

# Colorado Utility Efficiency Exchange: A Sustainable Boulder County

October 25, 2007

Ann Livingston

Boulder County Sustainability Coordinator



# Climate Change *is* a Local Issue



# Local Impacts

- Earlier snowmelt
- Longer droughts
- Increased flood risk
- More intense forest fires
- Large-scale beetle kill
- Loss of alpine meadows
- Loss of native species
- Visual impact
- Economic impact on tourism, ski industries



# Climate Change and Greenhouse Gas Emissions: Local Data and Predictions

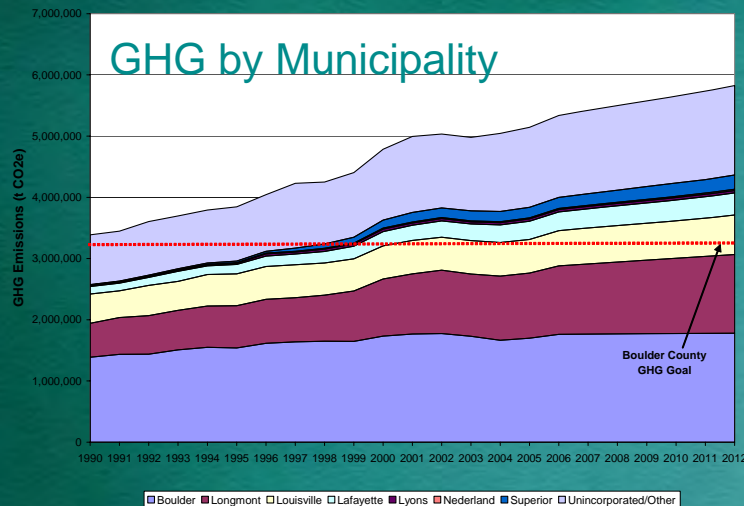


# Greenhouse Gas Inventory

- Conducted countywide Greenhouse Gas inventory in 2006 (2005 data)
- Provided historical inventory of emissions for period of 1990-present
- Extrapolated emissions trends to 2012
- Segregated data into sector- and source-specific emissions

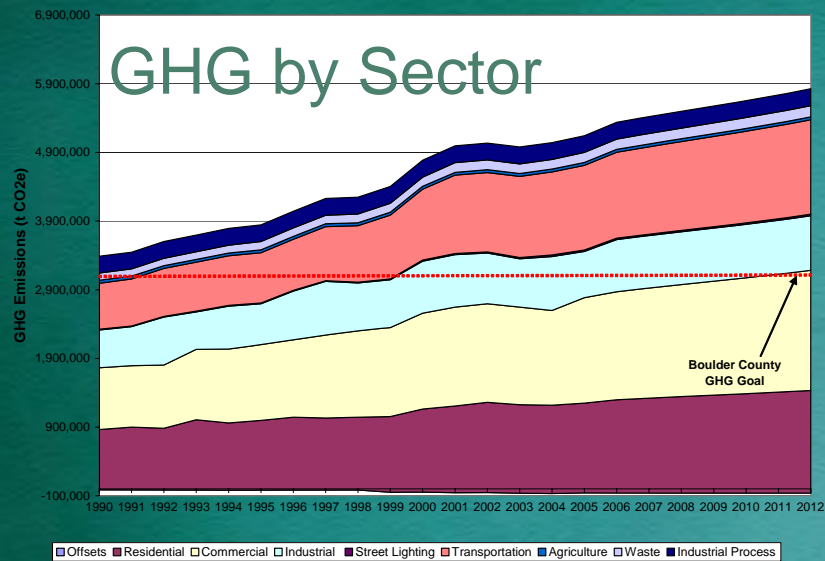


# GHG Inventory Results:



- Large increase in GHG emissions across the county
- 2012 trajectory = **85% above** 1990 Kyoto target.
- City of Boulder GHGs are leveling off

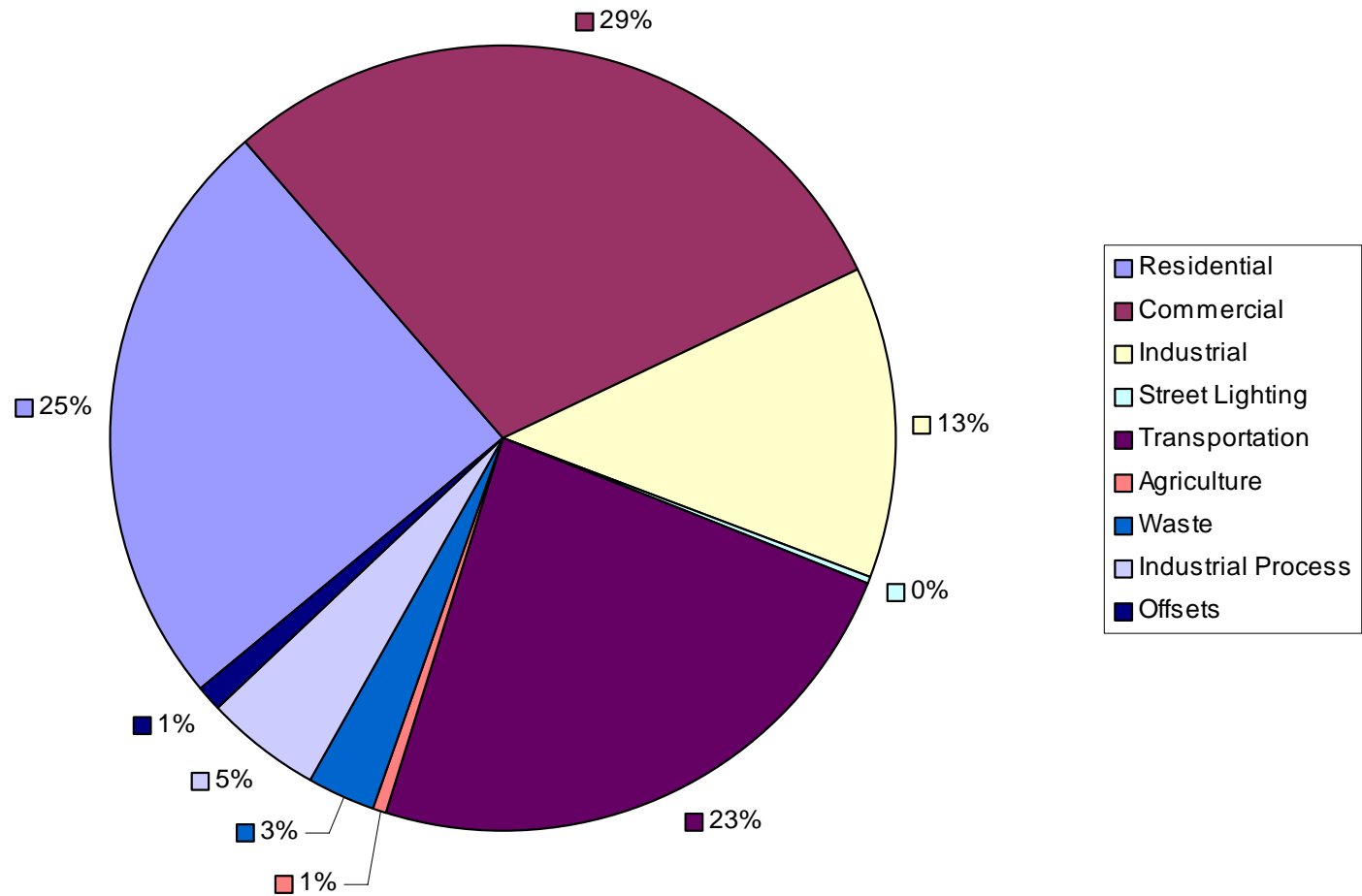
# GHG Inventory Results:



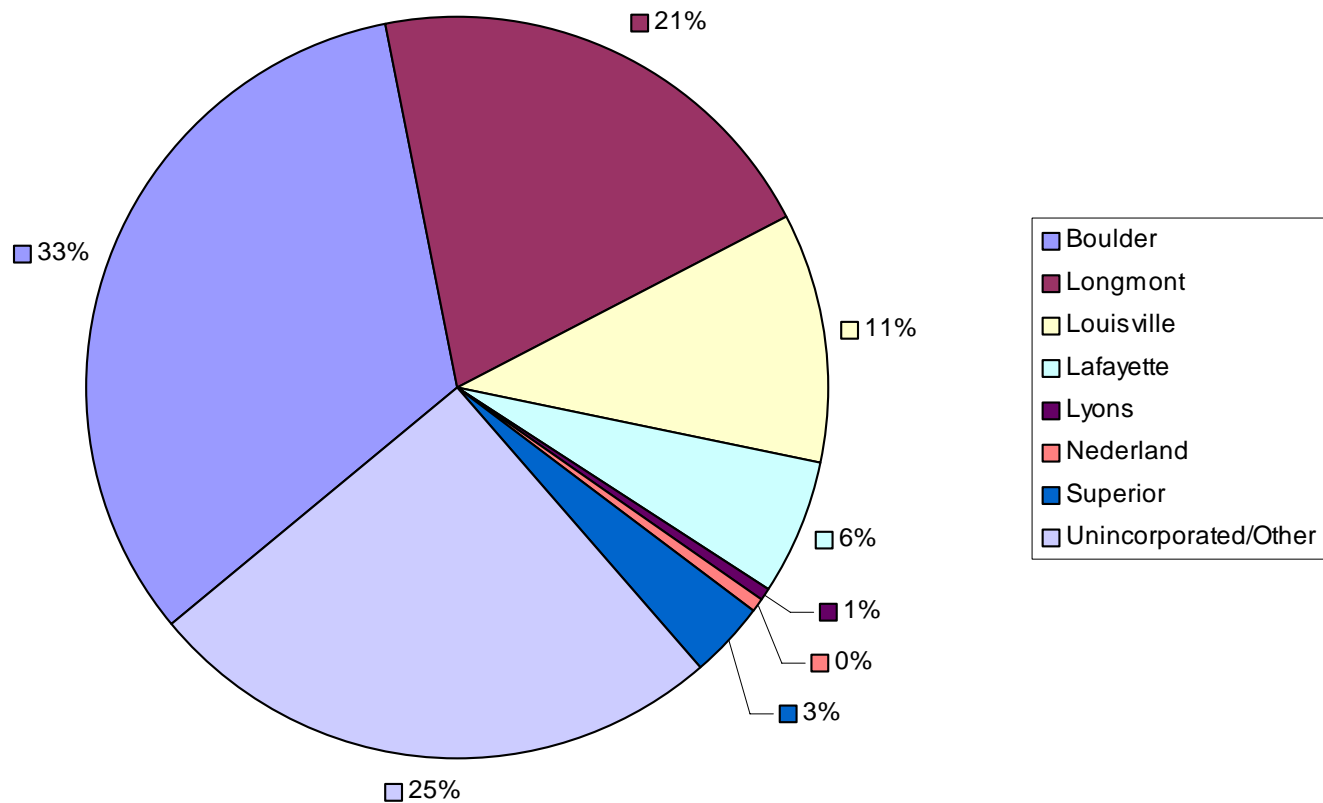
## Greatest sources of emissions:

- Electricity use
- Driving
- Heating/cooling buildings
- Commercial sector electricity use has grown fastest

# Boulder County's Emissions by Sector



# Boulder County's Emissions by Municipality



# Public Policy

Implementing Change Throughout The Organization and The Community




# Defining Sustainability

Sustainability has many definitions, but the basic principles and concepts remain constant: balancing a strong economy, protection of the environment, and social responsibility in order to achieve an improved quality of life for ourselves and future generations.



# Boulder County's Sustainability Initiative

**Mission:** *To ensure that Boulder County's operations and decision-making processes reflect our deep commitment to environmental sustainability and to build partnerships to help make the broader community more sustainable.*



# Public Policy

- 2005: Boulder County Commissioners passed two resolutions committing to Environmental Sustainability: Zero Waste and Energy
- Voters approved county dedicated property tax to fund sustainability measures
- County as an organization
- County as a community

# Green Buildings – public buildings

- Commitment to LEED Gold standard equivalent on all new county buildings *with emphasis on points for energy and atmosphere*
- New county Detox facility planned to achieve LEED Gold rating with expected energy savings of 32-37% compared to base bldg. model
- Achieve LEED-EB designation for downtown Courthouse Annex building
- Standardize all County existing building operations to LEED-EB guidelines or equivalent

# Energy Efficiency in County Buildings

- Lighting efficiency upgrades and removal of lights
- Daylight harvesting
- HVAC adjustments and upgrades
- Annual energy efficiency contest
- Electronics usage
  - Turn off computers, printers, copiers
  - Computer settings
  - Education

# Green Buildings

Biomass heater at Longmont OSTC complex



- Utilizes byproduct of forest-thinning (wood chips)
- Estimated annual reduction of 556,000 lbs CO<sub>2</sub> emissions

# Wind Energy

- 50% of total County-purchased electricity as of early 2007
- Reducing emissions by 3649 metric tons of CO<sub>2</sub>e/yr



# Solar on County Buildings

- County has inventoried all county owned sites
- Seeking to install about 2Mw of solar PV capacity
- Reducing annual CO2 emissions by 1,328 tons



# Earth-Friendly Fleet

- Replacing fleet vehicles with more fuel efficient vehicles
- Purchasing hybrids where appropriate
- Utilizing flex-fuel vehicles
- Biodiesel
- PHEV

# Earth-Friendly Fleet

## Biodiesel Vehicles



- Biodiesel reduces particulates, carbon monoxide, carbon dioxide, hydrocarbons
- B-20 (20% biodiesel) used by County year-round
- B-100 (100% biodiesel) is being tested during the summer months

# Earth-Friendly Fleet

## Solar Powered Plug-in Hybrid Electric Vehicles

PV panels purchased by Boulder County with a rebate/grant from Xcel Energy. County will purchase four hybrids and convert these vehicles to plug-ins.

- Vehicle runs on more electricity, use less gas— estimated 100 mpg
- Conversion reduces VOCs by 98%, CO by 99%, and CO2 by 90 %
- Funded by federal grant, local match
- Plug into power grid to recharge at night
- Power will be supplied to grid via 10Kw solar array
- 46 solar panels have been installed on courthouse roof

# Earth-Friendly Fleet

Solar Powered Plug-in Hybrid Electric Vehicles



# Employee Transportation

- To and from work
  - Eco Pass and transit support
  - Bike, pedestrian support
  - Flex schedule
- While at work
  - Teleconference
  - Bike pool
  - Eco Pass
  - Car pool
  - Fleet

# Purchasing Policies

- ENERGY STAR
- Paper: 50% recycled content min., recyclable
- "Environmentally preferable": supplies, services, or construction that have a lesser or reduced effect on human health and the environment when compared with competing supplies, services, or construction that serve the same purpose

# Public Policy - Partnerships

- Boulder County and municipalities have joined forces to collaborate: *Consortium of Cities Energy Strategy Task Force*
- Partnerships with NGOs
- Public/private collaboration

# Green Building Codes: BuildSmart

- Considering significant energy efficiency improvements in all new homes and remodels as compared to code
- Standards are higher for larger homes—reaching net zero requirements
- Consistent with the updated City of Boulder Green Points program
- Model for other jurisdictions

# Green Building Codes: Commercial

- Energy Strategy Task Force Codes Committee
- Model code for use in the county
- Stakeholder involvement
- Local government participation
- 2008

# Residential Energy Audit Program

- Available to all county residents—resident share of cost linked to house size
- County, municipal partnerships
- Intensive energy audits
- The pilot program households intend to spend a total of \$21,100 on energy efficiency improvements in their homes over the next two years
- About 9,500 lbs CO<sub>2</sub> reduction per home

# Neighborhood Sweep

- Two Boulder County neighborhoods per year
- 2007: 715 kits
- CFLs, water saving devices, educational materials
- Opportunity for free audit



# Weatherization

- Free service
- Renters and homeowners
- Very low income (\$18,889 for one person hh, \$25,327 for two person hh)
- Reduces financial burden
- Reduces environmental impact
- Increases funds available for other needs/wants



# High Efficiency Lighting Program



- Countywide program
- Discount and distribute CFLs and other forms of high efficiency lighting
- 2007: Boulder County, City of Boulder, Longmont, Louisville, Nederland, and Superior

The logo for ClimateSmart features a blue curved line above the text. The word "Climate" is in green and "Smart" is in blue.

# ClimateSmart

- Countywide outreach and education effort
- Boulder County, City of Boulder, Louisville, Lyons, Nederland, and Superior
- Carbon calculator
- Pledge
- [www.beclimatesmart.com](http://www.beclimatesmart.com)

# Sustainable Energy Plan

- Energy Strategy Task Force project
- Countywide strategies to reduce GHG emissions
- Public and private sector actions
- Strategies prioritized based on impact and cost
- Policy changes
- Completion late 2007

# Sustainable Energy Plan: Commercial Sector Actions

- Commercial building codes
- Account for GHG emissions from new developments
- Maximize use of rebates
- Optimize use of vegetation
- PACE Energy Efficiency Service
- Promotion of tri-generation

# Sustainable Energy Plan: Residential Sector Actions

- Residential green building codes
- High Efficiency Lighting Program
- Minimum Energy Efficiency Standard for General Purpose Lighting
- Neighborhood energy sweeps
- Residential Energy Audit Program (REAP)
- Net-zero energy homes
- Renewable energy mitigation program

# Sustainable Energy Plan: Transportation Sector Actions

- LED traffic signals
- “Clean Car” Standard
- Congestion mitigation measures/TDM
- Vehicle-to-grid
- Feebate
- Biofuels promotion
- Anti-idling measures

# Sustainable Energy Plan: Industrial Sector Actions

- Anaerobic digestion and methane capture
- Combined heat and power
- Western Regional Cap-and-Trade

# Sustainable Energy Plan: Renewable Energy Initiatives

- Concentrating solar project
- Solar powered public buildings
- Community wind farm
- Maximize roof-top PV



# Sustainable Energy Plan: Utility Partnerships

- Rate structures and energy budgets
- Carbon labeling
- Rebate incentives
- Renewable Portfolio Standards
- Alternative power mix

# Sustainable Energy Plan: Municipal Sector Actions

- Goal setting
- Sustainable power suppliers
- Education and outreach
- Municipal energy management plans
- Roofing strategies
- Promoting energy efficiency in waste water treatment and drinking water plants
- LEED for public buildings
- Landfill methane

# Sustainable Energy Plan: Revenue Generation

- Revolving loan fund
- Targeted sales tax
- Energy efficiency/climate offset credits
- Bonds/third party development





# Sustainable Energy Plan: Policy Adjustments Required

- Statewide action/regulation
- Authority to act
- Discussions with stakeholders
- Discussions with state agencies

# Summary

- Daunting challenge to reduce GHG emissions to sustainable levels
- Regional cooperation is vital
- County, cities, and institutions provide role model
- Efforts include buildings, transportation, fleet, usage reduction
- Policy can create public change
- Provide help to public to make change

# Contact Us

Boulder County Commissioners' Office

303.441.3500

[alivingston@co.boulder.co.us](mailto:alivingston@co.boulder.co.us)