



# Sustainability

## Greenhouse Gas Inventory & Strategies

Lea Yancey 8/22/2018



# Agenda

- Context and Importance
- Past GHG inventories
- Inventory methodology
- 2016 GHG inventory results
- GHG reduction strategies
- Goals



**2018**

BOULDER COUNTY COLORADO

**environmental  
sustainability  
plan**

# Importance – Stable Climate & Climate Adaptation Cost Assessment



The Impact of Climate Change:  
Projected Adaptation Costs for  
Boulder County, Colorado


April 2018

Paul S. Chinowsky, PhD



**RESILIENT**  
ANALYTICS

## Past GHG inventories

- 2005  Keeping as baseline year
- 2011
- 2016

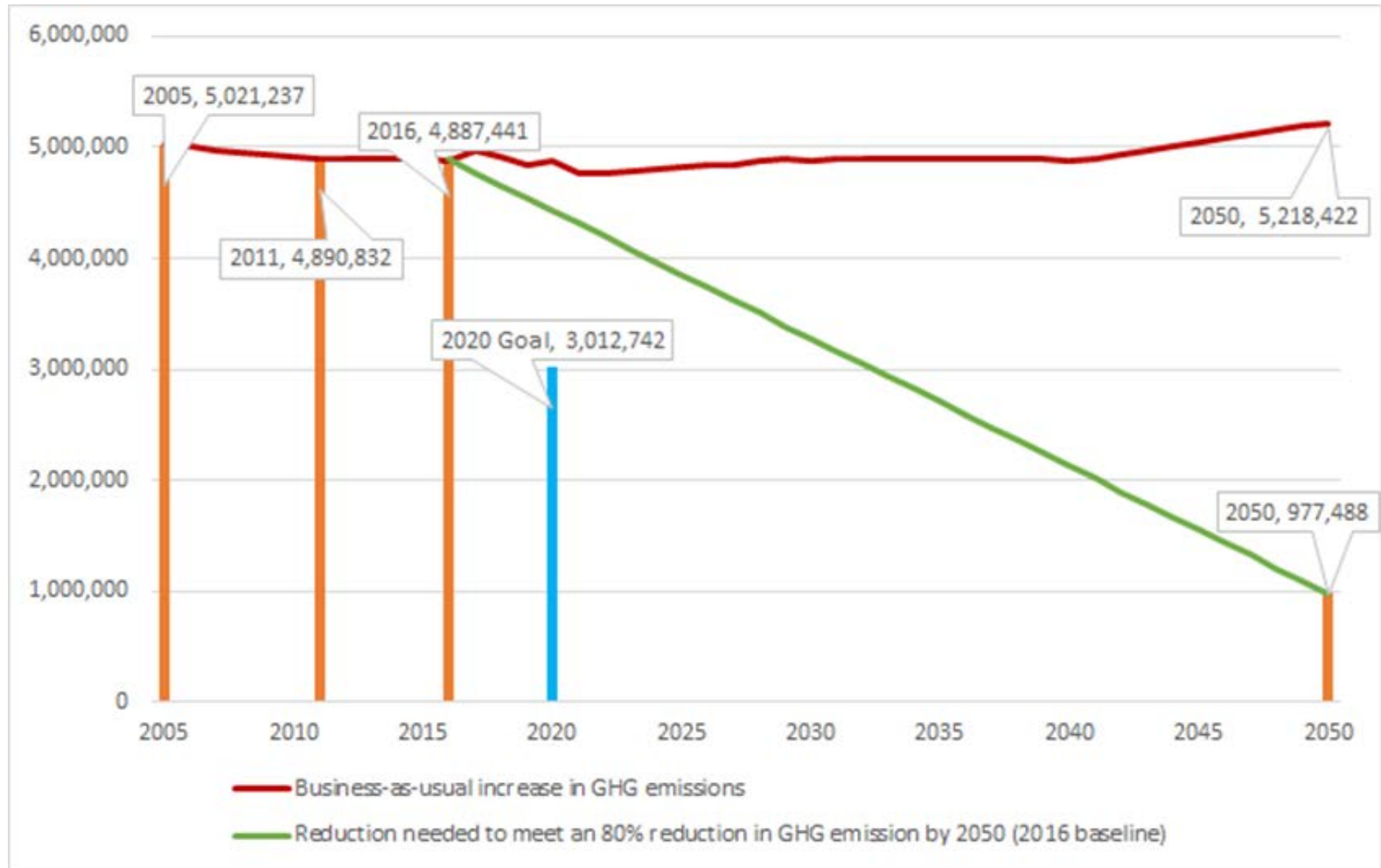


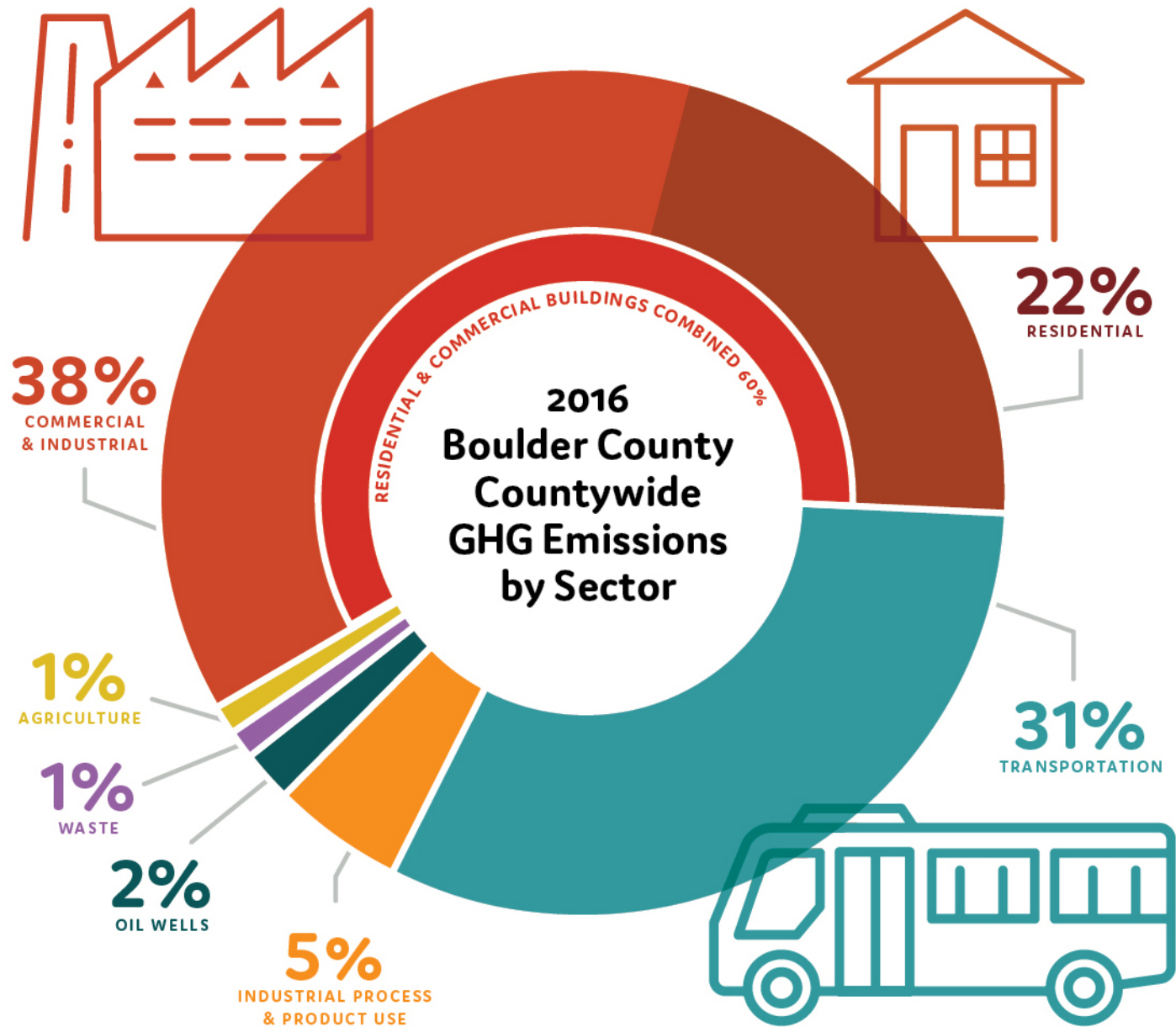
# 2016 Inventory Methodology

- “Global Protocol for Community-Scale Greenhouse Gas Emission Inventories”
- Added: Airline travel, grid distribution & transmission losses, fugitive gas emissions
- Removed: RECs / offsets



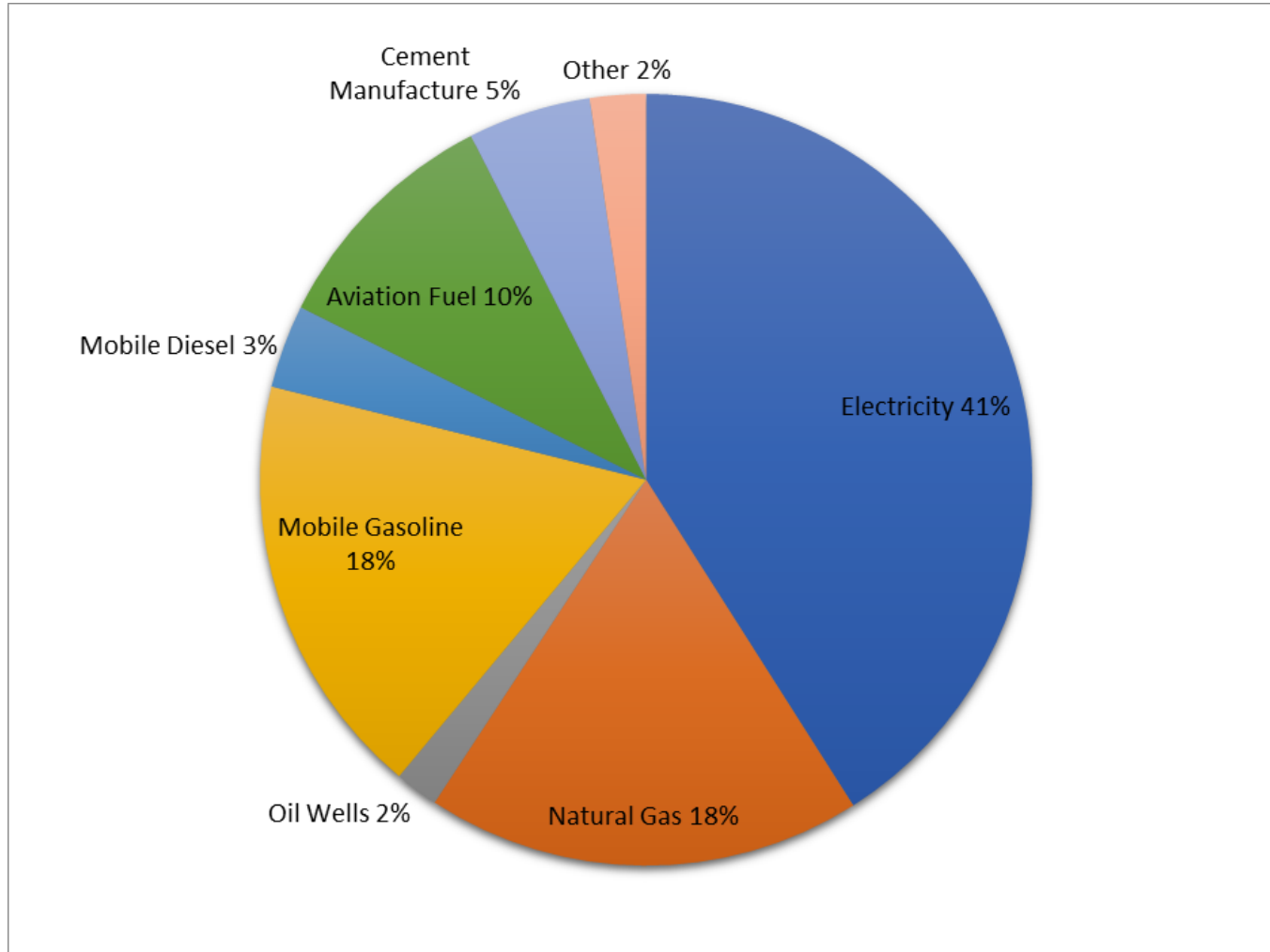
# Emissions Timeline





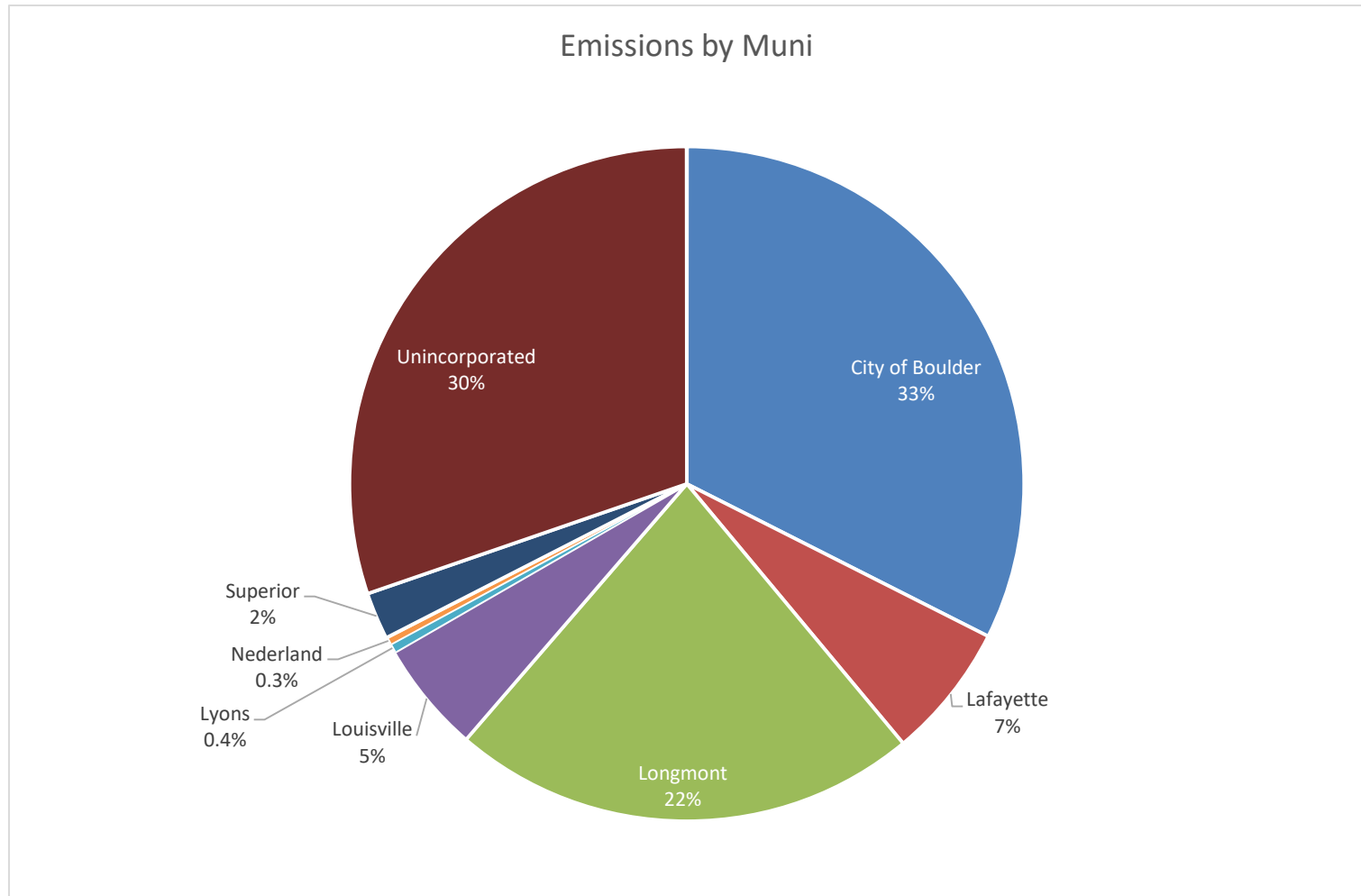


# 2016 Emissions by Source



Other includes: diesel generators, railways, agricultural sources, landfill gas, compost, wastewater, and refrigerants.

# 2016 Emissions by Municipality



# Comparison: 2005 and 2016

**3% decrease**  
(with different methodologies)

**18% decrease**  
(with only the same sources)



# GHG Emission Reduction Strategies

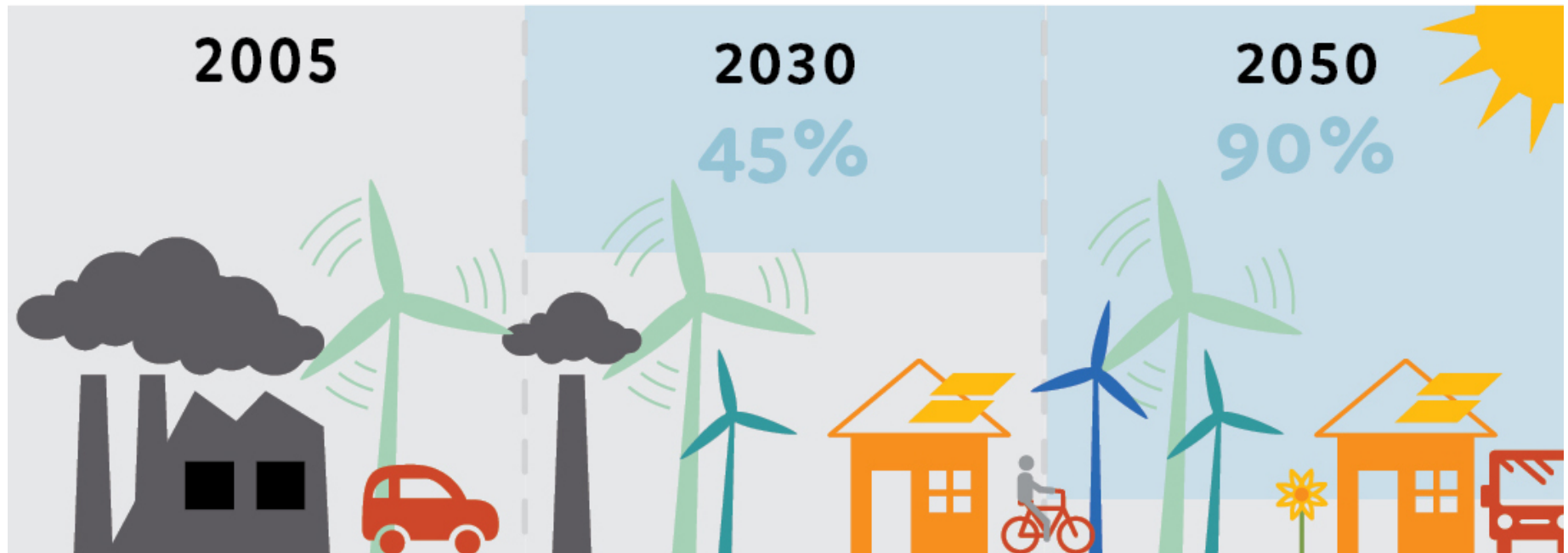
- 3<sup>rd</sup> party expertise with Lotus
- Additional local experts consulted
- Includes local programs and local & state policy
- County, city, and collaborative efforts



List of GHG Reduction Strategies	
Sector	Specific Strategy
Building Energy	- Adopt and Enforce Current Building Code
	- Implement Beyond Code Requirements
	- Accelerate Fuel Switching
	- Mandatory Commercial Benchmarking
	- Increase the State's Energy Efficiency Resource Standard
	- Continue Boulder County's Suite of Energy Efficiency Programs
Renewable Energy	- Continue Boulder County's Suite of Renewable Energy Programs
	- Expand Rooftop Solar
	- Expand Community Solar
	- Additional Efforts
Transportation	- Accelerate Electric Vehicles: All-of-the-Above Strategy
	- Support Federal and/or State Clean Car Policies
	- Expand Public Transit
Oil and Gas	- Adopt and Enforce Leak Detection and Repair
Waste	- Reduce Food Waste
	- C&D and Composting Waste to Local Transfer Facility
	- Promote Zero Waste Education
	- Strive for County Operations Zero Waste
	- Additional Efforts
Other Carbon Reduction Efforts	- Pursue Carbon Sequestration
	- Implement Carbon Tax
	- Carbon Intensive Industries Carbon Impact Offset Fund

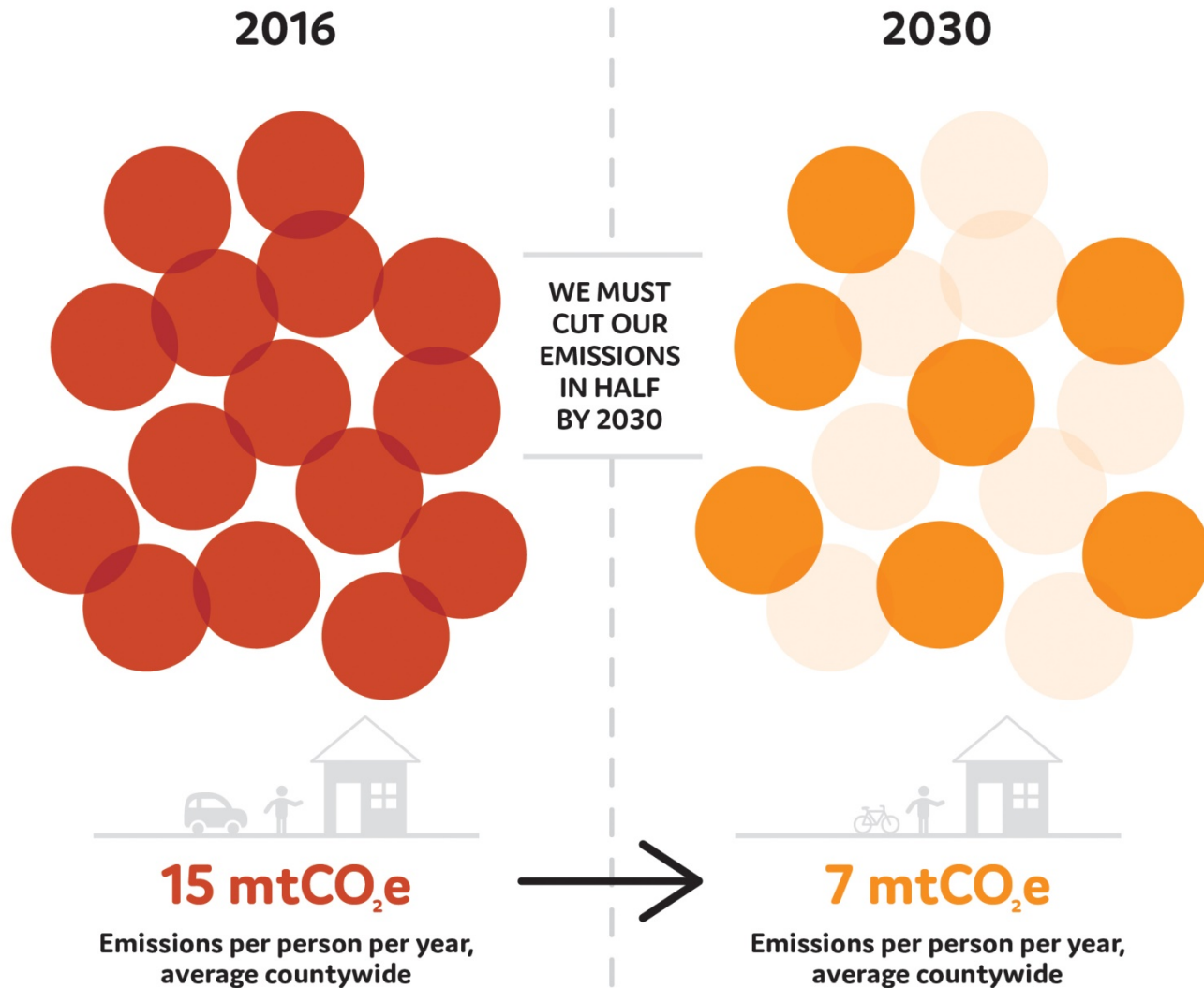


# New Countywide Goals



**Reduce greenhouse gas emissions 45% by 2030 relative to the 2005 baseline.**

# New County-wide Goals





<https://www.bouldercounty.org/sustainability/sustainability-plan/>



## BY THE NUMBERS

## Greenhouse Gas Emission Trends

Boulder County has calculated and reported community-wide GHG emissions since 2005 and focused its GHG reduction efforts on the largest emissions sources: electricity, natural gas, ground travel, and solid waste (see opposite page). According to the latest inventory, emissions from commercial and residential building energy use account for 60% of emissions and transportation accounts for 31% of emissions countywide. Emissions from industrial processes, oil wells, solid waste, and agriculture account for the remaining 9% of emissions. Between 2005 and 2016, countywide GHG emissions decreased by 3%. It is significant that emissions have remained relatively steady over a period of sizeable growth in population (13%) and economic prosperity (45% increase in sales and use tax).

In 2012, Boulder County laid out a bold goal of reducing community GHG emissions 40% below 2005 levels by 2020. Our recent 2016 inventory suggests that reaching this goal remains a significant challenge and will require all of us to take action. While no single step can reverse climate change effects, Boulder County, municipalities, and all community members can pursue more reduction strategies, take advantage of leading edge technologies, and engage more citizens across our community in this effort to reduce carbon pollution. Boulder County residents emit an average of 15 metric tones of carbon dioxide equivalent (mtCO<sub>2</sub>e) annually in Boulder County (see page 40). We have the challenge of getting our emissions per person per year to a countywide average of 7 mtCO<sub>2</sub>e (to meet our 2030 goal).

### reducing waste

Waste reduction efforts play a large role in helping Boulder County work toward our climate goals. Boulder County completed a 2016 GHG inventory using a standardized methodology. A global emissions perspective is missing from the inventory methodology, which can only account for the methane released from landfills, while most of the products we purchase also have emissions associated with their collection and manufacture outside of our county. Zero waste efforts contribute to significant emissions reductions by avoiding “upstream” GHG emitted in the extraction, manufacturing, and transportation of raw materials, food, and goods.

# Conclusions

- ✓ Buildings and Transportation are 90% or more of all emissions
- ✓ Waste reduction important too
- ✓ Countywide emissions have decreased at the same time population grew
- ✓ Emissions reductions due to a cleaner grid had the greatest impact on emission reductions
  - Policy is therefore important



# Conclusions cont'd

- ✓ With all strategies, estimate reductions over 45% by 2030 relative to 2005 baseline
  - Emissions reductions due to renewable energy, electric vehicles, and cross-cutting strategies have the potential for greatest impact on emission reductions
- ✓ Collaboration and leveraging resources
- ✓ We have our work cut out for us - all hands on deck!

# Thank You!

