



Colorado Climate Action Panel  
Residential, Commercial & Industrial  
Policy Work Group  
Meeting #2  
February 14, 2007



# Agenda

- Introductions
- Approval of draft summary of Policy Work Group (PWG) Call #1
- Review and discussion of the Catalog of States Actions
- Review and discussion of the Colorado GHG Inventory and Forecast
- Next Steps of PWG's
- Agenda, Time and Date for Next Meeting
- Public Input and Announcements

# Catalog of States Actions

- Refer to updated handout
  - Draft preliminary rankings of GHG potential, cost/cost savings for review and revision
  - Notation of actions from AZ, NM and MT
  - Supplemental descriptions of catalog actions
  - Addition of new potential actions

# Inventory and Forecast of Colorado GHG Emissions

- Preliminary analysis for further discussion and revision
  - Inventory of historical emissions from 1990 to most recent data year
  - Projection of emissions to 2020
- Prepared by CCS for Colorado Department of Public Health & Environment (CDPHE) under contract to the Western Regional Air Partnership (WRAP)

# Coverage

- Six gases per USEPA and UNFCCC guidelines
  - Carbon Dioxide (CO<sub>2</sub>), Methane (CH<sub>4</sub>), Nitrous Oxide (N<sub>2</sub>O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF<sub>6</sub>)
  - Black Carbon considered separately
- All major emitting sectors
  - Electricity
  - Fossil Fuels
  - Residential, Commercial, Industrial Fuel Use
  - Transportation
  - Agriculture, Forestry and Waste
  - Industrial Processes and Other Sources

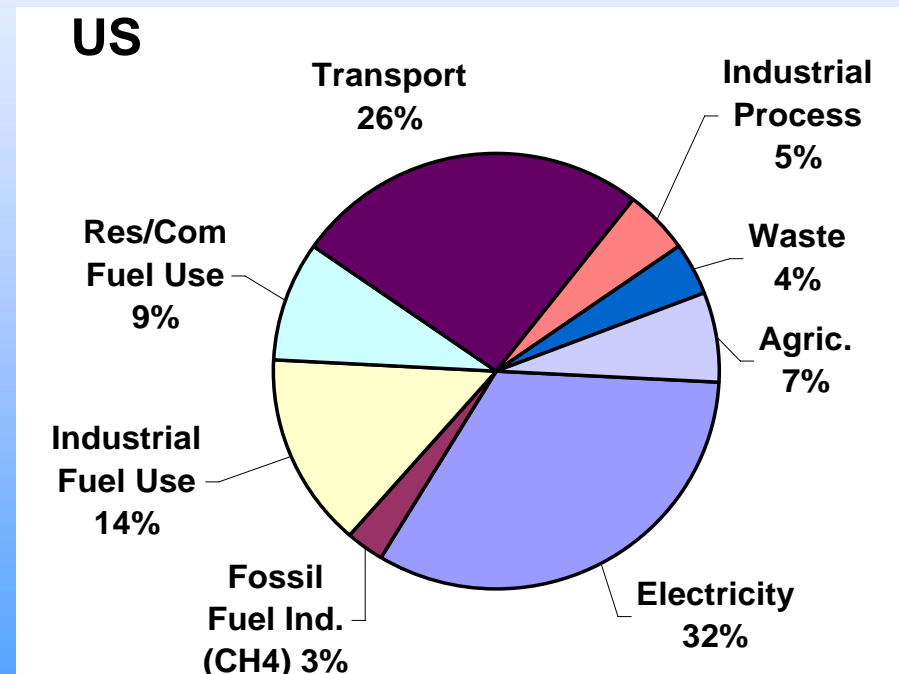
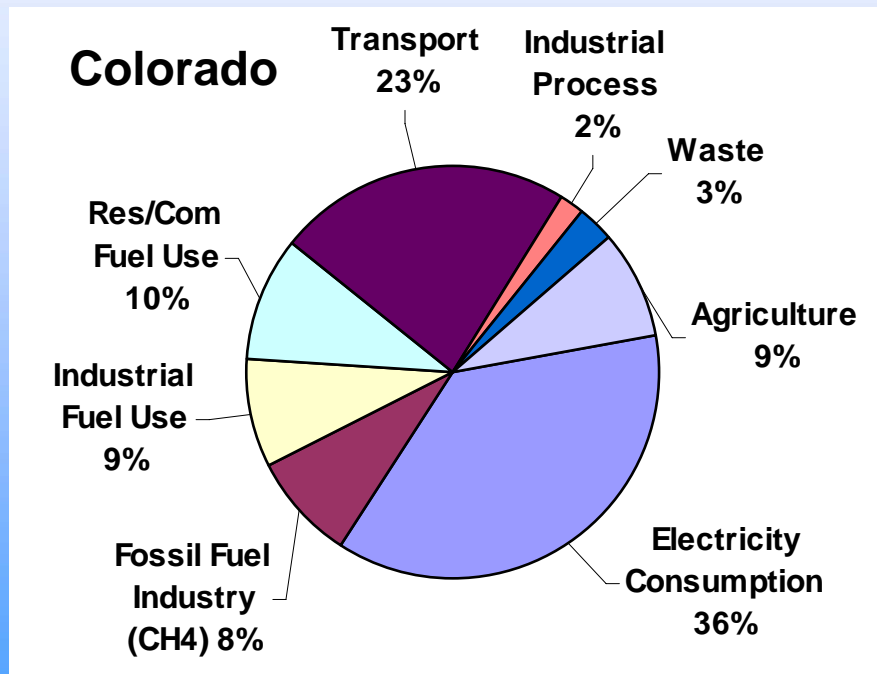
# Inventory Approach

- Standard US EPA and UN methodologies, guidelines, and tools
- Emphasis on transparency, consistency, and significance
- Preference for Colorado or regional data, where available
- Consumption and production-basis emissions from electricity generation
  - Very simplified approach used for initial analysis

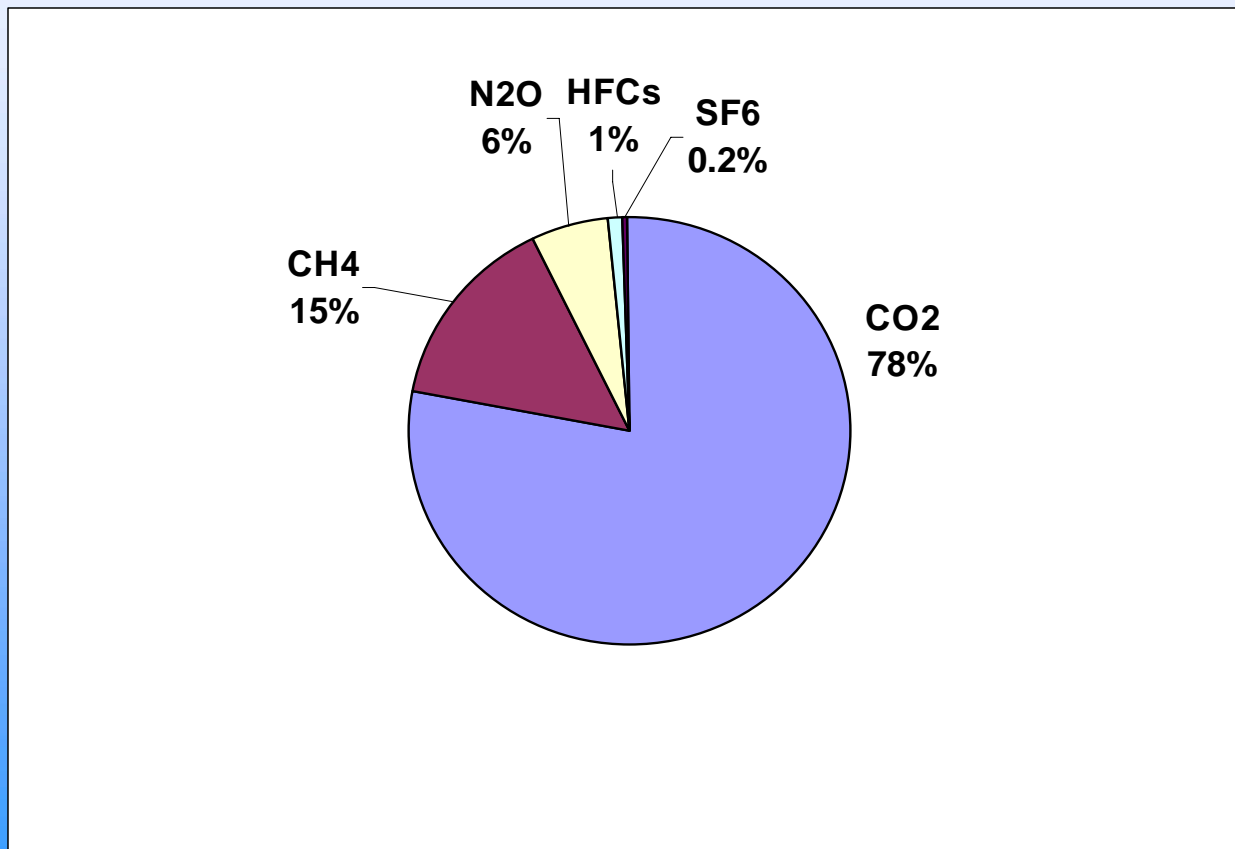
# Projection Approach

- Reference case assumes no major changes from business-as-usual (BAU)
  - Includes approved policies and actions to the extent possible (e.g., Energy Efficiency, Renewable Energy)
- Growth assumptions from existing sources
  - US Census and Bureau of Labor & Statistics
  - US Energy Information Administration

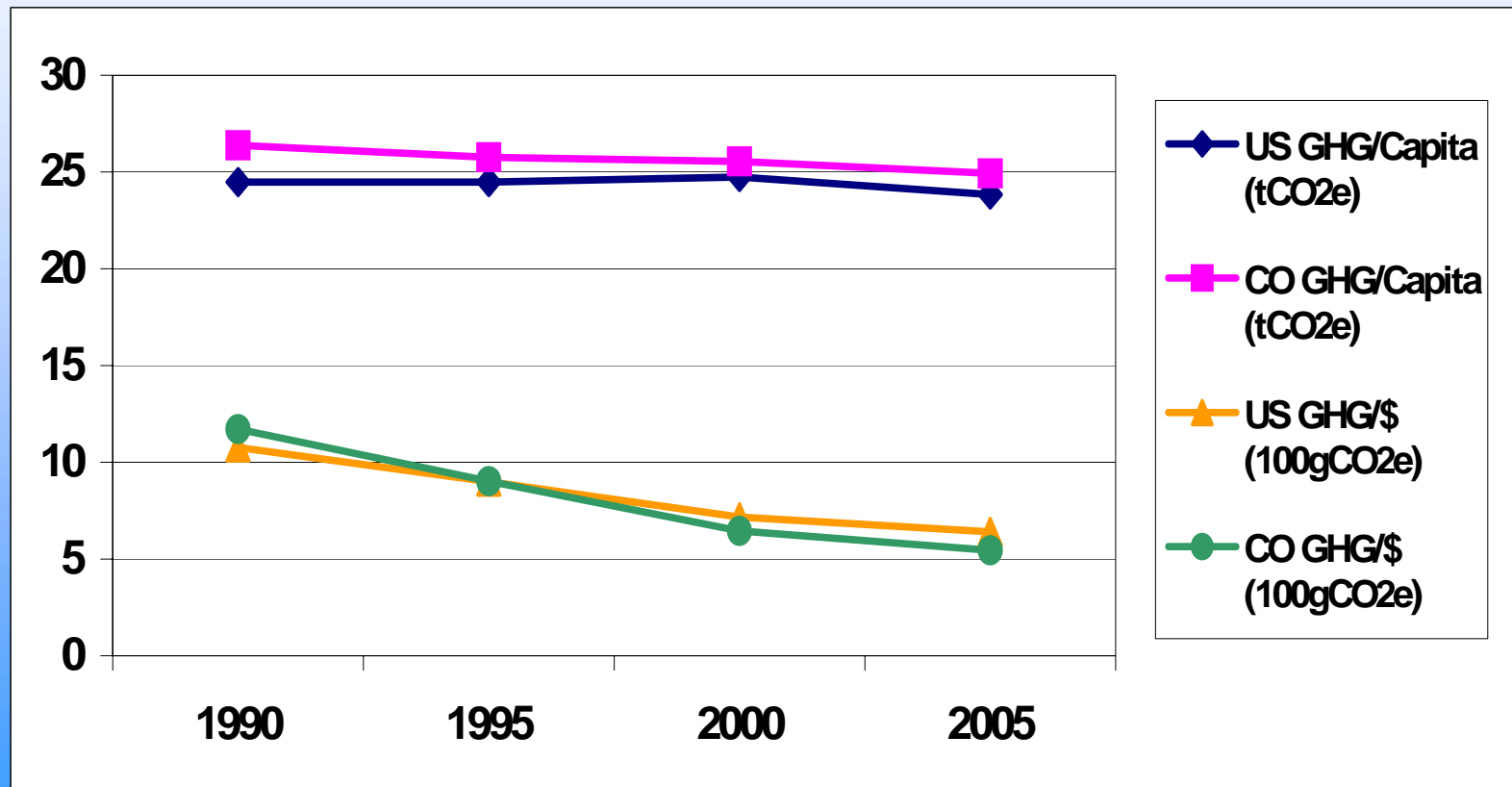
# Colorado & US Emissions By Sector, Year 2000



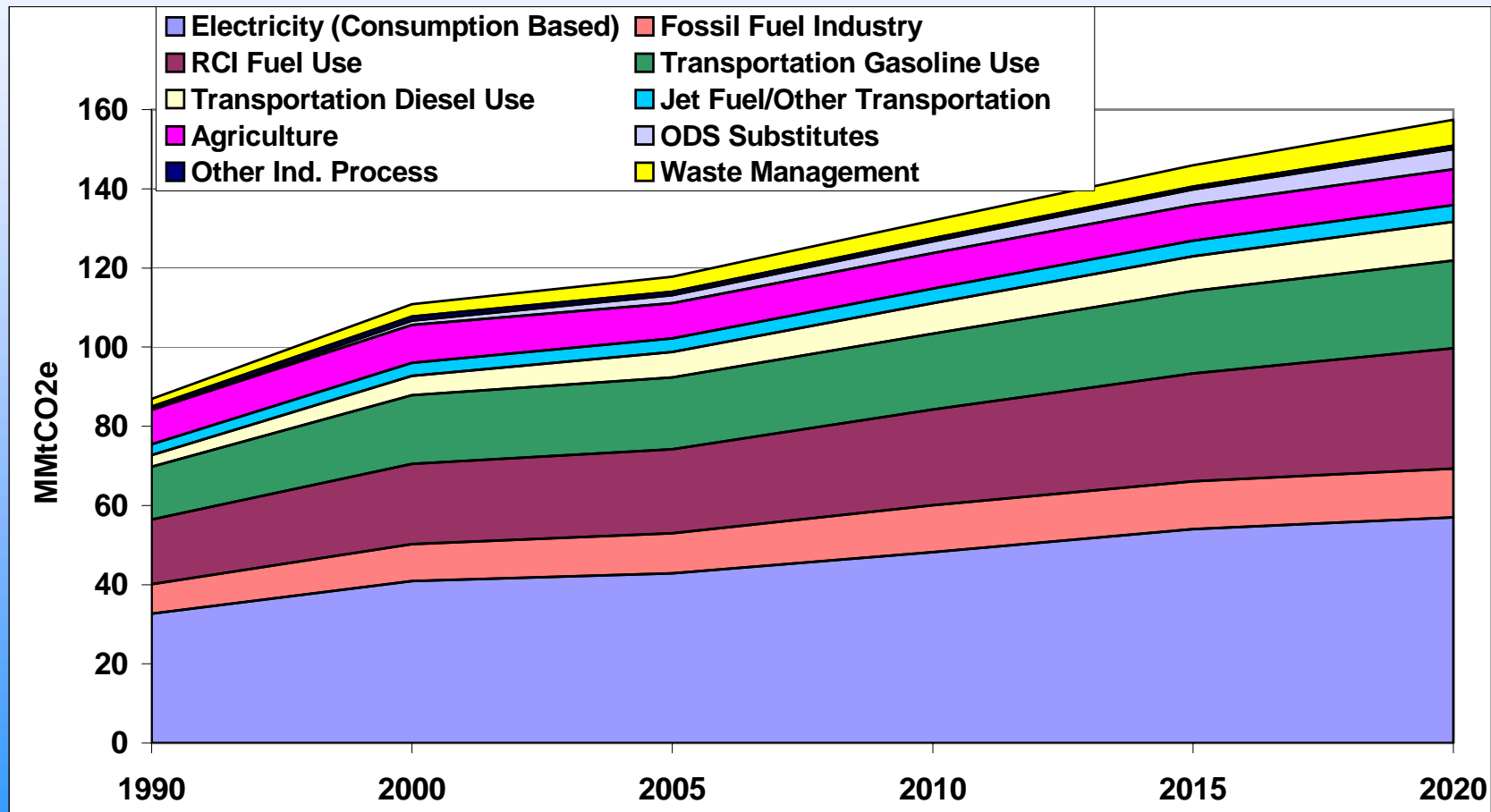
# Colorado Emissions By GHG, Year 2000 (MMtCO<sub>2</sub>e Based)



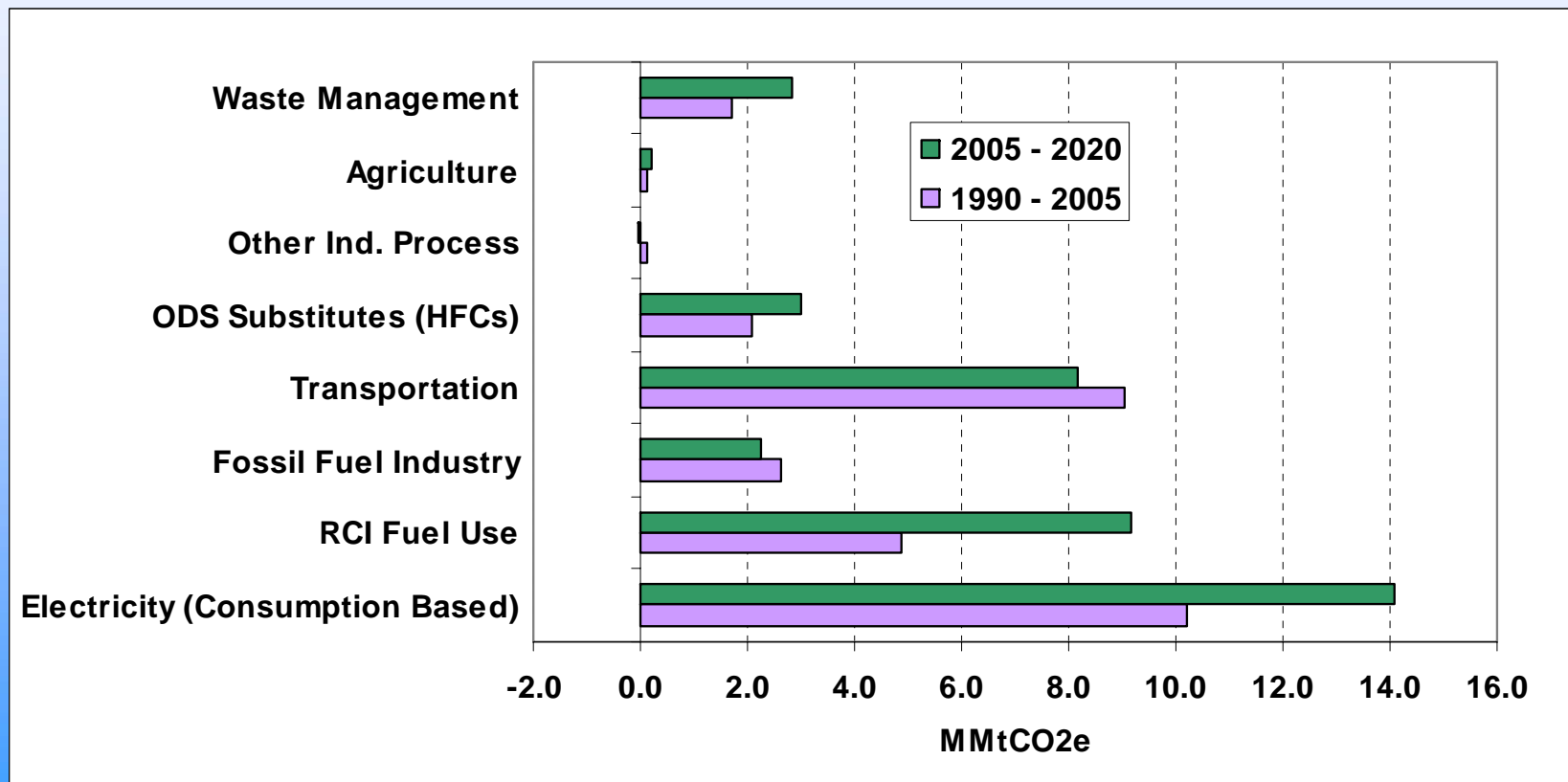
# Per Capita and GSP/GDP GHG Emissions, 1990-2002



# Gross Colorado GHG Emissions By Sector, 1990-2020



# Colorado Emissions Growth (MMtCO<sub>2</sub>e Basis)

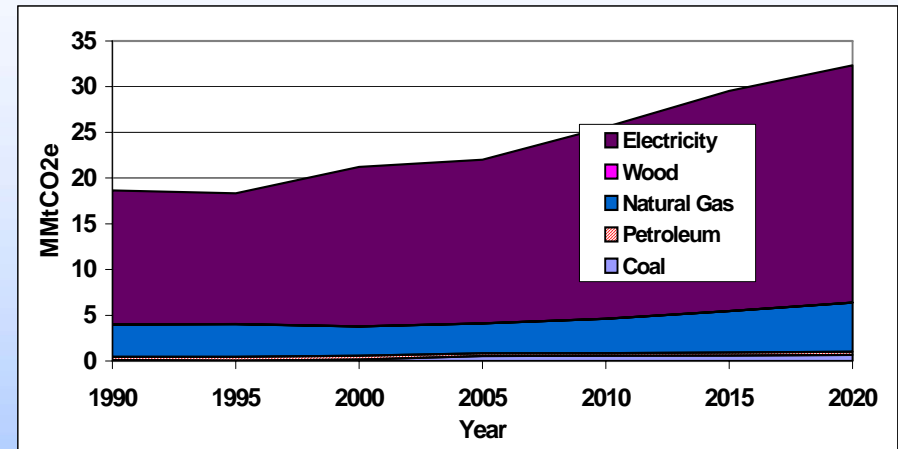


# Key Points

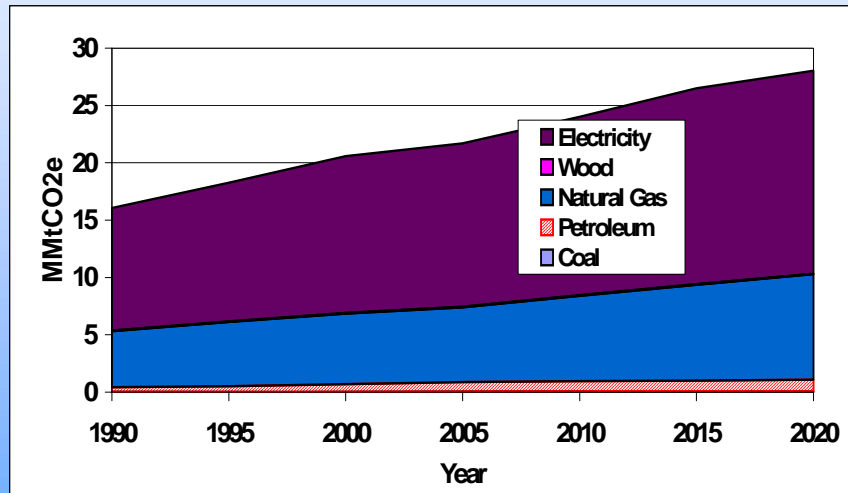
- Preliminary draft prepared by CDPHE and CCS under WRAP project
- Preliminary draft for PWG and CAP review and revision, as needed
- Helpful for diagnosis of GHG emissions, but not a baseline for modeling or compliance for individual options
- Consumption and Production methods
- Net and Gross methods

# RCI

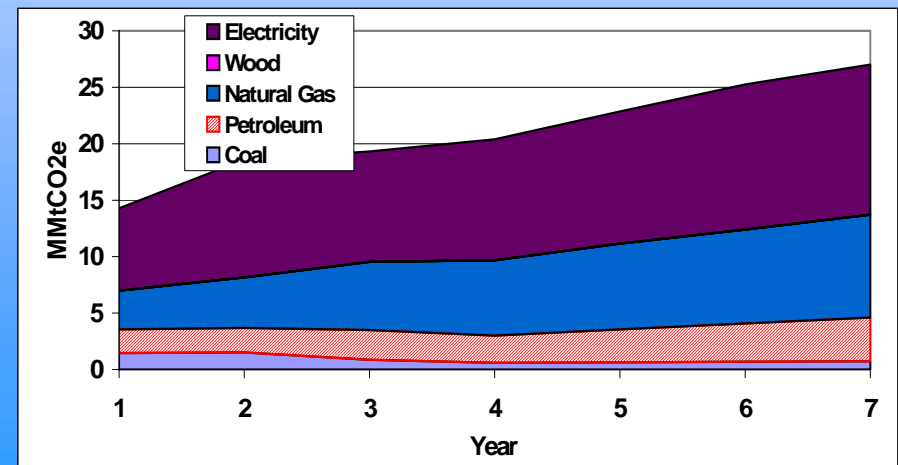
## Commercial Sector



## Residential Sector



## Industrial Sector



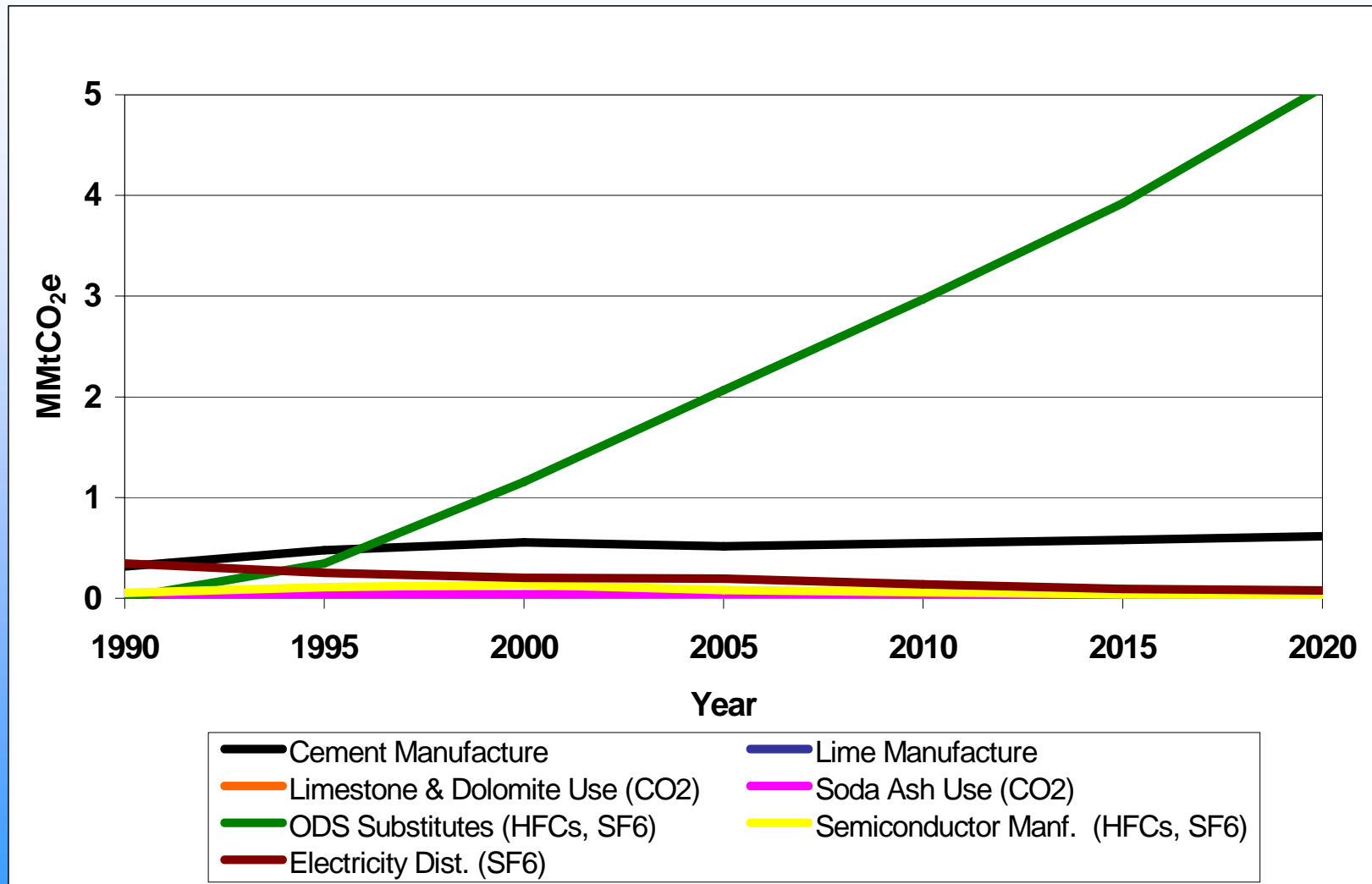
# RCI

- Data Sources
  - EIA State Energy Data (SED)
    - Historic energy consumption for natural gas, oil, wood, coal
  - EIA Annual Energy Outlook 2006 (AEO2006)
    - Projected consumption, amount and type
- Methods
  - Energy consumption multiplied by emission factors

# RCI

- Key Assumptions
  - Projections based on regional projections scaled for Colorado population and employment growth projections
- Key Uncertainties
  - Regional projections
  - Industrial sector growth and mix
  - EIA regional forecast for coal-to-liquids plants

# Industrial Process



# Industrial Process

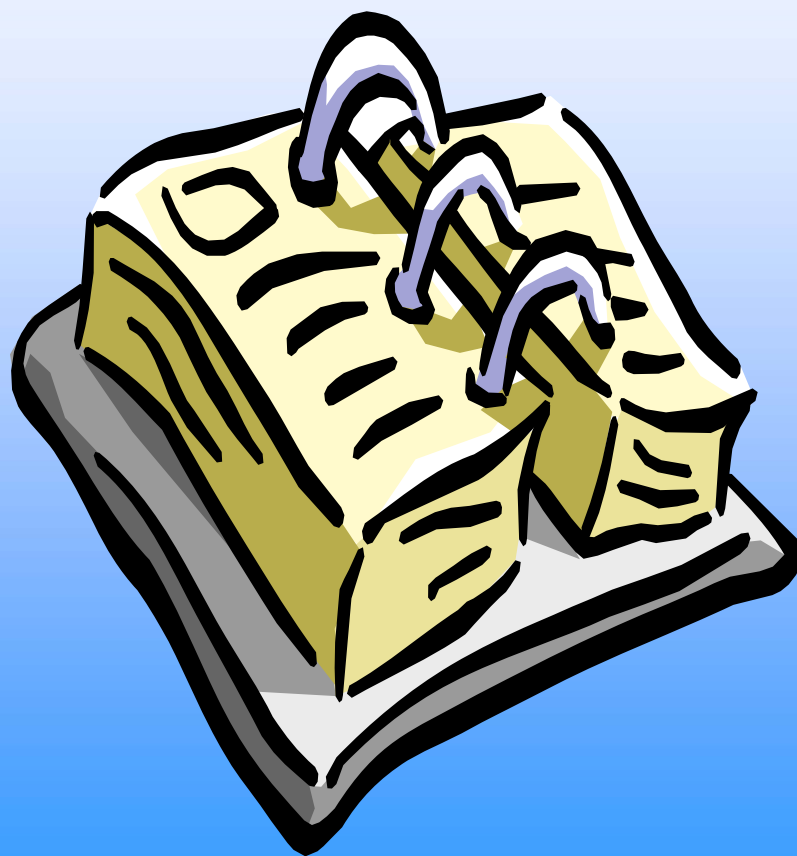
- Data sources
  - US EPA National GHG Inventory for national emissions from ODS substitutes, electric distribution, and semiconductor manufacturing
  - State CDPHE - lime production
  - USGS data
    - Cement manufacture (clinker and masonry cement)
    - Soda ash use
    - Limestone and dolomite use
- Methods
  - Based on US EPA's State GHG Inventory Tool (SGIT)
  - Scale national to state (ODS subs, Electricity Tans./Dist.)
  - Activity X emission factors (all other)

# Industrial Process

- Key Assumptions
  - Growth Rates
    - ODS subs and Elec. Dist. –
      - National growth rate (US State Dept and US EPA)
    - Cement and lime manufacture, limestone/dolomite use –
      - State employment forecasts for non-metallic minerals
    - Soda ash use – USGS national forecast
- Key Uncertainties
  - Industry activities to reduce GHG emissions
  - Clinker and masonry cement & soda ash production
    - SGIT default production - replace with plant-specific data, when available

# Next PWG Meeting

- Agenda:
  - Begin balloting for top priorities for analysis in each PWG
  - Continue review and potential revision of Colorado GHG inventory and forecast
- Time and Location TBD



# Public Input, Announcements