

**Cross-Cutting Issues Technical Work Group**  
**Summary List of Pending Policy Options**

	Policy Option	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO <sub>2</sub> e)	Status of Option
		2010	2020	Total 2007- 2020			
CC-1	GHG Inventories and Forecasts	<i>Not Quantified</i>					Pending
CC-2	GHG Reporting	<i>Not Quantified</i>					Pending
CC-3	GHG Registry	<i>Not Quantified</i>					Pending
CC-4	State Climate Public Education and Outreach	<i>Not Quantified</i>					Pending
CC-6	Options for Goals or Targets	<i>Not Quantified</i>					Pending
CC-7	The State's Own GHG Emissions	<i>Not Quantified</i>					Pending

*Note: Italicized text reflects questions for or items still under consideration by the TWG as it continues its work on elaborating option descriptions.*

## CC-1 GHG Inventories and Forecasts

### Policy Description

Greenhouse gas (GHG) emissions inventories and forecasts are essential to understanding the magnitude of all emission sources and sinks (both anthropogenic and natural), the relative contribution of various types of emission sources and sinks to total emissions, and the factors that affect trends over time. The initial use for inventories and forecasts will be to inform state leaders and the public on statewide trends, opportunities for mitigating emissions or enhancing sinks, and verifying GHG reductions associated with implementation of Montana's Climate Action Plan. However, it is expected that other uses of the data will be identified as the program evolves. The responsibility for preparing GHG inventories and sinks should reside with the Department of Environmental Quality (DEQ) which has the expertise needed to systematically compile information on GHG sources and sinks using established methods and data sources. Other state agencies as well as private facilities (sources) will need to provide data to DEQ on a periodic basis. This program should be integrated with existing DEQ inventory and forecast functions as seamlessly as possible. Whenever possible, data from existing reporting systems will be used. Opportunities for public participation by voluntary self-reporting of individual and community GHG reductions (with appropriate privacy protection) should be made available, even where the data are qualitative. The inventory and forecast will be an ongoing effort that will be improved over time, based on improvements to the accuracy and completeness of data needed to support this effort.

### Policy Design

The CC TWG recommends that Montana develop its capacity for statewide emissions inventories and forecasts. Key elements are noted below. Additional information regarding important program characteristics is included in the accompanying *GHG Inventories and Forecasts Design Options Matrix*.

#### Goals:

- Develop a periodic, consistent, and complete inventory of emission sources and sinks on a continuing basis with forecasts. The time period for forecasts should cover a 20-year planning horizon to be consistent with other state planning efforts (e.g., transportation, electric power transmission and distribution, or water and sewer). The inventory and forecast should be updated once every two years and include the decennial years (e.g., 2010, 2020, 2030, etc.).
- Inventory of all natural and man-made emissions generated within the boundaries of the state (i.e., production-based inventory approach) as well as emissions associated with energy imported and consumed in the state (i.e., consumption-based inventory approach).
- Provide a projection of the emissions from the same source categories and on the same basis into the future for a realistic forecast of what the emissions will be in future years, reflecting expected growth and application of scheduled and expected mitigation options.
- Provide a basis for documenting reductions and credits “by difference” from year to year.

**Timing:** The program should be implemented as soon as possible, as allowed by funding. The process should repeat as often as necessary to track significant reductions or increases, beginning with every year for major point (Title V) sources and every two years for other sources.

**Parties Involved:** All emission sources and sinks (both anthropogenic and natural) should be included.

**Other:** *Provide user-friendly options for estimating GHG emission reductions by individuals, families, and communities. Methods will be recommended for voluntary use and self-reporting. The data will parallel other, more scientifically rigorous reporting. The intent is to encourage awareness, understanding and broad participation in reducing state GHG emissions by citizens and communities.*

### **Implementation Mechanisms**

Under Development.

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

Under Development.

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

Establishing a GHG inventory and forecasting function within state government is an enabling policy to encourage tracking, management, and ultimately reduction of GHG emissions. It does not reduce GHG emissions itself per se. Public disclosure of GHG emissions may encourage sources to reduce emissions.

### **Estimated GHG Savings and Costs per MTCO<sub>2e</sub>**

This option could be considered an administrative and enabling function of the Climate Action Plan (including enabling any future cap and trade options) and will incur overhead costs but not directly reduce emissions per se except where these data motivate reductions for public relations by individual companies or sources.

**Data Sources:** Many.

**Quantification Methods:** Several – will be designed to follow standard, comparative and accepted approaches that allow exchange/sale of emission credits should this become a need in Montana.

**Key Assumptions:** *Reporting will establish a baseline for GHG emissions and provide a monitoring tool for assessing the efficacy of the Climate Action Plan. Adjustments will be made in the Plan as certain techniques prove more or less beneficial than projected. Downward trends will allow for further incentives to be developed for sectors that show continuous improvement. Effective emission sinks can be identified and augmented. Public participation will inform and involve citizens in the overall goal of GHG emission reductions. Forecasting will allow state officials to plan for, implement and monitor necessary additions emission sources or sinks to the emission cycle.*

### **Key Uncertainties**

- Adequacy of on-going funding for a statewide GHG inventory and forecasting function.

- *Quality and quantity of existing data that will be useful and can be effectively integrated into a uniform reporting system.*
- *Quality and timeliness of emission sink quantification and inclusion of all potential sinks.*
- *Most effective frequency of reporting.*

### **Additional Benefits and Costs**

*A voluntary survey of a cross-section of Montana residents' lifestyles will elucidate the level of awareness of sources of individual GHG emissions and steps currently being taken, if any, to reduce them. The survey will provide a baseline for a parallel, more qualitative report that will accompany the more technical reporting by non-residential sectors.*

### **Feasibility Issues**

- *Incorporating the reporting and forecasting efforts into the existing workload demands within the DEQ.*
- *Gathering the required data in a timely and consistent manner.*
- *Where self-reporting is the best method of obtaining data, overcoming reticence to report accurately for fear of retribution or financial disincentives.*
- *Maintaining the skills and expertise to accurately forecast based on trends, particularly in the early years of reporting.*

### **Status of Group Approval**

Pending

### **Level of Group Support**

TBD

### **Barriers to Consensus**

TBD

## CC-2 State Greenhouse Gas Reporting

### Policy Description

A GHG reporting system is designed to provide for the measurement and then reporting of emissions. GHG reporting can help sources identify emission reduction opportunities and manage risks associated with possible future GHG mandates by moving “up the learning curve.” GHG reporting is typically a precursor for sources to participate in GHG reduction programs and a GHG emission reduction registry. Moreover, a reporting system (coupled with an associated registry) would enable sources to secure “baseline protection” so as to allow reductions to be credited under a future emission reduction program.

Tracking and reporting of GHG emissions would also help in the construction of periodic state GHG inventories. Reporting and the related inventory function will also provide valuable information for assessing the efficacy of measures implemented to reduce GHG.

Tracking GHG emission performance will make it easier for sources to receive recognition and “goodwill” for successful emission reduction efforts.

In order to encourage awareness, understanding, and broad participation on the part of the public, self-reporting by individuals and communities should be allowed although self-reporting by individuals and communities would not be subject to the same standards necessary to ensure accuracy as reporting of GHG emissions by sources for inclusion in a registry. (This is considered further in CC-4, *Public Education and Outreach*.)

Finally, developing a GHG reporting program could enable the state to influence the development of GHG reporting practices throughout the region and nation and build consistency with other state or regional GHG reporting programs.

### Policy Design

The CC TWG recommends that Montana develop GHG reporting requirements and opportunities for its sources and citizens. Key elements are noted below. Additional information regarding important program characteristics is included in the accompanying *GHG Reporting Design Options Matrix*.

- Subject to consistently rigorous quantification, GHG reporting should not be constrained to particular sectors, sources, or approaches, in order to encourage GHG mitigation activities from all quarters.
- Mandatory GHG reporting should be phased in by sectors as rigorous, standardized quantification protocols, base data, and tools become available, and as responsible parties become clear. Entities should be allowed to report GHG emissions voluntarily before mandatory reporting applies to them; and the state, municipalities, and other jurisdictions should be allowed to report emissions associated with their own activities and any programs they may implement.
- Reporting should be applicable to all sources (e.g., combustion, processes, vehicles, etc.) but using common sense regarding de minimis emissions.

- The goal should be reporting of GHG emissions on an organization-wide basis within Montana but with greatest possible detail by facility, in order to facilitate baseline protection.
- Reporting should occur annually on a calendar-year basis for all six traditional GHGs and, to the extent possible, for black carbon.
- Mandatory reporting of direct emissions<sup>1</sup> should be required for stationary sources with an existing reporting requirement under Montana DEQ regulations 17.8.1701 through 17.8.1705. Reporting of emissions associated with purchased power and heat<sup>2</sup> should be phased in, and voluntary reporting of other indirect emissions<sup>3</sup> should be allowed. Provisions should also be made for voluntary self-reporting by individuals and communities as considered further in CC-4, *Public Education and Outreach*.
- Every effort should be made to maximize consistency with federal, regional, and other states' GHG reporting programs.
- GHG emissions reports should be verified through self-certification and Montana DEQ spot-checks; to qualify for future registry purposes, reports should undergo third-party verification.
- Project-based emissions reporting should be allowed, when properly identified as such and quantified with equally rigorous consistency.
- The reporting program should provide for appropriate public transparency of reported emissions.

**Goals:** Implementation of a Montana GHG Reporting Program as early as possible.

**Timing:** As soon as possible, preferably by 2008.

**Parties Involved:** Initially, mandatory for stationary sources with air quality permit; voluntary for other direct and indirect sources.

### Implementation Mechanisms

Utilization of existing DEQ regulations, which require all entities with an air quality permit to report emissions of regulated pollutants on an annual basis. Reporting protocols and opportunities for parties not subject to existing reporting requirements will need to be developed, probably by DEQ.

### Related Policies/Programs in Place

Many sources in Montana report criteria pollutant emissions in order to comply with various federal and state regulatory programs. Most electric generating units are also required to report CO<sub>2</sub> emissions to the Energy Information Administration (EIA). Some sources may report GHG emissions on a voluntary basis to federal, state, or privately-run programs. Otherwise, there is no broad, statewide GHG reporting program in Montana.

<sup>1</sup> Defined as "Scope 1" emissions in the *GHG Protocol*.

<sup>2</sup> Defined as "Scope 2" emissions in the *GHG Protocol*.

<sup>3</sup> Defined as "Scope 3" emissions in the *GHG Protocol*.

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

GHG reporting is an enabling policy to encourage management, and ultimately reduction, of GHG emissions. It does not reduce GHG emissions itself per se.

### **Estimated GHG Savings and Costs per MTCO<sub>2</sub>e**

The reporting components of this policy option would help position Montana entities for participation in an emissions trading program should one develop in the future, leading to cost savings. Although establishment of a credible reporting program is essential for participating in a trading program, these elements do not reduce GHG emissions themselves.

### **Key Uncertainties**

Uncertainties exist with respect to quantification of some GHG emissions from some sources, but standard quantification protocols are rapidly being developed and accepted widely. There remain significant uncertainties with respect to how various state, regional, and/or federal GHG reporting programs may develop.

### **Additional Benefits and Costs**

Not applicable.

### **Feasibility Issues**

None Cited.

### **Status of Group Approval**

Pending.

### **Level of Group Support**

TBD

### **Barriers to Consensus**

TBD

## CC-3 State Greenhouse Gas Registry

### Policy Description

A GHG registry enables measurement and recording of GHG emissions reductions at a macro- or micro-scale level in a central repository with a “transaction ledger” capacity to support tracking, management, and “ownership” of emission reductions as well as to encourage GHG reductions. It also assists with baseline protection and/or the crediting of actions by implementing programs and parties in relation to possible emissions reduction goals. And, it will provide a mechanism for regional, multi-state, and cross-border cooperation. Subject to appropriately rigorous quantification, participation in a GHG registry should not be constrained to particular sectors, sources, or approaches so as to encourage GHG mitigation activities from all quarters. In particular, a GHG registry should be able to incorporate activities associated with all of the options that the CCAC approves, whether reflective of reductions in emissions of GHGs or increases in biological or geological sequestration of carbon.

### Policy Design

The CC TWG recommends that Montana develop or join a GHG registry for the benefit of its sources and citizens. Key elements are noted below. Additional information regarding important program characteristics is included in the accompanying *GHG Registry Design Options Matrix*.

**Goals:** The TWG recommends that Montana actively engage with other states in developing a regional or national GHG registry that will comprehensively meet the state’s needs. If no regional or national multi-state registry option will fully meet Montana’s needs, the state should still join and participate to the greatest extent possible, and develop whatever supplemental registry capacity is required to meet the remaining specific needs of Montana. Together, these approaches should incorporate the activities associated with all options the CCAC recommends, provide adequate quality verification, and allow project-level reporting. Ongoing operating costs should be borne by participants. Recommendations for key registry design characteristics build off the GHG Reporting policy option (CC-2). Key elements include:

- Geographic applicability at least at the statewide level and as broadly (i.e., regionally or nationally) as possible.
- Allowing sources to start as far back chronologically as good data exists, as affirmed by third-party verification, and allowing registration of project-based reductions or “offsets” that are equally rigorously quantified.
- Incorporating adequate safeguards to ensure that reductions are not double-counted by multiple registry participants, and providing appropriate transparency.
- Striving for maximum consistency with other state, regional, and/or national efforts; greatest flexibility as GHG mitigation approaches evolve; and providing guidance to assist participants.
- Allowing the state to register reductions associated with its programs, direct activities, or efforts, including ownership of emission reductions associated with the properties (stationary and mobile) it owns or leases, and participate in emission trading. The

revenue associated with the sale of emission reduction credits generated by the state could be used to support the GHG emission inventory, forecasting, and reporting functions within state government.

**Timing:** As soon as possible after a GHG reporting program is operating.

**Parties Involved:** Coverage should include all entities that can verify ownership of GHG emission reductions.

### **Implementation Mechanisms**

The program should be overseen by MT DEQ; ongoing operating costs should be shared by participants benefiting from the registry.

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

Under Development.

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

Under Development.

### **Estimated GHG Savings and Costs per MTCO<sub>2</sub>e**

Not applicable.

### **Key Uncertainties**

There remain significant uncertainties with respect to how various state, regional, and/or federal GHG registry programs may develop. Involvement in early registry implementation – as issues are deliberated among states – will advantage Montana in their ultimate outcome.

### **Additional Benefits and Costs**

None Cited.

### **Feasibility Issues**

None Cited.

### **Status of Group Approval**

Pending.

### **Level of Group Support**

TBD

### **Barriers to Consensus**

TBD

## CC-4 State Climate Public Education and Outreach

### Policy Description

Explicitly articulated public education and outreach can support GHG emissions reduction efforts at all levels in the context of emissions reduction programs, policies, or goals. Public education and outreach is vital to fostering a broad awareness of climate change issues and effects (including co-benefits, such as clean air and public health) among the state's citizens. Such awareness is necessary to engage citizens in actions to reduce GHG emissions. Public education and outreach efforts should integrate with and build upon existing outreach efforts involving climate change and related issues in the state. Ultimately, public education and outreach will be the foundation for the long-term success of all the policy actions proposed by the CCAC as well as those which may evolve in the future.

### Policy Design

The TWG recommends that the State lead by example in its own education and outreach activities by establishing a pro-active public education and outreach capability, and using it to target education and outreach activities to five specific audiences:

- Policymakers (legislators, regulators, executive branch, agencies) – because implementation of climate actions hinges on policymakers' approval.
- Younger Generations – by integrating climate change into educational curricula, post-secondary degree programs, and professional licensing programs.
- Community Leaders and Community-Based Organizations (e.g., institutions, municipalities, service clubs, social and affinity groups, non-governmental organizations, etc.) – in order to recognize leadership, share success stories and role models, and expand climate involvement and participation within civic society.
- General Public – to increase awareness and engage citizens in climate-stabilizing actions in their personal and professional lives.
- Industrial and Economic Sectors – in order to recognize leadership; share success stories and role models; and expand climate involvement and participation within the business community.

Additional specific public education and outreach suggestions are provided in the accompanying *GHG Education Design Options Matrix*.

**Goals:** The overarching goal is a wholesale shift in public consciousness away from uninformed consumerism to commitment to choices that enhance personal, community, and statewide health, and contribute to productive, thriving natural systems.

**Timing:** Public education and outreach efforts should commence as rapidly as possible and continue evolving and spreading over time; these efforts need to be institutionalized and made permanent.

**Parties Involved:** Public education and outreach should involve and apply to all parties, levels, and sectors.

#### **Implementation Mechanisms**

Montana's state climate education and outreach efforts should initially be overseen largely by Montana DEQ, but should involve many parties; over time, responsibility should expand to all sectors.

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

None Cited.

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

Not applicable.

#### **Estimated GHG Savings and Costs per MTCO<sub>2</sub>e**

Not applicable.

#### **Key Uncertainties**

None Cited.

#### **Additional Benefits and Costs**

None Cited.

#### **Feasibility Issues**

None Cited.

#### **Status of Group Approval**

Pending.

#### **Level of Group Support**

TBD

#### **Barriers to Consensus**

TBD

## CC-6 Options for State Greenhouse Gas Goals or Targets

*NOTE: This policy option has not been developed, pending quantification results from other TWGs.*

### Policy Description

The CCAC recommends that Montana establish a statewide, economy-wide GHG reduction target to reduce GHG emissions to [<past\_date>] levels by [<future\_date1>], and to an additional [x] % reduction below those levels by [<future\_date2>]. In lieu of establishing a specific target sooner than [<future\_date1>], the CCAC also strongly recommends the early and aggressive implementation of the CCAC recommendations, along with a corresponding set of incentives to promote early adoption.

### Policy Design

Under Development.

**Goals:** Under Development.

**Timing:** Under Development.

**Parties Involved:** Under Development.

### Implementation Mechanisms

None Cited.

### Related Policies/Programs in Place

Under Development.

### Types(s) of GHG Reductions

Under Development/

### Estimated GHG Savings and Costs per MTCO<sub>2</sub>e

Under Development.

### Key Uncertainties

Future growth rate in emissions, particularly after 2020, as well as the timing and scope of implementation of the CCAC recommendations for specific policy options.

### Additional Benefits and Costs

None Cited.

### Feasibility Issues

None Cited.

### Status of Group Approval

Pending.

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## CC-7 The State's Own GHG Emissions (Lead by Example)

### CC-7.1 Establish a Target for Reducing the State's Own GHG Emissions

#### Policy Description

State government is responsible for providing a multitude of services for the public that are delivered through very diverse operations and result in wide-ranging GHG emission activities. State government can take the lead in demonstrating that reductions in GHG emissions can be achieved through analysis of current operations, identification of significant GHG sources, and implementation of changes in technology, procedures, behavior, operations, and services provided. The state can also encourage and/or incept reductions by others in a variety of ways.

The establishment of broad-ranging goals for GHG reductions for state government will be helpful for setting an example and building expectations, but actual reductions must be realized at the agency level. Disaggregating the State's own GHG emissions to the agency level and requiring annual agency-specific reports on GHG reduction progress would be an effective way to measure and manage the State's emissions. A multi-agency group should oversee the on-going climate efforts of state agencies, providing direction, guidance, resources, shared approaches, and recognition to agencies and employees working to reduce the State's GHG emissions.

#### Policy Design

The State should establish GHG reduction targets for its on GHG emissions. State agencies first need to develop agency-specific GHG emissions inventory data. This will become the baseline data for ongoing emission reduction activities and measurement which will be summarized in annual reports by each agency. Agency reports will be aggregated into a summary report reflecting State GHG emissions.

**Goals:** Reduce GHG emissions from Montana state operations by \_\_\_\_% by 20\_\_.

**Timing:** The first annual report by agencies will reflect agency-level inventories. The second annual report should reflect initial progress in reducing GHG emissions as agencies begin to plan and implement operational changes. Future annual reports should show further progress in reducing agency GHG reductions.

**Parties Involved:** Coverage should include all operations of all state agencies.

#### Implementation Mechanisms

Under Development.

#### Related Policies/Programs in Place

Under Development.

**Types(s) of GHG Reductions**

Under Development.

**Estimated GHG Savings and Costs per MTCO<sub>2</sub>e**

Under Development.

**Key Uncertainties**

None Cited.

**Additional Benefits and Costs**

None Cited.

**Feasibility Issues**

None Cited.

**Status of Group Approval**

Pending.

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD

## CC-7.2 Climate-Neutral Bonding

### Policy Description

This policy option is being incorporated into and quantified by the RCI TWG.

## CC-7.3 Require GHG Emissions Assessments as Part of Environmental Impact Statements

### Policy Description

Environmental Impact Statements (EIS) determine the impacts of development projects upon Montana's communities and natural resources. Requiring GHG emissions as part of EIS documents will provide data regarding baseline GHG emissions and estimates for future emissions for each development option described in the EIS. Such information could be helpful for making development decisions with reduced GHG emissions.

### Policy Design

Agencies will be instructed to include EIS data regarding baseline GHG emissions and estimates for future emissions for every required EIS. This information will guide officials and developers in choosing technologies and activities which result in development that protects the environment and reduces significant contributions of GHG.

**Goals:** Under Development.

**Timing:** Under Development.

**Parties Involved:** Under Development.

### Implementation Mechanisms

Agency personnel which complete EIS statements will be given training and resources to understand and develop protocols for establishing GHG emission baselines and estimating emissions from future planned activities.

### Related Policies/Programs in Place

Under Development.

### Types(s) of GHG Reductions

Under Development.

### Estimated GHG Savings and Costs per MTCO<sub>2</sub>e

Not applicable.

### Key Uncertainties

None Cited.

### Additional Benefits and Costs

None Cited.

### Feasibility Issues

None Cited.

### Status of Group Approval

Pending as part of CC-7.

**Level of Group Support**

TBD

**Barriers to Consensus**

TBD