate Change Mitigation Strategy with the Alaska Energy Plan to accomplish the triple objective of maintaining climate integrity, energy security, and economic prosperity for Alaska.

In January 2009, AEA released a plan for managing Alaska's energy resources in local communities to support the goals of energy independence, economic vitality, and energy conservation. This plan is built on past AEA energy plans and provides specific information for local communities interested in developing new energy projects or improving existing ones.<sup>40</sup>

Both the Center for Climate Strategy's *Alaska GHG Inventory and Reference Case Projections, 1990–2020*,<sup>41</sup> and DEC's *Refinements to the Alaska GHG Emission Inventory*<sup>42</sup> reports concluded that the majority of Alaska's anthropogenic GHG emissions are due to the consumption of energy as fossil fuels to power industry and transportation. Those industries in Alaska combusting, producing, refining, storing, and transporting the most fossil fuel had the highest GHG emission estimates and can be grouped into Alaska's energy sector. "The energy sector is mainly comprised of exploration and exploitation of primary energy sources; conversion of primary energy sources into more useable energy forms in refineries and power plants; transmission and distribution of fuels; use of fuels in stationary and mobile applications."<sup>43</sup>

Starting in 2010, pending the approval of the Climate Change Sub-Cabinet, it is recommended that Alaska's Energy Plan and Climate Change Mitigation Strategy be combined into one plan to achieve Alaska's stated climate change mitigation goals guided by a 10-year energy plan. Integrating Alaska's Climate Change Mitigation Strategy with Alaska's Energy Plan is good policy for achieving the stated objectives. Both plans will include the development of energy efficiency, energy conservation, co-generation, fuel switching, and renewable energy measures. It would not make sense to develop a climate change mitigation strategy that calls for a reduction in Alaska's GHG emissions, while at the same time enact an energy plan that calls for developing Alaska's coal, oil, and natural gas resources without considering the carbon footprint.

<sup>40</sup> Alaska Energy Authority, *Alaska Energy Report*, January 2009. Available at: <http://www.aidea.org/AEA/PDF%20files/AK%20Energy%20Final.pdf>.

<sup>41</sup> Center for Climate Strategies, *Alaska Greenhouse Gas Inventory and Reference Case Projections, 1990–2020*, July 2007. Available at: [www.climatechange.alaska.gov/doc-links.htm](http://www.climatechange.alaska.gov/doc-links.htm).

<sup>42</sup> DEC, *Summary Report of Improvements to the Alaska Greenhouse Gas Emission Inventory*, January 2008. Available at: <http://www.climatechange.alaska.gov/doc-links.htm>.

<sup>43</sup> Simon Eggleston et al., eds., *2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2 Energy*, prepared by the IPCC National Greenhouse Gas Inventories Programme. IGES, Japan, 2006. Available at: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.htm>.

It is also recommended that Alaska's 10-year integrated Climate Protection & Energy Plan include all fossil fuel (coal, oil, natural gas, coal-bed methane) resource extraction and production potential in Alaska projected through the year 2020, because these estimates influence the rate at which GHGs are produced in Alaska. A major component of this integrated Climate Protection & Energy Plan will be the development of an Energy Database for Alaska, as briefly described below.

Finally, it is recommended that Alaska's integrated Climate Protection & Energy Plan be updated periodically to guide Alaska's climate change mitigation objectives and energy consumption goals through time and across various state administrations.

This mitigation policy does not provide the detailed, industry-by-industry energy policies necessary for achieving Alaska climate change mitigation objectives because these have been addressed in other sectors and by the AEA. This climate change mitigation policy addresses GHGs from fossil fuels (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O), but does not address high-global-warming-potential GHGs containing bromine, chlorine, or fluorine.

## Policy Design

### Goals:

- Starting in 2010, Alaska will begin to develop its 10-year Climate Protection & Energy Plan to achieve the state's climate change mitigation strategy objectives and energy consumption goals through 2020.
- Starting in 2010, Alaska will begin to develop an Energy Database that will track commercial, residential, industrial, and transportation energy consumption and production, GHG emissions, and climate change mitigation actions throughout Alaska.

**Establish Energy (GHG Emissions) Baseline:** As referenced previously, the majority of Alaska's anthropogenic GHG emissions are due to the consumption of energy as fossil fuels to power industry and transportation.<sup>44</sup> Obtaining an accurate baseline of GHG emissions or energy (fossil fuel) consumption in Alaska will be necessary to measure Alaska's success in combating climate change. The Alaska Cold Climate Housing Research Center's (CCHRC) report states that "most significantly, energy conservation and policy effectiveness cannot be measured without establishing a current baseline. Collecting baseline data is the first step in launching a meaningful energy-related efficiency program."<sup>45</sup> Alaska's GHG emissions or energy consumption baseline is the starting point from which we account for how well the state's climate change mitigation strategy is working. Also, under a future carbon cap-and-trade program, carbon emission allowances may be allocated based on the GHG emissions baseline established in Alaska's GHG inventory. It will be crucial to have accurate data when establishing a cap-and-trade program to "avoid over-allocation of carbon allowances and to

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<sup>44</sup> Center for Climate Strategies, *Alaska Greenhouse Gas Inventory and Reference Case Projections, 1990–2020*, July 2007. Available at: [www.climatechange.alaska.gov/doc-links.htm](http://www.climatechange.alaska.gov/doc-links.htm).

<sup>45</sup> C. Lister, B. Rogers, and C. Ermer, *Alaska Energy Efficiency Program and Policy Recommendations*, Final Report to the Cold Climate Housing Research Center, June 12, 2008. Available at: <http://www.akenergyauthority.org/>.



create the necessary market scarcity.”<sup>46</sup> Therefore, through the Climate Change Mitigation Strategy, the MAG should strive to establish a publicly approved energy or GHG emissions baseline for Alaska.

**Establish Energy (GHG Emissions) Reduction Goals:** In addition to establishing a GHG emissions or energy baseline for Alaska, the final Climate Change Mitigation Strategy should include a statewide GHG emission reduction goal (i.e., reduce Alaska’s GHG emissions by 20% below 1990 levels by 2020 and 80% below 1990 levels by 2050).

Alaska’s GHG emissions baseline and GHG reduction goal can be used as “goalposts” for achieving Alaska’s desired climate change mitigation objectives. For example, assume, as presented on page 3 of the *Alaska Greenhouse Gas Inventory*,<sup>47</sup> that Alaska’s GHG emissions baseline is approximately 50 MMtCO<sub>2</sub>e. Also assume that Alaska’s stated GHG reduction goal is reducing Alaska’s baseline of GHG emissions by 30% by 2020. This would imply that Alaska would have to reduce its GHG emissions by 15 MMtCO<sub>2</sub>e over the next 10 years, equivalent to an annual reduction of 1.5 MMtCO<sub>2</sub>e. The alternative energy-related measures that have been developed in other sectors (Energy, Oil & Gas, etc.) include a combination of fuel switching, cogeneration, flare-reduction, energy efficiency, and energy conservation measures. All of these energy-related measures can be used to achieve Alaska’s 1.5 MMtCO<sub>2</sub>e annual GHG reduction goal, and overall GHG reduction goal (i.e., reduce Alaska’s GHG emissions by 20% below 1990 levels by 2020 and 80% below 1990 levels by 2050).

**Use Energy Plans to Achieve Alaska’s GHG Reduction Goals:** Alaska’s Climate Change Mitigation Strategy objectives and desired GHG mitigation goals can be achieved by integrating these objectives with Alaska’s Energy Plan. In addition to the alternative energy policies developed by AEA and the MAG, there are many newly developed alternative energy blueprints that Alaska can incorporate to achieve its GHG mitigation goals. California’s *Climate Change Proposed Scoping Plan*<sup>48</sup> provides numerous examples of state-led alternative energy initiatives. The U.S. Department of Energy (DOE) and EPA recently released their cooperative *National Action Plan for Energy Efficiency, Vision for 2025: A Framework for Change*.<sup>49</sup> The U.S. House of Representatives’ Select Committee on Energy Independence and Global Warming *Final Staff Report for the 110<sup>th</sup> Congress*<sup>50</sup> also provides many energy-related measures to combat climate change. The Alaska CCHRC’s report includes several examples of voluntary residential and commercial energy measures that can be used to achieve a portion of Alaska’s desired GHG

<sup>46</sup> *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*. Recommendations of the Market Advisory Committee to the California Air Resources Board, June 1, 2007. Available at: [http://www.climatechange.ca.gov/events/2007-06-12\\_mac\\_meeting/2007-06-01\\_MAC\\_DRAFT\\_REPORT.PDF](http://www.climatechange.ca.gov/events/2007-06-12_mac_meeting/2007-06-01_MAC_DRAFT_REPORT.PDF).

<sup>47</sup> Center for Climate Strategies, *Alaska Greenhouse Gas Inventory and Reference Case Projections, 1990–2020*, July 2007. Available at: [www.climatechange.alaska.gov/doc-links.htm](http://www.climatechange.alaska.gov/doc-links.htm).

<sup>48</sup> California Air Resources Board, *Climate Change Proposed Scoping Plan*, October 2008, prepared for the State of California. Available at: <http://www.arb.ca.gov/cc/cc.htm>.

<sup>49</sup> U.S. Department of Energy and U.S. Environmental Protection Agency, *National Action Plan for Energy Efficiency, Vision for 2025: A Framework for Change*, November 2008. Available at: <http://www.epa.gov/eeactionplan>.

<sup>50</sup> U.S. House of Representatives, Select Committee on Energy Independence & Global Warming, *Final Staff Report for the 110<sup>th</sup> Congress*, October 31, 2008. Available at: <http://globalwarming.house.gov>.

mitigation goals. All of the energy-related measures can be used to accomplish the triple objective of maintaining climate integrity, energy security, and economic prosperity for Alaska through the integration of its Climate Change Mitigation Strategy and Energy Plan.

**Establish Energy or Carbon Database:** “Because there will be monetary value to carbon credits, there is an even greater incentive to establish carbon data management systems that work.”<sup>51</sup> In the near future, carbon emissions will have a monetary value under a national carbon cap-and-trade or carbon tax program. Therefore, it would be financially beneficial if Alaska could track fossil fuel energy consumption and production throughout the state. Currently, there is no single statewide database that tracks residential, commercial, industrial, and transportation fossil fuel energy consumption and production. Separate state and federal agencies track energy consumption and production for their individual agency missions. For example, DEC tracks fuel consumption for its Title V permits, the Alaska Housing Finance Corporation (AHFC) tracks residential energy consumption, and DOE's Energy Information Administration (EIA) tracks energy production and consumption in Alaska.

To track Alaska's energy-related GHG emissions and their abatement, it will be necessary to establish an Energy Database that will monitor statewide residential, commercial, industrial, and transportation fossil fuel energy consumption and production in energy units. The common energy unit used in international reports of GHG emissions is the joule or terajoule (TJ = 10<sup>12</sup> joules), while the customary U.S. energy unit is the Btu. Electric utilities often report their emissions per kWh or MWh, which are interchangeable with TJ and Btu. Knowing both the higher heating values of various fuels (e.g., million Btu per cubic foot of natural gas) and their carbon content (e.g., Tg of carbon per Btu) allows us to convert a facility's or fleet's energy consumption (Btu, TJ, kWh) to GHG emissions in Tg of carbon, or MMtCO<sub>2</sub>e.<sup>52</sup> Alaska's Energy Database should be able to record and monitor facility- and fleet-specific energy consumption and production in the form of TJ, Btu, kWh, calories, or other energy units and easily convert these to GHG emissions in Tg of carbon or MMtCO<sub>2</sub>e.

In addition to tracking energy (Btu, kWh, TJ), this new or modified database may have to track carbon emission allowances and have banking capabilities. Carbon emissions will have a monetary value under a future federal carbon cap-and-trade, cap-and-dividend, or tax program. It is anticipated that large industries in Alaska will be regulated as “capped sources” in the near future.<sup>53</sup> The state agency eventually responsible for issuing and tracking carbon allowances will need access to and familiarity with a well-secured, state-insured banking database. Preferably, this database will serve multiple functions and have the statewide capability to accurately and securely monitor the following:

Energy ↔ GHG Emissions ↔ U.S. Currency

<sup>51</sup> National Association of Clean Air Agencies, *Defining the Role of States and Localities in Federal Global Warming Legislation*, Conference Proceedings, June 2008. Available at: <http://www.4cleanair.org/TopicDetails.asp?parent=16>.

<sup>52</sup> U.S. EPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990–2006*, Annexes 1-8, EPA-430-R-08-005, 2005. Available at: <http://www.epa.gov/climatechange/emissions/usgginventory.html>.

<sup>53</sup> U.S. Senate, “Lieberman-Warner Climate Security Act of 2008,” S.3036, 110<sup>th</sup> Congress, 2<sup>nd</sup> Session, May 21, 2008. Available at: <http://thomas.loc.gov/cgi-bin/query/z?c110:S.3036>.

Btu, kWh, TJ  $\leftrightarrow$  Tg of carbon or MMtCO<sub>2</sub>e  $\leftrightarrow$  \$\$\$

It will also be important for Alaska to track and mitigate GHG emissions from residential, commercial, light industrial, and transportation sources that are not included under a future cap-and-trade program (uncapped sources). The Center for Climate Strategy's *Alaska GHG Inventory and Reference Case Projections, 1990–2020* estimated that transportation sources in Alaska accounted for approximately 35% of the gross GHG emissions in 2000,<sup>54</sup> while residential and commercial sources accounted for another 9%. Combined, these sources accounted for almost 45% of the total GHG emissions in Alaska for 2000. These GHG emission sources may not be captured under a future mandatory GHG reporting rule or cap-and-trade program. Alaska's climate change mitigation strategy will need to account for both mandatory (capped) and voluntary (uncapped) GHG emission sources, so that all GHG emissions can be tracked as climate change mitigation activities are enacted across the state. It will also be important to track Alaska's alternative energy consumption and production (e.g., hydroelectric, solar, wind, tidal, geothermal), because the rate at which these technologies is implemented corresponds directly with the decrease of GHG production in Alaska.

**Timing:**

- Beginning in 2010, pending approval from the Climate Change Sub-Cabinet, Alaska will work to develop its 10-year Climate Protection & Energy Plan. This plan will include the Sub-Cabinet's final climate change mitigation objectives; the future fossil fuel (coal, oil, natural gas, coal-bed methane) resource extraction and production potential in Alaska projected through 2020; and the alternative energy measures developed by the MAG and AEA. The plan will be updated every 2 years to guide Alaska's energy consumption and climate change mitigation efforts. Alaska's natural gas will be developed where possible to replace high-density carbon fuels (e.g., coal and oil).
- Beginning in 2010, pending approval from the Climate Change Sub-Cabinet, Alaska will work to develop an Energy Database, which will enable the state to record and monitor the following:
  - Residential, commercial, industrial, and transportation fossil fuel energy consumption and production;
  - Mandatory and voluntary reporting of energy-related GHG emissions;
  - GHG emission reductions due to alternative energy-related climate change mitigation actions; and
  - Carbon emission allowances and their monetary value under a future cap-and-trade or tax program.

**Parties Involved:** Climate Change Sub-Cabinet, AEA, relevant state agencies.

**Other:** None.

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<sup>54</sup> Center for Climate Strategies, *Alaska Greenhouse Gas Inventory and Reference Case Projections, 1990–2020*, July 2007. Available at: [www.climatechange.alaska.gov/doc-links.htm](http://www.climatechange.alaska.gov/doc-links.htm).

## Implementation Mechanisms

See Policy Design section.

## Related Programs/Policies in Place

Other related efforts include the following:

- DEC collects fuel consumption and emissions data for large (Title V) industries and submits emissions inventory data to EPA through its Consolidate Emissions Reporting program.
- AHFC collect data on residential energy consumption.
- EIA collects data on energy consumption and production in Alaska.
- Alaska's 10-year Climate Protection & Energy Plan should integrate the energy and climate protection plans currently being developed by the members of the Alaska Municipal League.
- Both the State of California and TCR use online reporting tools for mandatory and voluntary reporting of GHG emissions, which are third-party verified and accessible to the public. Alaska may need to develop a similar, new or modified, database or online reporting tool that would enable the state to track energy consumption and production, carbon emissions, and potentially the flow of money. This new or modified database will play an integral part in tracking Alaska's GHG emissions and energy-related climate change mitigation efforts.

## Type(s) of GHG Reductions

Not applicable.

## Estimated GHG Reductions and Net Costs or Cost Savings

Not applicable.

## Key Uncertainties

- How will Alaska track energy-related GHG emissions and their abatement?
- What kind of carbon trading system will be developed by the federal government (e.g., carbon cap-and-trade versus carbon tax and dividend), and what kind of database will be required to track carbon emissions and their monetary value?
- Who will be responsible for establishing and administering Alaska's Energy Database, how much will it cost, and where will it be located?

This mitigation strategy recommends, starting in 2010, that Alaska begin to develop its 10-year integrated Climate Protection & Energy Plan and its Energy Database. By 2011, it is anticipated that a federal carbon cap-and-trade or carbon tax program will be in place. The agency responsible for administering Alaska's Energy Database, its exact location, structure (e.g., reporting requirements), and costs will be determined based on the federal program about to be promulgated. It appears that the federal government is leaning toward developing a national carbon cap-and-trade program. Less talked about is the possibility of developing a carbon tax-and-dividend program. In either case, carbon emissions will likely have a monetary value in the

near future. Therefore, it would be beneficial for Alaska to start developing its own carbon or Energy Database now in anticipation of the federal program.

## **Additional Benefits and Costs**

### **Benefits**

Integrating Alaska's climate protection and energy policies will allow the state to achieve its GHG mitigation goals, and will result in a profitable, less volatile, fixed-price, carbon-based economy. Alaska is rich in carbon-based fuels and should benefit from a future GHG cap-and-trade program.<sup>55,56</sup>

### **Costs**

Alaska will accrue costs for developing and managing a state Energy Database. Estimated development costs range from \$300,000 to \$500,000, depending on whether the state can modify an existing database or must develop a completely new one. Funds could come from AEA's existing Alternative Energy Fund to develop and administer this database.

## **Feasibility Issues**

The feasibility issues associated with this policy are how to ensure that those working on the Alaska Energy Plan and those working on the Climate Change Strategy will coordinate their efforts to develop an integrated plan. Further, for the development of the Energy Database, the funding mechanism is not yet known.

## **Status of Group Approval**

Approved.

## **Level of Group Support**

Unanimous.

## **Barriers to Consensus**

Not applicable.

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<sup>55</sup> Steve Colt, Institute for Social and Economic Research, "Comments on the Lieberman-Warner Climate Security Act and Lieberman-Warner Proposed Legislation," April 11, 2008. Available at: [www.iser.uaa.alaska.edu/Publications/Colt\\_ACCF-NAM\\_Ak2.pdf](http://www.iser.uaa.alaska.edu/Publications/Colt_ACCF-NAM_Ak2.pdf).

<sup>56</sup> EIA, *Energy Market and Economic Impacts of S.2191, the Lieberman-Warner Climate Security Act of 2007*, SR-OIAF/2008/01, April 2008. Available at: <http://www.eia.doe.gov/oiaf/servicrpt/s2191/index.html>.

## CC-5. Explore Various Market-Based Systems to Manage GHG Emissions

### Policy Description

Many organizations and governmental entities are exploring and implementing market-based programs for managing GHG emissions. For example, the European Union Emissions Trading Scheme and the Northeast Regional Greenhouse Gas Initiative are being implemented. WCI is developing a regional cap-and-trade system among western states (Alaska is an observer to WCI). The U.S. Congress is also developing and considering market-based systems that would be enacted nationwide if adopted, with varying scopes on industry. Details of these proposals vary, as do their potential impacts on Alaska.

Alaska has many issues to be addressed as it considers developing a state climate policy. Alaska is a major producer of oil and natural gas, which makes up a large portion of its economy and GHG footprint. Any market-based system adopted by Alaska or the United States could have significant effects on the nationwide demand for oil and gas. In general, any efforts to put a price on carbon will increase the wellhead value of both gas and crude oil from the North Slope. According to the Institute for Social and Economic Research (ISER), “natural gas contains 55% as much CO<sub>2</sub> per unit energy as coal. Switching from coal to natural gas is one sure way for electric utilities to reduce GHG emissions. Economic theory predicts that the more stringent is the cap on emissions, the more the demand for natural gas will be stimulated.”<sup>57</sup> The projections contained in this ISER analysis of the Lieberman-Warner bill show an additional \$4–\$9 billion per year of wellhead value, translating into an additional \$1–\$2 billion per year of gas revenue to the state treasury under Lieberman-Warner.

This policy recommends that a study be commissioned to explore the implications to Alaska of participating in the various market-based approaches for managing GHG emissions, including cap-and-trade programs, carbon taxes, and cap-and-dividend programs. The study would include investigation into the experiences of those who have implemented market-based systems, such as the European Union and the U.S. Northeast. The study could further make a recommendation on the type of market-based system that would be most beneficial to Alaska or the type of system that the state should prepare for. An appropriately designed market-based program can help ensure that GHG emissions are achieved as cost-effectively as possible. Revenues generated from the market-based program can be used to cover program costs, generate jobs, establish loan or grant programs, or offset impacts.

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<sup>57</sup> Steve Colt, Institute for Social and Economic Research, “Comments on the Lieberman-Warner Climate Security Act and Lieberman-Warner proposed legislation,” April 11, 2008 ([www.iser.uaa.alaska.edu/Publications/Colt\\_ACCF-NAM\\_Ak2.pdf](http://www.iser.uaa.alaska.edu/Publications/Colt_ACCF-NAM_Ak2.pdf)); and Steve Colt, Scott Goldsmith, and Peter Larson, ISER, “Analysis of National Greenhouse Gas (GHG) Control Legislation on Alaska Energy Prices and Consumer Costs,” July 2007 ([www.iser.uaa.alaska.edu/presentations/Bingaman\\_update\\_V2.pdf](http://www.iser.uaa.alaska.edu/presentations/Bingaman_update_V2.pdf)).



## Policy Design

Market-based initiatives to manage carbon are under development.<sup>58</sup> Exploring the impact on Alaska of the various market-based systems in detail requires rigorous economic inquiry. This policy recommends that research be conducted to explore different market-based initiatives and their potential impacts on Alaska.

### Goals:

- Examine how a market-based program interacts with existing and proposed emission reduction measures, including regulations, performance-based standards, price subsidies, tax credits, and other technology-promoting initiatives.
- Examine how to oversee and manage revenues generated by any future market-based program, and determine whether changes to existing laws will be needed.
- Parallel to and in coordination with this study, participate in federal and regional discussions on and implementation of a market-based program for Alaska.

The three major types of market-based systems under debate are carbon taxes, a carbon cap-and-trade program, and a carbon cap-and-dividend program. The advisability and costs and benefits of these approaches for Alaska need further investigation. A brief description of these market-based systems follows:

- A *carbon tax* is a pollution tax on CO<sub>2</sub> and other GHG emissions, levied on the production, distribution, or use of a fossil fuel. The government would set a price for GHG emissions and translate that price into a tax on covered entities, such as the electric power industry, based on the amount of GHG emitted from fossil fuels. Because this tax would make energy more expensive to produce, it would encourage more energy conservation from both producers and consumers.<sup>59</sup>
- A *carbon cap-and-trade program* would set a cap on the amount of allowable GHG emissions. The program would grant a certain number of allowances to entities (by geographic area or by industry). Entities that emit fewer GHG emissions than their allowances could sell their unused allowances on the market to entities that exceed their allowances, thereby putting a price on carbon that would encourage covered entities to reduce their GHG emissions. Some cap-and-trade programs propose a “safety valve”—if the price of a GHG allowance becomes too high, entities would be able to purchase additional allowances at some fixed price. The cap would lower over time, affecting the costs of carbon and decreasing emissions.<sup>60</sup>
- A *carbon cap-and-dividend program* establishes permits for emitting CO<sub>2</sub> that are auctioned to potential emitters, with the revenues being returned to citizens in the form of dividends,

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<sup>58</sup> See [www.pewclimate.org/federal/analysis/congress/110/cap-trade-bills](http://www.pewclimate.org/federal/analysis/congress/110/cap-trade-bills) for a table summarizing the Economy-Wide Cap & Trade Proposals in the 110th Congress prepared by the Pew Center on Global Climate Change. See [www.westernclimateinitiative.org/ewebeditpro/items/O104F19865.PDF](http://www.westernclimateinitiative.org/ewebeditpro/items/O104F19865.PDF) for the WCI design recommendations.

<sup>59</sup> Pew Center on Global Climate Change, “Tax Policies to Reduce Greenhouse Gas Emissions.” Available at: <http://www.pewclimate.org/DDCF-Briefs/Taxes>.

<sup>60</sup> Ibid.

based on specific criteria for distribution (e.g., equal distribution or need). This could be modeled after the Alaska Permanent Fund.<sup>61</sup> Similar to a cap-and-trade program, the cap would lower over time, and the price of carbon would rise. Dividends would rise as the price of carbon rises.<sup>62</sup>

**Timing:** In 2009, the Climate Change Sub-Cabinet would commission a research study to engage Alaska professionals in an Alaska-specific analysis of the impacts of participating in various market-based proposals, and recommend the future path for Alaska.

**Parties Involved:** Climate Change Sub-Cabinet, commissioned researcher.

**Other:** None.

### Implementation Mechanisms

The Climate Change Sub-Cabinet would commission a study on market-based options, potentially by leveraging existing funding and contracting mechanisms.

### Related Programs/Policies in Place

ISER has conducted some economic analyses of the potential effects of carbon market legislation on Alaska (<http://www.iser.uaa.alaska.edu/Home/ResearchAreas/climatechange.htm>).

### Type(s) of GHG Reductions

Not applicable.

### Estimated GHG Reductions and Net Costs or Cost Savings

Not applicable.

### Key Uncertainties

The time frame for developing a federal market-based program to manage GHG emissions is unknown. Recent discussions in Congress and announcements from President Obama suggest that a GHG cap-and-trade program may be on the horizon. The pace of development of this federal legislation could affect the need for a study. Mandatory requirements could be developed before Alaska evaluates options and engages in discussions.

### Additional Benefits and Costs

#### Benefits

The results of this analysis could help inform Alaska's participation in some market-based system, such as WCI.

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<sup>61</sup> For more information, see: <https://www.pfd.state.ak.us/>.

<sup>62</sup> Cap and Dividend. "How Cap and Dividend Works." Available at: <http://www.capanddividend.org/?q=readfirst>.

## **Costs**

The costs of this policy will be the costs of commissioning a study, which will vary, depending on the final scope of the study. Initial estimates range between \$25,000 and \$50,000.

## **Feasibility Issues**

It is unclear who would conduct this analysis, although ISER is well positioned given its past work on climate change legislation and the resulting impacts on the Alaskan economy. Further, the mechanism for funding and overseeing this study is not yet known.

## **Status of Group Approval**

Approved.

## **Level of Group Support**

Unanimous.

## **Barriers to Consensus**

Not applicable.

## CC-6. Coordinate Implementation of Alaska's Efforts to Address Climate Change

### Policy Description

Responding to climate change and reducing GHG emissions will require a dedicated and coordinated effort. Better coordination can promote efficiencies and effectiveness in the following areas:

- Tracking climate change efforts across state agencies in Alaska;
- Communicating between Alaska's efforts and other efforts (e.g., federal activities);
- Proactively interacting with and responding to expected federal initiatives on climate change;
- Providing access to information and education resources; and
- Improving outreach to citizens and businesses on climate change.

To achieve the above, a coordinating entity is needed. This coordinating entity could be an Alaska Climate Change Coordinating Committee under the Sub-Cabinet or a designated person or office that brings together representatives of state agencies. It is recommended that the Sub-Cabinet ensure coordination of the work already started through the Advisory Committee process. If a committee or lead office is not identified, the Sub-Cabinet should authorize a task force to continue to identify ways to ensure coordination among state agencies, especially on policy and strategy coordination and responses to federal inquiries and reporting requirements. With a strong coordination effort, resources and funding can be identified, secured, and leveraged to further Alaska's climate change policies and goals.

### Policy Design

#### Goals:

- Provide focus to state agency efforts as recommendations of the Sub-Cabinet are implemented.
- Ensure the coordination of state agency development of position papers, guidance documents, policies, procedures, and standards to establish and implement federal and state climate change programs.
- Provide outreach and consistent information on climate change mitigation technology and regulatory guidance to industry and the public.
- Ensure the Sub-Cabinet's Climate Change Strategy efforts are coordinated with the Alaska Energy Plan (see CC-4), the Alaska Municipal League, industry, WCI, and advisory groups working on climate change efforts in Alaska.
- Provide a primary point of contact for federal agencies addressing climate change in Alaska.

### *Activities*

- Support a GHG emission reporting program and associated inventories (see CC-1) as mandated by federal or state policies.
- Develop state government partnerships with private citizens, businesses, and local governments.
- Promote actions for state agencies to take to address climate change (see CC-3).
- Provide outreach and access to information by continuing to support the Alaska Climate Change Strategy Web site. (Consider evolution to a portal to provide additional information and functionality as a clearinghouse of climate change information, resources, and education materials among state agencies.)

**Timing:** This coordination effort should be initiated as soon as possible after approval by the Climate Change Sub-Cabinet.

**Parties Involved:** Key to the success of the effort will be identifying and maximizing partnerships within state agencies, and with federal, private, and public programs. The Governor and the Governor's Office, the Office of Management and Budget, the Climate Change Sub-Cabinet, and representatives of key state departments, including DEC, Alaska Department of Fish and Game, Alaska Department of Natural Resources, and Alaska Department of Commerce, Community, and Economic Development should be involved. In 2009, the Sub-Cabinet should assess current resources and identify lead staff. Resources and staff should be committed by the end of 2009 to address the coordination goals and activities listed above.

Many groups will be partners and beneficiaries of this coordinating body, including the state legislature, Climate Change Sub-Cabinet, state and federal agencies, Alaska Municipal League, tribes, AEA, UA, state public elementary and secondary schools, communities and local government, and industry.

**Other:** None.

### **Implementation Mechanisms**

To establish an Alaska Climate Change Coordinating Program, the Sub-Cabinet must provide authorization to an entity to lead the effort. Additionally, funding for activities may be required. The Sub-Cabinet should submit legislative or budget documentation necessary to procure the resources and authority to charter this coordination effort. DEC will continue to have responsibilities for permitting, database, and reporting tools for administering a GHG Reporting Program (see CC-1). Appropriate tools and skills must be put in place to support coordination and outreach efforts, including technology and training as necessary.

### **Related Programs/Policies in Place**

Creating a coordinating function with the mission of tracking climate change and coordinating the state's response will help to ensure the success of the other policies in the Alaska Climate Change Strategy. Staff tasked with this effort can also serve as key liaisons and resources for the private sector if or when the state enacts regulations governing GHG emissions or reporting. A Web portal would serve as an information hub to provide outreach for preparing for and responding to climate change, and for efforts to monitor, measure, and research climate change.

Many state agencies already have existing staff who deal with climate change issues and outreach. This policy would not fund these positions or create new ones within these agencies; rather, it would serve to coordinate and complement these activities.

### **Type(s) of GHG Reductions**

Not applicable.

### **Estimated GHG Reductions and Net Costs or Cost Savings**

Not applicable.

### **Key Uncertainties**

Challenges include engaging all agencies with responsibilities for addressing climate change, establishing clear responsibilities for coordinating roles, identifying needed funding to carry out the coordination, organizing information to present to the public, and identifying processes to maintain and update a Web site.

### **Additional Benefits and Costs**

#### **Benefits**

Creating a coordination function is essential to track and provide some cohesion to the state's response to the Sub-Cabinet recommendations. It will also facilitate state agencies' efforts to educate businesses, agencies, and individuals seeking knowledge about climate change programs and policies, thus improving overall understanding of climate change issues. Finally, it will provide a means for state agencies to share climate change information and coordinate interactions with the federal government.

#### **Costs**

Costs primarily entail resources for personnel to provide the point of coordination, including salaries and benefits, potentially contracting costs to develop materials and support a Web portal, and training costs to ensure staff have the skills needed to provide outreach and education.

### **Feasibility Issues**

Key feasibility issues include identifying a funding source and appropriately coordinating across existing programs. In addition, the effort needs to be flexible and generate sufficient political will to be effective and sustained.

### **Status of Group Approval**

Approved.

### **Level of Group Support**

Supermajority.

## Barriers to Consensus

Two MAG members present at the final MAG meeting objected to this option, stating that it duplicated existing efforts, that a new agency should not be created, and that there is not a need to expend funds on coordination.

