

2011

CLIMATE ACTION PLAN STATUS REPORT

2011 Awards and Accolades

The City and staff have received numerous sustainability-related awards:

Climate Wise Platinum Level Partner Award

Gold Level Bicycle Friendly Business Award

League of American Bicyclists

Ranked 3rd on the Best Bicycle Cities List

League of American Bicyclists and TheStreet.com

Sheldon Merit Award

Excellence in Environmental Planning for Plan Fort Collins

Energy Star Award — 215 N. Mason, 281 N. College, and Operation Services

National energy efficiency recognition

EPA Director's Award of Recognition — Water Treatment Plant

Partnership for Safe Water

ISO 14001 Certification — Drake Water Reclamation Facility

TUV Rheinland of North America

Certificate of Achievement — Pollution Control Lab

For attaining 100% acceptable results on unknown test samples for all discharge parameters listed in the City's Wastewater treatment permit
Colorado Department of Health and Environment

Cleantech Champion — Fort Collins Utilities

For visionary leadership in electric grid modernization
Colorado Cleantech Industry Association (CCIA)

One of the Top 10 Cities Adopting Smart Grid Technology

U.S. News and World Report

2nd Best City for Weight Loss

Prevention.com

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The third City of Fort Collins Annual Municipal Sustainability Report documents efforts to protect and enhance the resources managed by staff. Going beyond preservation, the City leadership lays the foundation for economic growth, resource conservation, and social well being. Data driven practices and community capacity building are the cornerstone of City operations that allow for continual improvement and progress toward our top ten priority goals (see pages 6-18). Key accomplishments of 2011:

- The City met its carbon reduction target for 2011. Carbon emission reductions are 7.4% below 2005 levels.¹
- The leading economic projects include the Civic Center Parking retrofit (\$18,705), Collindale Golf Lighting Project (\$9,462), and the EPIC Solar Thermal project (\$8,500) which was deployed with no upfront cost to the City. The energy produced will offset peak demand from the grid.
- The projects with the highest environmental benefits include the Water Treatment Plant's Solar Purchase Agreement, which yields 90 metric tons (MT) of carbon equivalent emission reductions (CO₂e), the Collindale Golf Course lighting replacements (84 MT CO₂e reduction), and the PV Solar Installation at the Museum Discovery Science Center.
- The City's energy efficiency annual project savings totalled approximately \$41,000.
- By the end of 2011, four photovoltaic systems with a total capacity of 194 kW had been installed.
- Conducted several challenges with City employees, residents, and select ClimateWise partners, including: Transportation Challenge; FortZED; Give a Watt: Pedal It Forward; Bike-to-Work Day(s); and the Ground Work Challenge. Cumulative projected savings among the 1,169 participants translated into 59 MT CO₂e and \$59,000 saved.
- The City joined the Social Responsibility Pilot Program through ClimateWise.
- More non-carbon and low-carbon power generation brought on-line through the projects described above and the Drake Waste Water Reclamation Plant's Geothermal Project.
- Improved fuel efficiency numbers and use of low carbon fuel (i.e., natural gas, biofuels) in City vehicles.

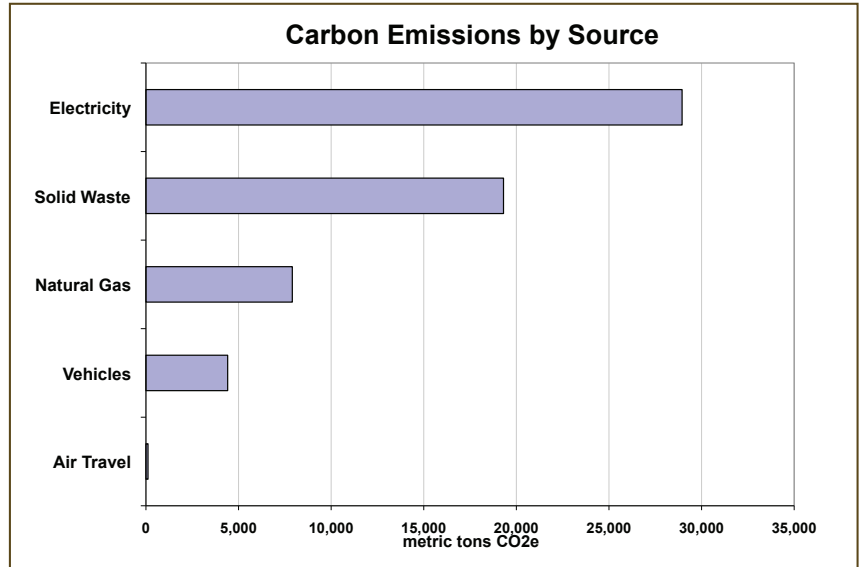
Challenges persist despite many accomplishments. However, the City organization is retooling our efforts to be more effective and strategic in terms of funding projects that have low costs and high impacts especially as stimulus funding is depleted; increasing transparency and verifying data sources. Staff is committed to continuing to work towards a sustainable future. In 2012, key projects under way include:

- Increase solar purchase agreements to control budgets by guaranteeing predictable energy prices.
- Leveraging grant funds to enhance the sustainability curriculum for Poudre School District, continuing the CSU School of Global Sustainability (SoGES) partnership in hosting Mindful Movies, and the Corporate Training educational series.
- As budget fund offers are evaluated, preference to efficiency should be given since efficiency returns more than twice its cost in industry, and four times its cost in buildings.²

The organization adopted 10 core sustainability goals in 2004 and added numerical targets in 2009. The overarching sustainability goal is to reduce carbon emissions 20% by 2020 from 2005 baseline levels. The carbon goal is strongly related to other environmental goals, and, therefore, progress on environmental initiatives often contribute to the overarching carbon target objectives. Thus the City's carbon reduction of 7.4% from the baseline year represents advancement in a variety of areas ranging from building efficiencies and solid waste management.³

Carbon reductions from our baseline year are equivalent to:

- Annual CO₂e emissions from 1,344 passenger vehicles;
- CO₂e emissions from the energy used by 595 homes in one year;
- Carbon sequestered by 17,5410 tree seedlings grown for 10 years;
- Carbon emissions avoided by recycling over 2,443 tons of material each year. (equal to the weight of 25 gorillas!); or
- CO₂e emissions from 15,909 barrels of oil consumed.



Carbon emissions are tracked in three categories: Scope 1 (direct emissions); Scope 2 (electrical indirect emissions); and Scope 3 (other direct emissions). Multiyear comparisons are provided in Appendix A. Scope 1 emissions are 14,611 metric tons, Scope 2 are 28,948 metric tons and Scope 3 are 19,467 metric tons.



Game-Changing Projects

The following projects had the most significant environmental and/or economic returns. These types of projects that result in long-term, fiscally sustainable progress and should be replicated and scaled-up throughout the organization.

Table 1: 2011 Projects Annual Environmental Ranking

Return on Investments:



High



Medium



Low

Return	Rating	Project	Environmental Benefit
	1	Water Treatment Plant — Solar Power Purchase Agreement	90 metric tons (MT) of carbon reduction equivalent (CO ₂ e)
	2	Asphalt, Concreted Toilet Recycling	4,239 MT CO ₂ e reductions
	3	Metal Recycling	1,629 MT CO ₂ e reductions
	4	Collindale — Outdoor Lighting, Insulation, and Display Lighting	60,133 kWh, 5,535 therms, 84 MT CO ₂ e reductions
	5	35.87 kilowatt (kW) Photovoltaic Solar Collection at Science Discovery Museum	32 MT CO ₂ e reductions
	6	215 North Mason Photovoltaic System	1.8 MT CO ₂ e reductions
	7	Neighborhood Energy Outreach	32,775 kWh reduction, 29 MT CO ₂ e reductions
	8	Expansion of the Affordable Housing Community Gardens	25 MT CO ₂ e reductions per month, Healthier air, water, and soils
	9	EPIC Solar Tube Thermal Expansion	2,389 therms avoided, 14.3 MT CO ₂ e reductions
	10	Atzlan Northside — 53 kW Photovoltaic System	20 MT CO ₂ e reductions
	11	Civic Center Parking Lighting Retrofit	23,381 kWh savings, 19 MT CO ₂ e reductions
	12	Transportation Challenge	12 MT CO ₂ e reductions
	13	Streets Outdoor Lighting Replacements	13,440 kWh, 11.4 MT CO ₂ e reductions
	14	Senior Center Lighting Upgrades (parking lot and wall)	Improved air quality, reduced electrical use (12,530 kWh/yr avoided), 10.1 MT CO ₂ e reductions
	15	Evacuated Tube Solar Thermal System Installed at EPIC	10625 kWh savings, 9 MT CO ₂ e reductions
	16	Give a Watt: Pedal It Forward	5 MT CO ₂ e reductions
	17	Recreation Eliminated Paper Schedules	1.4 MT CO ₂ e reductions
	18	Streets Wall Pack Replacement Lighting	1620 kWh, 1.4 MT CO ₂ e reductions
	19	Bike-to-Work Day	1 MT CO ₂ e reductions per month

Total: 6,200 MT CO₂e

Table 2: 2011 Projects Economic Annual Savings Ranking

Return	Rating	Project	Economic Benefit
	1	Asphalt, concreted Toilet Recycling	\$265,370
	2	Metal Recycling	\$58,223
	3	Civic Center Parking Lighting Retrofit	\$18,705
	4	Collindale — Outdoor Lighting, Insulation, and Display Lighting	\$9,462
	5	Installed Evacuated Solar Tube Thermal System at EPIC	\$8,500
	6	Atzlan Northside — 53 kW Photovoltaic System	\$5,654
	7	Water Treatment Plant — Solar Power Purchase Agreement	\$5,000
	8	Recreation Eliminated Paper Schedules	\$4,350
	9	Transportation Challenge	\$4,008
	10	35.87 kW Photovoltaic Solar Collection on Science Discovery Museum	\$3,840
	11	Neighborhood Energy Outreach	\$3,420
	12	Bike-to-Work Day	\$2,700
	13	Senior Center Lighting Upgrades (parking lot and wall)	\$2,093
	14	Expansion of the Affordable Housing Community Gardens	\$1,920
	15	EPIC Solar Thermal Expansion	\$1,800
	16	Give a Watt: Pedal It Forward (monthly)	\$1,440
	17	Streets Outdoor Lighting Replacements	\$1,060
	18	215 North Mason 5 kW Photovoltaic System	\$700
	19	Streets Wall Pack Replacement Lighting	\$136
	20	Poudre Fire Authority Warehouse	Not available
	21	Environmental Management Systems — Drake Water Treatment Plant, Water Treatment Plant, and Streets	Not available

Return on Investments:



High



Medium



Low

Total: \$398,381

The following section outlines trend and indicator data related to the City's top 10 goals as well as staff's involvement in various projects.

Goal #1 Carbon



Goal

Reduce carbon emissions (carbon dioxide and methane) from municipal operations at least 2% per year starting in 2009, in order to achieve a reduction of 20% below 2005 levels by Dec. 31, 2020; and ultimately to achieve carbon neutrality for the municipal organization. This represents a total reduction of 13,609 tons (based on baseline emissions of 68,045 tons in 2005); yearly reductions will equate to 1,237 tons per year of carbon emissions without any projected growth factored in.

Goal Progress

The City is in alignment with its reduction target.

Despite increases in number of employees and square footage of buildings during the 2005–2011 period, carbon emissions (CO₂e) dropped. The City reached the 2% annual reduction target. From 2005-2011, carbon emissions dropped by 7.4% or 6,841 tons.⁴

Opportunities/Recommendations

Opportunity: There are numerous projects and purchases that reduce carbon.

Recommendation: Based on carbon analysis the City needs to strategically select the most cost effective projects, while factoring in additional considerations such as the value of piloting projects and providing leadership.

Part of the purpose of tracking projects is to understand the cost-benefit ratio associated

The overall emissions total and carbon sources are listed below:

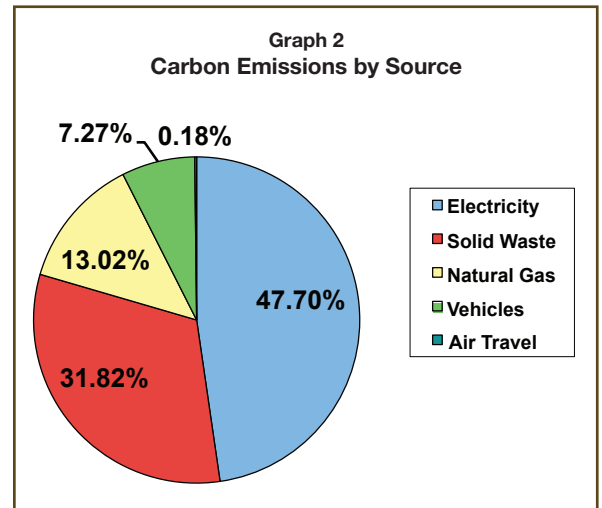
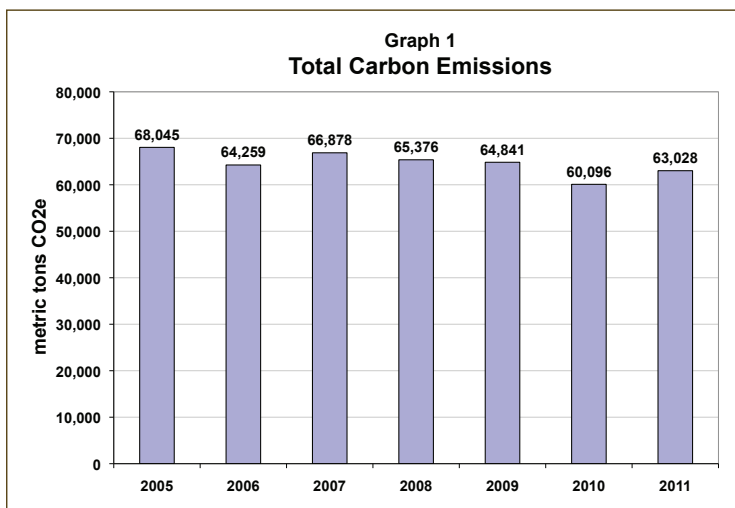
with different carbon reduction strategies. For example, below is a simple analysis of select investments and an estimate (ROI) of the initial return on investment in terms of carbon reductions. Although some projects have a high investment premium they serve citizens by pioneering new operational processes and products.⁸

Opportunity: Some cities have set much more aggressive carbon emission reductions. For example, Austin: 100% by 2020; Melbourne: 100% by 2020; Copenhagen: 20% by 2015; and New York: 30% by 2017.

Recommendation: Consider raising the City's reduction goal from 20% by 2020 to 35%.

Recent City and Community Activities

- Staff completed its first Quality Management Plan for the municipal carbon emissions inventory.
- Environmental Service Department and Advanced Planning developed a monitoring plan for Fort Collins.
- An Air Quality, Sustainability, and Solid Waste Survey was distributed to 1,525 randomly selected citizens. The response rate was 30%. The survey addressed air quality, climate change, and recycling beliefs and actions. Results generally indicate strong support for environmental programs and show improved awareness/participation in several programs above the 2007 survey results.
- Provided technical expertise at the Second Annual Colorado Climate Network Conference for various municipalities. Fort Collins



involvement included planning by Steering Committee member Lucinda Smith; and presentations by Rosemarie Russo, (i.e. Plenary) Lucinda Smith, and Kathy Collier (i.e. Community Progress and Climate Wise).

- Climate Wise partners, City staff, and Larimer and Adams County employees attended the Carbon Management interactive training and inaugural Innovative Sustainability Green Brick Bike Tour. The tour showcases the projects that helped the municipality reduce its carbon emissions (see fcgov.com/citynet/sustainability to download the guide). The tour has a self-guided brochure and will have small educational placards along the route.

Data Analysis

- In 2011 municipal operations accounted for 60,682 metric tons — approximately 2% of the community's total.
- Carbon emission reduction of 3% has been achieved between 2009-2011.

Web Links

Community Sustainability — www.fcgov.com/green

Climate Action Plan — fcgov.com/climateprotection

Goal

Reduce City energy consumption by 20% of the 2005 baseline by 2020, and reduce demand peak use by 15% by 2020.

Goal Progress

The City did not reach its 2% per annual energy reduction goal but it is using less carbon-intensive fuel. The carbon reductions associated with energy decreased by .14%.

Opportunities/Recommendations

Opportunity: C-40 Report shows in priority order the following types of projects as strongest in terms of return on investment: Retrofitting existing buildings; renewable energy projects and street lighting projects.⁹

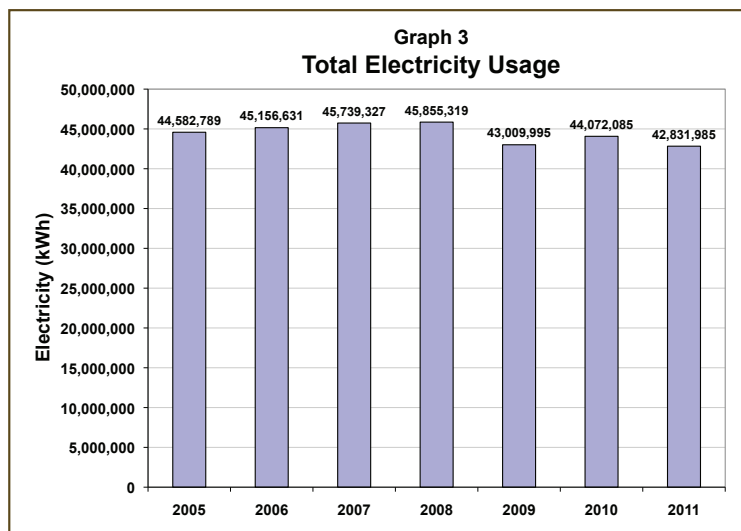
Recommendation: Continue efforts to retrofit and recommission buildings, implement enhanced renewable energy procurement programs, and research integrating two emerging technologies — LED street lights and adaptive control systems to improve the quality of the light, reduce consumption, and protect dark skies.

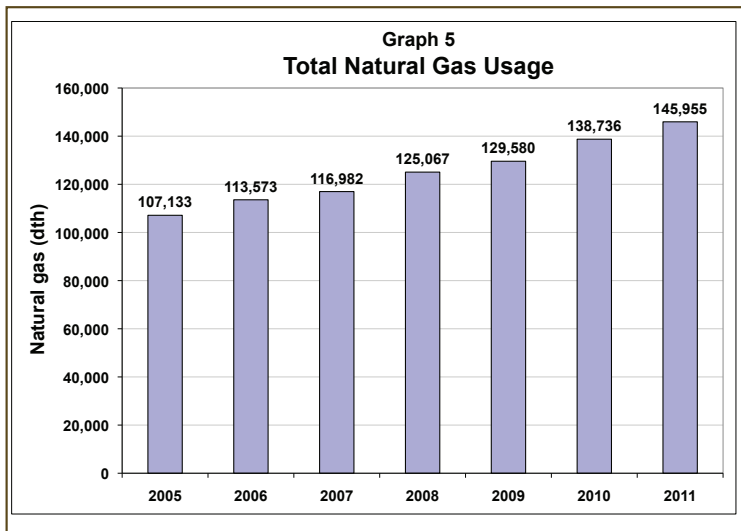
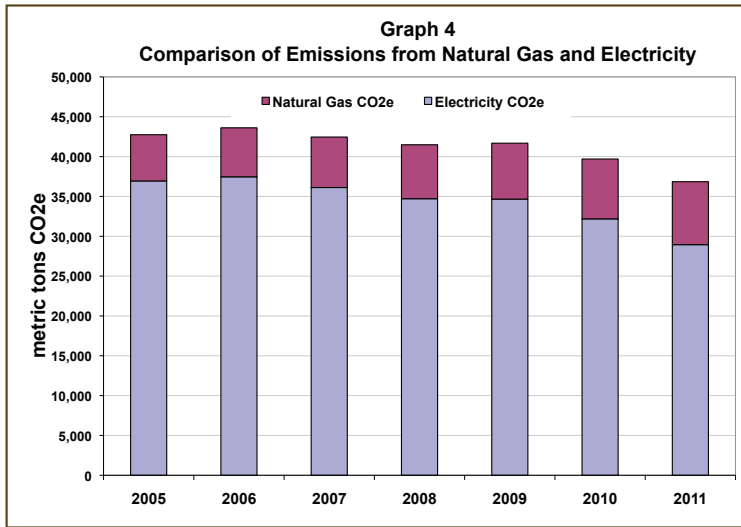
Recent City and Community Activities

- Six Green Building training sessions were provided to contractors in the areas of: Residential Building Envelopes; Residential Mechanical Systems Design; Commercial Building Commissioning; Residential Mechanical Systems Testing; Commercial Building Envelope; and Fenestration Installation.

- Operation Services completed a solar thermal project at EPIC (2,389 therm reduction).
- Operation Services replaced outdoor lighting at Streets that yielded a 13,440 kWh reduction.
- Neighborhood Services and Environmental Service Department assisted Groundwork Colorado with a Community Energy Outreach event: 376 residents received energy and sustainability information; 160 volunteers worked; and 475 CFL bulbs were exchanged.
- An analysis was conducted to determine City employee participation in the FortZED Challenge. The initial rate as of September was 3%. Rosemarie Russo, in the role of a FortZED Ranger, hosted an educational event for City employees and doubled the participation rate to 6% among staff.

Goal #2 Electricity and Natural Gas





Data Analysis

- Energy use accounts for 61% of the City's carbon emissions. The 2011 raw electrical use decreased, but natural gas use increased. The data indicates total electricity usage is down by 3.9% but natural gas has increased by 36%. Traffic signals past upgrades yielded a 6% of the energy reductions.
- Natural gas consumption has increased from 107,133 to 145,955 therms since the baseline year. Some of the rise is from compressed natural gas buses. The gas increases from Transfort are delineated in Appendix B, Graph 12. Natural gas is cleaner than electricity, so overall emissions have been reduced.
- Transfort electrical use and natural gas use accounted for 2% of the total carbon emissions.
- A shell study and recommissioning was performed at 215 S. Mason, City Hall, and EPIC.
- Refer to Appendix B for further information on trend data.

Web Links

Rebates: fcgov.com/conservation

Fort Collins Utilities Energy Policy: fcgov.com/electric/energy_policy.php

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Goal

Reduce traditional fuel use by the City's vehicle fleet by 20% by 2020 and reach a 1.5 average vehicle ridership (AVR) by 2020 for City employees.

Goal Progress

The City surpassed its fuel goal. Traditional fuel use is down by 7.2%. However, it has not reached its AVR goal.⁵ AVR represents the ratio of employees to vehicles arriving at a work site. Higher AVR scores indicate that more employees are using transportation options other than driving their own car, such as cycling, walking, riding the bus, or carpooling.

Opportunities/Recommendations

Opportunity: The City should increase number of connections between electric vehicle stations and the grid.

Recommendation: Best practices include taking advantage of street excavations, parking garage construction, or other opportunities to pre-install electric conduit for later interconnections.

Opportunity: Many leading sustainability cities include emissions from employees commutes in their carbon inventories. Larimer County is piloting an aggressive Telework Program.

Recommendation: Expand municipal carbon emission inventory to include commuter emissions and consider expanded telework program.

Recent City and Community Activities

- Installed electric vehicle charging stations at City Hall.
- The Bike Library now has 8,000 members.
- A short lecture about the Smart Car and electric vehicles was given at the Sustainable Living Fair. Over 50 residents were given transportation information.

Data Analysis

Fuel

The City has surpassed its alternative fuel use goal of "reducing traditional fuel use by the City's fleet by 20% by 2020, mainly due to the conversion of buses to compressed natural gas (CNG) and the use of biofuels, which are a less carbon-intensive fuel type. In 2005, the City

used 2% alternative fuel. Today approximately 9% of usage is alternative fuel (i.e. biodiesel, CNG, propane, and E-85). Alternative fuel use yielded approximately 160 MT CO₂e reduction.

Vehicles and Travel

The City fleet includes 566 alternative fuel vehicles: 65 E-85, 12 hybrid cars; six electric utility vehicles; 13 CNG buses, and one solar arrow board.

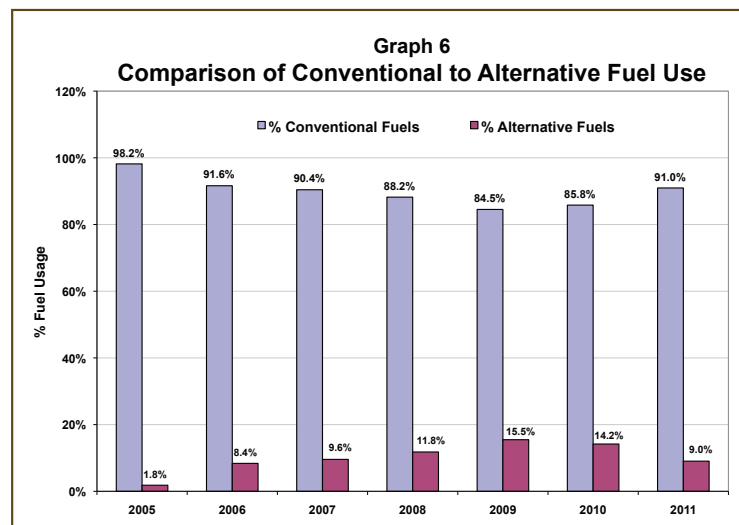
Employee travel using personal vehicles has decreased from 133,553 to 100,591 vehicle miles travelled, while airline travel has increased from 11,134 to 352,348.

Average Vehicle Ridership

In September 2011 a survey was sent to City employees to gather baseline data regarding AVR.

The City did not meet its AVR goal of 1.5. Survey results indicate a 1.06 AVR.

Goal #3 Fuel Reduction



Electric vehicle plug-in stations.



Goal #4 Solid Waste Reduction



Goal

Reduce solid waste generated by 50% of overall waste stream by 2012 and 80% by 2020. Interim goals will be set to reduce overall waste volume.

Goal Progress

The overall diversion goal of 50% has been met.⁶ Office diversion is 18% and total diversion is 78%.

Opportunities/Recommendations

Opportunity: NoCo Rebuilding Network and staff have met to discuss partnerships to provide resources that make sustainable rebuilding accessible after natural disasters such as wildfires to reduce waste and re-use material.

Recommendation: Expand the initial Climate Adaptation Planning to include areas beyond water and energy planning such as food production and pedestrian oriented development. Several City employees are interested in being part of a Task Force to address adaptation strategies.

Recent City and Community Activities

- City piloted two commercial collection composting projects that yielded a 2 MT CO₂e reduction. Composting reduces the methane that is a by product of organic decay in landfills.

- Recreation eliminated paper schedules which yielded a 84 MT CO₂e reduction and savings of \$17,000 annually.
- Water Treatment Plant is piloting a soil project using a Trommel screen to sort excavated soil and reuse the material.
- Streets staff processed approximately 10.5 tons of woody debris after the 2011 fall storms. Limbs were ground into free mulch for residents. Mulching leads to lower water use.
- Recycled 128 tons of bricks, 16,181 tons of concrete, and 66,844 tons of asphalt.
- Streets recycled our used street sweeping brooms for animal backscratchers at zoos.
- Fort Collins Housing Authority and Operations Services started working with Paint Genius, a company in Denver that recycles latex paint into new paint. The building on the northwest corner of Maple and Howes was painted with the recycled paint.
- After a fire sprinkler broke at Aztlan, staff was able to reuse most of the flooring, increasing our diversion rate.
- Parks has expanded the use of Big Belly units throughout the community.
- Environmental Service Department staff continues to provide zero waste eco-stations and signage at City and community events to educate about sustainable practices and encourage behavior change.
- The City purchased a second Earth Tub and placed it at the Cramer building work area.
- The Earth Dazed and Confused event collected used clothing and electronic waste for recycling on Earth Day.



Streets cleaning up after the fall storms.

Brick recycling at Creamery deconstruction project.

Data Analysis

- City departments with the highest diversion rates in 2011 include: PFA Station 1; Parks; and the Water Pollution Lab. The City recycled 1,700 tons of office material, which is the equivalent of 28,900 trees and enough water to fill City Park Pool 21 times.
- The office diversion is approximately 57% and the overall diversion including asphalt, metal, and trees is 78%.

Recycling Co-benefits for Fort Collins⁹

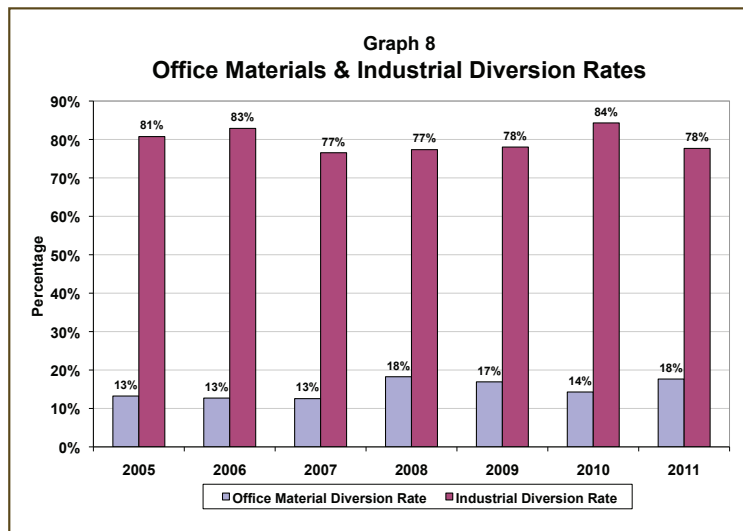
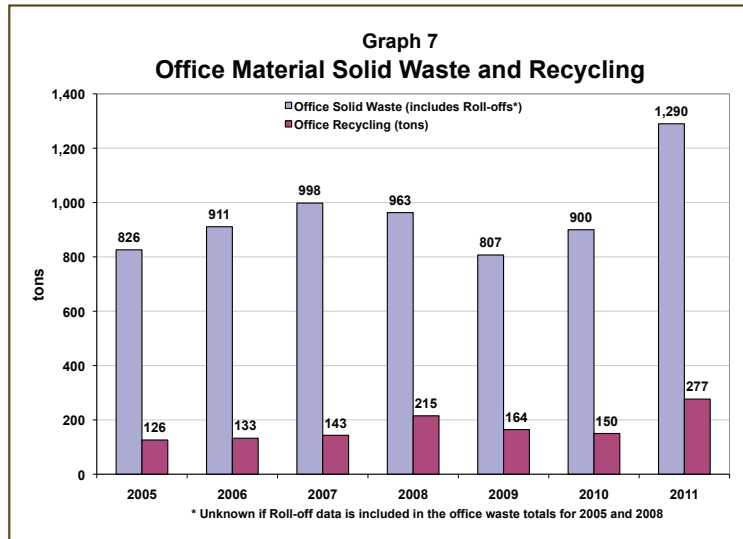
In 2011 we recycled 277 tons of aluminum, cardboard/paper, scrap metals, plastics, and glass from office waste.

These recycling efforts conserved the equivalent of the following resources:

- 4,539 mature trees;
 - Representing enough saved timber resources to produce more than 3,958 sheets of newspaper!
- 801 cubic yards of landfill airspace;
 - Representing enough airspace to fulfill the municipal waste disposal needs for 136 people for one year!
- 1,007,124 kWh of electricity from recycling;
 - Enough power to fulfill the annual electricity needs of more than nine homes!
- 4,591 barrels of oil; and
 - Representing enough energy to heat and cool more than 12 homes for one year!
- 18,690,000 gallons of water.
 - Representing enough water to fill City Park Pool 33 times.

Paper Use

The City used 96,213 lbs. (48 tons) of copy paper, which is an estimated equivalent of 1,077 trees. The total life cycle CO₂e associated with this paper was approximately 271,663 lbs. CO₂e. Every 12 cases of virgin paper requires eight trees. A case of paper weighs 200 lbs.



Electronic waste recycling.

Goal #5 Education and Outreach



Goal

Information about the municipal sustainability program will be available to all levels of the community — students in grades K-20 and university, the general public, and internal customers.

Goal Progress

The City reached its goal to promote lasting behavior change within targeted communities.



Energy harvesting bike used in the Give A Watt: Pedal It Forward event.

STEM research project on the bark beetle impact



Opportunities/Recommendations

Opportunity: Leading cities spend substantial resources on education and “climate change” awareness for employees and community members.

Recommendation: Increase employee and public awareness about community and municipal progress, and engage more residents and businesses in Challenge activities.

Recent City and Community Activities

- In conjunction with ClimateWise partners and CSU the City hosted Give A Watt: Pedal It Forward event. Over 500 people tried the new energy harvesting bikes which were powering computers that displayed energy-saving tips. The additional energy generated was tracked and donated to the Fort Collins Bike Coop and Bicycle Pedestrian Education Coalition. The event was the kick-off for a month-long Transportation Challenge. Participants had the choice of trying 10 different alternative transportation activities. ClimateWise partners and staff presented a seminar about alternative transportation to community members and students at CSU.
- Served as a model assisting Larimer County with an 8-week energy challenge at West Oak Street facility, saved 7,163 kWh (i.e., 5.2% savings).
- Over 1,000 residents, employees, and ClimateWise businesses attended the “Mindful Movies and More” series, as well as training about Peer City Comparisons, Triple Bottom Line Training, Communicating About Climate Change, Corporate Responsibility, and Adaptation Strategies. The City presented the following films: *Crude*; *Who Killed the Electric Car*; *Vanishing of the Bees*; *Wasteland*; *Food Fight*; *The Economy of Happiness*; *Food Inc.*; *Carbon Nation*; and *A Sea Change*. All films are followed by a discussion of local City programs. These films are available to City employees through the Sustainability library.
- Assisted in the implementation of an education project to install rain gauges in every PSD school.
- The City is collaborating on a STEM research project on the bark beetle impact.
- Gardens were implemented again at five affordable housing units. The program was expanded to include the single resident occupancy housing units (SRO). SROs were provided with supplies and information about

gardening. These residents are in treatment for mental illness and substance abuse. All plant materials were donated, and Environmental Service Department (ESD) staff donated their time for this project.

- “Creating a Resilient Community” and “Home Angler” seminars were hosted as part of the Residential Environmental Program series. Attendance for the events was 63 and 30 participants respectively. There were 499 attendees at the eight programs.
- Sustainability Scholarships for training were awarded to 27 applicants from six departments. Training topics include: Energy Management; LEED Certifications; Pesticide Application; Organizational Change; Colorado River Basin Law; and Alternative Energy Resources. Recipients are required to present a short overview of the information to the Sustainability Team or their respective departments.
- *Sustainability Projects That Zoom and Breathe Easy* videos were produced and posted on the City website at citynet.fcgov.com/sustainability.
- Numerous interviews with Paul Wozniak of TRI 102.5 were conducted in the areas of Healthy Homes, Recycling, Air Quality, Green Bike Tour, and Sustainability.
- Healthy Sustainable Homes (HSH) program launched at the Sustainable Living Fair. HSH is a free, volunteer-driven program to help families improve their indoor air quality.
- Climate Action Updates and Municipal Sustainability Program Updates were given to several of the Advisory Boards.
- Master Naturalists and Environmental Service Department staff hosted 16 public programs, led 12 school programs reaching 1,384 residents, and hosted booths at the Wild Shots (i.e., exhibit of wildlife photos), Northern Colorado Birding, and Grow With Me fairs.
- Staff at the Gardens at Spring Creek hosted gardening networking meetings and outreach to Affordable Housing residents. The Garden also matches contractors from the Landscape Contractors of Colorado Association with local residents and businesses that need technical assistance.
- Natural Areas staff hosted five classes on native plant identification and published a newsletter for the Colorado Native Plant Society.
- Utilities conducted energy conservation seminars with 2,758 students and 197 adults, water quality

training as part of our National Pollution Discharge Elimination System permit requirement with 6,829 students and 137 adults, water conservation programs with 1,470 children and 59 adults, and stormwater outreach to 55 businesses.

Web Links

City and Scholarship Program:
citynet.fcgov.com/sustainability

ClimateWise: fcgov.com/climatewise

Healthy Sustainable Homes:
fcgov.com/healthyhomes

Green Building: fcgov.com/greenbuilding

Global Reporting Initiative:
fcgov.com/utilities/gri.php

Sustainability videos:
fcgov.com/airquality
youtube.com/watch?v=hGFR12E6ujE



Water conservation at Bauder Elementary School.

Envirovation Fair.



Goal #6 Funding



Goal

In addition to reporting on annual carbon inventory, cost savings that directly result from energy and waste conservation will be tracked, and possibly deposited into a Sustainability account to invest in appropriate projects.

Goal Progress

Staff is tracking annual savings (see Game-Changing Projects on page 4).

Opportunities/Recommendations

Opportunity: City staff or consultants should research grant opportunities and leading international standards to spearhead world class change.

Recommendation: Investigate RMI's RetroFit for commercial buildings, Better Building Challenge, and the Passivhaus approach for load management.



Recent City and Community Activities

- Natural Areas awarded five applicants with funds from the \$15,000 available in 2011: Avago Technologies received \$2,000 for a newly certified area with native trees and shrubs; Fossil Creek Meadows HOA received \$6,900 for Russian olive removal; Lindenmeier HOA received \$600 for a restoration project at Lindenmeier Lake; Ridgewood Hills Master Community Association received \$2,000 for native trees and shrubs to begin enhancing their Raptor Corridor Natural Area; and the Rolland Moore West Neighborhood Network received \$3,500 to increase native plant diversity within a created storm water wetland on Ross Natural Area.
- Community AIR (CAIR) micro grants were issued to nine non-profits. Projects included bicycles for students to ride to field trip and labs, converting an HOA volleyball court into a neighborhood garden space, distribution of monthly bus passes, and a solar-powered generator trailer.

Data Analysis

The Innovation Fund Committee evaluated and awarded funds to sustainability projects based on several criteria including the return on investments.

In 2011 five projects were proposed and the Team selected three projects:

- Expansion of the solar thermal at EPIC to add 24 collector panels (\$40,000);
- Energy efficiency retrofits at Collindale Clubhouse (lighting, HVAC controls, insulation) (\$47,000); and
- Lighting updates for the Senior Center Parking lot (\$19,920).

The three projects, when fully implemented, are estimated to reduce 96 metric tons of carbon dioxide emissions/year, save over \$13,000/year in utility and maintenance costs, and deliver at least a 12% return on investment.

In late 2011, the Sustainability Team solicited ideas from across the organization and selected eight, ranging from building efficiency improvements and solar panels for electric carts at South Ridge Golf Course to installing photovoltaics at Nix Farmhouse.

Web Links

fcgov.com/citynet/innovation

Goal

Achieve a 30% forest canopy density in suitable areas of City Parks by 2020, and maintain 70% of native vegetative cover goal in Natural Areas.

Goal Progress

The City has met the 30% tree canopy in suitable areas and native vegetation cover goals.

Opportunities/Recommendations

Recent City and Community Activities

- Staff built a playground out of natural materials to promote imaginative play. Natural features in Willow Branch Tunnel, stepping stumps, climbing ladders, a rock stream bed, rock walls, and a canoe carved from a Silver Maple.
- Maintained Audubon Sanctuary status at five parks.

Playground out of natural materials at Gateway Natural Area.



Data Analysis

Staff continues to maintain and restore designated areas.

Funds from the Sustainability Budget were provided to Forestry to complete an inventory of street trees.

Web Link

www.fcgov.com/natural_areas

Goal #7 Parks/ Natural Areas



Gardens of Spring Creek expansion.



Goal #8 Water

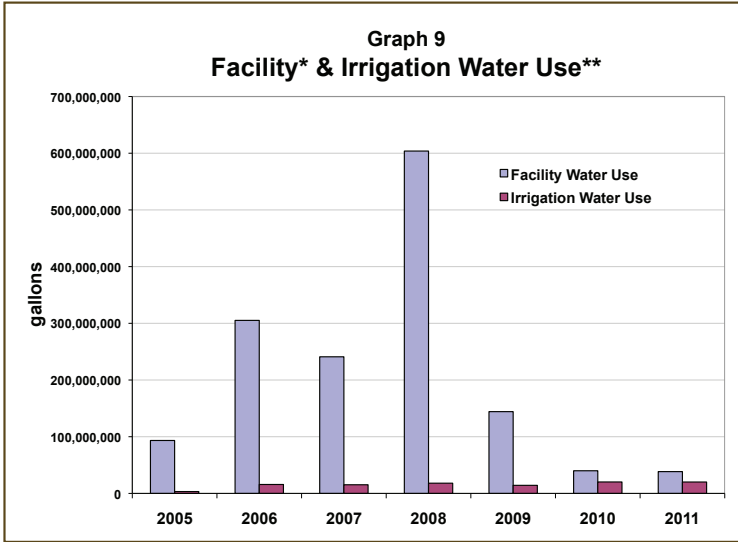


Goal

Reduce municipal operations water irrigation use and increase efficiency per acre. Reduce building water use (normalized to account for weather conditions), 20% by 2020.

Goal Progress

The City reached the indoor water use reduction goal.



* These data represent a maximum of 75 of the City's largest facilities
 **Does not include irrigation water for Parks, Golf Courses, or Cemeteries

Opportunities/Recommendations

- Conduct water audits at 215 N Mason, 281 N. College, Senior Center, and Operation Services.
- Modify water schedules to match turf needs.
- Install self-closing nozzles on wash down hoses.
- Invest in more energy efficient pumps and use low-application MP rotators on slopes.

Recent City and Community Activities

- A preliminary water analysis was initiated to assess the discrepancies in water data from the various databases.
- ClimateWise piloted a new business reporting system for energy and water using the Carbon City database. Partners included: Gallegos Sanitation; The Rio Grande Mexican Restaurant and World Headquarters Offices; Hewlett Packard; Platte River Power Authority; Trebuchet Group; Sign-A-Rama, Fort Collins; Waterpik; Public Service Credit Union; USDA; Poudre Valley Hospital; Brinkman Partners; Fort Collins Veterinary Emergency Hospital; Houska Automotive; and Beavers Market. Challenges included accessing data on leased property.
- Piloted the Carbon City database for energy and water use at City buildings.

Data Analysis

Water use in buildings is down by 3.8% since 2010.

Solar Farm Water Treatment Plant.



Water Festival at CSU.



Goal

Implement environmentally preferable purchasing (EPP) practices throughout the City organization and establish means to verify departments' compliance with purchasing policy.

Goal Progress

The City contracted an EPP Analysis Study through the Green Purchasing Institute.

Opportunities/Recommendations

In conjunctions with departments, increase Green Office practices such as: update the EPP policies; explore products which lend themselves to standardization; create a tracking and reporting tool and an effective way to communicate our successes; enhance the website to include greener alternative recommendations of top five office products and preferred vendor contact information; update Green Building Standards; increase use of recycled or remanufactured toner cartridges; reduce printed material; use of 30% post-consumer waste recycled content paper; assist other departments and groups with strategies recommended in audit such as scanner purchases; and increase consciousness of sustainability practices by including sustainability in processes, manuals, procedures and training as updates occur such as CPIM, Purchasing 101, and TBL seminars.

Recent City and Community Activities

- Purchasing helped facilitate donation of three surplus desks from Operations Services to Crossroads Safe House.
- Purchasing helped Police Evidence donate lost/found/abandoned cell phones to Crossroads Safe House.
- Purchasing helped Lincoln Center re-purpose surplus dishes and glassware to other City departments. The remainder was donated to the Fort Collins Housing Authority.
- Purchasing helped Advanced Planning donate surplus office supplies to Poudre School District Teachers' Closet.
- Purchasing helped Police Evidence donate surplus backpacks and jackets to the Murphy Center.

Data Analysis

- The City Warehouse had the highest dollar percentage of EPP goods (19%), followed by Water Treatment Facility (11%), and Drake Wastewater Facility (8%). However, the overall rate was only 6%. Categories that included the least amount of sustainable purchasing were cleaning and breakroom supplies, technology, furniture, and labels.
- The City purchased \$374,327 in office supplies:
 - 32% was spent on recycled/remanufactured products and 3% on products with other green attributes (i.e., designed for recyclability, renewably powered, etc.).
 - \$132,026 of the \$374,327 met Office Depot Greener Office ratings.⁷
- Purchasing procured green products of road construction and maintenance material (such as recycled aggregate), traffic signal lighting, demolition services, vehicles, and other supplies.
- Purchases of computers met the Electronic Product Environmental Assessment Tool (EPEAT) goal standard.

Web Link

www.citynet/fcgov.com/purchasing

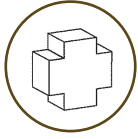
Green Purchasing examples.



Goal #9 Environmentally Preferable Purchasing



Goal #10 Employee Safety and Health



Goal

Incorporate a City-wide program fostering a culture of health and safety. Increase the number of employees that participate in the Well Day Program from 45% to 75% by 2020 (2% annually). Lower accident frequency and severity.

Opportunities/Recommendations

- Increase the percentage of employees participating in the annual Mayo Clinic Health Assessment by 5% annually.
- Decrease the annual percentage of employees, each year, who are identified in the health assessment as having five or more health risk factors by 5% annually. Based on the 2012 Mayo Clinic Assessment, our top risk factors are:
 - Nutrition 74%
 - Safety 6%
 - Weight 57%
 - Emotional 57%
 - Blood pressure 49%
- Continue to host the Well Day Program for all employees.
- Coordinate Wellness, Sustainability, and Utilities for the 21st Century program activities.
- Track recordable accident frequency, total injury costs incurred, days worked, modified duty, and days lost.
- As an organization, we need to make the connections between our strategies. For example, efficiency not only has a high return on investment, but reduces health issues.

Recent City and Community Activities

- The Sustainability Team partnered with ReMax Realtors to help distribute information about the new Healthy Sustainable Homes Program (HSHP).
- Sixteen volunteers from the HSHP completed 20 hours of training to conduct home assessments in the community as part of their commitment. Twenty trainers were recruited to conduct the referral efforts are currently underway targeting homes of asthmatic children and senior populations.
- The Educational Task Force is coordinating efforts of the Wellness Committee, Safety Committee, Sustainability Team and four

Utilities for the 21st Century Teams. The Wellness and Sustainability Teams have coordinated Talent and Reward Training seminars and the identification of sustainable activities that qualify for Well Days points (i.e., gardening, CSA shares, etc.).

- Utilities' One Planet Wellness Program accomplishments were: hosting tours of Meadow Springs Ranch and Rawhide; commitments by 25 employees to turning off their monitors and CPUs at the end of every work day; participation by 50 employees in the Cultural Values Assessment Workshops; and 15 employees biked to work 10 times.
- Over 700 employees registered for the Well Day Program, and 422 earned their second Well Day vacation day.
- Environmental Service Department (ESD) staff made non-toxic garden, lawn, and house sprays for City employees who were winners in the Alternative Transportation Challenge drawing.

Data Analysis

- As part of Climate Wise requirements, several employee Challenges were conducted to increase the health of employees, citizens, and businesses.
- 433 employees earned a third Well Day vacation day through active behavior and training.
- Participation in the Well Days Program continues to increase and events are expanded each year.
- HAZMAT team was re-certified to technician level.
- Natural Areas had the highest participation rate for Bike-to-Work Day, Operation Services had the highest mileage count, and IT was the "most improved" department.
- 155 employees participated in the summer Bike-to-Work Day and 148 in the winter event. The City hosted a zero-waste station at these events.
- 1,069 pounds of food and \$12,700 were donated by staff at the Holiday Food Drive to the Food Bank.
- ESD staff published a comprehensive list of Community Supported Agriculture and, in collaboration with Garden on Spring Creek, a Garden Resource list.

Web Link

[citynet/fcgov.com/well days](http://citynet/fcgov.com/well%20days)

Innovation and Imagination

- ClimateWise partners, City staff, and Larimer and Adams County employees participated in the inaugural Green Brick Bike Tour, which showcase some of the innovative projects that helped the Fort Collins municipality reduce its carbon emissions by 7%.
- Operation Services installed a new high-efficiency, low maintenance water filter at the Mulberry Pool, saving approximately 20% more water. The filters and boiler were eligible for \$15,200 in rebates.
- ClimateWise designed the new Social Sustainability Superstars Program to further address the social impact of each organization and strengthen the community. Lead partners include: ReSource; Toolbox Creative; City of Fort Collins; Food Coop; Colorado Marathon; New Belgium; and Trees, Water & People. The Corporate Social Responsibility (CSR) Committee has drafted a reporting template, conducted a business survey, and provided trainings to interested business members.

In addition to priority goals, the City monitors progress of key indicators. These indicators align with indicators used by other organizations, such as Environmental Protection Agency and International Council for Local Environmental Initiatives.

Indicators	Improving	Declining	Neutral	Insufficient Data
Carbon Emission	X			
Electricity Use	X			
Natural Gas Use		X		
% of Renewable Purchased by City	X			
# of LEED Employees	X			
% of LED Traffic Lights	X			
% of LEED Buildings	X			
Energy Consumption Related to Water Use		X		
Alternative Fuel Use	X			
Average Vehicle Ridership			X	
% of Hybrid Vehicles in Fleet	X			
Recycled Tonnage	X			
Solid Waste Tonnage		X		
Solid Waste Diversion Rates		X		
Sustainability Scholarships Awarded			X	
% of Forest Canopy			X	
% of Native Plantings	X			
Adherence to EPP Policies				X
Well Day Participation	X			

Action Highlights

Measurable Indicators

I received the Xcel chart of numbers you said to cut and paste into this chart. I can't tell what #'s go with what.

Forecast and Milestones

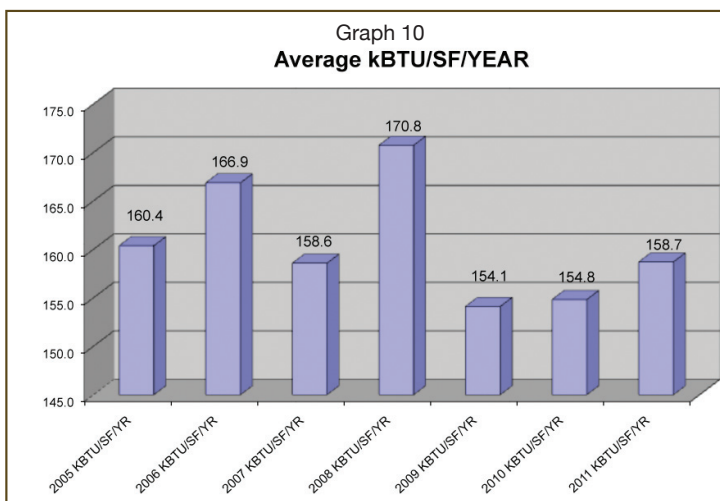
In the coming year, the City will introduce an organizational transformation through integration of existing departments, Environmental Services and Economic Health, with a new department, Social Sustainability, to form the Sustainability Services area. The new office will act as a resource to assist other departments in supporting the municipality's sustainability goals and co-creating culture of sustainability. A comprehensive implementation grid (Work Plan) for 2012-2013 is available at fcgov/citynet/sustainability.

Based on current trends, the City organization is meeting its goals for carbon reduction, fuel, diversion, tree canopy, natural areas protection, and outreach. Areas that will require additional staff and funding include water, purchasing, safety, and energy use. Given the recent recommendations of leading scientists and local climate impacts such as record-breaking wildfires and temperatures, the Sustainability Team is recommending adding the following additional goals:

- City Operations will purchase or lease 20% of electricity from renewable sources by 2020.
- 20% of food purchases by City staff will be grown within 50 miles or prepared by a local businesses.
- City buildings will achieve a 10% sq. ft./year energy reduction based on the baseline 2005 by 2020.
- Achieve a 20% EPP rate for all office and industrial products by 2012.

City Operations has decreased the average KBTU averages (see Graph 11 on page 23). However, the proposed goal would include targets for each building to raise awareness about behavior effects on energy use.

The Sustainability Team recommends engaging in the Better Building Challenge, which sets a goal of 20% reduction in "energy intensity" by 2020. Over 100 leading cities participate in the Better Building Challenge, including Arvada, Santa Fe, Knoxville, Roanoke, Portland, and PSD Public Schools. Other cities such as Austin, Washington D.C., New York, Seattle, Philadelphia, and San Francisco are supporting Energy Rating Disclosure.



Additional outreach and education through community-based social marketing is planned based on the outcomes of the 2011 Fort Collins Citizen's Survey. Results showed that 9 out of 10 think individuals could make choices to reduce climate change and that government should encourage voluntary programs to enable individuals and businesses to reduce climate change impacts. Few survey participants thought technology would solve the problem of climate change and most did not know about the City's or community's carbon goals.

The 2004 Annual Sustainability Plan and corresponding 2009 numerical goals will be reviewed for possible changes. A building energy reduction goal is being considered.

The Sustainability and Innovation Teams' research aims at moving from mile-wide initiatives that are an inch-deep to more long-term strategic initiatives, concentrating on energy efficiency and re-commissioning because cities consume more than two-thirds of the world's energy and account for 70% of CO₂e emissions. As the American Recovery and Reinvestment Act grants near completion, staff will continue to explore alternative financing mechanisms such as Power Purchase Agreements, state rebates, and leveraging local resources. The California Public Utility Commission approved a tariff pilot for network controlled dimmable street lights. It is the first of its kind in the nation and could be replicated in Fort Collins.

Top ranked budget fund offers by the Sustainability Team include:

- Community Renewables / Small-scale Solar Incentives
- ENHANCEMENT: Community Renewables/Fort Collins Solar Program
- ENHANCEMENT: Community Renewables/Community Solar Garden
- ENHANCEMENT: Utilities Water Conservation - Landscape Transform to Xeriscape
- ClimateWise
- KFCG: Innovation Fund
- KFCG: Climate Wise Enhancement - Commuter Choices
- Environmental Services Staffing and Programs Core Offer
- Green Building/Building Energy Performance
- ENHANCEMENT: FortZED Engagement and Administration

Numerous budget fund offers have been submitted for the 2013-2014 funding cycle. Top ranked projects by citizens include: community renewal small-scale incentives; ClimateWise; water conservation; and FortZED Grant development.

The following funded projects were submitted to the Innovation Team:

- Southridge Golf Efficiencies (\$9,168)
- Traffic Operations — Outdoor Lighting (\$11,160)
- City Department Bikes and Gear (\$3,900)
- Tire Pressure Monitors (\$750)
- Consolidate Leftover Office Supplies (\$0)
- PV on NIX (\$30,000)
- TomTom GPS for Route Optimization (\$900)
- Inventory City Trees (\$7,500)
- Paint 215 N. Mason Stairwells (\$2,500)
- Flat Screen TV in 215 N. Mason Lobby (\$6,000)
- NIX Outdoor Lighting (\$5,650)
- Battery Chain saws — Add Dual Battery Packs (\$1,700)
- Collindale II — Electric Cart Storage (\$20,000)
- Extra Cost for Door Counter for "Paint 215 N. Mason Stairwell" (\$1,700)TAL

2011 Municipal

GHG Report

Scope 1- Direct GHG Emission

* conventional fuel only

GHG Source	Quantity Used		Cost	Metric tons of CO2e
Fleet- Gasoline Consumption	336,111	gallons	\$0	2,951.05
Fleet- LPG Consumption	7,746	gallons	\$0	44.85
Fleet- CNG Consumption	111,233	gallons	\$0	760.85
Fleet- Diesel Consumption	5,199	gallons	\$0	53.08
	<i>Biogenic</i>	<i>Conventional</i>		
Fleet- E85	43,279	7,638 gallons	\$0	67.06*
Fleet- B10	30,820	277,382 gallons	\$0	2,832.07*
Fleet- B15	0	0 gallons	\$0	0.00*
Fleet- B20	0	0 gallons	\$0	0.00*
Scope 1 Transportation Subtotal		745,308 gallons	\$0	6,708.97
Facilities Natural Gas Consumption	121,038	dTh	\$613,654	6,553.71
Water-related Natural Gas Consumption	24,917	dTh	\$0	1,349.17
Scope 1 Natural Gas Subtotal		145,955 dTh	\$613,654	7,902.88
Scope 1 Subtotal			\$613,654	14,611.85

Scope 2- Energy Indirect GHG Emission

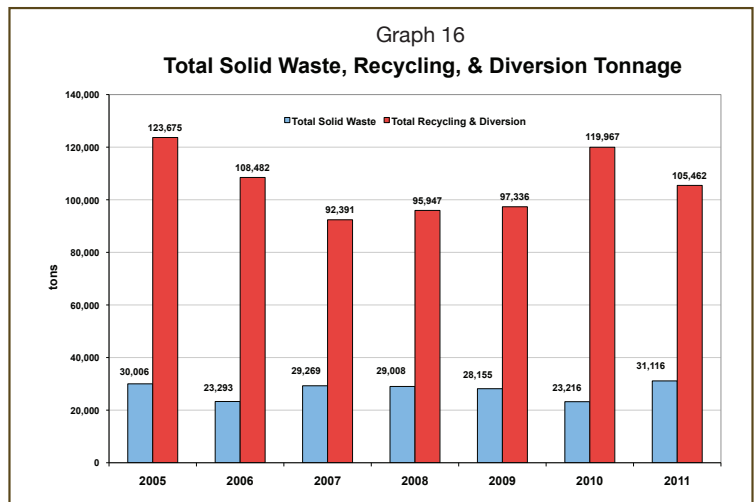
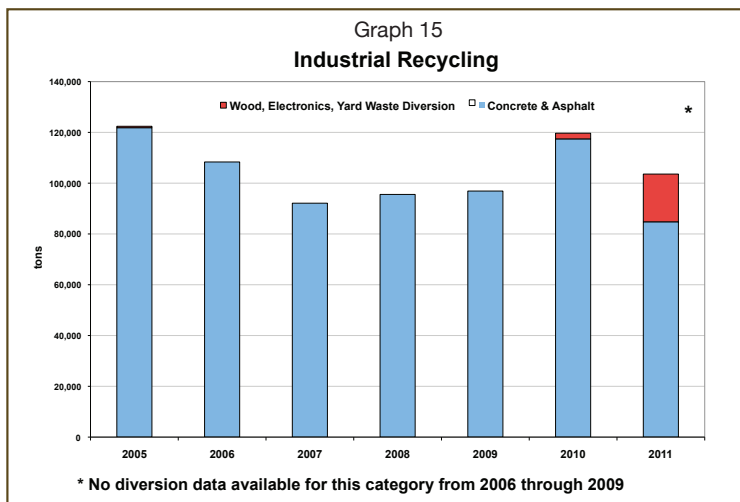
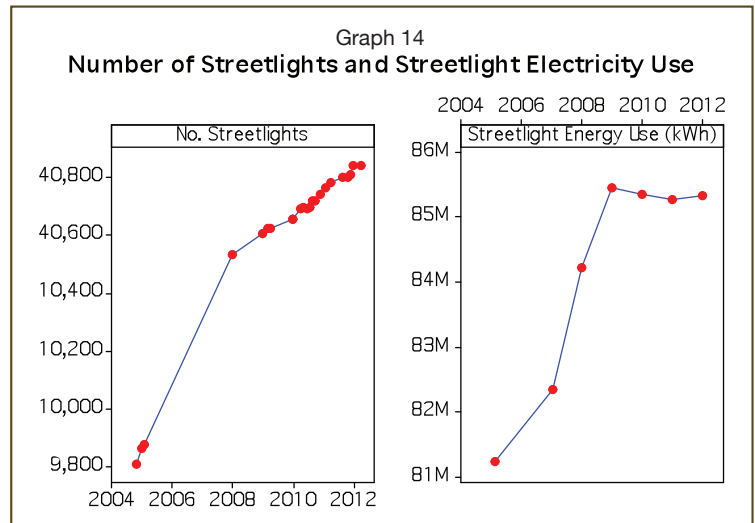
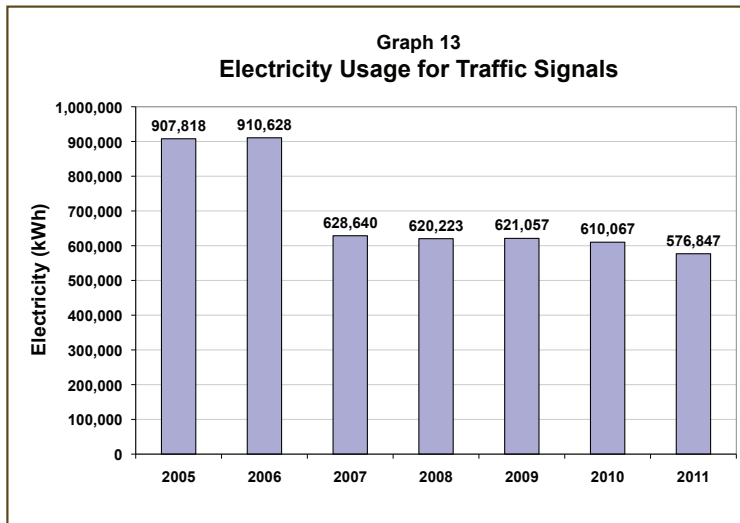
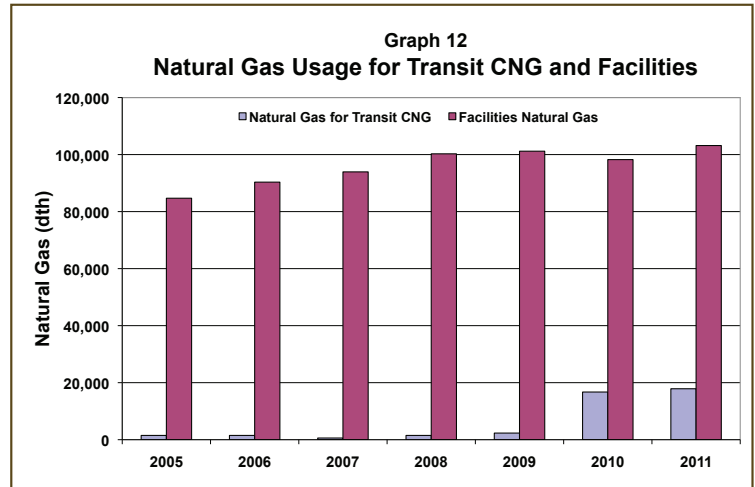
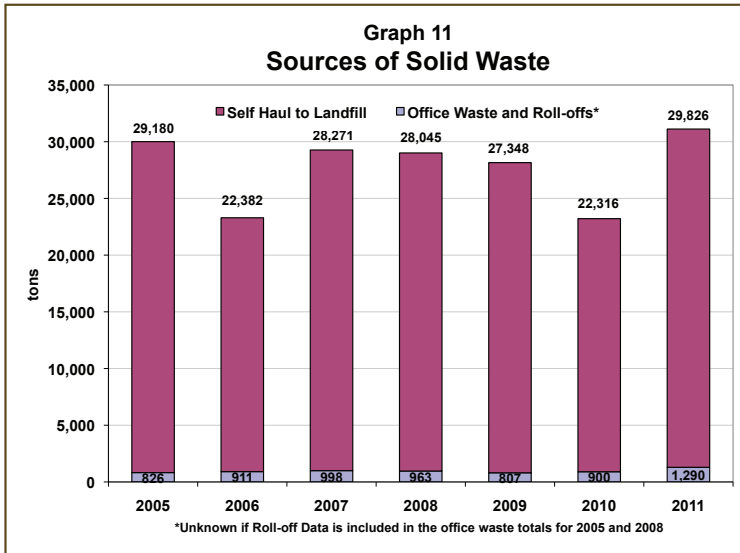
GHG Source	Quantity Used		Cost	Metric tons of CO2e
Facilities Electrical Consumption	15,703,133	kWh	\$546,669	10,613.12
Water-related Electrical Consumption	16,125,526	kWh	\$0	10,898.60
Streetlight Electrical Consumption	8,532,694	kWh	\$0	5,766.91
Traffic Signal Electrical Consumption	576,847	kWh	\$0	389.87
"Other" Electrical Consumption	1,893,785	kWh	\$0	1,279.93
Scope 2 Subtotal		42,831,985 kWh	\$546,669	28,948.43

Scope 3- Other Indirect GHG Emissions

GHG Source	Quantity Used		Cost	Metric tons of CO2e
Travel in Personal Vehicle (Reimbursed)	100,591	miles	\$53,367	49.90
Air Travel (Reimbursed)	352,348	miles	\$54,902	111.66
Landfilled Waste from Municipal Facilities	31,116.04	tons	-	19,305.84
Scope 3 Subtotal			\$108,269	19,467.40

Total Metric Tons of CO2e:

63,027.67



Endnotes/ Methodology

- ¹ For information on methodology, please refer to Quality Management Plan at www.citynet/sustainability.
- ² Lovins, A. (2011), Reinventing Fire
- ³ Ibid.
- ⁴ The City added two new facilities to the Utility Manager database (the Science Discovery Museum and Webster House Administration Center). This results in increases in electricity, natural gas, water, sewer, and solid waste. The new electricity emission factor (EF) is 1,610 lbs./MWH (based on PRPA Operational Control EF). Added the following new utilities data for Natural Areas: natural gas (Xcel Energy); electricity (PVREA); and water (ELCO and Fort Collins-Loveland Water Districts).
- ⁵ The change in alternative fuel percentages can be explained by a change in methodology to only account for the fraction of a blended alternative fuel that is actually a biofuel.
- ⁶ Accounting for solid waste from City Operations now includes industrial categories of waste from self-haul data from departments to the Larimer County Landfill. Accounting for waste diversion and recycling now includes industrial categories of materials: scrap metal; crushed concrete, recycled asphalt, and rock road base sent to the City's Crushing Facility; wood mulching from City departments; re-purposed glass (made into fiberglass); recycled carpet scraps; and construction and demolition material from the old Poudre Creamery building. Office solid waste (and roll-offs) were picked up by Waste Management, Inc. for at least 7 months in 2010 and all of 2011. An average tonnage was used for the remaining 5 months in 2010.
- ⁷ Sources: U.S. Environmental Protection Agency, International Aluminum Institute, National Association for PET Container Resources, Institute of Scrap Recycling Industries, Earth Works Group Recycler's Handbook, One Earth Recycle, Bring Recycling.org, National Recycling Coalition, U.S. Forst Products Laboratory, Wheelabrator Technologies and Waste.
- ⁸ GEMS: electricity 1 kilowat = 1 lb. coal = 1 therm natural gas = 12 lbs. CO₂e; 1 gal. gas = 22 lbs. CO₂e.
- ⁹ Fort Collins' goals were compared to C-40 cities. C-40 cities are a group of cities that have voluntarily agreed to disclose carbon emissions and climate change strategies.



Special thanks to all the staff that supported sustainability efforts:

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City Leadership

Darin Atteberry, City Manager

Karen Weitkunat, Mayor

Kelly Ohlson, Mayor Pro Tem, District 5

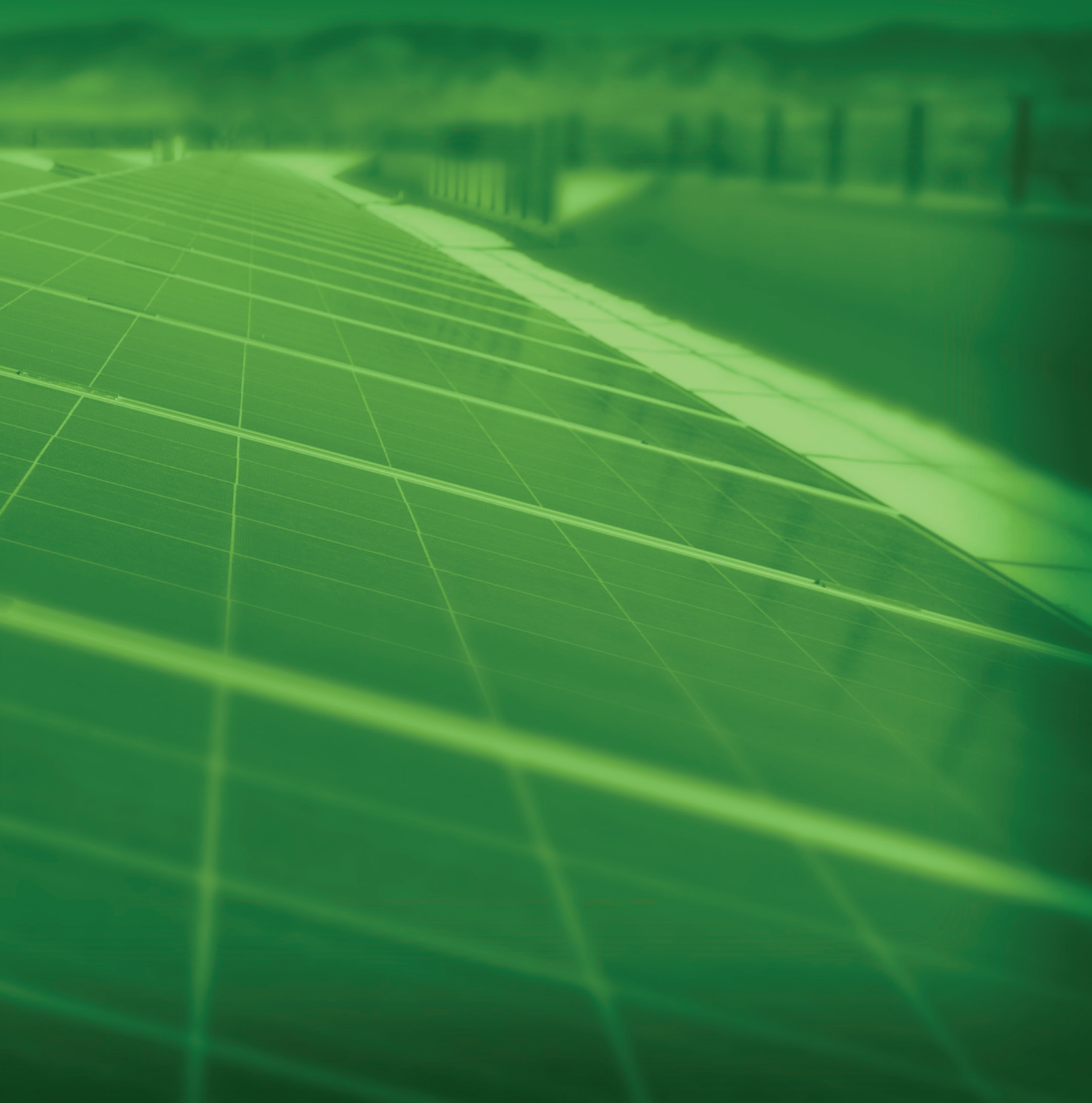
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Aislinn Kottwitz, District 3

Wade Troxell, District 4





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