



# South Carolina Climate, Energy & Commerce Advisory Committee

AFW Technical Working Group  
Meeting #6

October 3, 2007

Office of the Governor  
The Center for Climate Strategies

# Agenda

- Call to order and roll call
- Review and approval of previous call summary
- Review TWG goals for CECAC Meeting #4
- Review and discussion of next steps for TWG
- Review of CECAC decisions on priority options for analysis
- Review of Policy Option Template
- Assign Work Group Volunteers for the development of Straw Proposals
- Discussion and Recommendations for the Draft South Carolina Emissions Inventory & Forecast
- Proposed date, time, & agenda items for next meeting
- Public Input and Announcements

# Stepwise Planning Process

1. Develop inventory and forecast of emissions
2. Identify a full range of possible actions
3. Identify initial priorities for analysis
4. Develop straw proposals
5. Quantify GHG reductions and costs/savings
6. Evaluate externalities, feasibility issues
7. Develop alternatives to address barriers
8. Aggregate results
9. Iterate to final agreements
10. Finalize and report recommendations

# Goals for CECAC Meeting #4

- Goal: For each priority policy option, obtain CECAC input on and approval of TWG straw proposal descriptions, design characteristics, and related policies and programs in place in SC to establish parameters for quantification analysis
- TWG Steps:
  - Draft straw proposals
  - Revise as needed
  - Approve straw proposals to forward to CECAC

# Next Steps: Meeting Schedule Protocol

- TWG meetings held at least two weeks before and after CECAC meetings to provide lead time for posting materials.
- Each TWG should meet at least twice between CECAC meetings.
- Some scheduling adjustments may be necessary for the AFW TWG.
- Additional meetings?
- Coordination with other TWGs.

# Next Steps: Dates for Remaining CECAC and TWG Meetings

## **Scheduled CECAC Meetings:**

- Meeting #4: Friday, November 30, 2007
- Meeting #5: Friday, February 22, 2008
- Meeting #6: Friday, May 9, 2008
  - Meeting Time: 10:00 am – 5:00 pm

## **Scheduled TWG Meetings:**

- Meeting #7: Wednesday, November 7, 2007
- Meeting #8: Wednesday, January 9, 2008
- Meeting #9: Wednesday, February 13, 2008
- Meeting #10: Wednesday, April 2, 2008
  - Meeting Time: 2:00 pm – 4:00 pm

# Next Steps: Development of Priority Policy Options

- Design Template / Matrix
  - Policy description
  - Policy design (derived from design options matrix)
  - Potential implementation mechanisms
  - Related policies/programs in place
  - Type(s) of GHG reductions
  - Estimated GHG savings and cost per MTCO<sub>2e</sub>
  - Key uncertainties
  - Types of additional (non-GHG) benefits and or costs
  - Description of feasibility issues, if needed
  - Status of group approval
  - Level of group support
  - Barriers to consensus

# Results of Aug. 22 CECAC Meeting

- Strong approval of TWG's recommended priority policy options
- Some changes proposed for AFW TWG options (see following slides)

# CECAC Input on Initial Priorities for Analysis Recommendations

- **In-State Liquid Biofuels Production:** Assess the full range of sources and/or fuels that may be feasible. Assess impact of supply increases on environment and commerce.
- **Soil Carbon Management:** The CECAC suggested that “Soil Carbon Management” and “Forest Management for Carbon Sequestration” could be combined into one large “Terrestrial Carbon Sequestration” option. The TWG will consider this proposal and begin work on straw proposals according to the resolution of this motion to combine these options.
- **Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production:** Identify the range of biomass sources. Include a category of bioproducts. Include provisions for biomass gasified combine cycle development and improved energy capture from wood waste combustion. Include the consideration of the environmental and commercial impacts of the expansion of the supply of biomass feedstocks.

# CECAC Input on Initial Priorities for Analysis Recommendations

- **Forest Management for Carbon Sequestration:** Broaden this option to include agricultural lands, as well as forestry.
- **Forest Protection – Reduced Rate of Clearing and Conversion to Nonforest Cover / Conservation of Working Agricultural Land:** Combine these two options under working title of “Conservation and Restoration of Forest and Agricultural Lands for Enhanced Carbon Sequestration.” Note that conservation, rather than preservation, is what this option is intended to propose. Catalog sub-action 4.4 (Utilization of Currently Impaired Ag. Lands) will be removed from Soil Carbon Management and included with this option.

# CECAC Input on Initial Priorities for Analysis Recommendations

- **New Option:** On-Farm Energy Efficiency (Catalog Options 5.1, 3.2/3.4)
- **New Option:** On-Farm Waste Energy Recovery (Catalog Options 1.3, 3.1)
- **New Option:** Expanded Use of Local Agricultural Products (Catalog Option 5.3)
- **Further Consideration:** The CECAC has asked the TWG to consider whether or not to combine “Soil Carbon Management” and “Forest Management for Carbon Sequestration.”
- **Further Consideration:** The CECAC has asked the TWG to consider under which option to consider Urban Forestry

# Priority Policy Options Template

(see handout posted on web)

- Note that options have been reordered.
  - Options grouped by sector.
- TWG volunteers will develop Straw Proposals, consisting of Policy Description and Design.
- CCS language provided as a starting point. TWG input encouraged.

# Next Steps: Assign Workgroup Volunteers

- Refer to summary table on next slide.
- Volunteers needed to develop straw proposals and work with CCS during the rest of the process to develop the Policy Options Document.
- Volunteer list to be posted at end of Call Summaries
- Each TWG member will receive a contact list to facilitate communication within sub-groups. This contact information will not be posted on-line.

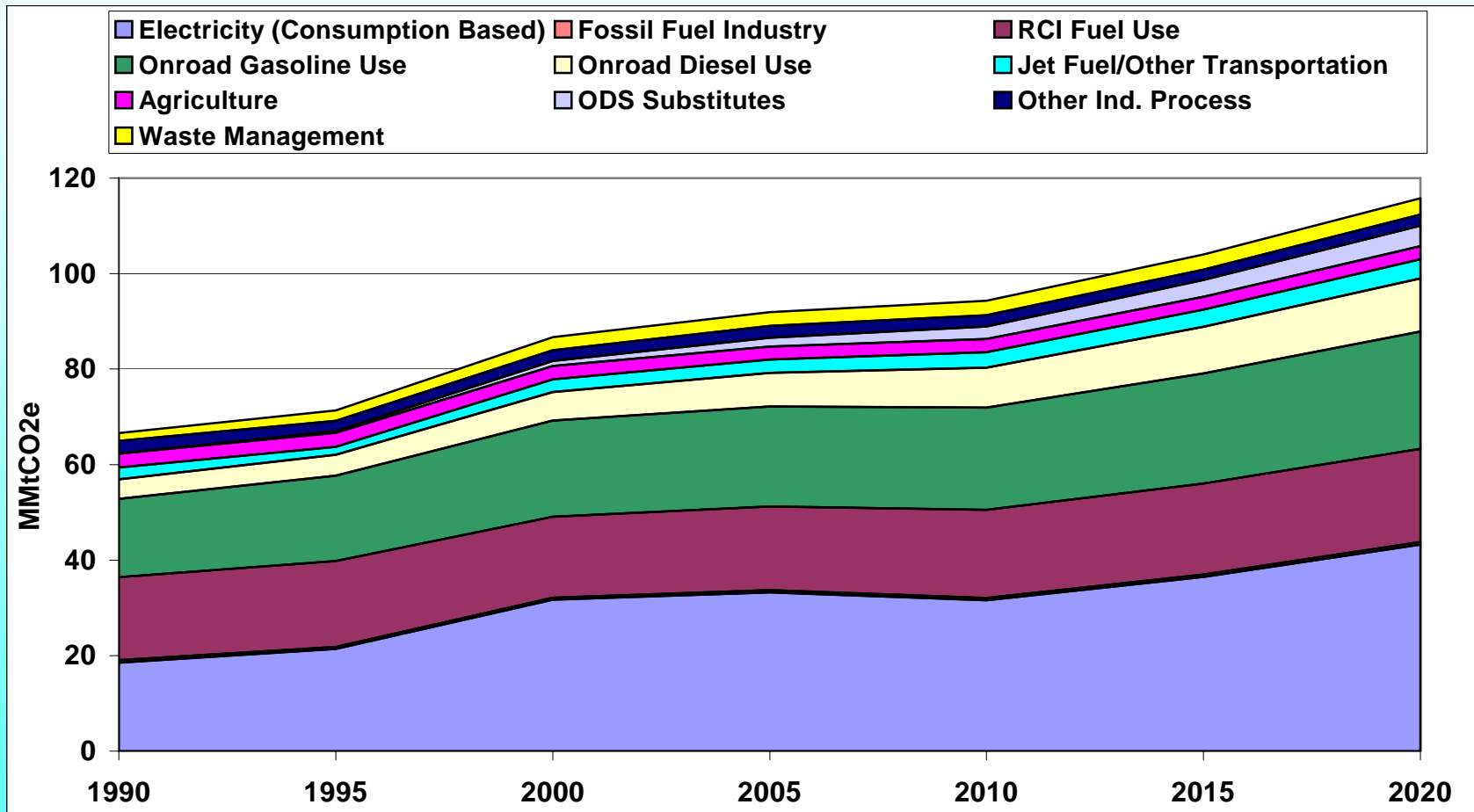
# Revised Order and Preliminary Option Titles

Revised Number	Preliminary Number	Preliminary Title	TWG Volunteers (lead volunteer in bold)
<b>AFW-1</b>	AFW-4	Soil Carbon Management	
<b>AFW-2</b>	<i>NEW</i>	On-Farm Energy Efficiency	
<b>AFW-3</b>	<i>NEW</i>	On-Farm Waste Energy Recovery	
<b>AFW-4</b>	<i>NEW</i>	Expanded Use of Local Agricultural Products	
<b>AFW-5</b>	AFW-3	In-State Liquid Biofuels Production	
<b>AFW-6</b>	AFW-5	Expanded Use of Biomass Feedstocks for Electricity, Heat, or Steam Production	
<b>AFW-7</b>	AFW-6	Land Management for Carbon Sequestration: Forestry and Agriculture	
<b>AFW-8</b>	AFW-7&8	Conservation and Restoration of Forest and Agriculture Lands for Enhanced Carbon Sequestration	
<b>AFW-9</b>	AFW-2	Advanced Recycling and Composting	
<b>AFW-10</b>	AFW-9	Waste-to-Energy Reclamation	
<b>AFW-11</b>	AFW-1	Water and Wastewater Energy Efficiency Improvements	

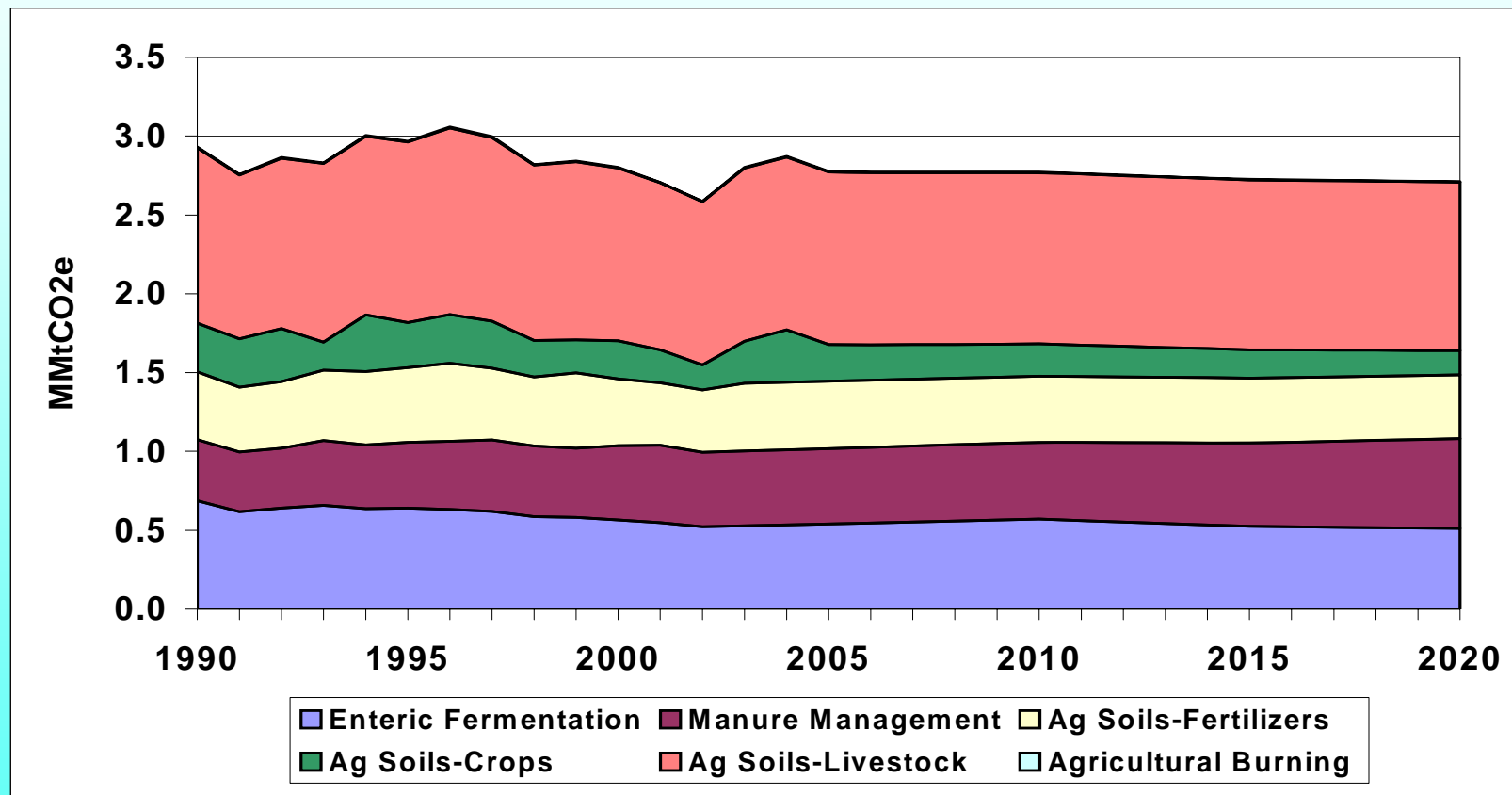
# Draft GHG Inventory & Forecast

- AFW appendices posted on website

# South Carolina Gross GHG Emissions By Sector, 1990-2020



# Agriculture



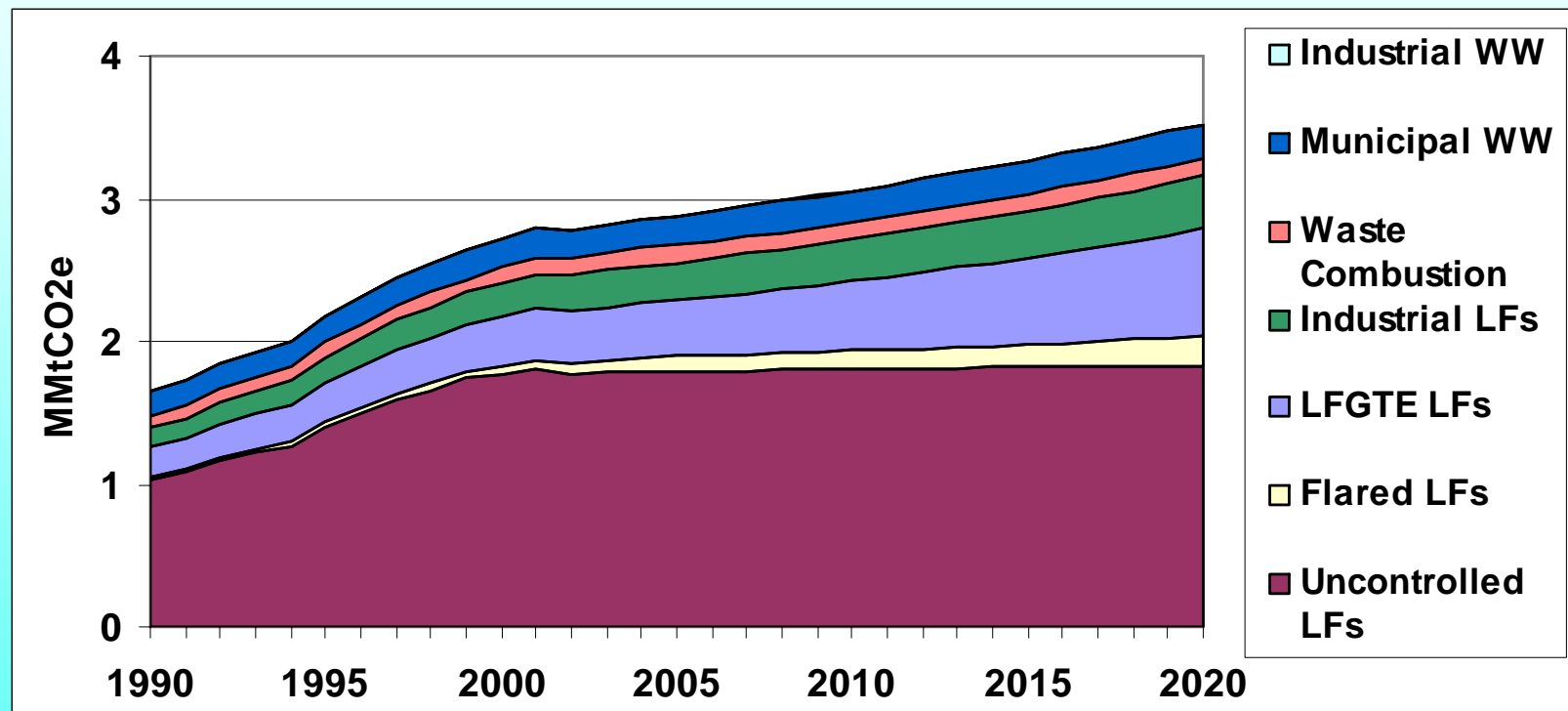
# Agriculture

- Data Sources
  - Crop Production: USDA/NASS
  - Livestock: USDA/NASS
  - Fertilizer: Fertilizer Institute
- Methods
  - Crops: SGIT emission factors and crop production data
  - Livestock: SGIT emission factors and livestock populations
  - Fertilizer: SGIT fertilizer consumption
  - Livestock population projections based on methods from VISTAS Regional Planning Organization inventory
  - Projections for other categories based on historical growth trends

# Agriculture

- Key Assumptions
  - Future growth for agricultural soils will follow historical trends
  - Livestock population growth will follow national trends (VISTAS inventory uses USDA projections for most livestock categories)
- Key Uncertainties
  - Manure management emission factors derived from limited data sets
  - Livestock numbers based on point estimates for each year to represent populations that fluctuate throughout the year
  - Projection assumptions

# Waste Management



# Waste Management

- Data sources
  - EPA Landfill Methane Outreach Program Database
  - Additional landfill data provided by SCDHEC
  - SCDHEC data on waste combustion and wastewater (WW) flows for fruit/vegetable processing
  - State population and SGIT default data for municipal WW treatment
- Methods
  - SGIT with data sources above
  - CCS post-processing to account for controls and growth

# Waste Management

- Key Assumptions
  - Growth Rates
    - Landfills – based on historic emissions growth (2000-2005)
    - Industrial WW – based on historic emissions growth (1990-2005)
    - Municipal WW – SC population projections
- Key Uncertainties
  - Future controls applied to uncontrolled landfills
  - Industrial landfills
    - SGIT default of 7% of municipal landfills
  - Industrial WW
    - Growth for food/vegetable processing

# Forestry

<b>Forest Pool</b>	<b>Carbon Flux (MMtC)</b>	<b>Carbon Flux (MMtCO<sub>2</sub>) (negative number = net sink)</b>
Live Tree	-4.7	-17
Understory	-0.2	-0.8
Standing Dead & Down Dead	-0.4	-1.5
Forest Floor	-0.04	-0.15
Soil Carbon* (data subject to change)	7.6	28
Harvested Wood Products	-2.5	-9.0
<b>Totals</b>	<b>-0.3</b>	<b>-1.0</b>
<b>*Totals (excluding soil carbon)</b>	<b>-7.8</b>	<b>-28.5</b>
<p>Totals may not sum exactly due to independent rounding.            Data source: Jim Smith, USFS, personal communications with S. Roe, CCS, November 2006 and February 2007.</p>		

# Forestry

- Data Sources
  - USFS carbon stock data for 2001-2005 based on FORCARB2 model
  - USFS also provides modeled estimates for harvested wood products
- Methods
  - Forestry: USFS FORCARB2 carbon stock change model provides carbon pools for each inventory cycle
  - Flux calculated for each pool based on difference in time between inventory cycles
  - Carbon pool data for the 2001-2005 time-period

# Forestry

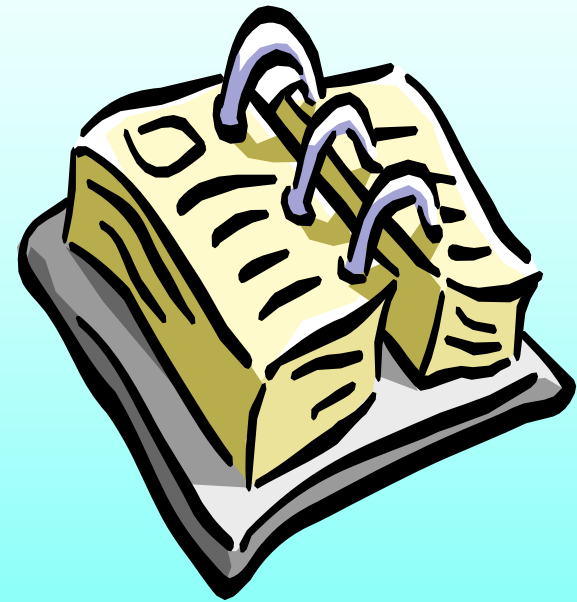
- Key Assumptions
  - 2001-2005 carbon stock change representative of current and historical conditions
  - No significant change in sequestration from 2006-2020
- Key Uncertainties
  - Effects of future development on forested acreage
  - Effects of near-term climate change on forest sequestration levels

# Next Steps

- Meet with volunteer sub-groups to begin development of Straw Proposals for CECAC review
- Straw Proposals will be reviewed during the next TWG meeting
- Next CECAC meeting: November 30, 2007

# Next TWG Meeting

- Date and Time
  - November 7, 2007;  
2:00PM to 4:00 PM.
- Future Meetings
  - CECAC: Nov. 30, Feb. 22, May 9
  - AFW TWG: Nov. 7, Jan.9, Feb. 13, April 2
- Agenda:
  - Review Straw Proposals and Policy Options Template



# Public Input, Announcements