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Energy Policy – 2010 Annual Update

June 2011



1.0 Energy Policy Update

This report provides an update of 2010 activities and progress 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 purpose of the policy is to provide strategic planning guidance for Fort Collins Utilities (Utilities). 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 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 2010 include:

- Highly reliable electric service, with new initiatives to modernize the distribution grid and maintain utility assets for the future.
- Customer electricity savings from 2010 efficiency programs totaled over 20,500 megawatt-hours (MWh) in annual electricity use, or 1.4% of the community's electric use (see attachment 1). This is equivalent to the annual electric use of over 2,250 typical Fort Collins homes.
- Efficiency programs in 2010 saved electricity with a lifecycle cost-of-conserved energy of 3.8 cents per kilowatt-hour (kWh), compared to an average wholesale electricity cost of 4.5 cents per kWh.
- Electricity savings from 2002 through 2010 efficiency programs totaled over 84,000 MWh in annual electric use.
- Expansion of local on-site renewable energy generation by 374 kilowatts (kW).
- Efficiency programs in 2010 generated over \$13.7 million in local economic benefits through reduced utility bills, incentives, leveraged investment and indirect activity.
- Avoided annual carbon emissions of over 129,000 metric tons from *Energy Policy* related programs.

Major activities and highlights from 2010:

- The Home Energy Report Program provided periodic reports to over 20,000 homeowners with educational information about their electricity use compared to similar homes in Fort Collins. Recipients of the report achieved electric savings over 2%.
- The Home Efficiency Program, launched January 2010, completed over 450 comprehensive home efficiency audits, leading to over 100 energy retrofit projects. The program also developed a comprehensive home energy contractor network through training and structured quality assurance.
- Fort Collins' City Council adopted (March 2011) a set of amendments designed to "Green" the City's building codes.
- Contract negotiations for the Fort Collins Smart Grid Implementation Grant with the Department of Energy were completed.
- Load management and demand response programs for residential air conditioning, residential hot water heaters and commercial/industrial customers maintain a capacity of over 9.6 megawatts (MW) of summer peak demand.

- Renewable energy comprised 6.5% of total electrical energy purchases in 2010. Renewable energy purchases were 96,000 MWh. The renewable energy purchases from Platte River were 44% from combined energy and renewable energy certificates (bundled) and 56% from unbundled renewable energy certificates.
- Photovoltaic (PV) capacity additions in 2010 totaled 374 kW (100 kW residential and 274 kW commercial).

The *Energy Policy* references four goals that include specific objectives and metrics in various categories. The following tables summarize status, progress and accomplishments in 2010 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 99.9886%	99.9967%
● Customer Average Interruption Index (CAIDI) less than 60 minutes	38.00
● System Average Interruption Frequency Index (SAIFI) less than 1.0	0.45
Develop, implement and maintain effective capital planning.	
● Apply appropriate construction standards and material specifications for long-term reliability.	<p>To improve operational flexibility while performing distribution switching or outage recovery, three locations were identified for the installation of a new switch configuration that will allow for the connection of an additional feeder. The switch specification has been developed and the new switches will be installed in 2011.</p> <p>System requirements and specifications were developed for the Advanced Metering Infrastructure project and released in a Request for Proposal in November 2010.</p>
● Create an asset management plan by 2010 for the long-term integrity of the electric utility infrastructure.	Utilities' formal asset management planning continued in 2010 with a focus on the water and wastewater systems. Planning for the electric utility infrastructure will be coordinated with the level of effort for the Smart Meter Fort Collins project.
● Create a smart grid roadmap defining specific objectives and implementation plans.	Contract with DOE to support Fort Collins Smart Grid Implementation Grant was completed in 2010. Definitions of Advanced Meter Infrastructure (AMI) and Meter Data Management System (MDMS) neared completion in 2010. AMI is the metering and communications equipment and infrastructure to support the metering interface with customers and communications network to support system operations. MDMS is the data-handling system to support the efficient and effective use of the data gathered by AMI to support business operations and advanced services for utility operations and support of customers.
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.	Ongoing business programs targeting peak load include LightenUP and the Electric Efficiency Program. Custom projects offer the option of calculating rebates based on peak demand reductions. Residential programs targeting peak load include the CheckMe!® air conditioning tune-up program. Peak demand savings from 2010 efficiency programs was 3.5 MW.
● 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 load management for 2010 was 4.0 MW, or 1.5%, of 2010 peak demand.

<ul style="list-style-type: none"> ● Support customer efforts to reduce electric costs through managing peak loads. 	<p>Business customers, through scheduling and load management, have the capacity to reduce over 7.0 MW in peak demand.</p>
<p>Workforce knowledge transfer and empowerment.</p>	
<ul style="list-style-type: none"> ● Annually report on human resources benchmarks designed to sustain a skilled and qualified Light and Power workforce. 	<p>The Utilities for the 21st Century initiative has sponsored regular communication to employees to encourage a better understanding of the issues facing the electrical and water utility industries. These include diminishing resources, regulatory compliance, workforce retention and knowledge transfer, workplace culture and fostering innovation. Additionally, various learning opportunities were offered throughout the year to learn more about sustainability and industry best practices.</p>

Goal 2: Support Community Greenhouse Gas Reduction Goal

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

Objectives and Metrics	Progress																
<p>Report Light and Power Greenhouse Gas (GHG) emissions inventory and results of reduction efforts.</p>																	
<ul style="list-style-type: none"> ● Light and Power aggregate 2010 emissions (ownership and operational control) 	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: center;">GHG Emissions Inventory (metric tons)</th> </tr> <tr> <th></th> <th style="text-align: center;">2005</th> <th style="text-align: center;">2010</th> <th style="text-align: center;">Percent Change</th> </tr> </thead> <tbody> <tr> <td>Ownership Boundary</td> <td style="text-align: center;">1,744,494</td> <td style="text-align: center;">1,542,425</td> <td style="text-align: center;">-11.6%</td> </tr> <tr> <td>Operational Boundary</td> <td style="text-align: center;">1,198,083</td> <td style="text-align: center;">1,062,850</td> <td style="text-align: center;">-11.3%</td> </tr> </tbody> </table>	GHG Emissions Inventory (metric tons)					2005	2010	Percent Change	Ownership Boundary	1,744,494	1,542,425	-11.6%	Operational Boundary	1,198,083	1,062,850	-11.3%
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<ul style="list-style-type: none"> ● Gross <i>Energy Policy</i> related GHG reductions 	<p>129,879 metric tons</p>																
<p>Continuously reduce energy use through verifiable energy efficiency and related programs.</p>																	
<ul style="list-style-type: none"> ● Adopt pricing policies that reflect the short-term and long-term costs, both direct and indirect, of generating and delivering electricity. 	<p>Utilities periodically updates electric rates based on a “cost of service” study, which documents the allocation of costs to various classes of customers. A new cost of service study was completed in 2010 with recommended rates implemented January 1, 2011. In addition, the Advanced Meter Fort Collins project will present a wide range of rate structure options.</p> <p>At the end of 2010, Utilities selected a consultant to develop an electric rate option study. Utilities will seek City Council approval of the proposed principals and policies in mid-2011. Utilities also is hiring a strategic financial planning manager to guide the long-range financial planning efforts.</p>																
<ul style="list-style-type: none"> ● Achieve annual energy efficiency and conservation program savings of at least 1.5% of annual energy use (based on a three-year average history). 	<p>Customer (gross) energy efficiency program savings was 20,500 MWh in 2010, 1.4% of the community’s electric use (attachment 1). Utility savings (net) was 17,800 MWh, 1.2% of the community’s electric use. Customer savings, or “gross” savings include all efficiency projects. Utility savings, or “net” savings, discount the results to account for savings that would have happened in absence of efficiency programs.</p>																

<ul style="list-style-type: none"> Promote sustainable practices in homes and businesses by requiring highly energy efficient new buildings and supporting increased efficiency in existing buildings. 	<p>Fort Collins City Council adopted (March 2011) a set of amendments designed to “green” the City’s building codes. Funding from the City’s Energy Efficiency and Conservation Block Grant was used to support the staffing for the code development aspects of the Green Building Program.</p>
<p>Pursue and secure renewable energy investments by balancing environmental benefits, cost effectiveness, impact on electrical system operations and local economic benefits.</p>	
<ul style="list-style-type: none"> Maintain a minimum fraction of renewable energy in compliance with State of Colorado requirements. 	<p>4.6% renewable energy from rate-based purchases under Platte River Tariff 7. Utilities also developed information related to future implementation of a new Fort Collins Solar Program modeled on a feed-in tariff type structure.</p>
<ul style="list-style-type: none"> Offer voluntary customer-focused renewable energy programs. 	<p>28,262 MWh from Green Energy program</p>
<ul style="list-style-type: none"> 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. 	<p>6.5% total renewable energy (4.6% from rate base, 1.9% from voluntary program)</p>
<ul style="list-style-type: none"> Include renewable energy sources that can be scheduled to maintain system stability and reliability. 	<p>Renewable resources are not able to be scheduled. RDSI and Smart Grid projects will advance the technology for integration of intermittent resources.</p>
<p>Remain at the forefront of emerging technologies and electric utility innovation.</p>	
<ul style="list-style-type: none"> Participate in research and development, demonstration and innovative solutions. 	<p>The Renewable Demonstration and System Integration (RDSI) project, referred to locally as FortZED JumpStart prepared for project operational year 2011. This effort included completing work on project operational capacity resources, renewable energy resources, other distributed and controllable energy resources, demand control resources, and related communications and control to support project operation.</p> <p>Utilities supported a collaborative effort to create the Northern Colorado Green Building Education Consortium to align the education and training activities provided by a broad range of public, private and non-profit entities.</p>
<ul style="list-style-type: none"> Develop a plan for reporting and continuous improvement on the sustainability of electric utility operations. 	<p>Reporting to the Global Reporting Initiative (GRI) continued in 2010, and the report was expanded to include additional performance indicators and discussion of Utilities’ management approach to electric services at the B level of reporting (fcgov.com/utilities/gri.php). The commitment to expand and continue reporting remains a focus for upcoming years.</p>

3. Enhance Local Economic Health

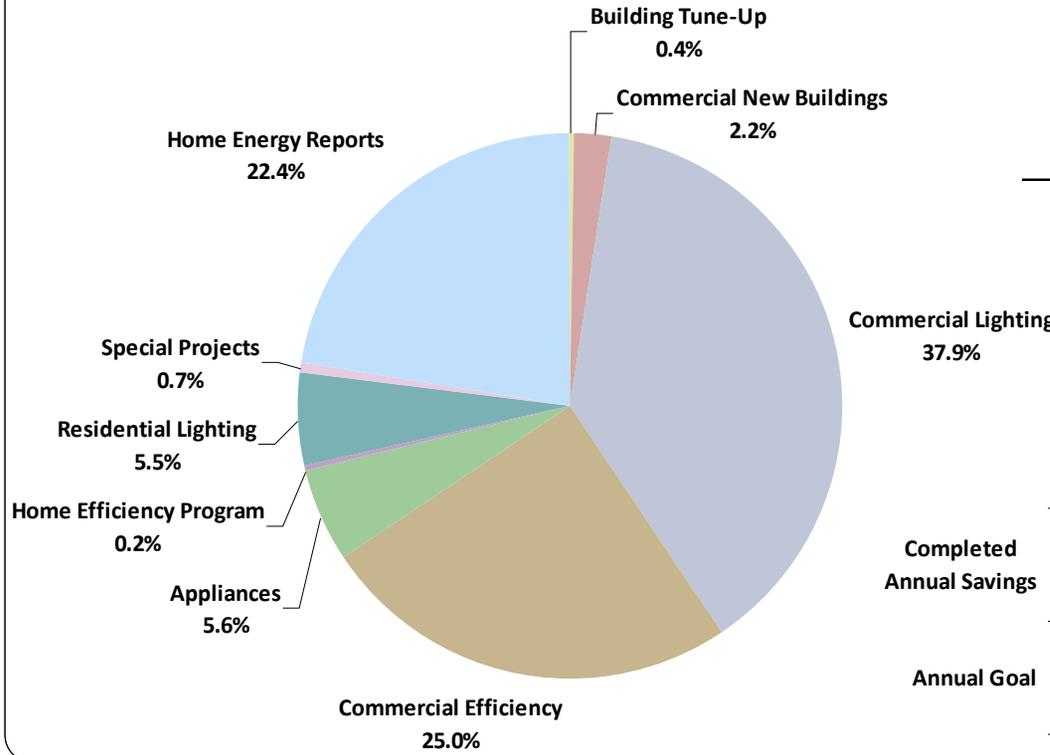
Objectives and Metrics	Progress
Maintain the financial health of Fort Collins Utilities' Light and Power Service Unit to support the vision of the <i>Energy Policy</i> .	
<ul style="list-style-type: none"> ● Continue to meet the Utilities Light and Power fund financial policies. 	The Light and Power fund's 2010 revenue bond issue was rated AA- by Standard and Poor's on May 6, 2010, a reflection of the fund's overall financial health.
<ul style="list-style-type: none"> ● 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. 	<p>At the end of 2010, the Light and Power Fund met all working capital reserve policies. Change in net assets also returned to positive in 2010. Over the last few years, Utilities began to draw down reserves to minimum levels through the elimination of the purchase power reserve requirement. Reserves and changes in net assets are projected to remain at or above current minimum policy levels during the next five years.</p> <p>A consultant was hired to work with staff to establish revised financial and rate principals and policies for the four enterprise funds. Utilities will seek City Council approval of the proposed principals and policies in mid-2011. Utilities also is hiring a strategic financial planning manager to guide the long-range financial planning efforts.</p>
Operate and maintain regionally competitive electric service that promotes energy efficiency and conservation.	
<ul style="list-style-type: none"> ● Maintain competitive electric rates. 	Electric rates increased 7.42% in 2010. As of July 2010, Fort Collins typical residential customer bills were in the lowest 11% of 46 Colorado utilities reporting to the Colorado Association of Municipal Utilities (CAMU).
<ul style="list-style-type: none"> ● Maintain efficiency and conservation programs to help keep customers' energy bills affordable. Develop a metric reflecting the affordability of electric bills for Fort Collins customers. 	<p>Affordability of Utilities electric service (percentage of average median income, AMI):</p> <ul style="list-style-type: none"> ● Average Residential User: 1.0% of AMI ● Low Income User: 1.2% of AMI ● Very Low Income: 1.4% of AMI ● Extremely Low Income: 3.3% AMI <p>Fort Collins electric and natural gas affordability: 1.6% of AMI.</p>
<ul style="list-style-type: none"> ● Promote the benefits of clean energy solutions to existing and potential customers. 	Utilities continued with the Fort Collins Conserves strategic outreach plan, shifting to a year-round approach with seasonal aspects. Energy Services also increased coordination with City economic development efforts, continued implementation of the Residential and Business Environmental Program Series and provided strategic, technical and financial support to the Climate Wise program.

Leverage Utilities programs to create local and positive economic impacts.	
<ul style="list-style-type: none"> ● Strive to invest climate improvement monies locally in programs that have long-term positive impacts. 	<p>The participating contractor list for the Home Efficiency Program includes over 30 local contractors, all of which received best practices training for improving the efficiency of existing homes. Efficiency programs in 2010 generated over \$16.7 million in local economic benefits through reduced utility bills, incentives, leveraged investment and indirect activity.</p>

4. Work closely with Platte River Power Authority members and Platte River 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:	
<ul style="list-style-type: none"> ● Design, operate and maintain the electric generation and transmission system to minimize the risk of system outages. 	<p>Platte River has invested over \$100 million to enhance the transmission system around the owner municipalities. The enhancements will increase capacity and reliability by providing two high-voltage feeds to key substations.</p>
<ul style="list-style-type: none"> ● Develop long-term planning policies for Platte River that facilitate innovative solutions to future energy challenges. 	<p>An Integrated Resource Plan (IRP) has been jointly developed, covering the period 2012 through 2016. No new firm capacity resources are needed during this period, but additional renewable energy resources are planned for addition in 2015. Energy efficiency programs also will be expanded for this IRP.</p>
<ul style="list-style-type: none"> ● Design, operate and maintain the electric generation, transmission and distribution system to maximize system efficiency. 	<p>Platte River generation resources set new records for availability and utilization during 2010.</p>
<ul style="list-style-type: none"> ● Avoid the construction of new base load generation facilities. 	<p>No new base load resources are planned well beyond 2020, due in part to joint energy efficiency efforts.</p>
<ul style="list-style-type: none"> ● Reduce impacts from fossil fuel use in current and future generation facilities. 	<p>Expanded joint energy efficiency programs and new renewable resources will reduce the need for fossil fuel supply to the City.</p>
<ul style="list-style-type: none"> ● Diversify the portfolio of energy sources that serve the City. 	<p>The Silver Sage wind site came on line in late 2009, completing its first full year of operation during 2010. This resource replaced a portion of the renewable energy certificate contracts used to serve the municipalities in the past.</p>

Fort Collins Utilities - 2010 Efficiency Programs Customer Savings



Building Tune-Up	76 MWh	0.4%	
Commercial New Buildings	453 MWh	2%	65%
Commercial Lighting	7,792 MWh	38%	
Commercial Efficiency	5,147 MWh	25%	
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Appliances	1,159 MWh	6%	
Home Efficiency Program	48 MWh	0%	35%
Residential Lighting	1,141 MWh	6%	
Special Projects	145 MWh	1%	
Home Energy Reports	4,616 MWh	22%	

