

Chapter 7

Cross-Cutting Issues

Overview of Cross-Cutting Issues

Some issues relating to climate policy cut across multiple or all sectors. The Climate Action Plan Advisory Group (CAPAG) addressed such issues explicitly in a separate Technical Work Group (TWG) as “cross-cutting” issues rather than assigning them to any individual sector. The Cross-Cutting Issues (CC) TWG developed recommendations for each of six mitigation options (see Table 7-1) that were then reviewed, revised, and ultimately adopted by CAPAG as recommendations to North Carolina (NC) Department of Environment and Natural Resources (DENR). These issues include establishing an ongoing function with the State of North Carolina to assess and forecast greenhouse gas (GHG) emissions, the reporting of GHG emissions by entities, the registering of any GHG reductions achieved by entities for possible future credit and/or recognition, a variety of public education and outreach initiatives regarding climate change, and recommendations for a voluntary goal to reduce statewide GHG emissions. In addition, the CAPAG adopted a recommendation to create a state-sanctioned Blue Ribbon Commission on Adaptation to Climate Change to develop a comprehensive state Climate Change Adaptation Plan identifying opportunities to address adaptation issues and risks.

Table 7-1. CAPAG-recommended mitigation options and results for Cross-Cutting Issues

Option No.	Mitigation Option Name	GHG Reductions (MMtCO ₂ e)			Net Present Value 2007–2020 (Million \$)	Cost-Effectiveness (\$/tCO ₂ e)	Level of Support*
		2012	2020	Total 2007–2020			
	Cross-Cutting Issues						
CC-1	GHG Inventories and Forecasts	<i>Non quantified</i>					UC
CC-2	State Greenhouse Gas Reporting	<i>Non quantified</i>					UC
CC-3	State Greenhouse Gas Registry	<i>Non quantified</i>					UC
CC-4	State Climate Public Education and Outreach	<i>Non quantified</i>					UC
CC-5	State Climate Change Adaptation Strategy	<i>Non quantified</i>					UC
CC-6	Options for Goals or Targets (for CAPAG in Support of LCGCC)	<i>Non quantified</i>					UC

* UC = unanimous consent (all agree); CAPAG = Climate Action Plan Advisory Group; LCGCC = [North Carolina] Legislative Commission on Global Climate Change.

Key Challenges and Opportunities

Establishing a GHG inventory and forecasting function within state government will assist in tracking, managing, and ultimately reducing GHG emissions. Establishing this function at the Division of Air Quality (DAQ) offers significant opportunities for the state to systematically and efficiently integrate this function with the DAQ’s expertise and its ongoing program to develop

inventories and forecasts for the criteria air pollutants. It will also enable multi-pollutant assessments of air emissions programs within the state since criteria air pollutant and GHG emissions will be based on the same emission source activity data.

The GHG reporting and registry programs present special challenges and opportunities. Any regional or national effort involves reconciling the interests and perspectives of different states. The states are at much different stages of the learning curve with respect to these and other climate actions. After the CAPAG completed its recommendations on these mitigation options, North Carolina joined *The Climate Registry* as a step toward developing a nationally uniform GHG reporting and registry capability for North Carolina sources.¹ Being a charter state in this effort creates a unique opportunity for North Carolina to help ensure that North Carolina's needs and priorities are addressed in the course of *The Climate Registry's* development. To the extent that North Carolina's needs may not be fully met by *The Climate Registry*, the state should consider developing supplemental or ancillary registry capacity or opportunity.

Public education and outreach programs can be difficult to develop and measure, but successful climate action will ultimately hinge on the public's awareness of climate risks and solutions. 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 mitigation actions proposed by the CAPAG as well as those that may evolve in the future. Key challenges may be associated with coordinating existing efforts by state agencies and securing long-term funding to support these programs. However, these challenges also offer opportunities for improving the effectiveness of education and outreach efforts over the long term.

The CAPAG recommends that the state set a voluntary GHG reduction goal but that the adoption of such a goal should first be considered by the NC Legislative Commission on Global Climate Change (LCGCC). If recommended by the LCGCC, such a goal could be established by the General Assembly or by an executive order of the Governor. By setting and adhering to a GHG reduction goal, North Carolina will join many other states across the country that are demonstrating leadership in reducing their own GHG emissions. It will also provide an incentive for North Carolina citizens, businesses, and state and local governments to seek out economic opportunities to reduce GHG emissions and to position North Carolina as a supplier of carbon credits to developing carbon markets while simultaneously reducing energy costs.

Due to the existing buildup in the atmosphere of GHGs that has already occurred, North Carolina will experience some effects of climate change for years to come, even if immediate action is taken to reduce future GHG emissions. Recognizing this concern, the CAPAG agreed unanimously that it is essential for the state to initiate efforts to identify potential short-term, mid-term, and long-term impacts of climate change scenarios likely to affect the state and develop a framework for prioritizing and responding to the potential impacts identified. Thus, the

¹ The Climate Registry (<http://www.theclimateregistry.org/>) is a collaboration between states, provinces and tribes aimed at developing and managing a common GHG emissions reporting system with high integrity that is capable of supporting various GHG emission reporting and reduction policies for its member states and tribes and reporting entities. It will provide an accurate, complete, consistent, transparent and verified set of GHG emissions data from reporting entities, supported by a robust accounting and verification infrastructure. As of July 2007, 39 U.S. states, several Tribal Authorities, two Canadian Provinces, and one Mexico state have joined *The Climate Registry*.

CAPAG recommends that the state empanel a Blue Ribbon Commission on Adaptation to Climate Change to develop a state Climate Change Adaptation Plan within one year of establishment of the Commission. The Commission should involve and coordinate with all appropriate state and local agencies, organizations, and institutions (e.g., universities) to ensure that all potential impacts are identified in the plan. This recommendation offers challenges in that legislative approval for funding will be required to support the Commission and development of the plan. However, developing a sound, coordinated planning effort to address North Carolina's vulnerabilities to climate change is likely to pay for itself many times over, will help establish priorities, and will help identify opportunities for mitigating health and economic impacts associated with climate change in the state.

Overview of Mitigation Option Recommendations

Cross-cutting issues include options that apply across the board to all sectors and activities. Cross-cutting recommendations typically encourage, enable, or otherwise support emissions mitigation activities and/or other climate actions. The CAPAG recommends that six such options be adopted and implemented by the State. All six are enabling options that are not quantified in terms of tons of reductions or costs/cost savings. Detailed descriptions of the individual Cross-Cutting Issues mitigation options as presented to and approved by the CAPAG can be found in Appendix I. Annex A to Appendix I offers additional reference materials that the CAPAG used in developing its recommendations for the inventories and forecast, reporting, registry, education and outreach, and adaptation mitigation options.

Cross-Cutting Issues Mitigation Option Descriptions

CC-1 GHG Inventories and Forecasts

GHG emissions inventories and forecasts are essential to understanding the magnitude of all emission sources and sinks (both natural and those resulting from human activities), the relative contribution of various types of emission sources and sinks to total emissions, and the factors that affect trends over time. The Center for Climate Strategies (CCS) is providing a baseline inventory as a part of this project. It should be a platform for further updating and improvement. 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 North Carolina's Climate Action Plan. However, it is expected that other uses of the data will be identified as the program evolves.

The CAPAG recommends that the responsibility for preparing GHG inventories and sinks should reside with the DAQ, 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 DAQ on a periodic basis. This program should be integrated with existing DAQ inventory and forecast functions as seamlessly as possible as committed to by DAQ in the September 2005 Report under the Clean Smokestacks Act. This inventory and forecast function should be implemented as soon as possible to establish an ongoing effort that will be improved over time based on improvements to the accuracy and completeness of data needed to support this effort.

The CAPAG recommends that the state develop a periodic, consistent, and complete inventory of all emission sources and sinks (both natural and those resulting from human activities) on a continuing basis with forecasts to reasonable and realistic future years (5 and 10 years), to and including 2020 (and eventually beyond), as allowed by funding. The process for these and other sources should repeat as often as necessary to track significant reductions or increases, beginning with every year for major point sources and every third year for other sources to be in agreement with routine US EPA (United States Environmental Protection Agency) air emissions reporting requirements and regulations for other regulated air pollutants. The inventory should include 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). The state should 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. The state should also provide a basis for documenting emission reductions and credits "by difference" from year to year.

GHG reporting reflects the measurement and reporting of GHG emissions at a statewide, sector, or sub-sector level 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 would also help in the construction of periodic state GHG inventories. GHG reporting is typically a precursor for sources to participate in GHG reduction programs, provide opportunities for recognition, create a GHG emission reduction registry, and secure “baseline protection.” Further, collaboration with other states in the development of a GHG reporting program could enable North Carolina to influence the development of GHG reporting practices throughout the region and nation and build consistency and reciprocity with other state or regional GHG reporting programs.

Accordingly, the CAPAG recommends that North Carolina develop and implement a voluntary GHG reporting program as soon as possible. Reporting should occur annually on a calendar-year basis for all six traditional GHGs and, to the extent possible, for black carbon. In order to encourage GHG mitigation activities from all quarters, all entities that can verify ownership of GHG emissions should be encouraged to participate in a reporting program. Every effort should be made to maximize consistency with federal, regional, and other states’ GHG reporting programs and quantification protocols in order to maximize consistency and reciprocity with federal, regional, and other states’ GHG reporting programs. The reporting of GHGs would help position sources for participating in an emissions trading program, should one develop in the future, leading to cost savings.

For entities participating in a reporting program, reporting of direct emissions should be required, reporting of emissions associated with purchased power and heat should be phased in, and reporting of other indirect emissions should be allowed. Reporting of GHG emissions should be on an organization-wide basis within North Carolina, but with greatest possible detail by facility in order to facilitate baseline protection. Reporting of emissions from GHG reduction projects should qualify for reporting when they are identified as such, and adhere to equally rigorous quantification standards. GHG emissions reports should be verified through self-certification and NC DENR spot-checks. To qualify for future registry purposes, reports should undergo third-party verification. The reporting program should provide for appropriate public transparency of reported emissions. GHG reporting may be required by DAQ for some categories of sources through normal state rulemaking procedures.

It should be noted that many sources in North Carolina report criteria pollutant emissions to DAQ in order to comply with various federal and state regulatory programs. Most electricity generating units are also required to report carbon dioxide (CO₂) emissions to the US EPA’s Acid Rain Program. Some sources may report GHG emissions on a voluntary basis to federal, state, or privately run programs. In addition, the DAQ will be collecting GHG emissions from stationary sources subject to a North Carolina state Title V air permit beginning in calendar year 2008 to fulfill a commitment under the Clean Smokestacks Act. The CAPAG acknowledges these emission reporting programs and DAQ’s efforts to systematically integrate the reporting of

GHG emissions by entities to the state in order to minimize costs to both the reporting entities and the state of North Carolina.

CC-3 State Greenhouse Gas Registry

A GHG registry enables uniform measurement and recording of GHG emissions reductions in a central repository. Typically, a registry also includes transaction ledger capability in order to support tracking, management, and ownership of emission reductions. Registries can help encourage sources to undertake GHG reduction efforts, enable potential recognition for such actions, provide baseline protection, and support the crediting of GHG mitigation actions. A registry can also provide a mechanism for regional, multistate, and cross-border cooperation. Subject to appropriately rigorous quantification standards, participation in a GHG registry should not be constrained to particular sectors, sources, or approaches in order to encourage GHG mitigation activities of all types from all quarters. In particular, a GHG registry should be able to incorporate activities associated with all of the options the CAPAG approves, whether reflective of reductions in emissions of GHGs or increases in biological or geological sequestration of carbon.

Building on the GHG reporting program recommended in CC-2, the CAPAG recommends that North Carolina actively engage with other states in developing a regional or national GHG registry that will comprehensively meet the state's needs as soon as possible. If developing regional or national multistate registries does not initially include all of the state's preferred criteria, North Carolina should still join and participate to the greatest extent possible and work to develop whatever additional registry capacity is necessary to meet the remaining needs of North Carolina sources (e.g., registration of carbon sequestered due to reforestation). Together, these approaches should cover all mitigation options the CAPAG recommends, provide adequate quality verification, and allow project-level reporting. Participation by North Carolina sources should be voluntary and include all entities that can verify ownership of GHG emission reductions, and costs should be borne primarily by participants. Entities should be provided the opportunity to participate in a registry as soon as possible after a GHG reporting program is operating.

The CAPAG recommends that the state ensure that any registry in which it decides to participate includes (1) voluntary participation by as broad an array of sectors, sources, facilities, and approaches as possible; (2) participation by entities at least at the statewide level and as broadly (i.e., regionally or nationally) as possible; (3) provisions for 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; (4) incorporation of adequate safeguards to ensure that reductions are not double-counted by multiple registry participants and provide appropriate transparency; (5) maximum consistency with other state, regional, and/or national efforts and the greatest flexibility possible as GHG mitigation approaches evolve; and (6) guidance to assist participants.

In addition, the registry should allow the state and its political subdivisions to be valid participants for registering reductions associated with their programs, direct activities, or efforts, including the registration of emission reductions associated with the stationary and mobile

sources they own, lease, or operate. The state and its political subdivisions should also be allowed to participate in emission trading if and when such a program is developed and authorized. Revenues associated with the sale of any emission reduction credits generated by the state or its political subdivisions could be used to support the GHG emission inventory, forecasting, reporting, and registry functions within state government.

CC-4 State Climate Public Education and Outreach

Public education and outreach can support GHG emissions reduction efforts at a macro- or micro-scale in relation to emissions reduction programs, policies, or goals. Public education and outreach are 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 mitigation actions proposed by the CAPAG as well as those which may evolve in the future.

The CAPAG recommends that North Carolina lead by example in its own education and outreach activities by establishing a proactive public education and outreach capability and using it to target education and outreach activities to five specific audiences: (1) policymakers and managers (e.g., legislators, regulators, executive branch, agencies, and employees); (2) educators and students; (3) community leaders and community-based organizations (e.g., institutions, municipalities, service clubs, social and affinity groups, and non-governmental organizations); (4) the general public; and (5) industrial and economic sectors (such as professional training, licensing, and certification programs). A statewide public education and outreach effort should probably be overseen largely by NC DENR but would necessarily involve many other key parties. Public education and outreach efforts should commence as rapidly as possible.

CC-5 State Climate Change Adaptation Strategy

Due to the existing buildup in the atmosphere of GHGs that has already occurred, North Carolina will experience some effects of climate change for years to come, even if immediate action is taken to reduce future GHG emissions. Thus, it is essential that the state develop a plan to manage the projected impacts of ongoing climate change while worldwide mitigation efforts to lower atmospheric concentrations are under way.

While taking action to reduce GHG emissions in North Carolina, the state 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. The state should empanel a state-sanctioned Blue Ribbon Commission on Adaptation to Climate Change as soon as possible to develop a state Climate Change Adaptation Plan within one year of establishment of the Commission. The Commission should involve and coordinate with all appropriate state and local agencies, organizations, and institutions (e.g., universities) to ensure that all potential impacts are identified in the plan. The Commission should also enlist the

expertise of all appropriate state and local agencies, organizations, and institutions in developing and implementing measures for mitigating these impacts.

At a minimum, the Commission should address in the plan the adaptation issues that the CAPAG has identified for this option in Appendix I. Benefit-cost analyses should be used to compare the potential costs of a “status quo” approach as opposed to implementing the recommendations proposed in the Climate Change Adaptation Plan. Recommendations in the adaptation plan should be prioritized 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) involve all affected sectors and interests; and (c) provide for periodic review and update concerning adaptation risks, responses, and opportunities in the state. Parallel public education and outreach efforts regarding adaptation should commence immediately. “Early-adoption” opportunities should be addressed as rapidly as possible (even before the Commission is established, if possible), and proactive adaptation initiatives should commence within the next 2–3 years.

The CAPAG also recommends that the State Legislature provide funding to support development and ongoing revision to the state Climate Change Adaptation Plan including, but not limited to, funds to support the cost-benefit analysis needed to guide and inform the development and implementation of the Plan and to cover expenses incurred by the Commission and Commission members.

CC-6 Options for Goals or Targets (for CAPAG in Support of LCGCC)

It is widely anticipated that eventually the federal government may cap GHG emissions associated with global warming. A number of states are ahead of the federal government in establishing GHG caps. For example, the Northeastern States (including New York) have instituted a regional cap-and-trade program to reduce power-sector GHG emissions. California has recently signed into law an economy-wide cap.

North Carolina has successfully severed the link between increasing energy consumption and emissions of soot and smog-forming pollution; even as energy consumption increases, sulfur dioxide and nitrogen oxide pollution are being significantly decreased.

North Carolina should establish voluntary goals to limit GHG emissions to prepare the state’s economy for the likely caps at the national level and begin to sever the link between increasing energy demand and GHG emissions. Even modest reductions in GHG emissions will help to align North Carolina’s environmental and economic interests and assist the state in addressing its contribution to global warming. The goal would not be mandatory but would simply set a direction in GHG emissions, just like the NC million acre conservation goal.

The CAPAG recommends that the State of North Carolina set an overall voluntary goal to bring statewide emissions back to a baseline, such as year 2000. The goal should be set over a long time horizon of 10–15 years to meet the baseline. It should be expressed as an interim goal on the longer path toward ultimate climate stabilization. There would be no mandates to any specific party. However, all sectors of the state’s economy would have the opportunity to contribute toward meeting the state’s goal. The adoption of such a goal should first be considered

by the NC LCGCC. If recommended by the LCGCC, such a goal could be established by the General Assembly or by an executive order of the Governor.

The CAPAG identified the following benefits associated with setting a goal to reduce statewide emission:

- **Addressing Potential Global Warming Impacts**—The direct economic toll of global warming on North Carolina may be enormous and would likely include increasing crop loss due to drought, episodic water shortages, coastal flooding and erosion, and building cooling costs. A state goal will draw attention to regional warming trends and associated effects and help business and government prepare for the future.
- **Economic Development**—As the state plans its economic development activities, a state carbon reduction goal can help promote expansion and recruitment of renewable energy technologies that are less GHG intensive. Additionally, these activities will seek to generate jobs in North Carolina to replace the non-native coal and gas sources that currently dominate North Carolina’s energy supply.
- **State Leadership**—By establishing a state goal, North Carolina will join the numerous states across the country that are already rising to the challenge of addressing GHG emissions associated with global warming.
- **Business Responsibility**—A state goal will be to provide the motivation and opportunity for companies to examine their options for cost-effective reductions in their GHG emissions. Many companies in North Carolina are already considering the need to reduce carbon dioxide in their long-term planning. A reduction goal will foster the broader business community to consider their ability to also reduce GHG emissions.
- **Preparing for the Emerging Carbon Marketplace**—North Carolina business can potentially sell tens or even hundreds of millions of dollars worth of carbon equivalence credits into the carbon marketplace that national climate legislation will eventually generate. A state goal would help companies that could potentially be suppliers of carbon credits in the coming national marketplace prepare to take advantage of these economic opportunities as soon as they arise.