



V
Vermont



Governor's Commission on Climate Change

Agriculture, Forestry, and Waste Resource Management Technical Work Group Teleconference Meeting #8

April 26, 2007



VERMONT
ENVIRONMENTAL CONSERVATION



CENTER FOR CLIMATE STRATEGIES

Today's Agenda

- Roll Call
- Review of previous call summary
- Review input from TWG and CCS on policy options
- Discuss next steps in developing policy options
- Continued review and discussion of the Vermont emissions inventory & forecast, time permitting
- Agenda, time, and date for next meeting
- Public input and announcements

Announcements

- Resignation of Abe Collins
- Discussions with new Ag Secretary Roger Allbee
- Other concerns from the TWG?

Revisions to VT Policy Options Document

- Refer to “VT AFW Policy Options” document distributed prior to the call

AFW TWG Policy Options

AFW Option No.	GHG Reduction Policy Option	TWG Volunteers
1	Programs to Support Local Farming/Buy Local	Debra Sachs , Phil Benedict, Jennifer Jenkins
2	Agricultural Soil Carbon Management Programs	Abe Collins , Phil Benedict
3	Manure Management Methods to Achieve GHG Benefits	Phil Benedict , Abe Collins, Jennifer Jenkins
4	Preserve Open Space/Agricultural Land	Elizabeth Courtney , Phil Benedict
5	Forestry Programs to Enhance GHG Benefits	Jennifer Jenkins , Sandy Wilmot, Bill Sayre, Elizabeth Courtney
6	Increased Forest Biomass Energy Use	Sandy Wilmot , Bill Sayre, Debra Sachs, Netaka White, Elizabeth Courtney
7	Forest Protection – Reduced Clearing and Conversion to Nonforest Cover	Sandy Wilmot , Netaka White, Elizabeth Courtney
8	Expanded Use of Durable Wood Products (especially from VT sources)	Bill Sayre , Sandy Wilmot, Jennifer Jenkins
9	Advanced/Expanded Recycling and Composting	Paula Calabrese , Jennifer Jenkins
10	Programs to Reduce Waste Generation	Paula Calabrese , Debra Sachs
11	Waste Water Treatment - Energy Efficiency Improvements	Paula Calabrese
12	In-State Biofuels Production	Netaka White , Debra Sachs

Next Steps on Policy Options

- TWG volunteers continue work on:
 - Implementation mechanisms
 - Related policies/programs in place
 - Additional benefits/costs
 - Feasibility issues

Next Steps on Policy Options Development (continued)

- CCS continues work on:
 - Types of GHG reductions
 - Estimated GHG reductions and costs
 - Key uncertainties

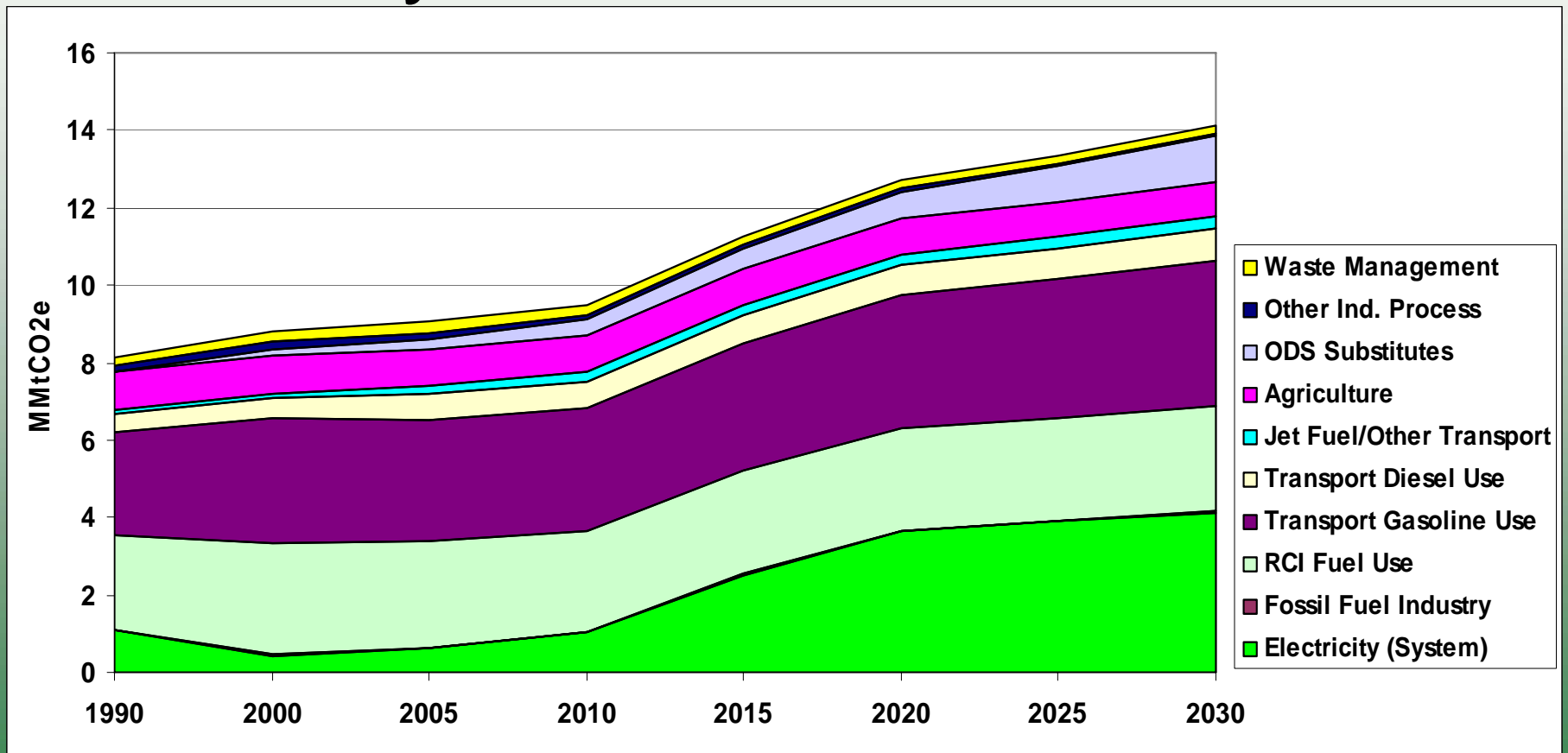
Vermont GHG Emissions

- Inventory and Reference Case Projections
- Initial analysis by CCS for further discussion and final revision
 - Inventory of historical emissions from 1990 to most recent data year (2000-2004, depending on sector)
 - Projection of emissions to 2030
 - Check website for complete I&F Report.

Coverage

- Six gases per USEPA and UNFCCC guidelines
 - Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF₆)
 - Black Carbon considered separately
- All major emitting sectors
 - Electricity
 - Residential, Commercial, Industrial Fuel Use
 - Transportation
 - Agriculture and Forestry
 - Waste Resource Management
 - Industrial Processes and Other Sources

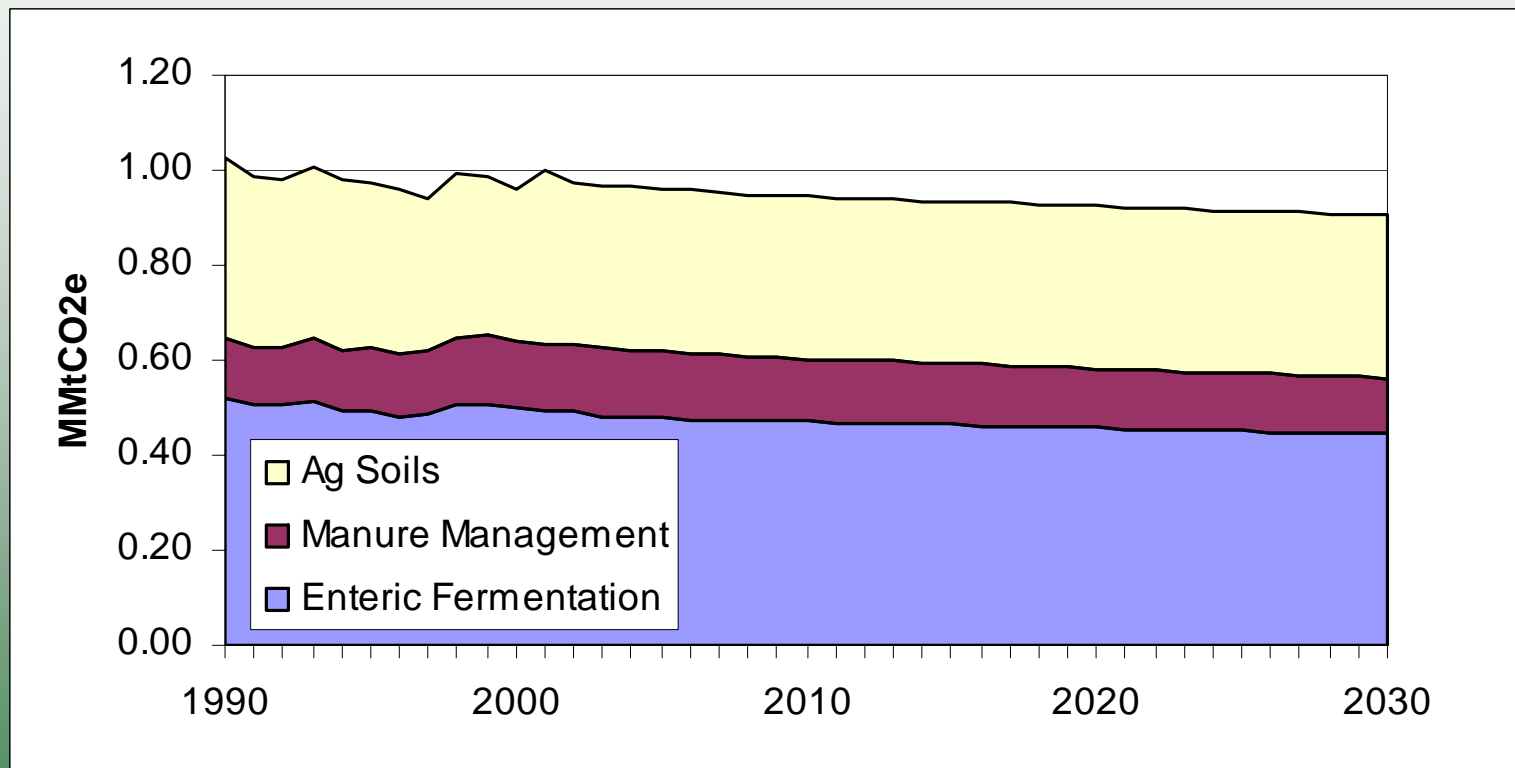
Gross Vermont GHG Emissions By Sector, 1990-2020



Key Points

- Preliminary draft for TWG review and revision, as needed
- Helpful for diagnosis of GHG emissions, but not a compliance baseline
- Consumption v. production methods
- Role of terrestrial carbon storage
- Potential for GHG reductions outside of sector/state

Agriculture – Gross Emissions



Agriculture

- Data Sources
 - Crop acreage: USDA
 - Livestock: USDA
 - Livestock Projections: USDA
 - CCS added USDA carbon sink estimates for agricultural soils (-0.19 MMtCO₂e based on 1997 data). Net ag emissions are ~0.8 MMtCO₂e
- Methods
 - Crops: SGIT emission factors and crop acreage, SGIT fertilizer consumption
 - Livestock: SGIT emission factors and livestock populations
 - Dairy cattle projections adjusted to account for projected populations in Cow Power program
 - No growth assumed for Ag Soils emissions

Agriculture

- Key Assumptions
 - No growth or significant change in crop production for the future
 - USDA national livestock projections
- Key Uncertainties
 - Projection data

Forestry

Carbon Pool	MMtCO₂e/yr
Live Trees	-6.3
Standing Dead Trees	-0.3
Live Understory	-0.03
Down and Dead Trees	-0.4
Forest Floor	-0.5
Soils	-0.7
Harvested Wood Products	-1.4
Total	-9.7

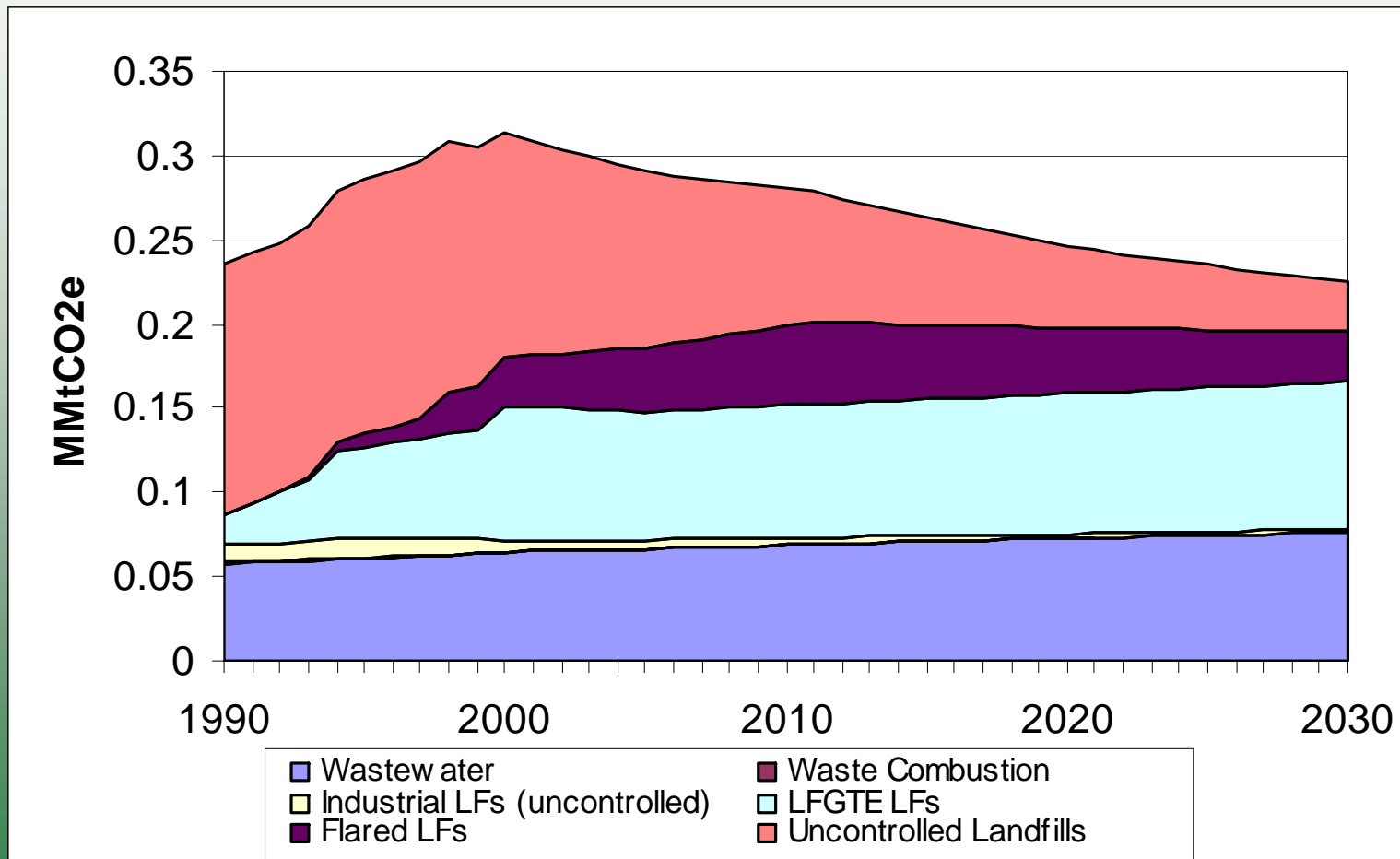
Forestry

- Data Sources
 - USFS carbon stock change data for 3 FIA cycles (1983, 1997, 2004) based on FORCARB model
 - 2004 FIA surveys not yet complete
 - USFS also provides modeled estimates for harvested wood products
- Methods
 - Forestry: USFS FORCARB2 carbon stock change model provides carbon pools for each FIA cycle
 - Flux calculated for each pool based on difference in time between FIA cycles
 - Carbon pool data for the 1983-1997 time-period used to quantify flux.

Forestry

- Key Assumptions
 - 1983-1997 carbon stock change representative of current conditions
 - No significant change in sequestration from 2007-2030
- Key Uncertainties
 - Effects of future development on forested acreage
 - Effects of near term climate change on forest sequestration levels

Waste Management



Waste Management

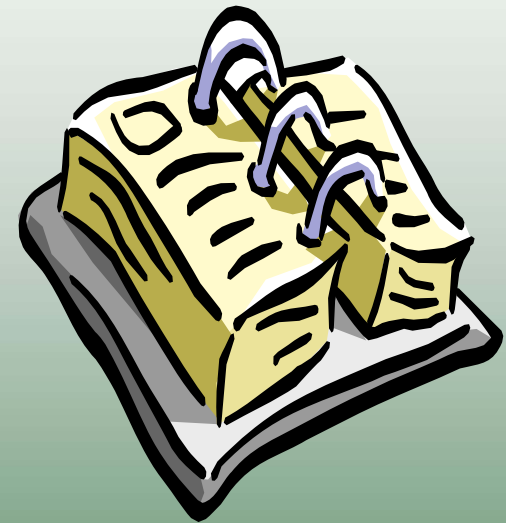
- Data sources
 - EPA Landfill Methane Outreach Program (LMOP)
 - VTDEC
- Methods
 - EPA SGIT to estimate CH₄ generation
 - Post-processing to account for LFG collection and control efficiencies

Waste Management

- Key Assumptions
 - Solid Waste: future growth occurs at LFGTE sites only
 - Solid Waste: growth rate = population growth
 - Liquid Waste: no current control of CH₄ at any site.
- Key Uncertainties
 - See assumptions above.

Next TWG Call

- Agenda:
 - Review progress on policy option development
 - Discuss input from May 17, PG meeting
 - Review the Vermont emissions inventory and projection, as needed
 - Date and Time: June 5, 2007 from 1 – 3 p.m.



Public Input, Announcements