



**MEETING SUMMARY**  
**SOUTH CAROLINA CLIMATE, ENERGY AND COMMERCE ADVISORY**  
**COMMITTEE**  
**Agriculture, Forestry, and Waste Management Technical Work Group**  
**(AFW TWG)**

Call #5, September 5, 2007, 2:00–3:45 PM

**Attendance:**

1. Technical Work Group Members:
  - John Bonitz – Agriculture Energy Coordinator, Southern Alliance for Clean Energy
  - Art Braswell – Division Director, Mining and Solid Waste Management, South Carolina Department of Health and Environmental Control
  - Bob Giangorgi – Vice President, Priority Metrics Group
  - Edwin Lesley – President, Business Development Corporation of South Carolina
  - Kristen Lavender for Russell Ott – South Carolina Farm Bureau
  - Bob Perry (for John Frampton) – Wildlife Biologist, Environmental Programs Section, DNR
  - Guy Sabin – Environmental Management Section Chief, South Carolina Forestry Commission
  - Carlton Owen – President/CEO, US Endowment for Forestry and Communities
  - Daniel Tufford – University of South Carolina, Dept. of Biological Sciences
  - Stephen Henry – Natural Resource Conservation Center
  - Venkat Lakshmi - University of South Carolina, Dept. of Geological Sciences
2. Center for Climate Strategies (CCS) Staff:
  - Steve Roe – Lead facilitator
  - Brad Strobe – Co-Facilitator
  - Gloria Flora – Co-Facilitator
3. South Carolina Department of Health and Environmental Control (SCDHEC):
  - Michael Juras – SCDHEC; Agency Liaison
4. Public Attendees: Kay Clamp, South Carolina Petroleum Council
5. Technical Work Group Members not attending:
  - Bob King – Deputy Commissioner, South Carolina Environmental Council
  - Joe James – CEO, Corporation for Economic Opportunity
  - Bob Scott – President, South Carolina Forestry Association
  - Johnny Williamson – CEO, South Carolina Soya, LLC

- Larry Boyleston – Director, Business and Government Relations, South Carolina Dept. of Agriculture
- Cary Chamblee – Legislative and Government Consultant for South Carolina Wildlife Federation and Sierra Club
- Scott Fennell – Carolina Waste
- Chris Fisher – Fisher Recycling
- Richard Horton – Sustainable Energy Manager, South Carolina Energy Office
- Mark L. Robertson – Executive Director, The Nature Conservancy of South Carolina
- Danny Verdin – SC Senate
- Erica Westbrook – Natural Resources Conservation Service

**Background documents:**

(all posted at [http://www.scclimatechange.us/Agriculture\\_Forestry.cfm](http://www.scclimatechange.us/Agriculture_Forestry.cfm))

1. Meeting Notice and Agenda
2. Summary of Call #3
3. PowerPoint for Teleconference.
4. Appendices for Draft Inventory and Forecast

**Discussion items and key issues:**

1. CCS called the teleconference meeting to order, completed the roll call and outlined the agenda.
2. CCS reviewed the draft summary of Call #4. No revisions or comments were offered by the TWG other than requesting that all documents be available as much in advance as possible for thorough review.
3. The South Carolina Climate, Energy and Commerce Advisory Committee (CECAC) met August 22<sup>nd</sup>. They moved through the AFW priorities in detail but were unable to complete all sectors so action on AFW priorities will be on hold until all sectors are complete, most likely after the next CECAC meeting on September 21<sup>st</sup>.
4. The TWG’s objective for this meeting was to review the Draft Inventory and Forecast (I&F) in greater detail and ensure that assumptions and latest data are being incorporated. Likewise, all TWGS are reviewing the Draft I&F in detail for their sectors.
5. The stepwise planning process was reviewed. Our next step, after direction from the CECAC, will be to generate straw proposals from the priority policy options selected.

*Draft Inventory and Forecast Review*

*General*

1. Reminder: Gross emissions means greenhouse gas (GHG) emissions from all sources, net emissions figures include sinks.
2. In the electrical sector, there are two figures, one is production based emissions related to power produced in-state, the consumption-based emissions figures are a result of electricity used within the state. They are different due to amount of power exported or imported. When reviewing summary emissions data, we will nearly always be looking at consumption based numbers.

*Agriculture*

1. Agriculture GHG emissions sources were reviewed in detail. In order of greatest contribution to current GHG emissions are:

- a. Ag Soils-Livestock refers to nitrous oxide (N<sub>2</sub>O) emissions from manure/litter spread on agricultural fields, deposited in pastures/range, and from leaching of nitrogen into groundwater and runoff.
  - b. Enteric fermentation covers methane (CH<sub>4</sub>) from the digestion system of ruminant animals.
  - c. Ag Soils- Fertilizer references N<sub>2</sub>O emissions from the use of chemical fertilizers. Releases occur in nitrogen application and run-off (direct) and through leaching into ground water (indirect).
  - d. Manure management encompasses actions taken to collect, move and store manure prior to spreading on fields (covers both CH<sub>4</sub> and N<sub>2</sub>O emissions).
  - e. Ag Soil – Crops references the N<sub>2</sub>O emissions from nitrogen fixing crops, decomposition of crop residues, and cultivation of high organic soils (histosols). Separately, CCS also includes the net flux of carbon that is released/sequestered during a variety of crop management practices, including when a fallow field is returned to cultivation, releasing stored CO<sub>2</sub> sequestered during its resting state (or vice versa). When these result in a net sink of CO<sub>2</sub>, then the emissions do not appear in summaries of gross emissions.
  - f. Agricultural burning is the disposal of ag wastes by combustion (resulting in both N<sub>2</sub>O and CH<sub>4</sub> emissions); a negligible amount occurs in South Carolina.
2. A TWG member inquired about the difference in emissions between stacking and composting. Most manure is stacked, particularly in the poultry industry (the largest sector in the state). It was unclear what methodology EPA uses to differentiate between the two. CCS will investigate to determine if these details are available.
  3. Key assumptions are based on the State Guidance and Inventory Tool (SGIT) which assigns emission factors to each of the agricultural practices in all sectors.
  4. Projections include data from VISTAS, a regional planning organization that looks at contributions to haze (particulates). Historical agricultural growth trends are applied to reach the 2020 projection.
  5. CCS is assuming that historical trends in agriculture and livestock production will continue. **If anyone is aware of data or policies that would modify that pattern, please present it to the TWG.**
  6. A TWG member asked if CCS was able to quantify the levels of uncertainty numerically. He felt it would assist decision-makers. Agriculture and forestry has a larger degree of uncertainty than sectors such as energy supply or transportation where inputs and outputs are more fixed and visible. CCS did not believe with the level of complexity in quantifying uncertainty that it would be worthwhile to attempt that for this sector. The detailed information required to quantify uncertainty (e.g. distributions around the different variables used in developing the activity data and emission factors) would either be unavailable or very difficult to gather.

### *Waste*

1. The waste management sector is divided into solid waste management and wastewater treatment. Further disaggregation of these two subsectors are presented in the inventory and forecast:
  - a. Uncontrolled Landfills – these are local and regional landfills where little action is being taken to control emissions;
  - b. LFGTE Landfills – these are landfills where landfill gas to energy projects are underway, which collect and utilize the gas to create heat or power;

- c. Flared Landfills – these sites collect and burn off methane;
  - d. Industrial landfills – emissions from these are based on an EPA default from national data, which estimates that industrial landfills contribute 7% of the methane that is contributed by municipal solid waste landfills (first three categories above). TWG member indicated that the results based on this assumption seem reasonable since, although there is a fair amount of industrial waste landfilling in the state, most of it in SC is inorganic (which would not generate methane upon decomposition);
  - e. Municipal Waste Water systems;
  - f. Waste Combustion is the burning of solid waste;
  - g. Industrial Wastewater covers fruit and vegetable washing and processing, pulp & paper manufacturing, and meat & poultry, but the amount in SC is negligible (the inventory includes only one plant within these industries that has its own wastewater treatment facility).
2. Methods and data from the U.S. Environmental Protection Agency (EPA) and the South Carolina Department of Health and Environmental Control (SCDHEC) are used for calculating emissions and generating assumptions and projections. For instance, a methane gas collection rate of 75% is used as the collection efficiency for landfills with collection systems (meaning that the emissions are the other 25% that escape. State population and SGIT default data are used for municipal wastewater projections. These methods and assumptions are documented in the Inventory & Forecast Report Appendices posted to the AFW webpage.
  3. Projections for landfill emissions are based on the last 5 years of data because of significant recent changes in landfill location, operation and consolidation.

### *Forestry*

1. The United States Forest Service (USFS) Forest Inventory Assessment and state timber harvest data are the sources of data used within the Agency's modeling (FORCARB2 and HARVCARB models). Carbon flux (the basis of CO<sub>2</sub> measurements used here) measures biomass at two points in time and compares quantities between them (across a number of different forest carbon pools). A negative number means more is being absorbed than is released (net sequestration).
2. Six pools of forest carbon are evaluated: live trees, understory, standing dead and down, forest floor, soils, harvested wood products. Harvested wood products accounts for removal of biomass from forests that end up in durable wood products, landfilled wood wastes, and biomass used for energy purposes.
3. There is fairly high uncertainty in forest soil carbon absorbing capacity (acknowledged by USFS). Totals in our reports will not include soil carbon. Positive amounts (emissions) typically indicate a change in land use from forested to developed use.
4. A couple of TWG members pointed out an important disconnect in SC forest soil carbon estimates in the Draft Inventory – emissions from forest soils would not be expected because there is a net increase in forested lands in SC during the period of analysis (+331,000 acres). A negative number would be expected (carbon sink). CCS will check with USFS to review why these numbers are strongly positive for soil organic carbon. Concern was expressed that these figures may encourage rapid development of forest

lands since it appeared that reforestation was contributing to emissions rather than stemming them. CCS points out that it is only the soil carbon pool that is showing a net positive flux (all others show a sink).

5. A TWG member cautioned that although there was a large drop in the acres of forested land in the early 1900's, acres now reforested have held steady through huge population growth. However a recently released USFS Study suggests that 44 million acres of forest will be converted to development in the next 20 years. We shouldn't assume that there will be a continuation of growth in acres of forested land unless there are policies and incentives to ensure that. Very significant growth is occurring in SC, so we should assume that SC will actually convert more than the national average of acres to development, particularly because of the pace and spread of the Raleigh-Charleston corridor and coastal development.
6. **However, forestry data for last 5 years have established a baseline; no significant change is predicted for the future to 2020 in the draft I&F.** CCS will review the USFS study above to determine what types of adjustments to make to the forecast based on projected forest conversion. The USFS Study referenced above will be provided to all TWG members to help achieve consensus on forested land acreage projections.
7. A TWG member suggested we calculate mitigation costs on a per unit basis (per GHG source category) before priorities are chosen. Because of the complexity and the fact that simple mitigation costs do not include ancillary benefits, cost for mitigation action will be applied only to the priority options that are actually in the final plan, not to each source. The time and resources allocated to the process also do not allow for this type of approach.
8. CECAC goal is reductions across the board so all sectors may not be reduced equally.
9. If we want biomass to play an important role than we perhaps need to add the incentives for biomass and biomass gasification-combined cycle (BGCG) technology back into the mix. Other groups may be looking at similar options such as with biofuels. Expect some overlap. Opportunities for including BGCG incentives in associated policies could still be available as we move forward into policy development.
10. Ancillary effects must be considered as well, for example, reduction of forest cover may also cause increased overland flow of water, reduction of soil nutrients, sedimentation, flooding, etc. All this must be considered, particularly when CECAC is making decisions about which priorities will be in the final plan. CCS noted that there are specific portions of the policy option template devoted to these issues.

Input from the public was solicited; none was received.

#### **Next steps and agreements:**

1. The date for the next CECAC meeting is September 21<sup>st</sup>. The next meeting of the AFW TWG will be held via teleconference on **October 3, 2007 (time TBD)**
2. The Call Summary for this meeting will include a current list of priorities.

3. TWG Members are asked to consider the list of priorities and select which option(s) you would like to work on within a smaller working group (see table below). Be ready to discuss these during the next TWG call.
4. TWG Members should carefully **review the assumptions and projections covered today**, especially within their area of expertise and share with the TWG and CECAC any concerns if those assumptions and projections appear inaccurate. This should be done before the next TWG call, so that CCS has an opportunity to respond.
5. CCS thanks all members who were in attendance at this extended meeting. Once we move into the more interactive steps of the process, they will be much more engagement.