

CITY OF LOUISVILLE, CO

Baseline Energy Inventory & Sustainable Action Planning 2014



UNIVERSITY OF MINNESOTA
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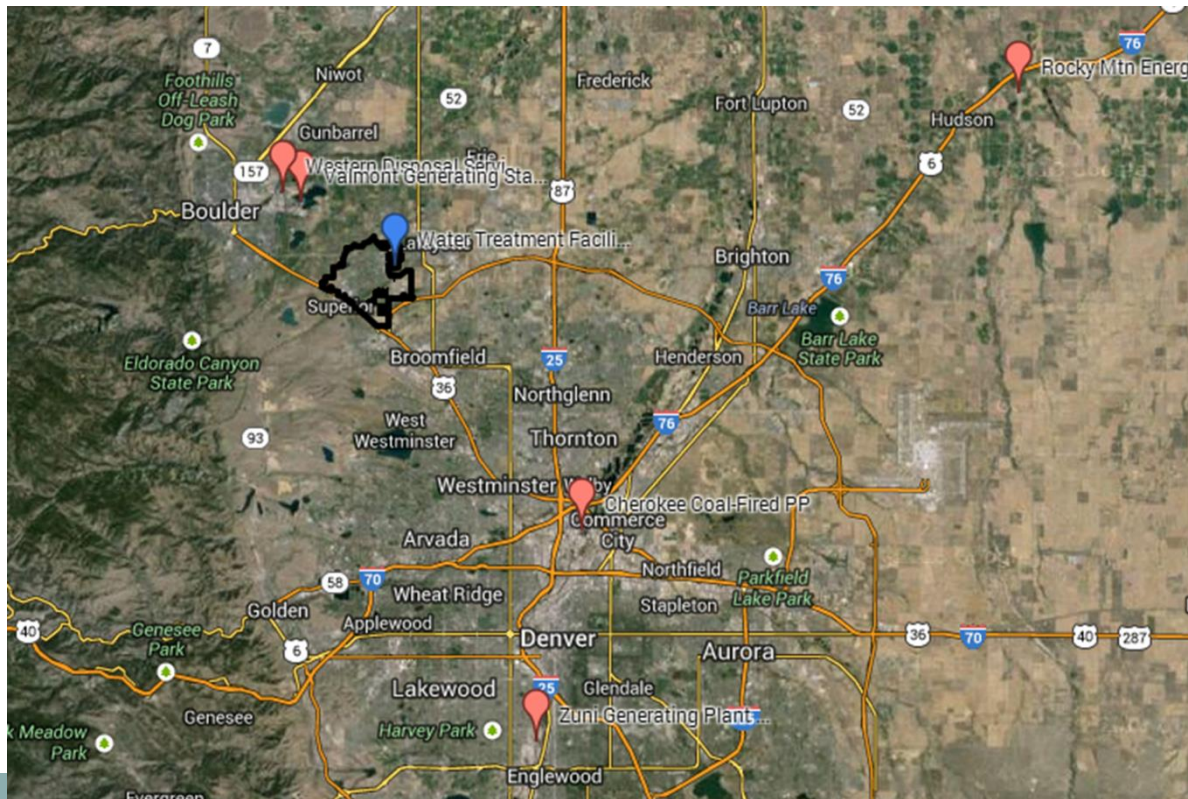
**City of
Louisville**
COLORADO • SINCE 1878

-

Top Employers:

Company Name	# of Employees
Avista Adventist Hospital	590
GHX	355
City of Louisville	280
Fresca Foods	255
Medtronic	250
Sierra Nevada Corporation	240
Zayo	205
Design Mechanical	200
Gaiam	200
Pearl Izumi	180
Cable labs	165
Balfour Retirement Community	165
Centennial Peaks Hospital	155
Lockheed Martin	155
Vaisala	140

Greenhouse Gas Emission Inventory Summary

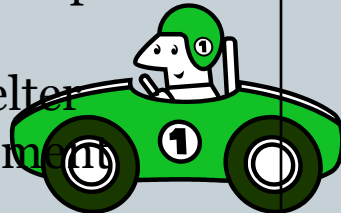


The Urban Trans-Boundary Challenge



Key Urban Flows

- Food
- Freight & Goods
- Water
- Energy
- Electricity
-(Scope 2)
- Airline Travel
- Transp Fuel
- Shelter
- Cement
- ...
- Commuter



City
or
Urban
Region w/
Buildings,
Vehicles,
Industries
(Scope 1)

What is a Greenhouse Gas Emissions Inventory?

- It maps Louisville's activities and associated GHG emissions represented as carbon dioxide equivalents (CO₂e)

Greenhouse gas	Chemical Formula	Global Warming Potential
Carbon Dioxide	CO ₂	1
Methane	CH ₄	21
Nitrous Oxide	N ₂ O	298

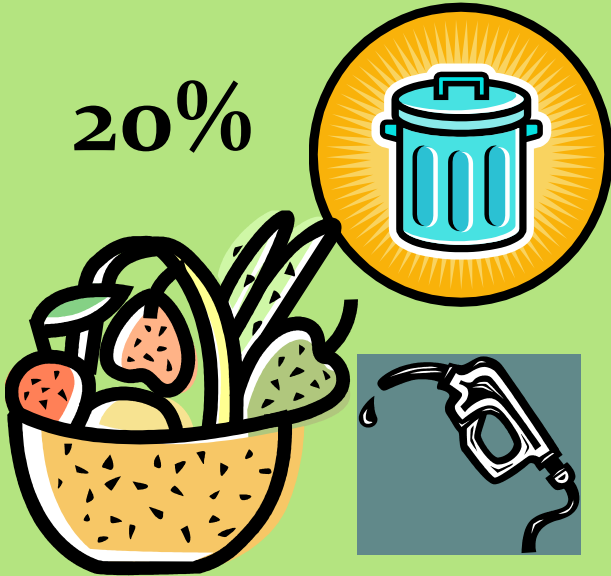
Source: Intergovernmental Panel on Climate Change (IPCC), 2007.

- Activity Sectors Include:
 1. Building Energy Use: Electricity & Natural Gas
 2. Transportation: Tail-Pipe Emissions
 3. Materials and Waste: Embedded energy & emissions of products and materials; Municipal solid waste, Recycling, & Composting

Louisville 2012 Total = 370 thousand mt-CO₂e

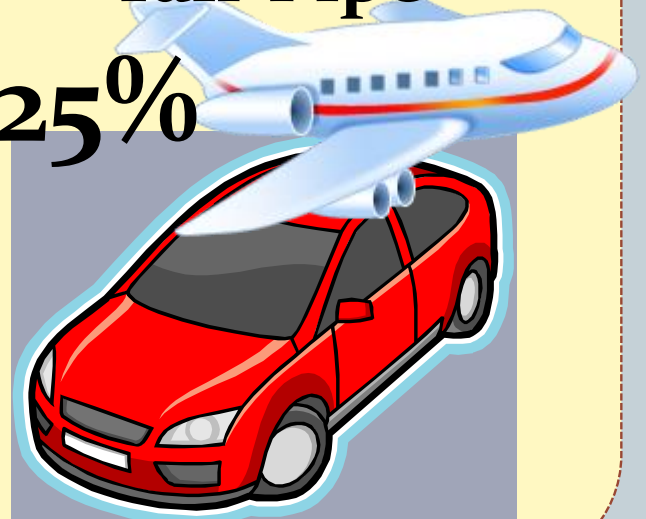
Materials & Waste

20%



Transportation: Tail-Pipe

25%

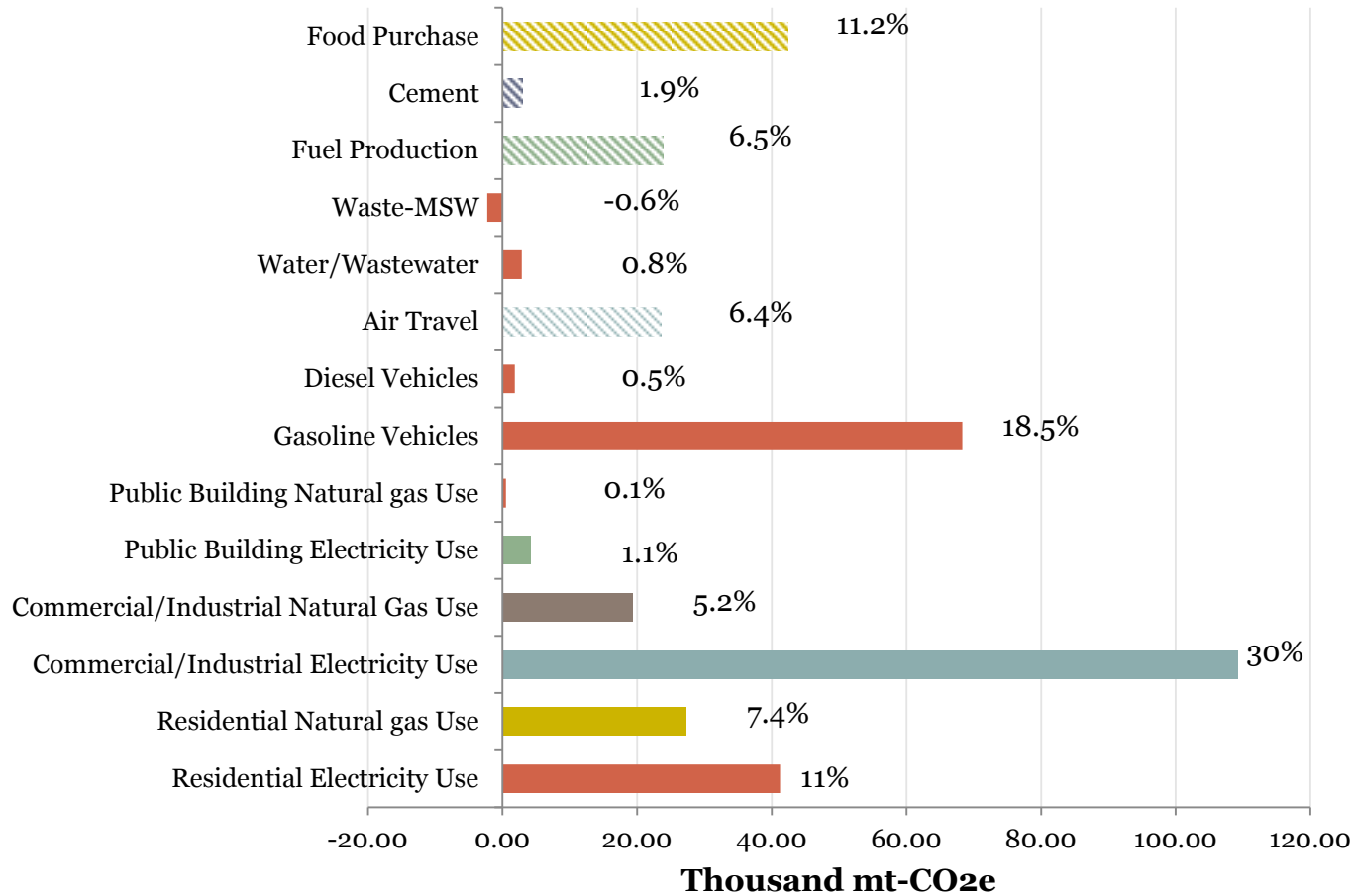


55%

Buildings Energy Use

GHG Emissions By Detailed Sector

Community-Wide Emissions: 370 thousand mt-CO₂e
Per-Capita Emissions: 20.1 mt-CO₂e



Data Sources



Table 1. Sources of Data Used in Louisville's 2012 Baseline Energy Study

Baseline Energy Study Data Inputs	Data Source	Data Type	Data Scaling
Building Energy Use Data	Xcel Energy 2012 Local Government Consumption Report	Primary	None
On-Road Vehicle Miles Travelled	Denver Regional Council of Governments 2010 Transportation Model	Model Run	None
Vehicle Fleet Make-up	Colorado Department of Public Health and Environment, Personal Communication w/ Jim Sidebottom	Secondary	None
Vehicle Fuel Type Characteristics	2011 EPA MOVES Report	Secondary	None
Vehicle Fleet Fuel Efficiency	US Census Bureau Domestic Motor Fuel Consumption Report	Secondary	None
DIA Fuel Data	Personal Communication w/ DIA Fuel Facility Manager Joe Finucane	Primary	Population
DIA Enplaned Passenger Data	City & County of Denver Colorado 2013 Disclosure Statement	Primary	None
Water & Wastewater Data	Personal Communication w/ Dave Szabados, City of Louisville	Primary	None
Cement Use Data	US Geological Survey Report, 2004	Secondary	Population
Food Consumption Data	US 2012 Economic Census, Western United States	Secondary	None
Municipal Waste Data	Personal Communication w/ Dave Szabados, City of Louisville; Western Disposal; All Recycling	Primary	None
Emission Factors			
Electricity	Xcel Energy 2012 Local Government Consumption Report		
Natural Gas	Xcel Energy 2012 Local Government Consumption Report		
Gasoline, Diesel, & Jet Fuels	ICLEI 2008 Local Governments Reporting Protocol Report		
Emoodied Emissions from Gasoline, Diesel, & Jet Fuels	2007 Argonne National Laboratory GREET Model		
Cement	National Renewable Energy Laboratory's (NREL) Life Cycle Inventory Database,		
Water & Wastewater	ICLEI 2008 Local Governments Reporting Protocol Report		
Municipal Solid Waste	US EPA Waste Reduction Model (WARM)		

Benchmarking



Description of Benchmark	US National (2008)*	CO State (2008)*	Denver, CO (2008)*	Broomfield, CO (2007)**	Golden, CO (2007)***	Louisville, CO (2012)	Boulder, CO (2010)****	Units of measurement
Avg. Res. electricity use	888	667	545	736	615	662	na	kWh/hh/mo
Avg. Res. Natural gas use	58	57	45	66	62	53	na	therms/hh/mo
Avg. Comm/ Ind./ Pub. Buildings Energy use	138	104*	122	190	140	131	na	Kbtu/ft ² /year
Vehicle Miles per person per day	27	28	24	22	31	28	24	VMT/person/day
Water / Wastewater	na	na	148	178	199	206	na	gallons/person/day
Municipal Solid Waste	4	na	7	6	9	2	7	lb/person/day
GHG Emissions	25	na	25	19	27	20	18	mt-CO ₂ e/person/year

note: These baseline inventories were conducted over different years and corresponding economic conditions., and thus should be used for general benchmarking only.

Sources

*-Ramaswami, A., & Hillman, T. (2009). Greenhouse Gas Emission Footprints and Energy Use Benchmarks for Eight U.S. Cities. Environmental Science & Technology.“

**-Bernard, M., Chavez, A., & Ramaswami, A. (2007). City and County of Broomfield Sustainable Energy Benchmarking & Greenhouse Gas Accounting.

***-Culpen, A., & Ramaswami, A. (2007). City of Golden Greenhouse Gas Emissions Inventory & Sustainable Energy Benchmarking and Actions.

****-Community Guide to Boulder's Climate Action Plan. 2010/2011 Progress Report

Developing a Sustainable Action Plan



1. CONDUCTING AN INVENTORY OF CO₂e EMISSIONS TO **UNDERSTAND** FOSSIL FUEL USE AND ASSOCIATED GHG EMISSION
2. DEFINING A SET OF **PRACTICAL, ATTAINABLE** GOALS;

Sustainable Action Plan Continued



3. Develop a set of actions that can be taken in each of the sectors to **promote energy efficiency, conserve resources, save money** and/or **create business opportunities** while mitigating CO₂e emissions;
4. Choose and prioritize action options based on **reduction goals, local economics, culture, civic engagement** and **political support**
5. Developing an implementation plan for the prioritized actions, with **outcomes assessment protocols**;
6. Re-inventorying emissions and **assessing current and future progress**.

Setting Goals



- Concrete and attainable
 - Ambiguous goals leave room for inaction
- Input from stakeholders
 - City Council, Sustainability Advisory Board, local businesses, residents
- Target major energy use sectors
 - Residential and commercial buildings, on-road vehicles, food consumption
- Create a strategic portfolio of voluntary, regulatory, and market based actions
 - Track participation rates & outcomes**

Can Louisville achieve a 10% reduction in CO₂e emissions?

Developing a Comprehensive Database



- Improving data quality will enhance the impact of taking inventories
- Consumption of food and other materials is estimated, missing some unique habits of Louisville's residents
- Filling data gaps brings Louisville's unique attributes to light



* Photos taken from 2008 * 2009 Life in Louisville Photo Contests

Current Sustainability Initiatives

Residential PV

317 PV systems (4% of homes) 3,954 MWh produced

Windsource

- 672 homes (8%) using Windsource
- 2,461 MWh purchased
- Total cost: \$53,000
- 5,000 mt-CO₂e saved

Wastewater Irrigation

- 33 million gallons used to irrigate ball fields, golf courses, and parks
- Saved ~54,000 kWh and 300 therms, roughly \$2,000
- Emissions savings of 44 mt-CO₂e

Recycling & Composting

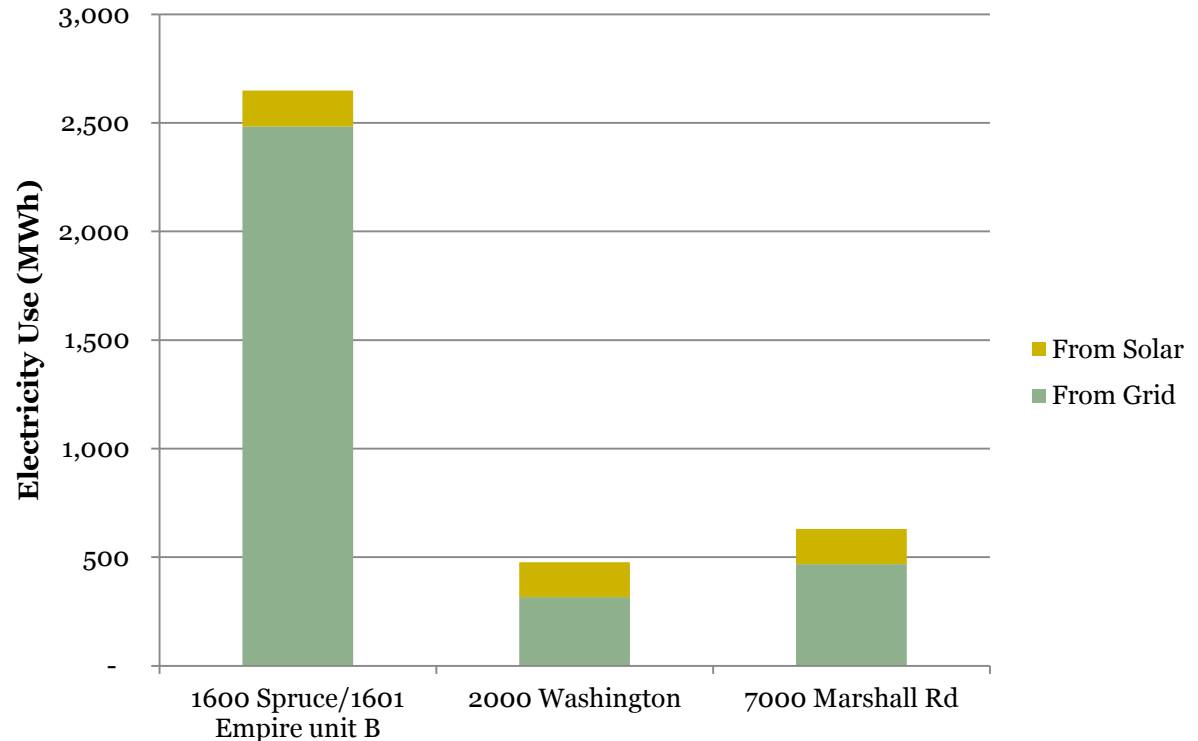
- ~3,700 mt of material was recycled and composted
- ~6,000 mt-CO₂e saved

Current Sustainability Initiatives

PV systems installed at all three water/wastewater treatment plants

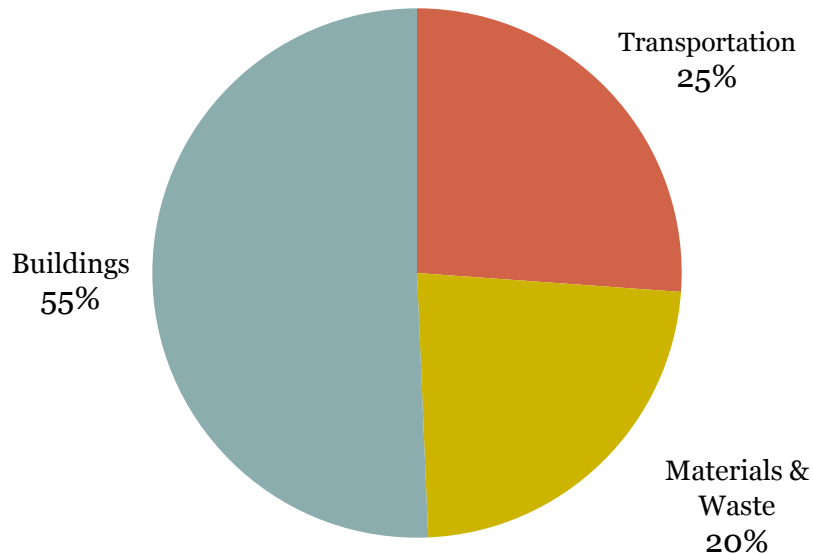
- 489 MWh produced, \$19,500 saved on energy,
- emissions savings of 383 mt-CO₂e in 2012

Electricity Use at Water Treatment Facilities



13% of electricity used at these facilities was provided via the installed PV systems

Sustainability Improvement Opportunities

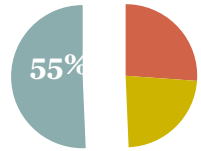


- **BUILDING**
- ENERGY USE**
- **MATERIALS**
- **TRANSPORTATION**



- EnergySmart: a suite of energy efficiency solutions, available county-wide
 - Expert Energy Advisor helps residents and businesses save money and improve comfort
 - Low-cost financing and rebates are offered as part of the program
- EnergySmart has reached:
 - 11,832 homes and 3,233 businesses county-wide
 - 410 homes and 130 businesses in Louisville
- Investments in energy efficiency exceed \$27M, boosting the local economy and jobs

Xcel Demand Side Management (DSM) & Windsource



- Rebates on energy efficiency upgrades, investments in energy management systems, energy audits, renewable energy purchases
- 8% residential Windsource customers in 2012, **0 commercial**

Xcel Windsource:

- Purchased in 100 kWh blocks for \$2.16 each

Cost based on 2012
Xcel emission factor:

\$27.50 / mt-CO₂e

Xcel rebates offered for:

- Energy efficiency upgrades
Residents & Businesses
- Energy management systems
Businesses
- Energy audits
Residents & Businesses
- Renewable energy purchases
Residents & Businesses

Solar Hot Water Systems

Use energy use and efficiency data to identify further solar opportunities

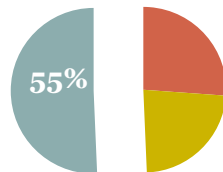
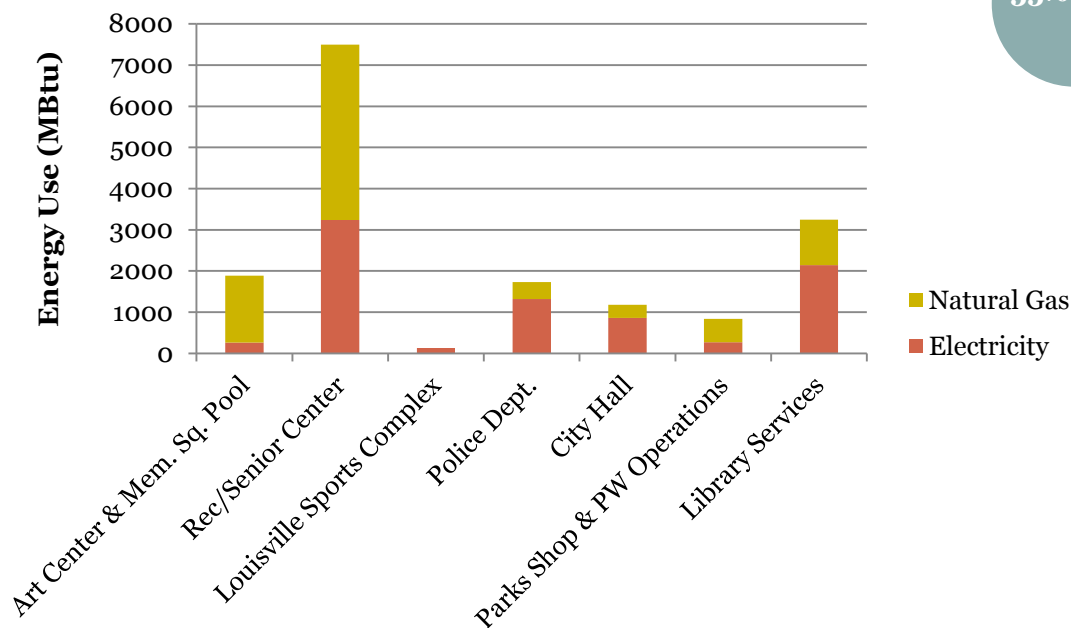
Example:

Rec Center gets a large portion of its energy from natural gas

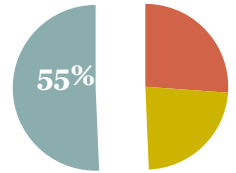


Solar Hot Water may be cost effective; payback and ROI calculations case by case

Government Building Energy Use



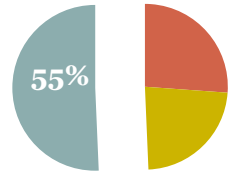
Solar Rebate & Grant Program



- Modeled after Boulder, CO's rebate & grant program
- Funded through sales and use taxes on installed PV systems
- Rebate up to 15% of sales and use taxes on PV systems & solar hot water
- Grants offered for installation of PV and solar hot water
 - Non-profits, low- & medium-income homes



Energy Consumption Monitoring



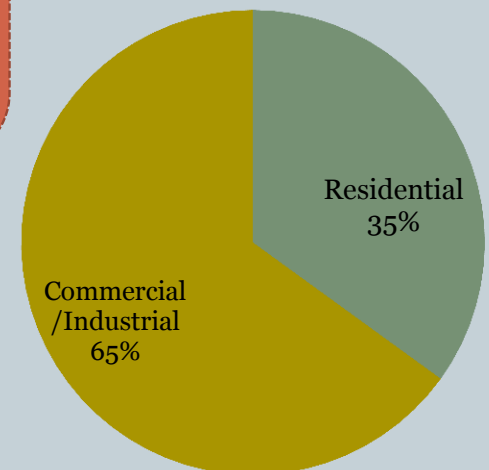
- Monitoring real time use causes behavioral change
 - Cost: ~\$50 - \$200/device (residential)
 - Savings: 6-12% of energy consumption*

Save \$40 / year on electric bills

Payback Period ~ 4 years

**5,500 mt-CO₂e/ year saved
(1.5% of 2012 total)**

Commercial Energy Management
is complex, but presents **greater
opportunity for savings**
~ \$1,200 / device (commercial)





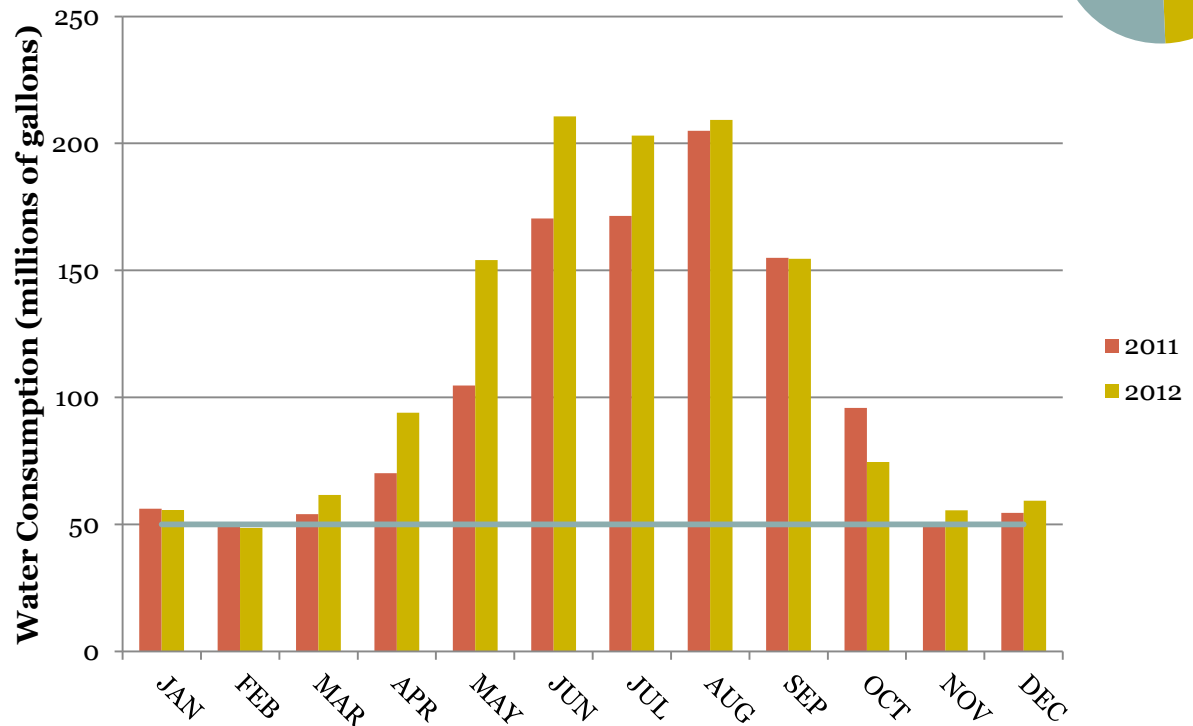
Materials Sector

Irrigation in summer months is the main driver of water consumption

Action Items:

- Assess the current Water Conservation Rebate Program and Drought Management Plans
- Identify demand side management and public outreach & education opportunities to curb summer month water consumption
- Price vs. non-price mechanisms

Louisville's Monthly Water Consumption

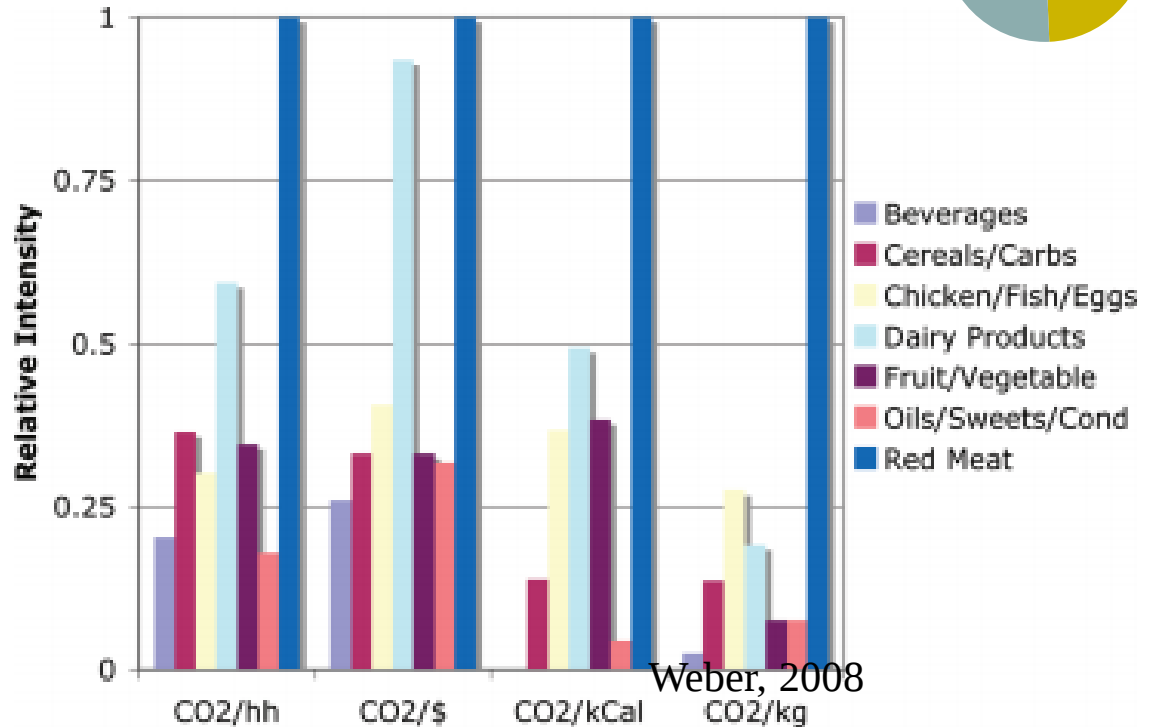


Water use increases x4 during summer months

Food Survey & Education Program

- Identify & characterize eating habits
- Educate citizens to understand the relationship between food, health, local economy, and emission reduction efforts in Louisville.

Relative Emissions Intensity for Various Food Types



Red meat is 4x more GHG intense than any other food product

Transportation Sector

Action Items:

Public Outreach programs to promote RTD & carpool ridership

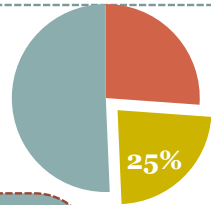
Rebate programs for purchase of transit passes

Community based ride share & bike programs

Promotion of **Best Workplaces for Commuters** program to businesses



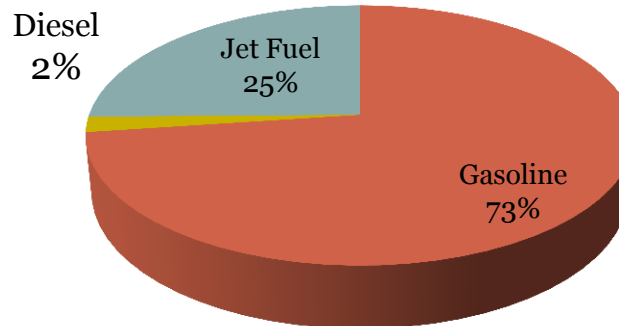
Transportation Solutions



Employer Based Commuter Programs (i.e. Best Workplaces for Commuters)

- Save 0.5 – 1 mt-CO₂e/ year/ participating employee *
- Co-Benefits: Reduced congestion, improved air quality, fewer traffic accidents

Fuel Emissions by Type



* Ramaswami et al. (2012)

What are other cities doing?



Golden, CO

- Sustainability Awards
 - Individuals, businesses, and community groups
- Adopted the City of Golden Strategic Plan
- Publishing annual Sustainability Reports
 - LEED Cert. for Gov't Building
 - Creation of a Pay as You Throw waste disposal program
 - Education & Community Outreach Campaign
- Working towards Community Solar Gardens

Denver, CO

- Reduced energy intensity of City buildings by 5.6% below 2011 baseline
- Denver Energy Challenge & Certifiably Green Denver programs
 - Engaged over 7,000 households and businesses
- Engaged CO Energy Office & for-profit firms to convert gasoline-powered fleet vehicles to natural gas
- Partnership with Denver Water to hold water consumption 21% below 2001 levels
- Expansion of B-Cycle bike sharing, 100th mile of bike lane paved

Primary Actions for Louisville



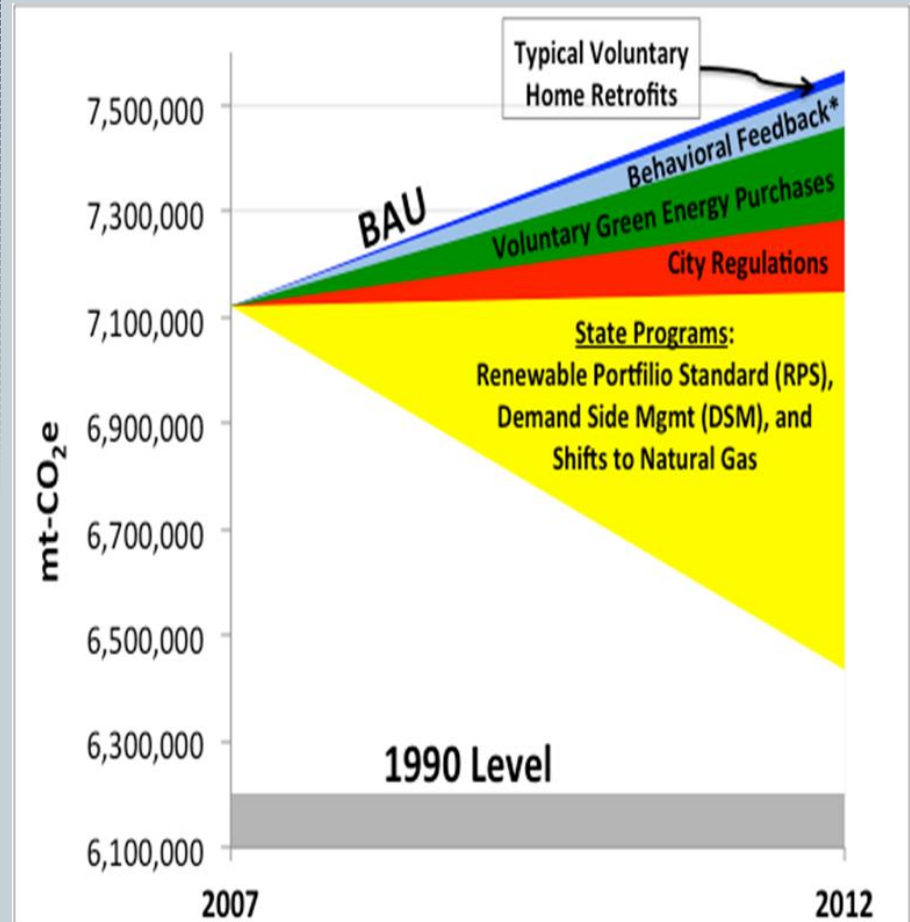
- **Leverage and empower existing assets:**
 - Boulder County EnergySmart program
 - Xcel DSM & Windsource Programs
 - Public transportation
 - Installed solar energy systems
 - LSAB & surrounding communities
- **Form policies & programs to support and expand new and existing assets:**
 - Energy Monitoring
 - Green Energy Investments (Windsorce and Solar)
 - Transportation mode-shift & Commuter programs
 - Develop a strategy for collecting data, possibly in conjunction with Boulder County
- **Monitor & measure the impact**

City of Louisville Sustainability Matrix

	Item Description	Cost per home/ business	Annual Energy Savings/HH	Participation Rate	Community- wide GHG Savings (CO ₂ e)	Total Cost to City	ROI	Engagement Vehicle
EDUCATION CAMPAIGNS	Windsource® Residential Education Campaign	\$2 premium-100 kWh block / \$27.50/mt-CO ₂ e	100% GHG emission savings	8% participation in 2012 residential Windsource® purchase	1,928 mt-CO ₂ e	\$0	NA	Xcel Program
			(0kg CO ₂ e/kWh)		OR			
				If 15% of total 2012 residential electricity from Xcel was from Windsource®	3,615 mt-CO ₂ e			
	Xcel Demand- side Management	Variable	Variable	100% Xcel customers	2,890 mt-CO ₂ e	program admin costs only	NA	Xcel Program
	Transportation Mode Shift / Employer Based Programs	\$0	Variable	Varies	0.5 -1 mt-CO ₂ e/ Participant	program admin costs only	Variable	Local Outreach Program
	Energy Smart	Consulting & rebate are federally funded	Variable	410 Louisville Homes, 130 Louisville Businesses (2014)	Variable	\$0	Variable	Energy Smart Program / education Campaign
	Food & Sustainability Survey and Education Campaign	\$0	Variable	1,000 homes	Variable	program admin costs only	NA	Local Education Campaign
MANDATES	Summer Water Use Restrictions	\$0	10% reduction during summer months = 44 MWh savings	100%	40 mt-CO ₂ e	\$0	NA	Mandate
	Energy Monitoring	~\$30-\$200 / Unit	6-12% per HH	Voluntary - ~5% Mandatory ~100%	275 mt-CO ₂ e 5500 mt-CO ₂ e	program admin costs only	~4 years	Mandate or Education Campaign
City Funded Programs	Solar Rebate Program	Variable	~12,000 kWh/HH/year	~4% HH (2012) marginal increase epected resulting from a rebate program (<1%)	3,000 mt-CO ₂ e	15% of tax collected on solar systems, program admin costs	NA	Local / Regional Program

Summary

- **Understanding behavior** is more valuable than quantifying emissions
- Voluntary, regulatory, and market based solutions can work in harmony to create a **sustainable action portfolio**
- **Co-benefits** of reducing GHG emissions include:
 - air quality improvement
 - reduced roadway congestion
 - improved quality of life and public image
 - reduced energy costs
- **Monitoring improvement efforts is critical**



* Ramaswami et al. (2012)



Thank You

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Appendix

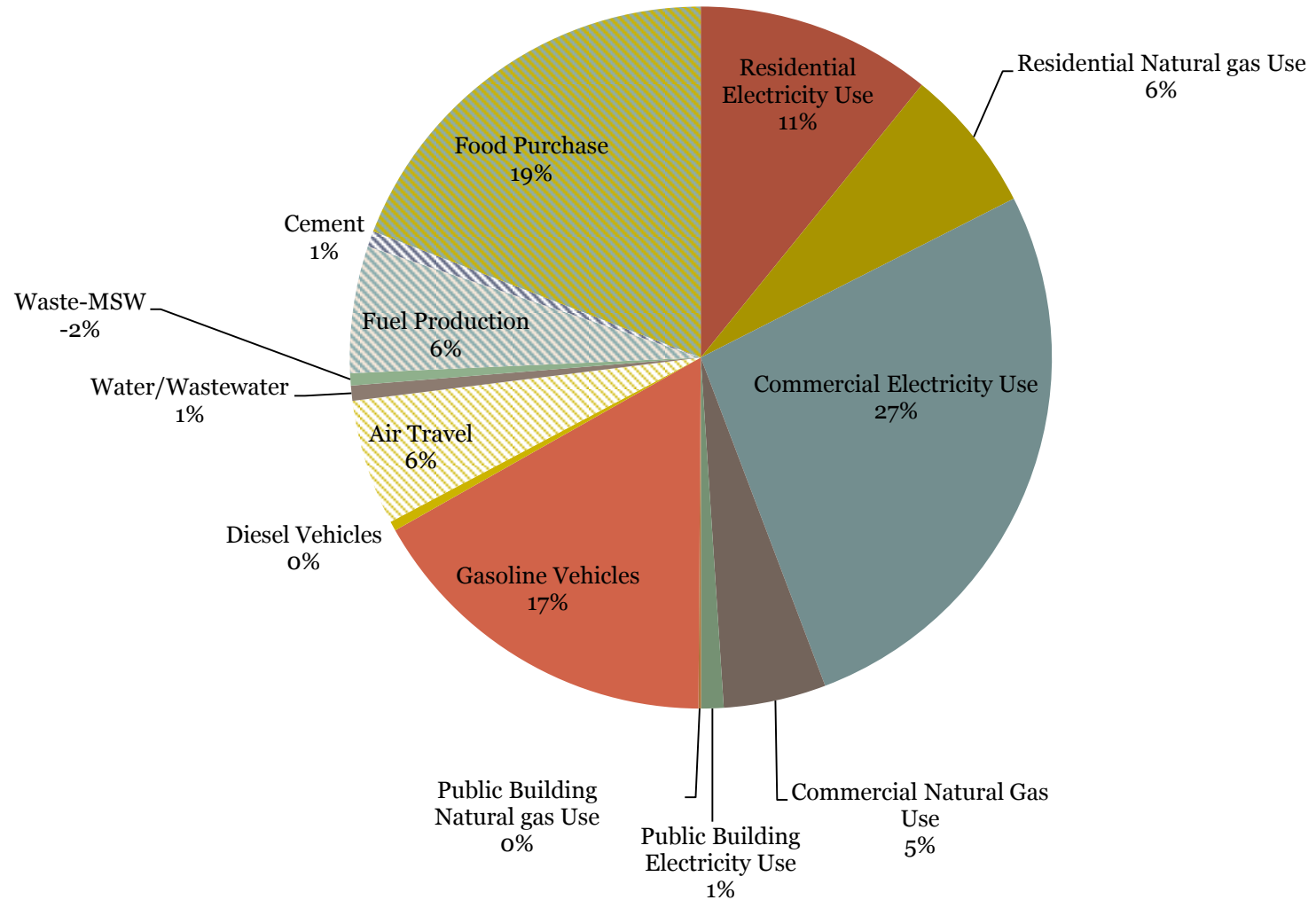


Emission Factors

		2012	
Electricity	Xcel	0.78	kg-CO ₂ e/kWh
Natural Gas		5.95	kg-CO ₂ e/therm
PTW (Tail-pipe)	Gasoline	9.1	kg-CO ₂ e/gal
	Diesel	10.2	kg-CO ₂ e/gal
	Jet Fuel	9.9	kg-CO ₂ e/gal
WTP (well to pump)	Gasoline	2.5	kg-CO ₂ e/gal
	Diesel	2.0	kg-CO ₂ e/gal
	Jet Fuel	2.0	kg-CO ₂ e/gal
Cement		1.0	mt-CO ₂ e/mt-cement
Food		2	kg-CO ₂ e/1997-\$
Waste		0.30	mt-CO ₂ e/short ton

GHG Emissions By Detailed Sector

Community-Wide Emissions: 404 thousand mt-CO₂e
Per-Capita Emissions: 22 mt-CO₂e



*Net municipal waste emissions were (-.06%)

Emissions by Scope



			2012	
Scopes 1+2+ Waste	Residential	Natural Gas	27.30	thousand mt-CO ₂ e
		Electricity from Grid	41.23	thousand mt-CO ₂ e
		Electricity from WindSource	-	thousand mt-CO ₂ e
	Commercial & Industrial	Natural Gas	19.30	thousand mt-CO ₂ e
		Electricity from Grid	109.20	thousand mt-CO ₂ e
		Electricity from windSource	-	thousand mt-CO ₂ e
	Public	Natural Gas	0.49	thousand mt-CO ₂ e
		Electricity from Grid	4.21	thousand mt-CO ₂ e
	Surface transportation	Gallons of Gasoline	68.28	thousand mt-CO ₂ e
		Gallons of Diesel	1.80	thousand mt-CO ₂ e
Scope 3	Waste	Metric Tons of MSW	(2.30)	thousand mt-CO ₂ e
	Water/Wastewater	Electricity/Natural Gas/CH ₄ /N ₂ O	2.85	thousand mt-CO ₂ e
	Airline travel	Gallons of Jet Fuel	23.64	thousand mt-CO ₂ e
	Fuel Production	Gallons of Fuel	23.89	thousand mt-CO ₂ e
	Cement	Metric Tons	2.97	thousand mt-CO ₂ e
Total Emissions:			401.11	thousand mt-CO ₂ e
Per capita emissions			21.83	mt-CO ₂ e/capita

Emission: Building Sector



Table 6. Buildings Energy Use

A. Residential Energy	2012
Total Number of Populations	18376
Total Number of Households	7629
Total Number of Customers (Electricity)	7430
Total Grid Electricity Used including Windsource (GWh)	59
Total grid Electricity used from Windsource (GWh)	6
Number of premises buying electricity from wind power	672
Number of premises with solar PV installations	319
Total residential PV production (GWh)	4
Electricity/household/month (kWh/hh/mo)	662
Total Number of Customers (Natural Gas)	7147
Total Natural Gas Used (million therms)	5
Natural Gas/household/month (therms/hh/mo)	53
Total Residential GHG emissions (thousand mt-CO2e)	69
B. Commercial-Industrial Energy	
Total Number of Customers (Electricity)	575
Total Commercial-Industrial Area (million sf)	11
Total Electricity Used including Windsource (GWh)	0
Total Electricity Used from Windsource (GWh)	0
Number of premises buying electricity from wind power	0
Public Consumption of Electricity (GWh)	5
Total Natural Gas (million therms)	3
Total energy use per square foot (kBtu/sf)	131
Emissions from public buildings	5
Total Commercial-Industrial GHG Emissions (thousand mt-CO2e)	133
C. Total Buildings and Facilities GHG Emissions (thousand mt-CO2e)	202

Emissions: Transportation Sector



Table 7. Transport distances and fuel use by modes of transport including pump-to-wheels

A. Personal & Commercial Motor Vehicles	2012
Annual Vehicle Miles Traveled (million VMT)	177
VMT/person/day*	28.12
Annual Fuel Use	
Gasoline (million gallons)	7.50
Diesel (million gallons)	0.18
Total GHG Emissions from Personal and Commercial Motor Vehicle Transport (thousand mt-CO₂e)	70
B. Airline Travel (0.58% of all DIA trips allocated to Louisville in 2012)	
Enplaned Passengers	154,051
Jet Fuel (million gallons)	2.39
Total GHG Emissions from Airline Travel Allocated to Denver (thousand mt-CO₂e)	24
C. Total GHG Emissions from Transportation Sector (thousand mt-CO₂e)	94

Emissions: Materials Sector



Table 8. Manufacture of key urban materials, waste, and recycling

Material	2012	
	Annual Material Flow	GHG Emissions (thousand mt-CO ₂ e)
Fuel Production (WTP for all fuels)	10.07	23.89
Gasoline (million gallons)	7.50	18.76
Diesel (million gallons)	0.18	0.35
Jet fuel (million gallons)	2.39	4.77
Water (million gallons)	1,381.21	2.85
Wastewater (million gallons)	609.87	
Cement in Urban Concrete (thousand mt)	7.14	7.14
Food & Packaging (\$ million)	39.13	42.50
Municipal Solid Waste (million tons/year)	0.01	(2.30)
Total GHG Emissions for Producing Key Urban Materials		74

Total Consumption

Table 3. Total Consumption Metrics for the City of Louisville, 2012

			2012	
Scopes 1+2	Residential Energy Use	Natural Gas	4,588,090	therms
		Natural Gas/HH/Mo	53.50	therms/hh/mo
		Natural Gas/sq.ft/yr	0.40	therms/sf/yr
		Electricity from Grid	52,629	MWh
		Electricity from Wind/Solar	6,415	MWh
		Total Electricity	59,044	MWh
		Electricity per hh/mo	662	kWh/hh/mo
		Electricity (kWh/sf/yr)	5.16	KWh/sf/yr
	Commercial/Industrial Energy Use	Natural Gas	3,244,461	therms
		Electricity from Grid	139,374	MWh
		Electricity from WindSource	-	MWh
		Total Electricity	139,374	MWh
		Natural Gas (therms/sf/yr)	0.53	therms/sf/yr
		Electricity (kWh/sf/yr)	22.80	KWh/sf/yr
	Residential & Commercial/Industrial Energy Use Totals	kBTU per sq. ft.	131	kBTU/sf/yr
		Total Com.& Res Electricity/sf/yr	27.96	kWh/sf/yr
		Total Com.& Res Natural Gas/sf/yr	0.93	therms/sf/yr
	Public	Natural Gas	82,830.00	therms
		Electricity from Grid	5,367	MWh
	Surface Transport from DRCOG	Annualized VMT	176,745,046	VMT
		VMT per capita	28.12	VMT/person/day
		Gallons of Gasoline	7,503,457	gallons
		Gallons of Diesel	176,437	gallons
Scope 3	Air Travel	Enplaned Passengers	154,051	enplaned passengers
		Gallons of Jet Fuel	2,387,425	gallons
		Jet fuel/enplaned passenger	15.50	gal/passenger
	Food	\$ Spent	39	million 1997-\$
	Cement	Metric Tons	7,137	mt
		Cement Use /capita	0.39	mt cement/capita
	Water	Gallons of Water	205.93	gallons/person/day
	Wastewater	Gallons of WW	90.93	gallons/person/day
	Municipal solid waste (MSW)	Tons of MSW	7,388	short tons MSW/year
		Waste/capita/day	2.20	lbs/pp/day

Table 11. Energy Monitoring Equipment Options

Product Name	Description	Cost	ROI	Feedback Platform	Product Picture
Belkin Wireless WeMo Insight Switch	Single device, plug-in, real-time energy monitor	~\$60	NA	Smart phone or mobile device	
Black & Decker Power Monitor EM100B	Whole home, real-time energy monitor	~\$100	2-3 years	Display unit included	
The Energy Detective TED 5000	Whole home, real-time, multi-circuit energy monitor	~\$200	3-5 years	Computer, mobile device, or optional handheld display available	
The Energy Detective TED PRO Series	Multi-circuit, up to 5,000 AMP energy monitor	~\$400 - \$1,500	TBD	Computer, mobile device, or optional handheld display available	

CSAB 2012 SCORE CARD

The Golden Sustainability Initiative has many goals and each of them are important with ongoing progress should continue. However, in 2013, some require greater focus and will have a higher priority for the Board.

FOCUS AREA	STATUS	2013 PRIORITY	ACTIONS
Green Buildings	100% Complete	Low	Golden building owners and the development community have come together to achieve this goal 5 years into the 10-year term. Updated building codes and the new Green Menus offer budget-friendly sustainable building solutions and will continue to ensure that all new construction and major remodels meet our green building goals.
Education & Communication	50%	Medium to High	Communication of the community goals is critical to the overall Sustainability Initiative. The Board will lead, encourage, enable, and empower the public to live and work in a sustainable manner.
Economic Health	25%	Medium	After a successful Economic Health Summit in 2012, the Board will work with other city groups to increase green jobs and encourage business sustainability.
Energy	10%	High	In 2013, the Board will focus a lot of attention toward this goal. The goals to reduce energy consumption and increase renewable energy have proven difficult to achieve. 2013 brings long awaited projects including community solar, municipal solar and a pilot program for citywide energy efficiency.
Solid Waste	80%	Low	Creation of the Pay As You Throw program in 2009 yielded significant cost savings for homeowners. Next steps include consideration of a PAYT ordinance to expand recycling access citywide.
Alternative Transportation	90%	Medium	While the City is funding annual upgrades to biking and pedestrian routes, a significant movement forward in reducing vehicle miles traveled (VMT) is expect in 2013, when RTD's West Light Rail Line and Golden's Call & Ride bus become available.
Water	80%	Low	3 out of 4 goal targets are achieved annually. Water conservation should remain a priority, with a new target set by Council.