Energy Policy – 2014 Annual Update

June 2015

City of Fort Collins Utilities

Energy Policy Update

This report provides an update of 2014 activities and results related to the City of Fort Collins *Energy Policy*, adopted in January 2009. The primary goals of the *Energy Policy* are to sustain high-system reliability and to contribute to the community's climate protection goals and economic health. The *Energy Policy* 2050 vision is to ensure highly reliable, competitive, carbon neutral electricity supplies, managed in a sustainable, innovative, responsible and efficient manner for the Fort Collins community.

The *Energy Policy Annual Update* reviews progress made to date in the primary goal areas of the policy: reliability, climate protection, economic health and the City's collaboration with Platte River Power Authority (Platte River). The *Energy Policy* and most recent annual update are available at *fcgov.com/utilities/what-we-do.*

Key outcomes from implementation of the *Energy Policy* in 2014 include:

- Community carbon emissions from electricity use were 6.6% less in 2014 compared to the baseline year of 2005.
- Electricity use per capita, for all sectors, has decreased by over 13% from 2005 to 2014.
- Customers continued to receive highly reliable electric service, as measured by an average system availability index of 99.9951%.
- Avoided annual carbon emissions of over 245,000 metric tons from *Energy Policy* related programs.
- Non-carbon resources provided 24.7% of electricity (18.3% from hydro, 6.2% from wind and 0.2% from solar).
- Fort Collins has already met the 2015 requirements of the Colorado Renewable Energy Standard of a minimum of 6% renewable energy.
- Efficiency programs generated over $27 million in local economic benefits through reduced utility bills, direct rebates and leveraged investment.

Major 2014 activities and highlights:

- Utilities continued implementation of the Advanced Meter Fort Collins project to modernize the distribution system.
- Customer electricity savings from efficiency programs totaled over 32,600 megawatt-hours (MWh), or 2.2% of the community's annual usage. This is equivalent to the annual electric use of over 3,600 typical Fort Collins homes.
- Efficiency programs saved electricity with a lifecycle cost-of-conserved energy of 2.2 cents per kilowatt-hour (kWh), compared to an average wholesale electricity cost of 5.4 cents per kWh.
- The Peak Partners demand response program began with the deployment of 160 wi-fi thermostats in summer 2014. Peak Partners is expected to deploy over 2,500 thermostats and 2,800 water heater controllers by the end of 2016.
- Photovoltaic (PV) capacity additions totaled 958 kW (620 kW residential and 338 kW commercial). Total solar capacity at the end of 2014 was 2,625 kilowatts.
- Fort Collins Solar Power Purchase Program (SP3) projects began to come on line in 2014 and will continue into 2015.
- The Riverside Community Solar Project moved forward in 2014 with construction expected in the second quarter of 2015.

- Fort Collins Utilities, Platte River Power Authority and the other member cities combined efficiency programs for both homes and businesses into a common structure called “Efficiency Works.” The collaborative approach improves the effectiveness of the programs and provides a larger common marketplace.
- Platte River contracted to purchase the output of 60 megawatts of new wind energy from the Spring Canyon project in eastern Colorado.

2014 ENERGY POLICY UPDATE

City of Fort Collins Utilities

Our Goals

This report provides an update of 2014 activities and results related to the City of Fort Collins Energy Policy, adopted in 2009.

The primary goals of the Energy Policy are to sustain high-system reliability and to contribute to the community's climate protection goals and economic health. The Energy Policy 2050 vision is to ensure highly reliable, competitive, carbon neutral electricity supplies, managed in a sustainable, innovative, responsible and efficient manner for the Fort Collins community.

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Did you know?

The Energy Policy will be revised in 2015 to reflect all primary energy use within the community and the new Climate Action Plan framework.

Annual Results

We can lead in **ENERGY EFFICIENCY** and have **LOW RATES** and **HIGH RELIABILITY.**

Customers continued to receive **HIGHLY RELIABLE ELECTRIC SERVICE,** as measured by an average system availability index of

99.9951%

The Point?

We have very reliable electric service. On average, customers had 0.4 outages (e.g., most customers zero, some customers one) for a total duration of 68 minutes.

Customer electricity **savings from efficiency programs** totaled

OVER 32,600 MEGAWATT-HOURS (MWh)

or 2.2% of the community's annual usage. **This is equivalent to the annual electric use of over 3,600 typical Fort Collins homes.**

x100

What Does this Mean?

Customers are taking advantage of efficiency programs at a record pace.

Efficiency programs saved electricity with a lifecycle cost-of-conserved energy of 2.2 cents per kilowatt-hour (kWh), compared to an average wholesale electricity cost of 5.4 cents per kWh.

IT'S CHEAPER TO SAVE ELECTRICITY WITH EFFICIENCY than it is to buy it **WHOLESALE.** $$

PV

Photovoltaic (PV) capacity additions totaled 958 kilowatts (620 kW residential and 338 kW commercial).

300% more PV installed in 2014 than 2013!

Fort Collins Solar Power Purchase Program will add nearly **4 megawatts** of locally installed solar by December 2015. The Fort Collins Community Solar project started in late 2014 and will add over **600 kilowatts** and a gateway feature to the city.

So What You're Saying Is?

Solar is growing rapidly and in new ways!

RENEWABLE ENERGY

comprised 6.2% of total electricity in 2014.

And is growing with more solar and wind energy

Platte River added 60 megawatts of wind energy during 2014 and plans to add up to 30 megawatts of solar in 2015.

60 MEGAWATTS

EFFICIENCY PROGRAMS GENERATED OVER $27 MILLION in local economic benefits through reduced utility bills, direct rebates and leveraged investment.

Reducing energy bills is a WIN WIN

Utilities started the Peak Partners demand response program with **WEB-ENABLED WI-FI THERMOSTATS**

CO_2

245k METRIC TONS

Avoided annual carbon emissions of over 245,000 metric tons from Energy Policy related programs.

That's a lot of carbon. See pie chart on back.

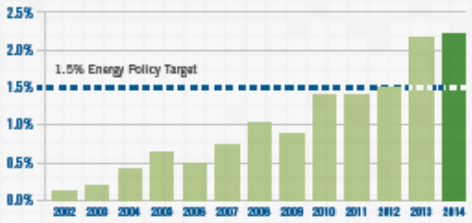
LOW RATES

As of July 2014, Fort Collins' typical residential customer bills were in the lowest 16% of 55 Colorado utilities reporting to the Colorado Association of Municipal Utilities (CAMU).

TRACKING PROGRESS

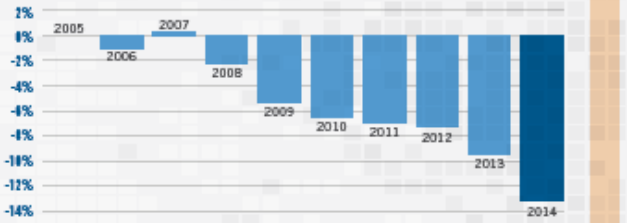
CUSTOMER ANNUAL EFFICIENCY SAVINGS

(% of community electricity use)



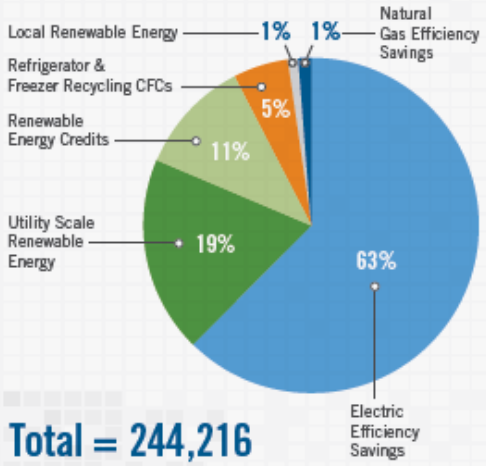
PER CAPITA ELECTRICTY USE

(% reduction from 2005)



GREEN HOUSE GAS EMISSIONS REDUCTIONS

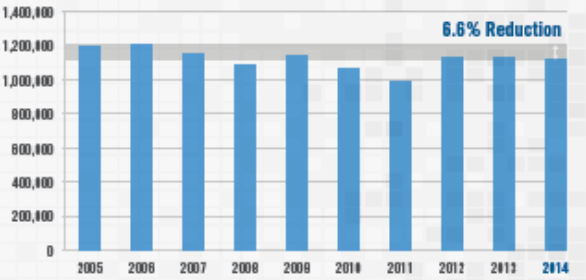
(metric tons)



Total = 244,216

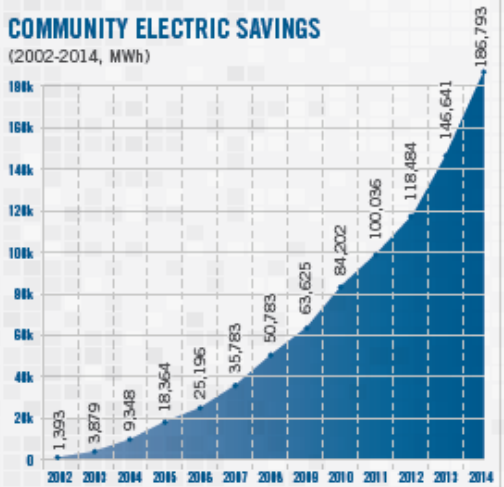
ELECTRICITY CARBON EMISSIONS INVENTORY

(2005 - 2013)



COMMUNITY ELECTRIC SAVINGS

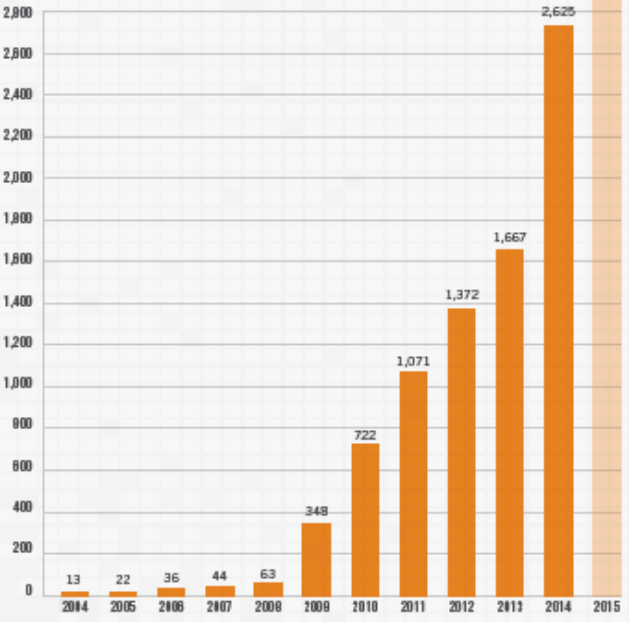
(2002-2014, MWh)



KW - Kilowatt MW - Megawatt KWh - Kilowatt hours MWh - Megawatt hours

PV-COMMUNITY CAPACITY

(DC Kilowatts)



Appendix: Energy Policy Metrics Scorecard

The *Energy Policy* references goals that include specific objectives and metrics in various categories. The following tables summarize status, progress and accomplishments in 2014 related to each goal and supporting objectives. The tables use the following stoplight color coding to indicate progress and status:

🟢	Achieved or on-track to be achieved
🟡	Progress towards being achieved
🔴	Not achieved or at risk for not being achieved

For more information regarding any aspect of this annual update, call Fort Collins Utilities at (970) 221-6700, e-mail *utilities@fcgov.com* or TDD (970) 224-6003.

Goal 1: Provide Highly Reliable Electric Service

	Objectives and Metrics	Progress
	Provide and maintain a highly reliable system.	
🟢	Average System Availability Index (ASAI) greater than 99.9956%	99.9951%
🟡	Customer Average Interruption Index (CAIDI) less than 45 minutes	68 minutes
🟢	System Average Interruption Frequency Index (SAIFI) less than 0.66	0.37 interruptions
	Manage peak loads to reduce demands on the distribution system, optimize infrastructure investment and reduce purchased power costs.	
🟢	Maintain energy efficiency and demand side management programs targeting peak loads.	Peak demand savings from 2014 efficiency programs was approximately 4.8 MW. The Efficiency Works Business program targets peak load reduction. Custom projects offer the option of calculating rebates based on peak demand reductions. Residential programs also contribute to peak load reductions.
🟡	Increase the power managed by load management, smart grid and distributed generation to at least 5% of 2005 system peak demand by 2015 and at least 10% by 2020.	Combined residential and commercial maximum realized load reduction for 2014 was 3.5 MW, or 1.2% of 2014 peak demand. The weather for summer 2014 was relatively mild, contributing to the lower demand response results for the year.

Goal 2: Support Community Greenhouse Gas Reduction Goal

(20% Reduction Below 2005 Levels by 2020 and 80% Reduction by 2050)

<table>
<tr><th></th><th>Objectives and Metrics</th><th>Progress</th></tr>
<tr><td colspan="3">Report Light and Power Greenhouse Gas (GHG) emissions inventory and results of reduction efforts.</td></tr>
<tr><td>●</td><td>Light and Power aggregate 2014 emissions (ownership and operational control)</td><td>GHG Emissions Inventory (metric tons)
<table><tr><td></td><td>2005</td><td>2014</td><td>Percent Change</td></tr><tr><td>Ownership Boundary</td><td>1,725,390</td><td>1,560,082</td><td>-9.6%</td></tr><tr><td>Operational Boundary</td><td>1,198,083</td><td>1,119,271</td><td>-6.6%</td></tr><tr><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>●</td><td>Gross Energy Policy related GHG reductions</td><td>245,267 metric tons</td></tr>
<tr><td colspan="3">Continuously reduce energy use through verifiable energy efficiency and related programs.</td></tr>
<tr><td>●</td><td>Achieve annual energy efficiency and conservation program savings of at least 1.5% of annual energy use (based on a three-year average history).</td><td>Customer (gross) energy efficiency program savings was 32,953 MWh in 2014, 2.2% of the community’s electric use. Utility savings (net) was 26,426 MWh, 1.8% of the community’s electric use.</td></tr>
<tr><td colspan="3">Pursue and secure renewable energy investments by balancing environmental benefits, cost effectiveness, impact on electrical system operations and local economic benefits.</td></tr>
<tr><td>●</td><td>Maintain a minimum fraction of renewable energy in compliance with State of Colorado requirements.</td><td>A total of 6.0% of renewable energy per the rules of the Colorado Renewable Energy Standard (5.4% from rate-based wind purchases from Platte River 0.2% from local solar which leverages a 3x multiplier under the standard). Voluntary purchases from the Green Energy Program are not included.</td></tr>
<tr><td>●</td><td>Offer voluntary customer-focused renewable energy programs.</td><td>12,989 MWh from Green Energy program</td></tr>
<tr><td>●</td><td>Increase the contribution of renewable energy to reach the 20% by 2020 carbon reduction goal, after accounting for the contributions of resource mix, energy efficiency, conservation, minimum renewable energy requirements and voluntary renewable energy programs.</td><td>6.4% total renewable energy (6.2% from wind resources and 0.2% from local solar). Hydro resources provided 18.3% for a total non-carbon emitting portfolio of 24.7%.</td></tr>
</table>

3. Enhance Local Economic Health

Objectives and Metrics	Progress
Maintain sufficient revenues through biennial budget planning for on-going operation and maintenance of the electric system and meet the projected requirements of the asset management plan.	
Operate and maintain regionally competitive electric service that promotes energy efficiency and conservation.	
Maintain competitive electric rates.	As of July 2014, Fort Collins typical residential customer bills were in the lowest 16% of 55 Colorado utilities reporting to the Colorado Association of Municipal Utilities (CAMU).
Maintain efficiency and conservation programs to help keep customers' energy bills affordable.	Affordability of Utilities electric service (percentage of area median income AMI): • Average Residential Customer: 1.2% of AMI • Low Income Customer: 1.5% of AMI • Very Low Income Customer: 2.1% of AMI • Extremely Low Income Customer: 3.9% AMI Fort Collins electric and natural gas affordability for average residential customer: 2.1% of AMI.
Leverage Utilities programs to create local and positive economic impacts.	
Strive to invest climate improvement monies locally in programs that have long-term positive impacts.	Efficiency programs in 2014 generated over $27 million in local economic benefits through reduced utility bills, incentives, leveraged investment and indirect activity (e.g. including the effects of additional available spending from reducing utility bills and benefits from efficiency related local activity).

4. Work closely with Platte River Power Authority members and staff to further City of Fort Collins' *Energy Policy* goals

Objectives and Metrics	Progress
Develop closer working relationships with the other Platte River cities. With other member cities, provide policy guidance to Platte River to:	
Develop long-term planning policies for Platte River that facilitate innovative solutions to future energy challenges.	Platte River continued work on their strategic and resource plans in 2014 with the intent that it be updated as detailed analyses of future scenarios are completed, new technologies evolve, and market opportunities develop. The plan is guide for developing an adaptive strategy to sustain Platte River Power Authority and the communities we serve for the next forty years and beyond. www.prpa.org/sources/strategic-plan/
Diversify the portfolio of energy sources that serve the City.	Platte River executed an agreement to purchase an additional 60 megawatts of capacity from a wind farm to be constructed in eastern Colorado by the end of 2014.

Table 1: Fort Collins Utilities DSM Programs, Budgets, and Outcomes (2014)

Program	Incentive budget ($1,000)	Participation (projects)	First year customer gross electric savings (MWh)	Natural gas savings (therms)	Water savings (Tgal)	Carbon savings (CO2) tons)	Cost of saved energy ($ per kWh levelized)
Business Efficiency	$2,072	698	10,111	0	4,131	8,292	$0.024
Home Energy Reports	$514	54,953	8,952	ND	ND	7,342	$0.042
ClimateWise	ND	11	7,037	ND	ND	5,771	$0.006
Consumer Products	$259	3,492	1,064	14,505	15,036	959	$0.046
Residential Lighting	$145	8,618	2,001	NA	NA	1,641	$0.014
Green Building	$0	775	3,104	157,084	ND	3,484	$0.002
Home Efficiency	$545	1,116	443	46,831	ND	643	$0.103
Conservation Corps	$21	472	241	5,703	3,049	232	$0.055
Total	**$3,556**	**70,135**	**32,953**	**224,123**	**22,216**	**28,363**	**$0.022**

Note: ND = no data