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

Draft Option #	Draft Policy Option Name	Straw Proposal Volunteers
CC-1	Inventories and Forecasting	
CC-2	GHG Reporting and Registry	
CC-3	Statewide GHG Reduction Goals and Targets	
CC-4	State Government GHG Emissions (Lead-by-Example)	
CC-5	Comprehensive Local Government Climate Action Plans (Counties, Cities, etc.)	
CC-6	Public Education and Outreach	
CC-8	Adaptation & Vulnerability	

Note: The numbering used to denote the above policy options is for reference purpose only; it does not reflect prioritization among these important policy options. There is no policy option CC-7, as this catalog option was determined not to be a priority for analysis by the CECAC.

CC-1. Inventories and Forecasting

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

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 the Climate, Energy and Commerce Advisory Committee's (CECAC) recommendations to the Governor to be included in its Action Plan.

Policy Design

TBD – [as approved by the TWG]

The CC TWG recommends that South Carolina develop its capacity for preparing statewide emissions inventories and forecasts. Key elements are noted below.

Goals:

- Develop a periodic, consistent, and complete inventory of emission sources and sinks and an accompanying forecast of future GHG emissions in at least 5 and 10 year increments extending at least 20 years into the future. The GHG forecast should reflect projected growth as well as the implementation of scheduled mitigation options, and should, through differences year-to-year, provide a basis for documenting and illuminating trends in state GHG emissions.
- Develop a consistent protocol for preparing the inventory and forecast. In forecasting future GHG emissions, treatment of uncertainties should be transparent, as consistent as possible across sectors and time, and to the extent possible, reflect multiple scenarios.
- Inventory all natural and man-made emissions generated within the boundaries of the state (i.e., a production-based inventory approach) as well as emissions associated with energy imported and consumed in the state (i.e., a consumption-based inventory approach).

Timing: This function should be implemented as soon as possible, as allowed by funding. The process should be updated to reflect significant reductions or increases, beginning with every year for major point (Title V) sources and every two years for other sources.

Parties Involved: All GHG emission sources and sinks (both anthropogenic and natural) should be included in the inventory and forecast.

Other: Not applicable.

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

The South Carolina Department of Health and Environmental Control (DHEC) has been developing emissions inventories for pollutants that contribute to the formation of the criteria air pollutants for stationary and mobile sources for several years. The pollutants include carbon monoxide (CO), volatile organic compounds (VOC), oxides of nitrogen (NO_x), sulfur dioxide (SO₂), and fine particulate matter (PM).

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

The option is an enabling policy to encourage management, tracking, and ultimately reduction of GHG emissions. It does not reduce GHG emissions itself per se. Public disclosure of GHG emissions may encourage sources to reduce emissions.

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]

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

Data Sources: Many.

Quantification Methods: Several.

Key Assumptions: Development of inventories and forecasts on an on-going basis will establish a baseline for GHG emissions and provide a monitoring tool for assessing the efficacy of recommendations included in the Action Plan. Effective emission sinks can be identified and augmented. Public participation will inform and involve citizens in the overall goal of GHG emission reductions. Forecasting will allow state officials to plan for, implement and monitor necessary additions of emission sources or sinks to the emission cycle.

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

CC-2. State GHG Reporting and Registry

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

Greenhouse gas (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

TBD – [as approved by the TWG]

Reporting: The CC TWG recommends that the state develop GHG reporting opportunities for all sources. Elements that the state may wish to include are:

- Subject to consistently rigorous quantification, opportunity to voluntarily report GHG emissions should be open to all sources (e.g., combustion, processes, vehicles, etc.) using common sense regarding de minimis emissions. In order to encourage GHG mitigation activities from all quarters, reporting should not be constrained to particular sectors, sources, or approaches.
- The goal should be reporting of GHG emissions on an organization-wide basis within South Carolina, but with greatest possible detail by facility in order to facilitate baseline protection.
- Reporting should occur annually on a calendar-year basis for all six traditional GHGs and other pollutants for which the Intergovernmental Panel on Climate Change (IPCC) develops global warming potentials (GWPs) (e.g., black carbon and volatile organic compounds).
- GHG emissions reports should be verified through self-certification and spot-checks by the state. To qualify for future registry purposes, reports should undergo third-party verification.
- Every effort should be made to maximize consistency with federal, regional, and other states’ GHG reporting programs and quantification protocols.
- Reporting of direct emissions¹ should be required; reporting of emissions associated with purchased power and heat² should be phased in; and reporting of other indirect emissions³ should be allowed.

¹ Defined as “Scope 1” emissions in the *GHG Protocol*; see www.ghgprotocol.org

² Defined as “Scope 2” emissions in the *GHG Protocol*; see www.ghgprotocol.org

- Reporting of emissions from GHG reduction projects should qualify for reporting, when they are identified as such, and adhere to equally rigorous quantification standards.
- The reporting program should provide for appropriate public transparency of reported emissions.

Goals: Implementation of a South Carolina GHG reporting program as early as possible.

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

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

Other: Not applicable.

Registry: South Carolina 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 South Carolina's needs and priorities are addressed in the course of *The Climate Registry's* development. To the extent that South Carolina's needs may not be fully met by *The Climate Registry*, the State should consider developing supplemental or ancillary registry capacity or opportunity.

Elements to consider include:

- Geographic applicability at least at the statewide level and as broadly (i.e., regionally or nationally) as possible.
- Allowing sources to start as far back chronologically as good data exists, as affirmed by third-party verification, and allowing registration of project-based reductions or "offsets" that are equally rigorously quantified.
- Incorporating adequate safeguards to ensure that reductions aren't double-counted by multiple registry participants; providing appropriate transparency; and allowing the state to be a valid participant for reductions associated with its programs, direct activities, or efforts.
- Striving for maximum consistency with other state, regional, and/or national efforts; greatest flexibility as GHG mitigation approaches evolve; and providing guidance to assist participants.

Goals: Implementation of a GHG registry for South Carolina sources as soon as possible.

Timing: As soon as possible

Parties Involved: Probably overseen by [???]; costs shared by participants benefiting from the registry.

Implementation Mechanisms

TBD – [as approved by the TWG]

Utilization of data that sources voluntarily report to *The Climate Registry*.

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

³ Defined as "Scope 3" emissions in the *GHG Protocol*; see www.ghgprotocol.org

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

South Carolina has joined the effort to develop a national GHG registry through *The Climate Registry*.⁴ Being a charter state in this effort should help ensure that South Carolina's needs and priorities are addressed in the course of *The Climate Registry's* development, including the development of protocols for calculating and reporting emissions to *The Climate Registry*.

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

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

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]

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

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

Data Sources: Many.

Quantification Methods: Several – will be designed to follow standard, comparative and accepted reporting protocols to support the exchange/sale of emission reduction credits should this become a need in South Carolina.

Key Assumptions: TBD – [as needed and approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

⁴ See <http://www.theclimateregistry.org/>.

CC-3. Statewide GHG Reduction Goals and Targets

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

The CECAC is to recommend actions that can be taken in South Carolina to reduce the state's contribution and vulnerability to climate change. Consistent with this charge, the establishment of a statewide goal or target can provide vision and direction, a framework within which implementation of CECAC policy recommendations can proceed effectively, and a basis of comparison for regular periodic assessments of progress. GHG reduction goals or targets recommended by the CECAC should be consistent with the parallel goal of an efficient, robust South Carolina economy. In pursuit of similar climate progress, at least 16 other states have established GHG reduction goals or targets.

Policy Design

TBD – [as approved by the TWG]

Goals: Reduce statewide GHG emissions by ____% from [Specify Year] levels by 20__ [or __% per year from 20__ through 20__].

Timing: TBD – [as needed and approved by the TWG]

Parties Involved: TBD – [as needed and approved by the TWG]

Economy-wide (i.e., State Government, municipalities, citizen's groups, non-governmental organizations (NGOs), commercial, industrial, and economic sectors).

Other: TBD – [as needed and approved by the TWG]

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

All.

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

CC-4. State Government GHG Emissions (Lead-by-Example)

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

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

The support of broad-ranging goals for GHG reductions for state government will be helpful for setting an example and building expectations, with actual reductions realized at the agency level. Disaggregating the State's own GHG emissions to the agency level and showing the result in the biennial report on GHG reduction progress is an effective way to measure and manage the State's emissions. A multi-agency group oversees the on-going climate efforts of state agencies, providing direction, guidance, resources, shared approaches, and recognition to agencies and employees working to reduce the State's GHG emissions.

Policy Design

TBD – [as approved by the TWG]

The CC TWG recommends that South Carolina establish GHG reduction targets for state government operations (i.e., buildings and vehicle fleets). The establishment of broad-ranging goals for GHG emissions from state government operations will be helpful in both setting an example and building expectations. Actual reductions will typically be realized at the individual agency level, so disaggregating individual government's own GHG emissions to the agency or department level and requiring annual agency- or department-specific reports on GHG reduction progress can be an effective way to measure and manage each government agency's progress in reducing its GHG emissions. State government agencies or departments would first need to develop agency- or department-specific GHG emissions inventory data. This would become the baseline data for ongoing emission reduction activities and measurement, which would be summarized in annual reports by each agency or department. Agency and/or department reports would be aggregated into a summary report reflecting state GHG emissions. A multi-agency group should oversee the on-going climate efforts of state government agencies or departments, review their performance, and provide direction, guidance, resources, shared approaches, and recognition to agencies or departments and their employees that are working to reduce state government's GHG emissions.

Goals: *NOTE: The following provides examples of various ways to approach goals, shown as the three options below:*

- **Goals: (Option A)** Reduce GHG emissions from South Carolina state operations by ____% from ____ levels by 20__.
- **Goals: (Option B)** State should do as well or better as called for in CC-3.
- **Goals: (Option C)** Something else...

Timing: The state's efforts to lead-by-example in reducing its own GHG emissions should start immediately. The first annual report by agencies will necessarily reflect initial agency-level inventories. The second annual report should reflect initial progress in reducing GHG emissions as agencies begin to plan and implement operational changes. Future annual reports should show further progress in reducing agency GHG reductions.

Parties Involved: Coverage should include all operations of all state agencies and all departments of local governments.

Implementation Mechanisms

TBD – [as approved by the TWG]

- Public education and outreach to state and local government agencies and employees.
- Performance reviews and recognition of agency progress.
- Procurement of low-GHG products.
- Evaluate opportunities for the use of renewable energy.
- Climate-neutral bonding (i.e., no net increase in GHG emissions within the bond issuing agency's geographical jurisdiction after the project becomes operational).
- Require evaluation of GHG emissions in Environmental Assessments and Environmental Impact Statements and similar environmental studies.

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

Steps to reduce energy demand would reduce all GHGs related with energy production. Support for renewable energy and cleaner energy will also help lower all GHGs associated with energy production. Improving existing recycling efforts would result in an associated reduction in GHG emissions from processing new materials. Transportation and fleet management could lower vehicle emissions, as would converting vehicle fleets to run on alternative fuels (e.g., biofuels).

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]

Key Uncertainties

TBD – [as needed and approved by the TWG]

Substantial uncertainty surrounds future growth rates in GHG emissions, particularly beyond 2020, as well as the timing and scope of implementation of CECAC recommendations for specific policy options, including those associated with the state's own GHG emissions.

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

CC-5. Comprehensive Local Government Climate Action Plans (Counties, Cities, etc.)

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

Several local governments in South Carolina have already taken the initiative to address climate change in their communities. [*List South Carolina counties and cities here*] are just a few examples of local communities that are establishing greenhouse gas (GHG) reduction goals and developing plans to reduce GHG emissions. Additionally, Charleston, Clemson, Columbia, Greenville, and Sumter have signed the Mayors Climate Protection Agreement.⁵ The CECAC strongly encourages all local communities in South Carolina to develop such plans. Additionally, the CECAC sees a strong role for the state government, local government, and non-governmental organizations in promoting GHG reduction initiatives by local governments and in serving as a clearinghouse for local government initiatives.

The state government, local government associations, and others could help spread the successful actions and efforts of some local jurisdictions broadly to others through several means, such as workshops and conferences, a website clearinghouse, education and outreach to public and municipal officials, recognizing local government GHG emission reduction achievements, etc.

Policy Design

TBD – [as needed and approved by the TWG]

The CC TWG recommends that South Carolina promote adoption of community climate action plans by all local governments to set and achieve local GHG reductions and to help achieve state GHG reduction goals. The CC TWG further recommends that these locally-adopted plans be used to stimulate equivalent GHG reduction initiatives by the private sector and non-governmental entities in each community. These initiatives can be considered economic development opportunities, as well as adaptation-oriented strategies supporting policy option CC-8. The CC TWG recommends that local climate action plans include an assessment of opportunities for reducing GHG emissions by element at the community scale, specific goals or target values and a timeline for the emissions reductions, and adoption of local strategies to adapt to climate change. The types of community scale elements to be considered would include, but are not limited to:

- Urban planning processes;
- Land use management activities;
- Transportation management planning;
- Management of municipal power and water utilities; and
- Waste management

⁵ See <http://www.seattle.gov/mayor/climate/>.

Goals: TBD – [as needed and approved by the TWG]

Adoption of community climate action plans by all local governments in South Carolina.

Timing: TBD – [as needed and approved by the TWG]

Parties Involved: TBD – [as needed and approved by the TWG]

Cities, towns, counties, water districts, metropolitan districts, fire protection districts, and other public jurisdictions.

Implementation Mechanisms

TBD – [as needed and approved by the TWG]

A workshop organized and held by the state government, associations of local governments, and/or [enter appropriate South Carolina entities here] could help local governments initiate and strengthen local climate protection efforts. Development of a model plan by a consortium of state and local agencies / districts could help to facilitate implementation of this option as well as promote consistency and reduce costs to local agencies / districts. The state government should also provide technical assistance to local agencies / districts and help local agencies / districts secure funding (e.g., grants) to develop their climate action plans.

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Similar programs in [[list South Carolina county and city governments here]].

Types(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

Estimated GHG Savings and Costs per MTCO_{2e}

TBD – [as needed and approved by the TWG]

Not applicable.

Key Uncertainties

TBD – [as needed and approved by the TWG]

Substantial uncertainty surrounds future growth rates in GHG emissions, particularly beyond 2020, as well as the timing and scope of implementation of CECAC recommendations for specific policy options.

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

CC-6. Public Education and Outreach

Policy Description

NOTE: All red text is meant to reflect only an illustrative example.

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

Policy Design

TBD – [as approved by the TWG]

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

- State and Tribal Government Education and Outreach Actions – the State should lead by example (i.e., walk the talk) regarding education and outreach, including award programs, establishment of “outreach coordinator” position to coordinate with all audiences, government employees, educators, etc. Explore opportunities with other Southeastern States to coordinate education and outreach actions.
- Policymakers (legislators, regulators, executive branch, agencies) – because implementation of climate actions hinges on policymakers’ approval.
- Future Generations – create a “South Carolina Health Corps” (see Attachment A) to integrate climate change into educational curricula, post-secondary degree programs, and professional licensing to address overlapping goals and relationship of public health and environmental issues.
- Community Leaders and Community-Based Organizations (e.g., institutions, municipalities, service clubs, social and affinity groups, non-governmental organizations, etc.) – in order to recognize leadership, share success stories, publicize role models, and expand climate involvement and participation within civic society.
- General Public – to increase awareness and engage citizens in climate-stabilizing actions in their personal and professional lives.
- Industrial and Economic Sectors – in order to recognize leadership, share success stories, publicize role models, and expand climate involvement and participation within the business community. Pursue sector-specific climate change education and outreach such as training

and education for builders and contractors (e.g., heating, ventilation, and air conditioning (HVAC) sizing, duct sealing).⁶ Create a Clearinghouse to Facilitate Investment in Climate-Related Business Opportunities.

- Federal Agencies - The State should establish clear lines of communication and active engagement with federal agencies to (1) ensure that they are knowledgeable and respectful of the State’s interests, (2) establish mechanisms for ongoing communication with key federal programs to leverage efficient use of resources, and (3) secure funding to develop and implement programs to address climate change in South Carolina.

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

Timing: Public education and outreach efforts should commence now.

Parties Involved: In collaboration with the South Carolina state agencies, a State Climate Change Advisory Group including business, government, nongovernmental organizations, and citizen advocacy representatives should be formed to help guide a coordinated effort moving forward.

Other: The Education Design Characteristics Matrix provided in Attachment B is reference material to, not explicitly part of, this mitigation option.

Implementation Mechanisms

TBD – [as approved by the TWG]

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]. Not applicable.

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]. Not applicable.

Key Uncertainties

TBD – [as needed and approved by the TWG]

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Feasibility Issues

TBD – [as needed and approved by the TWG]

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

⁶ Formerly RCI-8 (RCI catalog action #2.7); during its third meeting on September 21, 2007, the CECAC decided to move RCI-8 under CC-6.

TBD – [blank until final vote by the CECAC]

CC-8. Adaptation and Vulnerability

Policy Description

NOTE: Some members of the SC CC TWG provided the following straw proposal for this option for review and comment by the full TWG.⁷

Due to the build-up of greenhouse gasses (GHGs) in the atmosphere that has already occurred, South Carolina will experience some effects of climate change for years to come, even if immediate actions are taken to reduce GHG emissions. Climate impacts will likely affect South Carolina's people, land, economy, and quality of life in many ways. Thus, it is essential that the state develop a plan to adapt to the projected impacts of climate change while mitigation efforts to lower atmospheric concentrations are underway.

Policy Design

TBD – [as approved by the TWG]

While taking action to reduce GHG emissions in South 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 “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. 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 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 South Carolina; including, but not limited to:

Intensification of Tropical Storms	Increased Pollen/Mold Spores
Accelerated Sea Level Rise	Increases in Heat-Related Illness
Increased Flooding	Forestry
Saltwater Intrusion into Aquifers	Agriculture
Increases in Ground-Level Ozone	Insurance Industry
Drought	Tourism Industries
Loss of Homes and Community Displacement	Wildlife and Fishing Impacts

⁷ Based on North Carolina Climate Action Plan Advisory Group (CAPAG) document “Cross Cutting Issues Technical Work Group, Summary List of Mitigation Options.” See Appendix I to CAPAG’s Draft Final Report Available at <http://www.ncclimatechange.us/template.cfm?FrontID=5570>.

- Recommended steps to respond to the identified impacts so as to minimize risk in South Carolina 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 coastal areas, 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.
- Regular review and update of the Plan on a periodic basis (e.g., at least 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.

The State Legislature should provide funding to support development and on-going revision to the state Climate Change Adaptation Plan including, but not limited to, funds to support the analyses needed to guide and inform the development and implementation of the Plan and to cover expenses incurred by the Commission and Commission members.

The goals, timing, and parties involved in the Commission on Adaptation to Climate Change should include, but not necessarily be limited to the following:

Goals: Develop a comprehensive state Climate Change Adaptation Plan identifying opportunities to address adaptation issues and risks and recommending tangible, implementable measures to ameliorate these issues and risks to South Carolina citizens. 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, including major related planning processes, such as the South Carolina Department of Health and Environmental Control (DHEC) Shoreline Change Initiative (b) involve all affected sectors and interests; and (c) provide for periodic review and update concerning adaptation risks, responses, and opportunities in the state.

Timing: The Commission should be established as soon as possible. The development of a state Climate Change Adaptation Plan should be completed within one year of establishing the Commission. Public education and outreach efforts regarding adaptation should commence immediately. “Low-hanging fruit” opportunities should be addressed as rapidly as possible (even before the Commission is established, if possible), and pro-active adaptation initiatives should commence within the next 2-3 years.

Parties Involved: The Blue Ribbon Commission on Adaptation to Climate Change should involve and coordinate with all appropriate state and local agencies, organizations, institutions (e.g., universities), and other stakeholders to ensure that all potential impacts are identified and to ensure the successful development and implementation of the plan.

Other: [Insert text as appropriate]

Implementation Mechanisms

TBD – [as approved by the TWG]

- State Climate Change Adaptation Strategy
- Public education and outreach, coordinated with SC CECAC activities.
- Policy development as necessary

Related Policies/Programs in Place

TBD – [as needed and approved by the TWG]

- State and local emergency management response plans are in place which address short-term responses to natural disasters (e.g., violent storms). To the extent possible, measures recommended in the Climate Change Adaptation Plan should assist and complement these existing state and local efforts.
- The South Carolina DHEC, Office of Ocean and Coastal Resource Management (OCRM) is renewing its focus on shoreline management in response to longstanding issues with coastal erosion, storms, and sea level rise; and in light of projections that each of these hazards will intensify in the coming decades due to climate change. In accordance with the agency's 5-yr strategy (published in 2007), a Shoreline Change Advisory Committee made up of over 20 scientists, managers, and stakeholders is being formed to identify research needs and policy options. Proposed measures addressing sea level rise, coastal erosion and storms in the Climate Change Adaptation Plan should refer to and build on this existing effort, as well as any future research and policy recommendations generated by DHEC advisory panels on shoreline change.

Type(s) of GHG Reductions

TBD – [as needed and approved by the TWG]

Not applicable.

Estimated GHG Savings and Costs per MTCO₂e

TBD – [as needed and approved by the TWG]

Not applicable.

Key Uncertainties

TBD – [as needed and approved by the TWG]

The magnitude of the risks is subject to several types of uncertainties. Sea level rise is already occurring along the South Carolina coast (approximately 8 inches over the past century, plus approximately 4 inches of land subsidence), and will continue to result in shoreline change and inundation of some low-lying areas. IPCC estimates indicate an accelerated rate of global average sea level rise of up to 0.59 m by 2099, but this excludes the risk of rapid changes in ice flows (IPCC 2007), which might add to the magnitude and accelerate the rate of increase. Other climate impacts, such as drought, flooding, fire risks, and air quality issues, and their interactions with existing stresses are less certain. Population and investment, particularly along the coast, are expected to continue, although the rates of each are less certain. Water sharing arrangements with neighboring states are unresolved.

Additional Benefits and Costs

TBD – [as needed and approved by the TWG]

Innovative early adaptation responses to climate change impacts can be designed to:

1. Help prevent and/or reduce costs associated with future catastrophic events and long-term climate change impacts;
2. Direct future public and private investment more effectively; and
3. Ensure preparedness to help avoid extensive cost implications to state, county, city and federal agencies.
4. Early preparedness can raise public awareness and encourage further GHG mitigation efforts, which can drive economic opportunities for alternative fuels, agriculture, forestry, and advanced technologies.

Feasibility Issues

TBD – [as needed and approved by the TWG]

Success will depend on sustained political and financial support from the state.

Status of Group Approval

Pending – [until CECAC moves to final agreement at meeting #5 or #6]

Level of Group Support

TBD – [blank until CECAC meeting #5]

Barriers to Consensus

TBD – [blank until final vote by the CECAC]

Attachment A.
DRAFT
(Prepared by Marcus Newberry)

South Carolina Health Corps
A Higher Education Concept for Health, Environment and Public Service

Economic well-being, education, health, physical security and the environment rank consistently among the top concerns of the public. Each field is important to the future of society and human survival. Frequently discussed but often not fully appreciated is the linkage and leverage between the fields, which creates additional potential for efficiency, creativity and productivity. Society and government have not been adept at taking advantage of the linkages to achieve leverage and maximum benefit.

The debt and dependence between fields of endeavor is often under-appreciated. In-depth knowledge and specialization can be credited with significant progress within a specific field but they create greater difficulty for cross-fertilization and cooperation. There is much to be gained from a generalist overview to take advantage of the linkage and leverage between fields.

To the generalist, all the fields are essential and have equal importance for society to function and prosper. However, the priority and emphasis between the fields will vary depending upon the circumstances and the goals at the time.

The following are examples of relationships and dependencies:

- A clean environment is necessary for optimum health.
- Protecting the environment is a function of education.
- Education is necessary to achieve and maintain optimum health status.
- Optimum health status, education and the environment form the foundation that supports economic well-being and physical security.
- Healthy lifestyle is based upon the principles of prevention and conservation.
- Protecting the environment is based upon the principles of prevention and conservation.
- Education, health and the environment cannot be protected without physical security and economic well-being.
- Human behavior is the common element and the greatest single force acting within and upon all the fields.

Society depicted as a sphere has an outer shell composed of physical security and economic well-being and throughout the sphere is a matrix that is the environment. At the center of the sphere radiating out in all directions are health and education. If any one of these fails the integrity of the sphere is destroyed.

No activity on earth exceeds the complexity of human behavior, nor is anything more difficult to understand. Human behavior has been studied extensively but it defies easy interpretation. The number of factors capable of determining or influencing behavior is large, and the potential for their interaction is even higher.

Human behavior is the greatest force on earth for influence upon the planet and all life that exists on it. The magnitude and scope of human behavior over time determines the direction and outcome of existence on earth, natural disasters notwithstanding.

Belief systems are the practical basis for human behavior. Human behavior cannot change without change in the belief system, and change in behavior cannot be sustained unless it is based upon a belief system.

Changes in belief systems and behavior do not come easily or quickly. People know a few things and they believe in many things. Belief systems commonly exceed the basis of fact.

Dysfunctional behavior and social processes can continue for prolonged periods contrary to overwhelming facts.

The vision for the South Carolina Health Corps is to provide substantive educational content and practical experience to all higher education students regarding personal and community health, healthy lifestyles, health promotion, disease prevention, conservation of the environment and protection of the climate, and to prepare them to transmit this information and experience to vulnerable populations.

The purpose is to create a cadre of healthy citizens who will be future leaders of South Carolina and instill in them a framework and belief system for public service. The concept is based upon the following assumptions:

- Optimum health is important for a productive life;
- Health is a function of education and behavior;
- Prevention and conservation are principles in-common to health, protection of the environment and climate, economic well-being, and physical security;
- Nothing is ever learned so well as to serve as an example and teach it to others;
- Public service is crucial for good citizenship and building belief systems.

Phase I

The process includes development of a web-based instruction program available for academic credit at each institution of higher education in the state. The program development will be a collaborative effort of faculty throughout the state and include flexibility for faculty input during implementation at each institution. It will include on-line discussion groups, individual evaluation with feedback and seminars on campus.

Program content will be based upon the following disciplines:

- Physiology – metabolism, physical fitness
- Biochemistry – metabolism, nutrition, diets
- Psychology – motivation and positive outlook, cognitive behavior therapy, team building, coaching
- Communication – social marketing
- *Note: Add other fields of instruction for environment and climate*

Each student successfully completing the course will be inducted into the South Carolina Health (and Environment) Corps. The Health Corps will be organized to advocate and teach the principles of prevention and conservation for healthy lifestyles and protection of the environment and climate to students in grades 6 through 12, and recruit these students into the Corps.

Phase II

Opportunities and experience will be created for members of the Health Corps, such as physical training at Fort Jackson and Parris Island, wilderness outings and hiking well-known trails. Internships, fellowships and scholarships for graduate work in public health and the environment will be developed.

[Note: TWG to add expand on opportunities and experiences here.]

ATTACHMENT B.

Reference Materials for CC-6 (Public Education and Outreach)

Option No.	GHG Reduction Policy Option	Notes
6.	PUBLIC EDUCATION AND OUTREACH	
6.1	State Government Education and Outreach Actions The State should lead by example (i.e., walk the talk) regarding education and outreach. Explore opportunities with other Southeastern States to coordinate education and outreach actions.	
6.1.1.	Establish an education & outreach committee to educate audiences regarding climate plan policies and to oversee those relating to education.	•
6.1.2.	Include state public education and higher education officials in the committee established above	•
6.1.3.	Create and maintain one or more “outreach coordinator” positions specifically tasked with climate outreach and coordination among state agencies and outside entities.	• Shoreline Coastal Initiative • One possible approach: A “Climate Extension Specialist” as being pursued by SC, NC, and AZ.
6.1.4.	Educate state employees across-the-board, and assign “point persons” to do so on an on-going basis.	•
6.1.5.	Institute annual Governor’s Awards to recognize climate action of several types/categories.	•
6.1.6.	Add GHG to Air Awareness efforts *	• State Air Program: Incorporating climate change material in outreach and presentations. Bureau of Air Quality’s (BAQ) Education and Outreach section has responded to several requests from teachers for classroom visits addressing climate change, and will be addressing similar requests that have been received from community groups.

ATTACHMENT B (Continued)

Option No.	GHG Reduction Policy Option	Notes
6.2	Target Audience: Policymakers (legislators, regulators, executive branch, agencies) Implementation of climate actions hinges on policymakers' approval.	
6.2.1.	Educate policy makers on CECAC policy recommendations, climate change in general, scientific and technological advances, and progress toward state goals through regular briefings in order to promote acceptance and implementation of mitigation and adaptation policies.	•
6.2.2.	Provide continuing outreach & assistance to Governor's office, legislature, and implementing agencies on a regular basis.	•
6.3	Target Audience: Future Generations Create a "South Carolina Health Corps." Integrate climate change into educational curricula, post-secondary degree programs, and professional licensing to address overlapping goals and relationship of public health and environmental issues.	
6.3.1.	Create a "South Carolina Health Corps	•
6.3.2.	Add climate change to public education performance standards for science and social studies; identify (a) gaps in climate change education, and (b) specific curricula to fill any gaps.	•
6.3.3.	Organize groups of educators to identify, assemble, and employ climate change curricula appropriate to age groups	•
6.3.4.	Integrate "best practices" into public school design & construction to educate students (and parents) first-hand in their communities & colleges (i.e., walk the talk).	•
6.3.5.	Integrate climate change into core college curricula.	•
6.3.6.	Promote research into climate change and solutions at state universities; develop university "Centers of Excellence" on climate issues, new approaches, and technologies.	•
6.3.7.	Integrate climate change into existing and/or new educational competition programs.	•
6.3.8.	Work with science centers, zoos, and museums to include a climate science focus appropriate to their core mission	•
6.3.9.	Introduce core competencies on climate change into professional licensing programs (e.g., energy efficiency in building design and construction, use of recycled materials, etc.)	•

ATTACHMENT B (Continued)

Option No.	GHG Reduction Policy Option	Notes
6.4	Target Audience: Community Leaders & Community-Based Organizations (e.g., institutions, municipalities, service clubs, social & affinity groups, NGOs, etc.) Recognize leadership; share success stories & role models; expand involvement and participation within civic society.	
6.4.1.	Educate community planning and zoning officials about climate change, impacts, and opportunities.	•
6.4.2.	Identify individual community leaders who are acting effectively on climate change; showcase and share their successes.	•
6.4.3.	Identify individual community leaders who are not yet acting on climate change and make a special effort to educate and encourage them to act.	•
6.4.4.	Engage associations and attend their periodic meetings to reach out on climate change, impacts, sector-specific mitigation actions, and adaptation opportunities.	•
6.4.5.	Identify, assist, and leverage community-based organizations that have expertise or interest in climate-related issues	•
6.4.6.	Work with community-based organizations to identify & build upon climate issues related to their core mission	•
6.4.7.	Develop & coordinate a network of community-based organizations acting on climate change so they can link up, organize joint events, etc.	•
6.4.8.	Support and facilitate outreach and education within community-based organization regarding climate change issues and actions	•
6.4.9.	Develop and provide concrete information on co-benefits to entities to use in boosting their climate efforts	•
6.4.10.	Organize & host events that focus on leading by example, sharing “how-to,” illuminating financial risks and opportunities, co-benefits, etc.	•
6.4.11.	Encourage municipal leaders to join ICLEI’s ⁸ Cities for Climate Protection program and/or the Mayors Climate Protection Agreement ⁹	•
6.4.12.	Help communities statewide implement programs.	•

⁸ ICLEI is the International Council for Local Environmental Initiatives. See www.iclei.org.

⁹ See <http://www.ci.seattle.wa.us/mayor/climate/>.

ATTACHMENT B (Continued)

Option No.	GHG Reduction Policy Option	Notes
6.5	Target Audience: General Public Increase awareness and engage in climate actions in personal and professional lives.	
6.5.1.	Educate broadcasters, reporters, editorial boards, etc. about climate change, the risks it imposes, and solutions.	•
6.5.2.	Work with state broadcasters and print media associations to develop & run climate change public service announcements.	•
6.5.3.	Conduct public polling to benchmark strength and depth of climate understanding.	•
6.5.4.	Keep a high profile on climate change issues and actions through regular public mention by Governor and other public leaders	•
6.5.5.	Develop and use a state-based “brand” on climate awareness and action	•
6.5.6.	Develop & maintain a state climate change website for the public including a clearinghouse of climate change information and resources.	• See, for example, FL, WA, and CT websites.
6.5.7.	Work with existing company outreach efforts to customers to enhance awareness of climate change issues & opportunities	•
6.5.8.	Work to educate consumers – and home designers, builders, and contractors – to ensure that they are aware of the different choices they have for space heating and cooling (e.g., evaporative vs. refrigerative) and the impacts of those choices.	•
6.5.9.	Develop a statewide voluntary program to structure and assist individuals in undertaking actions to reduce GHG emissions.	•

ATTACHMENT B (Continued)

Option No.	GHG Reduction Policy Option	Notes
6.6	Target Audience: Industrial & Economic Sectors Sector-specific climate change education and outreach. Create a Clearinghouse to Facilitate Investment in Climate-Related Business Opportunities	
6.6.1.	Residential, Commercial, & Industrial	•
6.6.2.	Transportation & Land Use *	• Promote clean fuel technologies: -- Palmetto State Clean fuels coalition. -- Aggressively pursuing hydrogen technology.
6.6.3.	Energy Supply and Use	• Do public service announcements to education the public about demand-side management (DSM). • Include environmental disclosure in monthly electricity bills. • Help municipal utilities move to greater demand-side emphasis rather than supply-side.
6.6.4.	Agriculture & Forestry	• Promote local farm produce: -- Various farmers markets throughout state. -- Whole Foods in Greenville and Charleston offering loans to enhance local production.
6.6.5.	Implement a state program of voluntary business actions to reduce GHGs.	•
6.6.6.	Institute a “business incubator” program to attract and support new business development relating to the new energy economy.	•
6.6.7.	Audiences outside South Carolina too	•
6.7	Target Audience: Federal Agencies The State should establish clear lines of communication and active engagement with federal agencies to (1) ensure that they are knowledgeable and respectful of the State’s interests, (2) establish mechanisms for ongoing communication with key federal programs to leverage efficient use of resources, and (3) secure funding to develop and implement programs to address climate change in South Carolina.	