

**Virginia Commission on Climate Change
Adaptation and Sequestration Workgroup Meeting Summary, August 27, 2008**

Members present: The Honorable Joseph Bouchard (chair), The Honorable John W. Daniel, II, Mr. Dale Gardner, The Honorable Penelope A. Gross, Mr. Michael L. Lipford, Dr. Roger Mann, Mr. William A. “Skip” Stiles, and The Honorable Frank Wagner.

Members absent: The Reverend Richard Cizik, and The Honorable R. Creigh Deeds

Ms. Gross called the meeting to order.

Identifying Greenhouse Gas Sinks/Sequestration Rates

Tom Ballou, representing the Department of Environmental Quality (DEQ), presented the final draft greenhouse gas inventory and greenhouse gas reduction target for Virginia. The revised inventory contains updated numbers for transportation and projected vehicle mile increases. The inventory also accounts for some greenhouse gases sequestered by natural systems. Natural systems that sequester greenhouse gases include wetlands, forests, grasslands, agriculture, and soils. However, apart from forestry information, there is little agreement on the sequestration values for natural systems. Mr. Ballou verified his estimates for forest cover and sequestration rates with the US Forest Service inventories, and similar calculations completed by the Center for Climate Strategies (CCS) in other states. Approximately twenty (20) million metric tons of carbon dioxide (mmtc) per year are sequestered by Virginia’s forests.

There was discussion among the workgroup members on how the number was calculated and being projected through 2025. Dr. Mann cautioned us to remember that natural systems may sequester carbon dioxide and other gases, but they should not be considered permanent sinks. He emphasized the difference between sequestration, which is a rate, and sink, which permanently captures carbon dioxide. Wetlands sequester carbon dioxide and are also greatly impacted by land use decisions. They are also at great risk from sea level rise, and depending on wetland type, hydrological, and climate conditions, wetlands may be net emitters of greenhouse gases. Sequestration values for wetlands reported in the literature vary widely. Mr. Stiles was requested to identify values for wetlands, if available and reliable, that DEQ could incorporate into the overall budget. Using the 20 mmtc/year through 2025 in the inventory assumes a no net loss of forest in Virginia, despite ongoing losses of ~30,000 acres/year to land conversion. Mr. Lipford stated that a no net loss policy and incentives to forested landowners may stem some of those losses.

Mr. Stiles brought up the issue of carbon credits, and the need to properly identify sinks and rates to make a carbon offset credit program possible. Workgroup members discussed their support for using a net number versus not accounting for natural sequestration. The group expressed a desire to account for other natural systems sequestering carbon. Without understanding their value to sequestration, we may fall behind in managing those systems and in accounting for their carbon offset potential. However, Mr. Ballou said that other states have also not accounted for sequestration by natural systems other than forests. The science to support other estimates does not appear to be available with much confidence.

**Virginia Commission on Climate Change
Adaptation and Sequestration Workgroup Meeting Summary, August 27, 2008**

Ms. Gross asked if these calculations took other sources of emission into account, and used landfills and methane generation as an example. Mr. Ballou answered that generation and sequestration often occur simultaneously, and are both accounted for in the net carbon budget. He also explained that even when trees are cut for timber, the wood products continue to bind carbon, unless burned, so the forestry sequestration estimates may be fairly stable.

Mr. Ballou asked the workgroup to determine if they felt comfortable with the revised greenhouse gas budget that includes net numbers. Chairman Bouchard summarized four recommendations he heard during this discussion: 1) the Commission should be using the net numbers for targets; 2) more research is needed to understand the contribution of natural systems other than forests; 3) we should strive to develop a no-net loss state policy for carbon sinks that would include protection incentives (this may include supporting or enhancing existing programs that manage natural systems); and 4) any federal cap and trade system should address natural sinks and adaptation.

Establishing climate change drivers for planning

At the first workgroup meeting, members decided to establish planning targets for sea level rise, temperature, and weather/precipitation. These targets should be used for policy development. There was a lengthy discussion of the sea level rise predictions provided in the Intergovernmental Panel on Climate Change's (IPCC) Fourth Synthesis Report (released November 2007). The estimates vary widely from less than 1' to more than 20' globally depending on model scenarios. Currently observed sea level rise rates vary throughout the Chesapeake Bay depending on local conditions, like subsidence.

Workgroup members recognized that even with planning targets, many counties still need elevation data. Access to updated elevation data could change floodplain designation and drive the implementation of adaptation plans. The workgroup will recommend Light Detecting And Ranging (LIDAR) collection for all counties to plan from. Having elevation data like LIDAR is critical to adaptation planning, and would allow for an assessment of the economic impacts expected from climate change.

The group discussed the need to use the term "relative sea level rise" to include local conditions of land subsidence or rebound, in addition to eustatic sea level rise. A recent draft report from the Scientific and Technical Advisory Committee (STAC) to the Chesapeake Bay Program, provides an estimate of 0.7-1.6 m (2.3-5.2 ft) of relative sea level rise across the Chesapeake Bay region. This number fits within the IPCC estimates as well. After much discussion over which estimates to use for a statewide target, the workgroup decided to use a 2 ft. rise by 2090 as the relative sea level rise target for Virginia. Members also emphasized that this number should be revisited several times over that timespan to review new information and ensure it is the right target.

More discussion focused on implications of this target to the designation of areas covered by the Federal Emergency Management Act (FEMA). Maryland's Adaptation workgroup requested an additional 2 ft. buffer beyond the current FEMA flood elevations. Our

**Virginia Commission on Climate Change
Adaptation and Sequestration Workgroup Meeting Summary, August 27, 2008**

workgroup may consider a similar recommendation, but further discussion on this issue is needed.

Discussion then moved on to identifying targets for temperature increases and changes in precipitation. The predictions for these within the recent IPCC Report and other literature contain broad ranges of estimates. The members recommended taking a more general approach to these targets to describe conditions under various scenarios. For example, if temperature were to increase, then we might expect a specific set of changes to be described in a final report. On the other hand, if temperatures were to decrease, we might see a different set of responses, which would also be included in the report. There was basic agreement that we will see a greater degree of irregularity in temperature and storm patterns. The group agreed to review what other states, Maryland in particular, had defined for temperature and precipitation changes before the next meeting.

Delegate Bouchard encouraged anyone with suggestions on recommendations to send them to him. The group then adjourned at noon.