Cross-Cutting Issues Subcommittee

Summary List of Pending Policy Options

	Policy Option	GHG Reductions ($MMtCO_2e$)			Net Present Value 2007–2020 (Million $)	Cost-Effectiveness ($/tCO_2e$)	Status of Option
		2010	2020	Total 2007-2020			
CC-1	GHG Inventories, Forecasting, Reporting, and Registry	*Not Quantified*					Pending
CC-2	Statewide GHG Reduction Goals and Targets	*Not Quantified*					Pending
CC-3	State and Local Government GHG Emissions (Lead-by-Example)	*Not Quantified*					Pending
CC-4	Public Education and Outreach	*Not Quantified*					Pending
CC-5	Tax and Cap Policies- Lead Transferred to the CRE SC	*Not Quantified*					Transferred
CC-6	Seek Funding for Implementation of ICCAC Recommendations	*Not Quantified*					Pending
CC-7	Adaptation and Vulnerability	*Not Quantified*					Pending
CC-8	Participate in Regional and Multi-State GHG Reduction Efforts	*Not Quantified*					Pending
CC-9	Encourage the Creation of a Business-Oriented Organization to Facilitate Investment in Climate Related Business Opportunities and to Share Information and Strategies, Recognize Successes, and Support Aggressive GHG Reduction Goals	*Not Quantified*					Pending

CC-1. GHG Inventories, Forecasting, Reporting, and Registry

Policy Description

Greenhouse gas (GHG) emissions inventories and forecasts are essential for 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. Inventories and forecasts help 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 action plan initiatives.

GHG reporting reflects the measurement and reporting of GHG emissions to support tracking and management of emissions. GHG reporting can help sources identify emission reduction opportunities and reduce risks associated with possible future GHG mandates by moving "up the learning curve." Tracking and reporting of GHG emissions can also help in the construction of periodic state GHG inventories. GHG reporting is a precursor for sources to participate in GHG reduction programs, opportunities for recognition, and a GHG emission reduction registry, as well as to secure "baseline protection" (i.e., credit for early reductions).

A GHG registry enables recording of GHG emissions reductions in a central repository with "transaction ledger" capacity to support tracking, management, and "ownership" of emission reductions; establish baseline protection; enable recognition opportunities; and/or provide a mechanism for regional, multi-state, and cross-border cooperation. Properly designed registry structures also provide a foundation for possible future trading programs.

Policy Design

The Iowa Climate Change Advisory Council (ICCAC) recommends that the state institute a formal GHG inventory and forecast function within the Iowa Department of Natural Resources and in conjunction with the Office of Energy Independence (OEI), to be assisted by other state agencies as needed. IDNR should play a central role in the development and maintenance of the GHG inventory, forecast, reporting, and registry functions because the mission of OEI focuses the agency on both energy and GHG emission reductions. Construction of GHG expertise within OEI will assist the agency in developing energy and GHG emission reductions strategies as it administers its programs.

The ICCAC notes that the State of Iowa has joined the effort to develop a national GHG registry through *The Climate Registry*. Being a charter state in this effort should help ensure that Iowa's needs and priorities are addressed in the course of *The Climate Registry*'s development. To the extent that Iowa's needs may not be fully met by *The Climate Registry*, Iowa should consider developing supplemental or ancillary registry capacity or opportunity.

Key elements of program design include:

Inventory and Forecasting

The statewide inventory and forecasting function must include all anthropogenic emission sources and sinks within the state.

As much as possible, the forecasting function should incorporate current and projected GHG emissions trends based on business-as-usual, with additional scenarios that incorporate modified trends based upon projected impacts of climate change.

Reporting and Registry

The state should require mandatory reporting of GHG emissions by public and private organizations having net GHG emissions exceeding *de minimis* levels. *De minimis* levels should be determined at levels that maintain consistency with existing and developing regional and national programs.

Optional reporting, or opt-ins, should be allowed for sources with GHG emissions below *de minimis* levels.

Provision should be made for optional reporting of sinks, including processes for aggregation and reporting of small-quantity sinks.

Reporting shall use the scoping approaches developed by the World Resources Institute in the GHG Protocol for segregation of direct and indirect emissions and to maintain the ability to denote ownership of emissions and emission reductions for potential crediting processes.

Certification criteria for registry acceptance should be developed in accordance with existing and developing regional and national programs.

Reporting should occur annually on a calendar-year basis for all six traditional GHGs as recognized by the IPCC.

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 DPHE 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.

The reporting program should provide safeguards to allow baseline protection for sources.

Goals:

Develop a inventory and forecasting capacity for statewide, anthropogenic emission sources and sinks.

Develop a protocol for use in preparing the statewide emission and sink inventory and forecasts.

Develop a periodic, consistent, and complete forecast of future GHG emissions in at least 5- and 10-year increments extending at least 20 years into the future.

Biennially provide a summary of statewide emission and sink trends and progress toward the meeting the ICCAC-recommended GHG emission reduction targets.

Develop a consistent protocol for preparing the inventory and forecast.

Develop a mandatory GHG emission reporting program for sources with GHG emissions exceeding the *de minimis* threshold.

Develop a registry process to record and properly document GHG emissions and emission reductions for Iowa sources and sinks.

Timing: This function should be implemented as soon as possible as allowed by current funding and enhanced over time.

Parties Involved: The Iowa Department of Natural Resources, the Iowa Office of Energy Independence (OEI), other state agencies as appropriate, all anthropogenic GHG emission sources and sinks

Other: NA

Implementation Mechanisms

[Insert text as appropriate]

Related Policies/Programs in Place

[Insert additional text as appropriate]

Types(s) of GHG Reductions

Not applicable.

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Data Sources:

Quantification Methods:

Key Assumptions:

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

Pending.

Level of Group Support

TBD.

Barriers to Consensus

TBD.

CC-2. Statewide GHG Reduction Goals and Targets

Policy Description

To date, Iowa has not adopted any mandatory statewide greenhouse gas (GHG) reduction goals. Iowa Senate File 485 which passed the Iowa Legislature in 2007 requires the Iowa Department of Natural Resources to establish a GHG inventory and a voluntary GHG gas registry for tracking, managing and crediting entities in the state that reduce their generation of greenhouse gases. Under the same legislation, the Iowa Climate Change Advisory Council (ICCAC) is required to recommend a baseline year from which to calculate future GHG reductions, and to develop multiple scenarios to reduce greenhouse emissions in Iowa by 2050, including interim years with targeted goals. A 50% reduction scenario by 2050 was specified in the legislation, and the ICCAC in its interim report on January 1, 2008, recommended an additional target of 90% reduction by 2050 with subsequent targets to be determined for interim years of 2012 and 2020. The baseline year for Iowa is recommended to be 2005.

Governor Culver issued the Green Government Executive Order (Executive Order Number Six) on February 21, 2008, which sets the goal of reducing "the use of electricity, natural gas, fuel oil and water in all state office buildings by at least 15% overall in the next 5 years, taking into account growth in the state workforce and/or changes in building operations". This follows Governor Vilsack's Executive Order 41 to reduce electricity and natural gas by 15% by 2010 from the year 2000 baseline. These executive orders are establishing policy goals of greater than 1.5% per year reductions in the use of fossil fuels for building operations in the near term, and presumably they will result in similar GHG reductions for that sector of state buildings if fully implemented.

Legislation in 2007 also produced the Iowa Office of Energy Independence and the Iowa Plan for Energy Independence. The plan "shall provide cost effective options and strategies for reducing the state's consumption of energy, dependence on foreign sources of energy, use of fossil fuels, and greenhouse gas emissions. The options and strategies developed in the plan shall provide for achieving energy independence from foreign sources of energy by the year 2025." In addition, the Midwestern Governors' Association (MGA) adopted the Energy Security and Climate Stewardship Platform for the Midwest which specifies an energy efficiency goal of at least 2% per year reduction in natural gas and electricity usage to be achieved by 2015.

Transitioning from the fossil fuel age to a new mix of energy sources like energy conservation, efficiency, cellulosic biofuels, and wind power are already creating "green collar" jobs and invigorating the economy in Iowa. Early action alternatives have much greater effect in mitigating future climate change and its impacts compared to later reductions. Reductions for developed countries in the range of 25-40% by 2020 and 80-95% by 2050 were discussed in the initial Bali round of the Framework Convention on Climate Change in December 2007. It is recognized that "substantial deviation from baseline" will also be necessary for developing economies in Latin America, the Middle East, East Asia, and centrally-planned Asia.

Policy Design

During 2008, the ICCAC is to evaluate the catalog of preferred options in terms of their potential to reduce GHG emissions in Iowa and their relative cost effectiveness. Following the construction of the baseline for Iowa emissions, the Council will estimate the opportunities available and reductions considered most effective for the state to implement. The report will be forwarded to the General Assembly of Iowa and to Governor Culver by December 31, 2008.

Goals: Development of two scenarios by the ICCAC: 1) Targets for 2012 and 2020, culminating in a state-wide GHG emission reduction of 50% by 2050 from the 2005 baseline year; 2) Targets for 2012 and 2020, culminating in a state-wide GHG emission reduction of 90% by 2050 from the 2005 baseline year.

Timing: Early action will be necessary to meet the targets for 2012 and 2020. It is anticipated that if the preferred options are fully implemented, it would set the state on the course of the reduction goal by 2050. The ICCAC will divide the catalog of actions into groups requiring action by the Governor's Office (through Executive Order), the General Assembly (through State Legislation), other state government entities (e.g., the Office of Energy Independence), and non-governmental organizations. During 2009, the ICCAC will divide into new subcommittees to foster the implementation of these actions, especially those requiring immediate and early action. ICCAC members will be involved with fostering and speaking for the catalog of options adopted during 2009.

Parties Involved: ICCAC will report to the General Assembly and Governor Culver. Initiation of legislation and/or executive action will be necessary for some specific alternatives. It is anticipated that Iowa business and industry, Regents Institutions, community colleges, and numerous non-governmental organizations will also be involved in implementation.

Other:

Implementation Mechanisms

Legislative implementation (tax credits, taxes, subsidies, command-and-control), executive action, cap-and-trade markets, and voluntary measures are all anticipated.

Related Policies/Programs in Place

See document: Iowa Policies & Programs that Reduce GHG Emissions.

Types(s) of GHG Reductions

[Insert text as appropriate]

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

Level of Group Support

TBD.

Barriers to Consensus

TBD.

CC-3. State and Local Government GHG Emissions (Lead-by-Example)

Policy Description

State of Iowa property belongs to all Iowans and its expansion and upkeep is funded by Iowans' tax dollars. The same is true for each Iowan's public school and city or county government. The majority of Iowans feel strong action is required to reduce GHG emissions and government buildings, office equipment, and vehicles are present in every Iowa community and are among the biggest energy consumers in the state. As such, they represent a very significant opportunity for changing the course of Iowa's energy use.

State and local governments should be at the forefront of energy efficiency and renewable energy. By installing the most efficient technology and tapping local power sources, governments can reduce their own GHG emissions, create a significant opportunity for businesses to create and install efficient and/or renewable technologies, create a tested pool of Iowa specific best practices, build communities' sense of pride in their governments (perhaps boosted by tax decreases and economic benefit), and spur residents and businesses to pursue energy efficiency and renewable energy.

Iowa is already considered a leader in energy efficiency and renewable energy, however, given the substantial costs and benefits, state and local governments must take further action. In order to more accurately assess current and future savings, each state agency should be required to produce a GHG budget along with their annual fiscal budget. This budget would show all Iowans where their government could save more GHG. In addition to the State assessing and setting goals for its own GHG emissions, the State should provide assistance to schools, cities, and counties in completing similar assessment and implementation so that there is not wasted effort in community governments learning how to take advantage of energy efficiency and renewable energy.

Policy Design

Goals:
State and local governments should set targets for reducing their GHG emissions in a variety of venues.

- All new buildings should at least be LEED silver certified (or some other energy-only standard?).
- All existing buildings should be assessed for upgrades and all cost-effective measures should be implemented.
- Newly purchased vehicles should by hybrids, electric cars, or other vehicles with efficiencies of at least 50 mpg.
- All existing vehicles should be properly maintained so they perform at their highest standard.
- All new office equipment and appliances should meet Energy Star standard where applicable.

- Every locality of state and local government should assess the renewable energy resources in its vicinity to see if they are economically feasible for development.
- Twenty percent of state and local governments electricity should be from renewable sources by 2020 either from their own production or purchased from
- Hold an annual contest to have Iowan's submit ideas for how state government could go above and beyond in reducing its GHG emissions. For example, testing an idea such as a carbon-neutral legislative session would reduce GHG emissions, draw attention to the state's other energy efforts, and create excitement about reducing emissions.

The ICCAC should hold workshops for state employees on various themes for lowering their carbon footprint; this could be done in collaboration with the Education Policy Option.

Timing: Various depending on initiative but starting ASAP.

Parties Involved: All levels of government operating in Iowa.

Implementation Mechanisms

[Insert text as appropriate]

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

Not applicable.

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

Pending.

Level of Group Support

TBD.

Barriers to Consensus

TBD.

CC-4. Public Education and Outreach

Policy Description

The goal of climate change education, as with other kinds of environmental education, extends well beyond the goal of conventional education, because it seeks to impart not only cognitive knowledge, but also to translate knowledge into positive action. Failure to appreciate this distinction has led to stagnation and lack of successful approaches in creating a public literate about issues relevant to climate change. According to the seminal work of Hungerford and Volk (1990)[1], there are three levels of environmental awareness:

- Simple awareness – knowing about the existence and importance of an environmental issue, but unfamiliar with its complexities and little relationship to personal change or action.
- Personal conduct knowledge – understanding an environmental issue that lends itself to changes in personal conduct, but does not require detailed comprehension.
- Environmental literacy – the outcome of a sound program of environmental education in which the learner progresses to deeper knowledge, and can apply it to address complex environmental issues and make wiser decisions.

To the uninitiated, what often passes for "environmental education" is in fact "environmental information." Adding to the challenge is that environmental information absorbed by the public stems from a diverse and unconnected smattering of sources that includes TV, radio, magazines and newspapers, environmental groups, government publications, the internet, the classroom, personal readings, chatting with friends, and other experiences. In general there is no quality control for the issued information. In the end, those seeking to learn about environmental issues are often left with little more than a collection of factoids, numerous and often conflicting opinions, and very little understanding – not enough to get beyond the "simple awareness" step cited above. Undoubtedly, excellent resources are available for public environmental education, but they may be lost in the background noise emanating from the cacophony of messages from disparate other sources.

There is not much detailed information about the level of climate-change awareness in Iowa. The available evidence, however, suggests that it may not extend much past "simple awareness," because there doesn't appear to be significant change in personal conduct with respect to steps that would mitigate climate change. For example, optimizing energy efficiency is a major strategy for reducing greenhouse gas emissions, but a recent comprehensive study commissioned by the Iowa Utility Association shows enormous untapped potential in realizing that goal for Iowa.

The ultimate goal of the education campaign we propose will be to move the Iowa public beyond "simple awareness" about climate change to "personal conduct knowledge." Progressing to "climate change literacy," the next level of awareness, is a loftier goal, certainly worthy of

[1] Hungerford, H.R. and T.L. Volk (1990). Changing learner behavior through environmental education. *Journal of Environmental Education*, 21: 8-21.

achievement, but beyond the scope of the first phase of the proposed work. Even the more modest goal of achieving "personal conduct knowledge" is very ambitious, and will require a multi-year stepwise approach.

Policy Design

The state should consider forming a consortium on *Climate Change Education & Empowering Citizens through Positive Actions*. The Consortium would be led by the three Regents Universities, but include the involvement of community colleges and numerous other Iowa organizations involved in education, outreach, and concern about climate change and future generations.

The ICCAC has identified six target audiences for the education campaign: state government, policy makers, industrial and economic sectors, future generations, community leaders and community-based organizations, and the general public. State government is being addressed in large part under CC-3 [State and Local Government GHG Emissions (lead by example)]. In the first year, the Consortium will address the needs of policy makers through a series of seminars and workshops to educate and promote conversation about climate change and effective solutions. With regard to an education plan for targeted industrial and economic sectors, the Consortium will seek collaboration with the utilities and the Market Advisory Group established under CC-5 [Cap-and-tax Policies (transferred to CRE SC)]. The task of educating future generations will require comprehensive discussion with the Iowa Department of Education to asses the feasibility and promote the inclusion of integrating climate change into educational curricula and post-secondary degree programs.

The goal of educating community leaders, community-based organizations, and the general public across Iowa requires a far more extensive approach. At the moment there is very little detailed information about what Iowans know and don't know about climate change, or about their willingness to take significant steps to reduce its impacts. Telephone surveys are somewhat useful, but there is often a large disparity between what people say on the phone and what they actually know and do in real life. A far better means to weigh public attitudes is to engage the public in face-to-face dialogue in a town meeting format. The Consortium will take this approach, as proposed in the following three-step plan:

Step 1: Baseline information: analysis of educational needs and preference for positive actions [year 1]

In this step the Iowa State University Extension Service will engage numerous Iowa communities in conversation about climate change. This will guarantee broad coverage since the Extension serves every county in the state. We propose to adopt the approach the ISU Extension applied to promote public dialogue on the issue of the bioeconomy [*The Bioeconomy in Iowa: Local Conversations*, 2007], which covered 92 counties with an audience of more than 950 Iowans. Our county meetings on climate change will have two goals. One is to gain a multi-faceted perspective on the attitudes Iowans have about climate change, the degree to which they agree or disagree with the science, factors that influence their opinions, whether they perceive climate change as a threat to future generations, what aspects they wish to learn more about, and a host of other issues. The second goal is to present a large menu of possible individual and community-based actions to mitigate climate change, and to glean from the participants the

actions they are most willing to undertake. As recommended by the ICCAC, special attention will be given to low income communities. The information gathered at the Extension's town meetings will provide grist for a climate-change education plan tailor-made for Iowans. One tangible outcome of the analysis will be a White Paper on "Climate Change Education and Seeking Solutions through Positive Actions." This report will provide the knowledge base for conducting Step 2.

Each participant at the county meetings will be asked to complete a survey prior to the meeting to gauge their knowledge about climate change and actions that could mitigate climate change. This survey will provide baseline data for evaluation of the project.

Step 2: Enact education campaign [year 2]

In this step we would promote multiple fora for educating the Iowa public about climate change, and empowering individuals to conduct personal actions to mitigate climate change. The ISU Extension will again play a pivotal role in this step, hosting another series of state-wide town meeting to launch the plan. We would invite the participation of numerous other organizations as well. Such organizations would include [but are not limited to]: Iowa Community Colleges, 4-H Clubs, Chambers of Commerce, the utilities and natural gas providers, Interfaith Power & Light, school boards, Boy/Girl Scouts, and I-RENEW. The work of these organizations would be supported as needed by training sessions, printed materials, videos and Web Casts, a website dedicated to the campaign, and other outreach resources. Empowering citizens will be given a high priority and teams will be trained to present specific issues and address designated target audiences. The content presented would depend on the findings of Step 1, but could include subject areas such as: reducing your carbon footprint; weatherizing homes for the elderly; planning and building community bike trails; designing new homes and retrofitting old homes to optimize energy efficiency; installing ground source heat pumps; and improving energy efficiency in school buildings. We would add an interactive component to the education/empowerment campaign by installing a Wiki website to promote dialogue with the Iowa public. All citizens and communities that conduct positive actions will be encouraged to report those actions at town meetings or on the project website.

Step 3: Impact assessment, recognizing success, public dissemination [year3]

This step will ensure that the work of the education campaign is quantified, rewarded, and disseminated to the wider public, both state-wide and nationally. Another set of town meetings hosted by the Extension Service will facilitate this step. A post-education-campaign survey will be conducted and compared to the baseline survey completed in Step 1to measure the degree to which we succeeded in moving the public from "simple awareness," to "personal conduct knowledge." All citizen and community actions reported at the town meetings will be entered into the project's data base for cataloguing and assessment. A carbon foot print calculator will be applied to quantify reductions in greenhouse gas emissions based on the reported actions. The results of the assessment will be documented in a written report and posted on the internet. We will set up competitions among counties for the most successful and creative actions conducted to mitigate climate change. A team of judges will be appointed to select the winners. They will receive awards at the State Capital with much fanfare. We will prepare a set of case studies based on the individuals and communities entering the competition and publish a book featuring

their work, which will be posted on the internet. We will aggressively seek to publicize the successes of the education campaign via radio, TV, newspaper articles, website postings, and other effective ways to disseminate our results.

Evaluation of project

The project will be evaluated in multiple ways. Surveys gauging knowledge about climate change and actions that can be taken to mitigate it will be administered before and after the education campaign. The analysis will provide as assessment of the extent to which citizens progressed from "simple awareness," to "personal conduct knowledge." We will also tally the number of participants at our town meetings, and the number of individuals and communities conducting positive actions to reduce greenhouse emissions. From our carbon footprint calculator we will quantify reductions in greenhouse gas emissions resulting from those positive actions. We will also quantify the number of interactions with the public by "hits" on our Wiki website.

Goals: [Insert text as appropriate]

Timing: [Insert text as appropriate]

Parties Involved: [Insert text as appropriate]

Other: [Insert text as appropriate]

Implementation Mechanisms

[Insert text as appropriate]

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

Not applicable.

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

Pending.

Level of Group Support

TBD.

Barriers to Consensus

TBD.

CC-5. Tax and Cap Policies

Policy Description

Lead for developing this Policy Option was transferred by the ICCAC to the CRE SC.

CC-6. Seek Funding for Implementation of ICCAC Recommendations

Policy Description

Funding must be obtained to implement ICCAC recommendations. In Iowa there are two organizations that fund projects related to the ICCAC goals. These are described in the section below on related policies/programs in place. Out-of-state and federal funding sources should also be considered. For both sources of funding, success would be enhanced through partnerships with other organizations and agencies.

Policy Design

Goals: To obtain funding to implement ICCAC recommendations

Timing: A schedule can be created after the ICCAC prioritizes which grants or foundations will be approached.

Parties Involved: Key partners could include:

Sierra Club
Iowa Interfaith Power and Light
Union of Concerned Scientists
Iowa Renewable Energy Association
Energy-related centers or programs at Regents Institutions and Community Colleges

Other: [Insert text as appropriate]

Implementation Mechanisms

ICCAC will need to determine who is responsible for writing grant proposals or approaching foundations for funding, as well as prioritizing which organizations should be approached first. The ICCAC may also consider hiring a grant writer if necessary.

Related Policies/Programs in Place

The Iowa legislature created both the ICCAC and Iowa Power Fund Board in 2007. Although the two organizations are separate, they share similar goals of greenhouse gas reduction and control of climate change through increased energy efficiency and use of renewable energy. The Iowa Power Fund consists of an appropriation of $25 million per year for four years. The funds are to be used to increase Iowa's research, development, and use of sources of renewable energy, improve efficiency and reduce greenhouse gas emissions. Applications can come from businesses, individuals, government entities, non-profit organizations, and academic institutions. Projects are evaluated on their originality, impact, and amount of cost shared by others. More details are available on the Office of Energy Independence website at http://www.energy.iowa.gov.

Another Iowa source of funding is the Iowa Energy Center, which provides two funding options. The conference and small demonstration grants provide up to $7,500 and proposals are accepted

throughout the year. Pre-proposals for larger projects must be submitted annually, and if accepted a full proposal is requested. More details are available on their website at http://www.energy.iastate.edu.

Types(s) of GHG Reductions

Not applicable.

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

Many grants require cost-share. Partnering with other organizations may help secure these matching funds, as well as leading to mutually beneficial networking and sharing of ideas.

Feasibility Issues

Although finding the time to write grants and securing cost share will be a challenge, it should be within the powers of the members of the ICCAC.

Status of Group Approval

Pending.

Level of Group Support

TBD.

Barriers to Consensus

TBD.

Adaptation and Vulnerability

Policy Description

Because of the existing buildup of GHGs in the atmosphere that has already occurred, Iowa will experience effects of climate change for years to come, even if immediate action is taken to reduce its future GHG emissions. While Iowa may be less dramatically impacted than coastal or arid regions of the country, we will need to adapt to different sets of vulnerabilities. Thus, it is essential that the state develop a plan to manage the projected impacts of global warming affecting Iowa, while broader mitigation efforts to lower atmospheric concentrations worldwide are being developed and implemented. Part of our adaptation must include strategies for mitigating and distributing human suffering so that no one segment of the population or any of our natural resources or natural heritage sites suffer catastrophically.

Policy Design

Iowa should develop, adopt, and implement a state Climate Change Adaptation Plan that includes identification of a) potential short-term, mid-term, and long-term impacts of climate change scenarios likely to affect the state, and b) implementation mechanisms for addressing these impacts. Such an initiative is already emanating from Iowa State University, where professors Gene Takle, Bill Gutowski and Ray Arritt are leading the drive for a "Climate Science and Impacts Initiative" (2 & 3) .

That being said, given that the effects of climate change are already happening, we cannot simply wait for a report before taking action to adapt to these known and predictable changes. Each segment of the Iowa economy, community, and appropriate representatives of each of our natural heritage areas should begin immediately to develop action plans to offer assistance to those most dramatically impacted, mitigation of those impacts where feasible, specific initiatives to draw down their GHG emissions, and most importantly, strategies for remaining viable and robust by adaptation to changing circumstances.

These action plans should be collated and redacted into a single coherent State of Iowa Adaptation Plan that avoids contradictions, increases efficiencies, minimizes redundancies, and fills in the gaps.

The state Climate Change Adaptation Plan should include at least the following key elements:

- Comprehensive identification of potential short-term, mid-term, and long-term impacts associated with climate change in Iowa.
- Recommended steps to minimize risk to humans, natural and economic systems, water resources, temperature-sensitive populations and systems, energy systems, transportation systems, communications systems, vital infrastructure and public facilities, and natural lands (such as wetlands, forests, and farmland), and all other identified and affected sectors or areas of concern throughout the state.

- Coordination of response efforts through the appropriate state, local, and federal agencies, organizations, or other entities or initiatives.
- Characterization of the potential risks and costs of inaction; characterization of the potential costs, benefits, and co-benefits associated with specific policy and program actions; and establishment of time- and program-based goals.
- Use of cost-benefit analysis to guide and inform the development and implementation of the state Climate Change Adaptation Plan. The analysis should include an examination of the benefits and costs of adaptation measures or responses relative to a status quo or no-action approach and the resources needed to implement adaptation measures in the plan. The results of the cost-benefit analysis should also be used to set priorities for addressing short-term, mid-term, and long-term impacts of climate change on citizens, ecosystems, and the economy of Iowa.
- Creation of a scientific strategy, engaging the public, educational institutions and state agencies for the monitoring of climate and ecological trajectories in Iowa to improve updates to the Adaptation Plan.
- Adaptation measures that also mitigate GHG emissions should be given priority in the state Climate Change Adaptation Plan.
- The Plan should be reviewed and updated on a periodic basis (every 5–10 years) to expand or refine the Plan as necessary, to improve implementation of the Plan, and to incorporate new information as it becomes available.

Goals: Develop a comprehensive state Climate Change Adaptation Plan that identifies opportunities to address adaptation issues and risks and recommends tangible, implementable measures to mitigate these issues and risks to Iowa citizens. Conduct cost-benefit analyses comparing the potential costs of a status quo approach as opposed to implementing the recommendations proposed in the Climate Change Adaptation Plan. Prioritize recommendations in the adaptation plan, based on the certainty and severity of adverse impacts to citizens, ecosystems, and local economies. Development of the plan should a) involve all affected agencies and entities at all levels of government; b) engage all affected sectors and interests; and c) provide for periodic review and update concerning adaptation risks, responses, and opportunities in the state.

Timing: The smaller local groups should begin immediately, "Low-hanging fruit" opportunities should be addressed as rapidly as feasible (even before the Climate Change Adaption Plan is established, if possible), and proactive adaptation initiatives should commence within the next 2–3 years. The Climate Action Adaptation Plan should be in place by the first intermediate timeline of five years. Parallel public education and outreach efforts regarding adaptation should commence immediately.

Parties Involved: The following constituencies should be called upon to create action plans: state and local governments; school districts and institutions of higher learning; hospitals, clinics, and hospices; agriculture organizations; NGOs, including such environmental organizations as TNC Iowa, Sierra Club, etc.; religious congregations and social service organizations.

The Governor and the Iowa Legislature should pursue the possible establishment of a Commission on Adaptation to Climate Change including proper funding. The Commission should then involve and coordinate with all appropriate state and local agencies, organizations, and institutions (e.g., universities) to ensure that all potential impacts are identified and to ensure the successful development and implementation of the plan.

CC-8 Participate in Regional and Multi-State GHG Reduction Efforts

Policy Description

Regional approaches undertaken in collaboration with partner states or other organizations can offer broader and more economically efficient opportunities to reduce GHG emissions across Iowa's economy. Iowa has already joined several organizations, including the Midwest Governor's Association and the multi-state Climate Registry developments. These developments should be continued and form the basis for Iowa's own programs. To the extent that Iowa's needs may not be fully met by these developments, Iowa should consider developing supplemental or ancillary registry capacity or opportunity. (See CC-1)

Policy Design

Goals: Work to develop these regional programs so that Iowa interests are protected, while meeting Iowa's goals of developing capacity to reduce our GHG emissions effectively.

Ensure the cost-effective reduction of GHG emissions in a manner that maximizes public benefits, induces innovation in energy efficiency, sustainable energy technologies and avoids inequitable impacts.

Timing: Three years with interim dates to be applied as appropriate research and development with member states evolve.

Parties Involved: The Governor, the appropriate state agencies and the respective legislative bodies of the member states.

CC-9. Encourage the Creation of a Business-Oriented Organization to Facilitate Investment in Climate Related Business Opportunities and to Share Information and Strategies, Recognize Successes, and Support Aggressive GHG Reduction Goals

Policy Description

There are numerous economic and business opportunities that can arise from implementing a comprehensive GHG reduction strategy for Iowa. A variety of job creation possibilities are implicit in new approaches to transportation, land use, green construction, recycling and reuse, and energy efficiency products and services. The state should work with public and private entities to identify, promote and finance these opportunities for economic development and job creation. The state should also work to keep existing green jobs in Iowa and prevent them from moving out of state.

The growth of the "green industry" has the potential to benefit low- to mid-skill workers who can no longer depend on traditional manufacturing jobs. Since green jobs require applied technical skills, they generally pay decent wages. Unlike blue-collar jobs, many green-collar jobs require local employees and cannot be outsourced.

Another component of economic development is the promotion of buying locally produced foods, goods and products. Consumer support for the local economy helps sustain Maryland businesses, jobs, and tax base while reducing the consumption of fuel (and carbon dioxide emissions) in the transportation of foods and products over great distances.

Policy Design

Targeted business promotion and job creation should be a part of Iowa's effort to mitigate GHG emissions. Iowa should build upon its momentum in development of biorenewables to make every effort to establish itself a leader in development of "green industry."

In Iowa, the job creation opportunities are numerous, including: designing and constructing green buildings; weatherizing existing buildings; retrofitting older buildings with energy efficient appliances and technologies; expanding the construction, maintenance and operation of common-carrier and public transportation networks and systems; designing, constructing and operating windmills, biomass generators, and solar collectors; and, research and development of a wide array of new practices and technologies that can abate greenhouse gas production.

Promotion of consumption of locally-produced foods and goods will strengthen the Iowa economy.

Goals: The Office of Energy Independence (OEI) administers the Iowa Power Fund, a $100 million effort over four years to support research, development, commercialization, and deployment of biofuels, renewable energy technologies and energy efficient technologies while seeking to cut greenhouse gas emissions. One criterion upon which proposals for the Fund are judged is their ability to create economic opportunity in Iowa and future "green collar" jobs.

OEI coordinates their efforts with the Department of Economic Development, the State of Iowa Facilities Improvement Corporation, the Renewable Fuel Infrastructure Program, the Value Added Agricultural Products and Processes Financial Assistance Program, and the Enterprise Zone Program and High Quality Job Creation Program.

Timing: As soon as possible to build on OEI projects.

Parties Involved: Universities, IDED, Chamber of Commerce, energy utilities, existing green businesses/industries, energy conservation experts, and individual businesses across the state.

Other:

Implementation Mechanisms

[Insert text as appropriate]

Related Policies/Programs in Place

[Insert text as appropriate]

Types(s) of GHG Reductions

Not applicable.

Estimated GHG Savings and Costs per $MTCO_2e$

Not applicable.

Key Uncertainties

[Insert text as appropriate]

Additional Benefits and Costs

[Insert text as appropriate]

Feasibility Issues

[Insert text as appropriate]

Status of Group Approval

Pending.

Level of Group Support

TBD.

Barriers to Consensus

TBD.