

# Chapter 8

## Cross-Cutting Issues

### Overview of Cross-Cutting Issues

Some issues relating to climate policy cut across multiple sectors. The Michigan Climate Action Council (MCAC) addressed such issues explicitly in a separate Cross-Cutting Issues (CCI) Technical Work Group (TWG). Cross-cutting recommendations typically encourage, enable, or otherwise support emission mitigation activities and/or other climate actions. The types of policies considered for this sector are not readily quantifiable in terms of greenhouse gas (GHG) reductions and costs or cost savings. Nonetheless, if successfully implemented, they help build a foundation for other recommendations and will contribute to GHG emission reductions and implementation of the MCAC's policy recommendations described in Chapters 3–7 of this report.

The CCI TWG developed recommendations for 10 policies (see Table 8-1) that were then reviewed, revised, and ultimately adopted by the MCAC members present and voting. Nine of the recommendations are focused on enabling GHG emission reductions and mitigation activities, while one (CCI-8–Adaptation and Vulnerability) addresses adaptation to the changes expected from the effects of GHGs that will remain in the atmosphere for decades.

### Key Challenges and Opportunities

The MCAC was charged with developing proposed GHG reduction goals for Michigan, along with a set of policy recommendations designed to achieve such goals. The MCAC established 2005 as the baseline year and identified a mid-term goal of reducing the 2005 GHG baseline by 20% by 2020 and a long-term goal of an 80 % reduction by 2050.

The MCAC based its recommendations on its review of the potential overall emission reduction estimates (as compared to the GHG emissions inventory and forecast for business as usual) for 33 of 54 policy recommendations for which emission reductions were quantified. It also considered the goals and targets adopted by several other states in its deliberations. While 21 other MCAC policy recommendations were not readily quantifiable, some of them would most likely achieve or contribute to additional reductions, including several of the CCI policy recommendations.

A key challenge for the state in seeking to achieve these GHG reduction goals will be to identify available resources needed to implement many of the initiatives outlined in this report, particularly given the struggling economic conditions in the state and across the country. The MCAC will need to work closely with other state, local, federal, and tribal governmental entities, the private sector, institutions of higher education, citizens, and others to examine these opportunities.

Another key challenge for the state is the need to proactively engage with the federal government in developing appropriate federal programs and policies, while simultaneously working with other state and regional entities to design and implement strategies most effectively employed at this level.

In spite of these challenges, the nexus between seeking a new energy economy and significantly reducing GHG emissions in the state offers a rare opportunity for Michigan to be a leader in developing selected renewable energy technologies and enhancing economic and employment conditions.

**Table 8-1. Summary list of CCI policy recommendations**

Policy No.	Policy Recommendation	GHG Reductions (MMtCO <sub>2</sub> e)			Net Present Value 2009–2025 (Million \$)	Cost Effectiveness (\$/tCO <sub>2</sub> e)	Level of Support
		2015	2025	Total 2009–2025			
CCI-1	GHG Inventories, Forecasting, Reporting, and Registry	<i>Not Quantified</i>					Unanimous
CCI-2	Statewide GHG Reduction Goals and Targets	<i>Not Quantified</i>					Unanimous
CCI-3	State, Local, and Tribal Government GHG Emission Reductions (Lead by Example)	<i>Not Quantified</i>					Unanimous
CCI-4	Comprehensive Local Government Climate Action Plans (Counties, Cities, Etc.)	<i>Not Quantified</i>					Unanimous
CCI-5	Public Education and Outreach	<i>Not Quantified</i>					Unanimous
CCI-6	Tax and Cap/ Cap and Trade	<i>MCAC approved creation of new Market-Based Policies Technical Work Group as the lead for this policy.</i>					Transferred
CCI-7	Seek Funding for Implementation of MCAC Recommendations	<i>Not Quantified</i>					Unanimous
CCI-8	Adaptation and Vulnerability	<i>Not Quantified</i>					Unanimous
CCI-9	Participate in Regional, Multi-State, and National GHG Reduction Efforts	<i>Not Quantified</i>					Unanimous
CCI-10	Enhance and Encourage Economic Growth and Job Creation Opportunities Through Climate Change Mitigation	<i>Not Quantified</i>					Unanimous
CCI-11	Enhance and Encourage Community Development Through Climate Change Mitigation: Address Environmental Justice	<i>Not Quantified</i>					Unanimous

GHG = greenhouse gas; MCAC = Michigan Climate Action Council; 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.

## Overview of Policy Recommendations and Estimated Impacts

Cross-cutting issues include policies that apply across the board to all sectors and activities. Cross-cutting recommendations typically encourage, enable, or otherwise support emission mitigation activities and/or other climate actions. The MCAC recommends that 10 such policies

be adopted and implemented in Michigan. All are enabling policies that are not quantified in terms of metric tons of GHG reduction or costs.

Detailed descriptions of the individual CCI policy recommendations as presented to and approved by the MCAC can be found in Appendix K of this report. Following are highlights of some of the policies recommended by MCAC:

Michigan is currently participating in the multi-state Climate Registry. The state needs to institute formal GHG inventory, forecast, and reporting functions to be carried out by a state agency. Using standardized protocols, the state should prepare annual inventories of emission sinks and sources and should develop forecasts of future GHG emissions in at least 5- and 10-year increments extending at least 20 years into the future. The state should also develop reporting protocols for facility-level reporting of all significant GHG emissions. Where possible, the state should coordinate these efforts with other states, regions, tribes, and the federal government.

Table 8-2 presents the MCAC's proposed GHG reduction goals for Michigan. These goals are consistent with goals being considered by the Midwestern Governors Regional Greenhouse Gas Reduction Accord process: achieve a 20% reduction of GHGs below 2005 levels by 2020 and an 80% reduction below 2005 levels by 2050. The MCAC recommends that these goals be established through executive or legislative action. The state should also develop a tracking system to measure progress over time in achieving GHG reductions against its recommended goals.

**Table 8-2. MCAC-recommended goals for GHG reduction**

Year	Reduction From 2005 Levels
2005	Baseline
2020	20%
2050	80%

The MCAC encourages other governmental entities and academic institutions to establish GHG reduction goals for their respective jurisdictions, and to develop plans, programs, and other initiatives to achieve their respective goals. The state is already engaged in numerous “Lead by Example” initiatives to find additional energy efficiencies and GHG reductions in state procurements for buildings, vehicle fleets, and office equipment. These initiatives, which are detailed in CCI-3, Appendix K, should be compiled, tracked, and shared among entities in Michigan. This should help stimulate private-sector and individual citizen actions as well.

A public education and outreach effort will be a key to building a broad base of awareness and support for the recommendations of this report. The MCAC has identified numerous strategies over several years to do so in conjunction with academic, business, local government, and other partners in this process. These outreach efforts are spelled out in CCI-5, Appendix K and are targeted to the following audiences: state government, policymakers, future generations, community leaders and community-based organizations, citizens, industrial and economic sectors, and tribal governments.

While many of the MCAC recommendations will save resources over the next 11 years, as documented through this MCAC process, some policy recommendations will require additional resources to implement. The state should immediately seek and establish capital investments and other funding sources for the implementation of the MCAC's recommendations. State government should lead the efforts to generate investment and financial support. Other sectors, including local government, industry, services, agriculture, consumers, and higher education, should also be involved. The state should examine alternative financing mechanisms, such as those listed in CCI-7, Appendix K, and develop proposals to implement those that are the most promising.

Given Michigan's vulnerability to impacts of climate change, the state should undertake a comprehensive planning effort to assess and address the impact of climate change on the Great Lakes, the state's natural resources, and wildlife and fisheries. The state should start by developing a scoping document that identifies technical and financial resources and research needed to undergo a comprehensive planning process in 2009. When applicable and feasible, the scoping document should identify ongoing and intended research efforts that could contribute to the planning process. A multi-agency and diverse stakeholder team should be formed to follow through with the planning process in 2009 and beyond. A detailed list of tasks is included in CCI-8, Appendix K.

The state is a participant in the Midwestern Governors Regional Greenhouse Gas Reduction Accord and Energy Security and Climate Stewardship Platform. The state should continue this proactive engagement with other states in the region in developing cost-effective, multi-state reduction strategies. At the same time, the state will be pushing for progressive action at the federal level to address climate change. Michigan will also work with the 12 federally recognized tribes in the state to help coordinate local climate change strategies (see CCI-9, Appendix K). This will be accomplished through either existing agencies or a designated state entity charged with climate change issues, and through the use of existing agreements between the Michigan Department of Environmental Quality (MDEQ) and tribes, such as the Water Accord, or newly created mechanisms that allow government-to-government dialog on environmental issues of mutual interest. Likewise, Michigan will welcome and seek out a mechanism to coordinate its climate change and GHG reduction efforts with national tribal organizations, such as the climate mitigation and adaptation dialog recently initiated by the National Congress of American Indians, the Council of Energy Resource Tribes, and others. Michigan should also further investigate, and if it is determined to be in the state's best interest, join The Climate Registry (TCR) and the Chicago Climate Exchange (CCX).

It has been demonstrated that there are numerous economic and employment opportunities associated with implementation of many of the MCAC-recommended GHG reduction policies. The MCAC recommends that the state implement robust measures to retain existing clean tech business and attract new investment. Some categories for attention may include: provide more attractive financial incentives, implement policies that enhance and encourage economic growth, seek more federal support, utilize Michigan's existing resources and economic opportunities, protect water resources, invest in walk-able neighborhoods and transportation mode choices, support a diverse agricultural base, maintain traditional support for Michigan's excellent public research universities, and encourage and facilitate Michigan's strong social infrastructure. Appendix K, CCI-10 presents numerous additional examples and details about these initiatives.

Finally, there is an opportunity to enhance sustainable community development and address environmental justice issues in Michigan as climate change mitigation is addressed at the local level. To do so, the state needs a collaborative planning process—transformational responses that allow for distribution of costs and benefits and opportunities for change. Numerous examples and initiatives to do so are outlined in CCI-11, Appendix K.

## Cross-Cutting Issues Policy Descriptions

### CCI-1. Inventories, Forecasting, Reporting, and Registry

GHG emission *inventories* track statewide emission trends and quantify emissions from individual sources and sinks (both anthropogenic and natural). They can be used to inform state leaders and the public and to verify GHG reductions associated with GHG reduction programs.

GHG *forecasts* are scenario-based predictions of future emission trends built on inventories and projected economic trends. These forecasts are useful for identifying the factors that affect trends and highlighting opportunities for mitigating emissions or enhancing sinks.

Detailed GHG *reporting* is needed from all major GHG sources<sup>1</sup> in order to develop accurate inventories. Reporting is also required for sources to participate in GHG reduction programs, such as market-based systems like cap and trade and carbon taxation. Participation in a reporting program prior to the establishment of a GHG reduction program establishes an early baseline that can be used to avoid disincentives to abate emissions prior to establishment of the reduction program.

A GHG *registry* enables recording of GHG emission reductions in a central repository. Registries can establish “ownership” of emission reductions, protect baselines, and provide a mechanism for regional cooperation. Registries can also provide a foundation for future trading programs and facilitate the identification of opportunities for reductions.

### CCI-2. Statewide GHG Reduction Goals and Targets

In Executive Order No. 2007-42, the Governor directed the MCAC to recommend specific short-term, mid-term, and long-term GHG reduction goals or targets for Michigan. Additionally, the Midwestern Regional Greenhouse Gas Reduction Accord, signed by Governor Granholm on November 15, 2007, establishes a requirement for its staff and appropriate state agency

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<sup>1</sup> According to The Climate Registry, individual sources are defined either as “entities” (i.e., any corporation, institution, or organization) recognized under U.S. law, or as “facilities” (i.e., any installation or establishment located on a single site or on contiguous or adjacent sites that are owned or operated by an entity). See <http://www.theclimateregistry.org/downloads/GRP.pdf> for additional details. The official definition of a “source” is left to MDEQ, but facility-level reporting is strongly recommended.

representatives to set regional GHG reduction targets that are consistent with member states' targets. The establishment of a Michigan statewide goal or target can provide vision and direction, a framework within which implementation of MCAC policy recommendations can proceed effectively, and a basis of comparison for periodic assessments of progress. GHG reduction goals or targets recommended by the MCAC should be consistent with the parallel goal of an efficient, robust Michigan economy. In pursuit of similar climate progress, approximately 20 other states have established GHG reduction goals or targets.

The Intergovernmental Panel on Climate Change (IPCC) determined that atmospheric GHGs must remain below 400–450 parts per million of carbon dioxide equivalent (CO<sub>2</sub>e) to have a reasonable chance of staying below 2°F of warming. This concentration is considered the stabilization target. The IPCC further calculated that the industrialized nations' cumulative emissions over the 2000–2050 period must remain less than 700 gigatons (Gt) of CO<sub>2</sub>e. This means that the world's industrialized nations must reduce emissions 70%–80% below 2000 levels by 2050 to help prevent global temperature increases. For its share, the United States needs to reduce its GHG emissions by about 80% by 2050 in order to stay within its estimated “safe” range of 160–265 GtCO<sub>2</sub>e for that same 50-year period. That comes to a 20% per decade reduction, or 2% per year.

The target years and GHG reduction goals included in this policy recommendation reflect a high level of uncertainty regarding the costs and benefits of implementing GHG reduction policies in Michigan. These goals have been examined in the second phase of the process and considered in combination with the results of the modeling and evaluation of the selected policy recommendations.

In accordance with the *Michigan Climate Action Council Interim Report*, “the strategy development process must evaluate and consider economic and environmental impacts, including the implementation costs or cost savings for individuals, communities, businesses, and jobs in Michigan.” The policy recommendations detailed by the six TWGs (Agriculture, Forestry, and Waste Management; Energy Supply; Residential, Commercial, and Industrial; Transportation and Land Use; Cross-Cutting Issues; and Market-Based Policies) include policies to reduce GHG emissions at low net cost, and identify opportunities for substantial net savings. Implementation of carefully crafted policy recommendations should bring significant economic benefits to the Michigan economy, by reducing fuel costs through efficiency measures, by reducing the export of capital from the state, and by stimulating the Michigan economy through the creation of new opportunities and jobs in energy efficiency, clean energy technologies, renewable energy development, transportation, and land-use planning.

The MCAC has modified the preliminary target year and GHG reduction goals from those originally proposed in the MCAC Interim Report to those consistent with the goals being considered by the Midwestern Governors Association. They are presented in Table 8-2. The policies recommended by the MCAC appear to be able to achieve a 20% reduction below 2005 levels by 2020. To do so, however, it will be necessary for the state to move expeditiously forward with near-term implementation of the policy initiatives outlined in this MCAC Final Report. This includes instituting formal mechanisms to monitor and verify GHG reduction progress and periodically adjusting reduction goals and strategies when needed.

The MCAC also recommends that a formal performance tracking mechanism be developed to gauge progress in Michigan toward achievement of the goals and targets.

### **CCI-3. State, Local, and Tribal Government GHG Emissions (Lead by Example)**

The state of Michigan and many local and tribal governments have undertaken various policy and program actions in several key areas to obtain GHG emission reductions and improve energy efficiency. Many of these ongoing and future efforts can provide practical and working examples of what can be done by nongovernmental organizations, academic institutions, and even private citizens to reduce GHG emissions. Much more effort is planned and should be undertaken to further improve Michigan's energy efficiency and reduce our carbon dependency and emission rate, as outlined in Appendix K of this report.

State, local, and tribal governments are responsible for providing a multitude of services for the public that are delivered through very diverse operations. This also makes them responsible for overseeing wide-ranging GHG emission activities and provides leadership opportunities to work with universities, nonprofit organizations, and the private sector to reduce emissions and increase energy efficiency. For example, the state of Michigan is a major consumer of electricity and, as such, can promote the development of environmentally benign generation and purchase a significant portion of its power through a certified “green power” program.

While the incentive for this action will be, in part, market driven as energy costs increase, it will only be achievable through a continued comprehensive analysis of current operations, identification of significant GHG sources, and implementation of changes in technology, procedures, behavior, operations, and the services provided. State, local, and tribal governments must find ways to encourage and provide incentives for reducing GHG emissions in a variety of ways. One of the most important is to link GHG reductions to energy expenditures, and demonstrate that reduction in one leads to reduction in the other.

### **CCI-4. Comprehensive Local Government Climate Action Plans**

A number of local and regional cities and municipalities in Michigan have already taken steps and initiated programs and activities to mitigate climate change in their communities. Many of these cities and communities—23 in Michigan and over 900 cities nationwide—are also signatories to the U.S. Mayors Climate Protection Agreement, and have a stated goal of reducing CO<sub>2</sub> emissions by 7% below 1990 baseline levels by 2012. Furthermore, cities and communities in Michigan are helping to develop and support additional climate change accountability programs, such as the Midwestern Regional Greenhouse Gas Reduction Accord, TCR, and the Michigan Renewable Energy Program.

The state and tribal governments, regional metropolitan councils (e.g., the Grand Valley Metro Council), Michigan Municipal League, and others could all help create awareness about climate change issues and lead by example in developing climate change programs that are coordinated with the MCAC. Additionally, these organizations and entities could help communicate best practices and success stories through a variety of outlets, such as workshops, conferences, summit meetings, a Web site clearinghouse, education and outreach to public and municipal

officials, as well as recognizing local government GHG and CO<sub>2</sub> emission reduction achievements.

#### **CCI-5. Public Education and Outreach**

Public education and outreach is essential to cultivating broad support for GHG reduction activities. Education and outreach will target at least seven specific audiences in Michigan according to policy recommendations made by MCAC members. These efforts will seek to create awareness of climate change issues, along with providing justification for policies designed to reduce GHG emissions. Public education and outreach efforts should build upon existing work being done by state, tribal, and local agencies, utility companies, and nonprofit organizations.

#### **CCI-6. Tax and Cap Policies / Cap and Trade**

The lead for developing this policy recommendation was transferred by the MCAC to the Market-Based Policies TWG (see Chapter 4).

#### **CCI-7. Seek Funding and Financing for Implementation of MCAC Recommendations**

Michigan will seek and stimulate funding and investment to implement the MCAC climate solution recommendations. Accordingly, Michigan will position itself to successfully compete for federal and international assistance and matching funds in adaptation and mitigation of climate change impacts. Funding decisions will take into account both economic and environmental impacts, including the implementation costs or cost savings for individuals, communities, and businesses, as well as similar funding actions made by other Midwest states and regions. As Michigan allocates funding for MCAC recommendations, the state will work to identify choices that provide the best opportunities for mitigation of, and adaptation to, climate change. Concurrently, Michigan will implement initial funding investments that require few long-term costs. In addition, Michigan aims to reduce the costs associated with climate change activities, while fostering economic growth within the state.

#### **CCI-8. Adaptation and Vulnerability**

Climate change is a potentially serious threat to communities, natural resources, and wildlife in Michigan, the United States, and around the world. While addressing the source of climate change and related GHG mitigation options is critical, it is also important that decision makers and the citizens of Michigan understand how climate change is affecting and will affect the natural resources and natural resource-based economic activity in the state. Additional attention, research, and funding are needed to assess the impact of climate change on Michigan's fisheries and wildlife and help them adapt, while also reducing the other stressors on their habitats and ecosystems. Communications, research, and funding are also needed to assess and moderate climate change's impact on Michigan's land and other natural resource-based industries (forestry, agriculture, tourism, and recreation).

The state of Michigan should undertake a comprehensive planning effort to assess and address the state's vulnerability to climate change and adaptation opportunities. Various organizations and agencies in the state are already collecting some of the information needed for such an assessment and efforts should be made to coordinate and consolidate these information-gathering activities.

#### **CCI-9. Participate in Regional, Multi-State, and National GHG Reduction Efforts**

The MCAC recognizes that collaboration is a key to the successful implementation of the state climate change strategies. Because the execution of policies designed to reduce climate change affects all sectors of society, actions must be broad-based and inclusive. For this reason, collaborative regional and multi-state reduction efforts offer promising possibility for accomplishing the MCAC's target goals. Joint regional, multi-state, multi-province, and in some cases, national approaches to GHG emission reductions and energy efficiency options can provide greater opportunities for success, particularly because the issue of climate change is not constrained to political boundaries. Accordingly, Michigan recognizes, has considered, and has joined other regional and national, market-based GHG reduction strategies. Such strategies propose to mitigate and adapt to climate change in various sectors, including energy supply, residential, commercial, industrial, transportation, land use, agriculture, forestry, and waste management.

The current initiatives include the state's membership in the Midwestern Regional Greenhouse Gas Reduction Accord, whereby the member governors and Canadian prime minister agreed to establish a midwestern GHG reduction program with targets and time frames that are consistent with state policies. Also included in this initiative is the development of a market-based, multi-sector cap-and-trade program to achieve reductions. An additional joint initiative is MDEQ's participation on the Steering Committee for the development of TCR. The multi-state TCR was designed to be an essential piece of infrastructure for the development of state and federal climate change programs by forming a partnership to produce a protocol for measuring GHG emissions. A third significant initiative offering opportunities for multi-state collaboration is the CCX. Michigan, as well as all other members of the CCX, must achieve a minimum 6% reduction in GHG emissions from 2000 levels by 2010. This goal is in accordance with Michigan reduction targets.

These developments will be continued and will function as models to form the basis of future Michigan GHG reduction programs. Michigan should consider developing supplementary or ancillary registry capacities or opportunities to meet all of the state's needs. Michigan will continue to examine the decisions made by other states and regions, particularly in the Midwest states and in Canada, to identify opportunities for collaboration with other GHG reduction efforts. Michigan will also implement regional climate reduction initiatives, such as a regional carbon cap-and-trade system (unless a national system supersedes this need).

The Governor and the Michigan legislature should aggressively push for and continue to encourage federal action to reduce GHG emissions and to ensure that Michigan is well represented and protected at the federal level. An aggressive approach to GHG reductions within the United States will have a significant effect on the international reductions needed to begin

reversing global warming trends. Ultimately, many of the climate protection issues need to be addressed at the national level. Michigan must help shape these national initiatives.

**CCI-10. Enhance and Encourage Economic Growth and Job Creation Opportunities Through Climate Change Mitigation**

Michigan's response to climate change can serve as a catalyst for increasing economic activity, in addition to reducing GHG emissions. Michigan is already home to two of the world's leading solar power manufacturers, and over 25 businesses provide components for the growing commercial wind energy industry. Investors in the clean tech sector are constantly seeking locations that offer the most advantageous markets. Texas, Colorado, New York, and Pennsylvania have recently added thousands of green collar jobs by offering start-up capital, tax breaks, and energy policy that welcomes clean energy. Michigan has a capable workforce, engineering expertise, and substantial manufacturing capacity. The state also possesses considerable natural resources that could establish it as a leader in renewable energy. Given the intense competition from other states and nations, however, additional incentives and supportive government policies will be necessary to maximize investment in Michigan.

**CCI-11. Enhance and Encourage Community Development Through Climate Change Mitigation: Address Environmental Justice**

Climate change is predicted to cause significant changes in both the atmosphere and the natural environment, including increases in extreme weather events and droughts, as well as rises in sea level in some regions and lower water levels in the Great Lakes.

Although all segments of Michigan's population and economy will be affected by climate change, certain communities run the risk of being disproportionately burdened by costs and challenges, particularly poor communities and communities of color. As evidenced by the impact of Hurricane Katrina in New Orleans, communities in the United States continue to be unprepared—socially, financially, and environmentally—for major natural events.

Even in the absence of major natural disasters, climate change has the potential to devastate an unprepared economy. Transitional costs will likely be regressive and could further burden populations already suffering from economic hardship with unbearable costs.

To encourage community development through climate change mitigation and ensure that vulnerable communities are protected, the state must engage a range of communities in a collaborative planning process that works toward a transformational response to climate change. This response must be tailored to the regressive costs posed by climate change, and must act to address the economic and health impacts of a warming climate.