





Energy Policy 2009 Annual Update

City of Fort Collins Utilities

Utilities for the 21st Century.

1.0 Energy Policy Update

This report provides an update of 2009 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). Appendix A provides supplemental information for the policy objectives. Appendix B is the *Energy Policy*.

Key outcomes from implementation of the Energy Policy in 2009 include:

- Highly reliable electric service, with new initiatives to modernize the distribution grid and maintain utility assets for the future.
- Continued expansion of efficiency program results, leading to customer savings of over 50,000 megawatt-hours and $2.75M.
- Expansion of both utility scale and local on-site renewable energy generation.
- Leverage of private investment with Utilities rebates driving over $3M in local economic activity.
- Avoided annual carbon emissions of over 120,000 metric tons from Energy Policy related programs.

Major activities and highlights from 2009:

- Continuing implementation of the wide-ranging initiatives, programs and services related to implementation of the Energy Policy.
- Electricity use in the community decreased by 1.4% from 2008 to 2009.
- Electricity savings from 2009 efficiency programs totaled over 10,200 megawatt-hours in annual electricity use, or 0.7% of the community's electricity use. This is equivalent to the annual electricity use of over 1,150 typical Fort Collins homes.
- Electricity savings from 2002 through 2009 efficiency programs totaled over 50,000 megawatt-hours in annual electricity use. This is equivalent to the annual electricity use of over 6,000 typical Fort Collins homes.
- Development of a plan for to meet the policy goal for verifiable efficiency program savings reaching 1.5% of the community's electric use. For 2010, this translates to a goal of 22,000 megawatt-hours of savings. The efficiency plan was the basis for the 2010 budget for Utilities Energy Services.
- Development and roll-out of a new pilot program, Home Energy Reports. The Home Energy Reports program provides periodic reports to 25,000 homeowners about their own electricity use, including how the use compares to a group of similar nearby homes.
- Development of the elements of a new comprehensive Home Efficiency Program, which targets performance based improvements in existing homes. The program launched in January 2010.

- Utilities applied for and received a $30M grant from the Department of Energy for implementation of Advanced Metering Infrastructure (AMI) and Smart Grid. The grant is the basis for a modernization of the electric metering system, aspects of distribution grid automation and a platform for future demand response and energy efficiency measures.
- Load management and demand response programs for residential air conditioning, residential hot water heaters and commercial/industrial customers were documented to avoid over 12.8 megawatts of summer peak demand.
- Renewable energy comprised 6.4 percent of total electrical energy purchases in 2009. Renewable energy purchases were 95,000 megawatt-hours.
- 284 kilowatts of photovoltaic (PV) capacity were added in on-site customer renewable energy systems, with over $40,000 in grant funds from the Governor's Energy Office were delivered to customers.
- Utilities received $320,000 in stimulus funds through the Energy Efficiency and Conservation Block Grant (EECBG) program. Funds are being applied to the development of the Green Building Program and Solar Thermal system rebates.

The *Energy Policy* references four goals which include specific objectives and metrics in various categories. The following tables summarize status, progress and accomplishments in 2009 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

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%;	99.9979%
●	Customer Average Interruption Index (CAIDI) less than 60 minutes; and	28.00
●	System Average Interruption Frequency Index (SAIFI) less than 1.0.	0.39
Develop, implement and maintain effective capital planning:		
●	Apply appropriate construction standards and material specifications for long-term reliability.	See appendix with supplemental information.
●	Create an asset management plan by 2010 for the long-term integrity of the electric utility infrastructure.	Development of the Asset Management Enhancement Roadmap Report.
●	Create a smart grid roadmap by the end of 2009, defining specific objectives and implementation plans.	SGIG grant notification in Oct 2009, on-going planning for implementation through 2013.

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.	On-going 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 2009 efficiency programs was 2.1 megawatts.
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. Develop a methodology for tracking load management as a percentage of peak demand, considering utility programs, customer response and weather normalization.	Combined residential and commercial load management for 2009 was 9.6 megawatts, or 3.6% of 2009 peak demand.
Support customer efforts to reduce electric costs through managing peak loads.	Business customers, through scheduling and load management, avoided 10.6 megawatts in peak demand.
Workforce knowledge transfer and empowerment	
Annually report on human resources benchmarks designed to sustain a skilled and qualified Light and Power workforce.	Utilities for the 21st Century has sponsored regular communication to employees on challenges related to diminished resources and the transition to a maintenance utility. Planning related to AMI employee transitions and a renewed focus on safety. See Global Reporting Institute sustainability report at *fcgov.com/utilities/gri.php*.

Goal 2: Support Community Greenhouse Gas Reduction Goal

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

Objectives and Metrics **Progress**

Report Electric Utility Greenhouse Gas (GHG) emissions inventory and results of reduction efforts

Electric Utility aggregate 2009 emissions (ownership and operational control)

GHG Emissions Inventory (metric tons)			
	2005	2009	Percent Change
Ownership Boundary	1,744,494	1,734,489	-0.6%
Operational Boundary	1,198,083	1,134,862	-5.3%

Gross Energy Policy related GHG reductions — 119,847 metric tons

Continuously reduce energy use through verifiable energy efficiency and related programs	
Adopt pricing policies that reflect the short term and long term costs, both direct and indirect, of generating and delivering electricity.	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 is scheduled for completion in 2010. AMI/Smart Grid project presents wide range of rate structure options.
Achieve annual energy efficiency and conservation program savings of at least 1.5% of annual energy use (based on a three year average history).	Net energy efficiency program savings was 10,200 MWh in 2009, 0.7% of community electric use.
Promote sustainable practices in homes and businesses by requiring highly energy efficient new buildings and supporting increased efficiency in existing buildings.	Continued implementation of the Integrated Design Assistance Program for commercial new construction projects and the Northern Colorado ENERGY STAR® Homes Program for new residential. Development of the comprehensive Home Efficiency Program targeting existing home improvements (started Jan. 2010). Early development of Green Building Program.
Pursue and secure renewable energy investments by balancing environmental benefits, cost-effectiveness, impact on electrical system operations and local economic benefits.	
Maintain a minimum fraction of renewable energy in compliance with State of Colorado requirements.	4.0% renewable energy from rate-based purchases under Platte River Tariff 7
Offer voluntary customer-focused renewable energy programs	36,795 MWh from Green Energy program
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.	6.4% total renewable energy (4.1% from rate base, 2.3% from voluntary program)
Include renewable energy sources that can be scheduled to maintain system stability and reliability.	Renewable resources are not able to be scheduled. RDSI and Smart Grid projects will advance the technology for integration of intermittent resources.
Remain at the forefront of emerging technologies and electric utility innovation	
Participate in research and development, demonstration and innovative solutions.	DOE co-funded Remote Distributed System Integration (RDSI) project will demonstrate integration of renewable energy and demand response to reduce feeder peak loads and maintain system reliability. Smart Grid Innovation Grant (SGIG), also co-funded by DOE will install advanced metering infrastructure and initiate smart grid in Fort Collins.
Develop a plan for reporting and continuous improvement on the sustainability of electric utility operations.	Continued reporting to GRI on identified sustainability metrics, fcgov.com/utilities/gri.php

3. Enhance Local Economic Health

Objectives and Metrics	Progress
Maintain the financial health of Fort Collins Utilities' Light & Power Service Unit to support the vision of the Energy Policy.	
Continue to meet the Utilities Light and Power fund financial policies.	As of year end 2009, the Light & Power Fund met all working capital reserve policies. Over the last few years, Utilities began to draw down reserves to minimum levels through the elimination of the purchase power reserve requirement. Due to the intentional reduction in reserve levels, 2009 rates did not fully cover the cost of operations resulting in a negative change in net assets for 2009. Change in net assets is projected to return to positive in 2010 and reserves are projected to remain at or above minimum policy levels during the next five years. The Light & Power Fund's 2010 revenue bond issue was rated AA- by Standard and Poor's on May 6, 2010. This is a reflection of the Light & Power Fund's overall financial health.
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	Electric rates did not increase in 2009. As of July 2009, Fort Collins typical residential customer bills were in the lowest 6% of utilities in Colorado reporting to Colorado Association of Municipal Utilities (CAMU).
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.	Affordability of Utilities electric service (percentage of median family income, MFI): • Avg Residential User: 1% of MFI • Low Income User: 1% of MFI • Very Low Income: 1.4% of MFI • Extremely Low Income: 2.3% MFI Fort Collins electric and natural gas affordability: 1.5% of AMI based on 2010 2nd quarter Xcel gas rates. See supplemental data in Appendix for more information.
Promote the benefits of clean energy solutions to existing and potential customers.	Utilities developed the Fort Collins Conserves strategic outreach plan, with "Make Efficient Choices" campaigns in the fall and spring to promote programs. Continued planning and implementation of the Residential and Business Environmental Program Series. Provided strategic, technical and financial support to the Climate Wise program.

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.	Focus on developing trade ally networks for providing efficiency services to customers as they relate to Utilities programs and rebates. Rebates and incentives leverage private sector funding with an approximate 3:1 ratio.

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 relationship with the other Platte River cities. With other member cities, provide policy guidance to Platte River to:	
● Design, operate and maintain the electric generation and transmission system to minimize the risk of system outages.	A list of items providing general information on how the Fort Collins, the other member municipalities and Platte River work together is provided below, with more detail provided in Appendix A. • *Integrated Resource Planning* • *Climate Action Plan* • *Renewable Energy Supply Policy* • *Common Energy Efficiency Programs* • *Power Supply and Organic Contracts* • *Tariff Changes to Facilitate Distributed Generation* • *Wholesale Rate Structure Study* • *Smart Grid Development* • *Joint Renewable Energy Integration Study* • *Transmission Upgrades* • *Coordinated Communications*
● Develop long-term planning policies for Platte River that facilitate innovative solutions to future energy challenges.	
● Design, operate and maintain the electric generation, transmission and distribution system to maximize system efficiency.	
● Avoid the construction of new base load generation facilities.	
● Reduce impacts from fossil fuel use in current and future generation facilities.	
● Diversify the portfolio of energy sources that serve the City.	

Appendix A: Supplemental Information

This section provides additional information related to each goal and specific objectives (***bold/italics***)

Reliability Goals

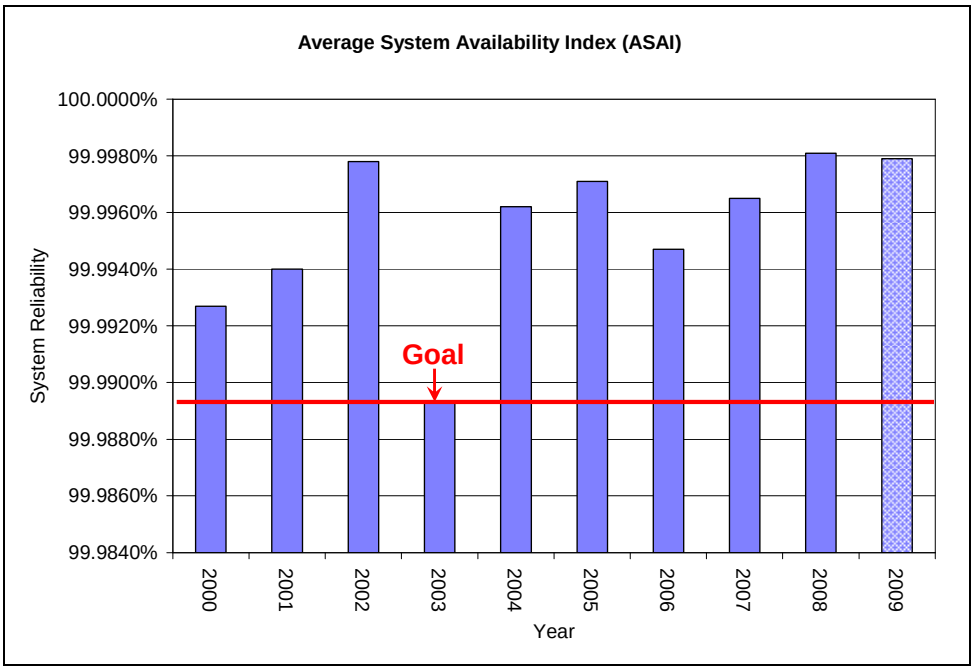
Demonstrate and communicate the high reliability of the Fort Collins electric system by maintaining annual reliability metric.

Fort Collins Utilities uses several indices to measure reliability. The 2009 indices exceeded goals for all three metrics. The Average System Availability Index (ASAI) measures the percentage of time that power is available to the average customer. It provides a combined measure of the frequency and duration of outages. The ASAI for 2009 was 99.9979% (goal > 99.9886%). The historical record for Fort Collins Utilities ASAI is shown in Figure A-1.

The Customer Average Interruption Index (CAIDI) is the average duration of an outage experienced by the customer. This index is indicative of average restoration time once an outage has occurred and is calculated by dividing the sum of the duration of all interruptions by the total number of customers interrupted. The average outage time for 2009 was 28 minutes (goal < 60 minutes).

The System Average Interruption Frequency Index (SAIFI) is the total number of customers who experienced an outage in the last 12 months divided by the total number of customers served. This provides the number of outages a customer could expect to experience during the year. SAIFI for 2009 was 0.39 interruptions per year (goal < 1.0).

Figure A-1: Average System Availability Index, 2000 – 2009 (ASAI)



Apply appropriate construction standards and material specifications for long-term reliability

Utilities has specified and purchased a device that will be used as a point of common coupling between large distributed generation sources and the electric distribution system. Utilities expects to install and test this device on one of the parallel generation sources under our Renewable Distributed Systems Integration Grant project to learn and report on dynamic distribution protection methods that will be needed as parallel generation sources proliferate in the future.

Utilities completed a number of projects on the distribution system and related communications infrastructure that promote high reliability. Project highlights for 2009 include:

- Completed scheduled substation power transformer Load Tap Changer (LTC) maintenance at Linden Substation. Load tap changers regulate the source voltage at the substation to a fixed value as the load on the system varies.
- Completed preventative maintenance and testing of substation breakers at Linden Substation per North American Electric Reliability Corporation (NERC) requirements.
- Performed quarterly battery maintenance at all substations.
- Replaced filters on the HVAC units at all substations and implemented a yearly maintenance program with a vendor for HVAC preventative maintenance.
- Began construction of two new 100 MVA distribution substations to feed loads in the north and south parts of the service territory.

Create an asset management plan by 2010 for the long-term integrity of the electric utility infrastructure.

Asset management activities related to Light & Power in 2009 included participation in the development of the Asset Management Enhancement Roadmap Report. This report researched existing strategies, people, processes, data, and tools relating to asset management at Fort Collins Utilities. An asset management implementation schedule was developed for all service areas of Utilities, including the Light & Power service area. Due to the large requirement of human resources placed upon Light & Power by the Smart Grid Investment Grant (SGIG) project, it was decided that Light & Power would follow the Water Utility with the implementation of its asset management program; therefore, detailed asset management activities related to Light & Power will commence in 2011 once the SGIG project is well underway.

Create a smart grid roadmap by the end of 2009, defining specific objectives and implementation plans.

In the fall of 2009, Utilities received notice of a $15.4 M matching funds grant award from the Department of Energy as part of the Federal Recovery Act. The funding will accelerate plans to implement Smart Grid technologies throughout the electric distribution system that serves the community.

The Smart Grid project will link energy usage and home area networks, automate and optimize grid operations to improve reliability and efficiency, enable customers to control energy usage, improve the environment and stimulate economic growth by creating jobs and business opportunities.

The Smart Grid integrates the electric power distribution system with high speed broadband communications, connecting the customer's delivery point with a fully integrated power delivery system. The Fort Collins Smart Grid Project encompasses a number of technologies intended to enhance the quality, reliability and value of service provided to Fort Collins customers. The long term improvements in the electric delivery grid include:

- Advanced Metering Infrastructure.
- Demand Response (in-home displays, in-home thermostats and air conditioning (AC) and water heater control switches) to enable customer response during peak periods and help manage loads.
- Grid Automation to enhance transmission and distribution automation, increase reliability and provide remote operations.
- Security Enhancements.

Manage peak loads to reduce demands on the distribution system, optimize infrastructure investment and reduce purchased power costs.

Load management focuses on reducing the community's peak power use, resource planning and purchased power costs. In 2009, the load management program focused on replacement of aging control units in the field, installation of residential air conditioning control units and documentation of commercial and industrial customer demand response results.

- Cumulative annual peak demand savings in 2010 from efficiency programs (2002 through 2009) will be over 9.4 megawatts.
- Load management and demand response programs for residential air conditioning, residential hot water heaters and commercial/industrial customers was documented to avoid over 12.8 megawatts of summer peak demand (Table A-1).
- Utilities saved approximately $160,000 due to avoided purchased power from 2009 load management activities.

Table A-1 Load Management Program Summary

Equipment Controlled	Type of Control	Number of Units	Maximum Load Controlled (kW)
Electric Water Heaters	Direct Load Control	1,779	1,245
Air Conditioners	Direct Load Control	969	969
Commercial/Industrial	Demand Response	25	7,400
Commercial/Industrial	Scheduled	4	3,200
Total			**12,814**

During 2009, the program replaced, serviced or installed a total of 768 units. The breakdown was: 484 air conditioning and 284 water heater control units. During the months of October and November 2009, commercial and industrial customers that are part of the program were contacted to update information and to verify the peak demand reduction results shown in the table above.

Reduce Community Climate Emissions Goal

Develop a methodology for reporting carbon emissions and savings related to:

Overall electricity consumption.
Reductions in energy use from efficiency programs.
Substitution of fossil fuel based electricity with renewable or clean resources.
Increases in use of electricity for transportation.

Development of the methodology for carbon emissions reporting is expected to evolve to reflect best practices and regulatory changes. The primary considerations for the methodology are transparency and consistency, with an intent to align carbon emissions reporting for the *Energy Policy*, 21st Century Utilities (via the Global Reporting Initiative) and the City of Fort Collins Climate Plan. The Energy Policy reports two greenhouse gas (GHG) emission related metrics:

1. Utilities GHG emissions inventory (ownership and operational boundary conditions), and
2. GHG emissions avoided resulting from implementation of the Energy Policy, including reductions from efficiency programs and renewable energy in the community

All inventory and reduction result units are metric tons.

GHG Inventory

The GHG inventory reporting methodology reflects both an ownership and operational control boundary for reporting as defined by the Climate Registry's Electric Power Sector Protocol. Utilizing both boundary conditions results in the most transparent representation of Utilities' GHG emissions. Ownership boundary results report an ownership allocation of all of Platte River's direct generation emissions, including off-system electric sales. Operational boundary reporting results in the emissions directly related to Utilities purchased energy on behalf of all electric customers.

The methodology for the emissions calculations includes:

- Platte River's report to The Climate Registry is the basis for the ownership allocation and for specific electricity resource emissions (such as Rawhide, Western Area Power Administration (WAPA) and renewable energy).
- The ownership allocation is calculated from the total Platte River "stack" emissions, multiplied by Fort Collins ownership percentage in Platte River. The ownership percentage is the fraction of total energy used by the four member municipalities which is delivered to Fort Collins customers.
- The operational allocation calculation is based on the amount of electricity delivered to Fort Collins from each resource type (i.e. WAPA, renewables, thermal) and its associated

emissions rates. Renewable Energy Certificate (REC) based renewable energy purchases adjustments are made as described below.

- Renewable Energy Certificate (REC) based renewable energy purchases are another source provided by Platte River. Currently, there is no legislation or regulation establishing direct equivalency between RECs and carbon or GHG offsets. However, REC contracts held by Platte River make clear that the title to any and all environmental benefits, including offsets, belong to the REC purchaser. Consistent with guidance issued by the US EPA and Green-e, the value of the emission reduction for each REC based on the non-baseload emission rate for the NERC region into which the REC was delivered. Platte River currently purchases RECs from three NERC regions, so the estimated overall emissions rate is taken to be the emissions rates for each of the regions, weighted according to the percent of RECs retired for 2009 retail sales. The GHG reduction due to REC purchases is provided for information purposes only.
- For avoided emissions, the methodology calculates savings from energy efficiency programs, renewable energy, RECs, refrigerator recycling material savings and electric vehicle net savings. Energy efficiency annual electricity savings are converted to carbon emissions reductions using a standardized conversion factor. The factor is 1,624 pounds of carbon dioxide (CO_2) avoided per MWh of electricity savings. It is based on 2007 Environmental Protection Agency (EPA) "eGRID" non-baseload emission rate calculations for Western Electric Coordinating Council (WECC) Rockies subregion. Renewable energy calculations are described above. Refrigerator program savings are due to destruction of ozone-depleting chemicals used in the foam insulation for many of the recycled units. Savings related to electric vehicles is a placeholder for future data when it is available.

Table A-2 summarizes the emissions factors for electricity inventory related greenhouse gas emissions.

Table A-2: Greenhouse Gas Emissions Factors

Source	**Emissions Factor**		**Notes**
EPA eGrid Marginal Rate for RMPA	1,624	lbs CO_2/ MWh	Used of calculations of avoided emissions from efficiency programs
REC Emissions Reduction	1,536	lbs CO_2/ MWh	Weighted average of EPA eGrid marginal emissions from REC locations

Tables A-3 and A-4 summarize the 2009, and baseline year 2005, greenhouse gas emissions inventory for Utilities ownership and operational boundary conditions.

Table A-3: 2009 and 2005 Greenhouse Gas Emissions Inventory - Ownership

Year	Description	Energy Generated (MWh)	Emissions (MT CO_2)	Ownership Percentage	Emissions (MT CO_2)
2009	Total Platte River Energy Generation	4,281,711	3,613,519	48.0%	1,734,489
2005	Total Platte River Energy Generation	4,035,893	3,596,307	48.5%	1,744,494

Table A-4: 2009 and 2005 Greenhouse Gas Emissions Inventory – Operational

	2009		2005	
Resource	**Energy Generated (MWh)**	**Emissions (MT CO_2)**	**Energy Generated (MWh)**	**Emissions (MT CO_2)**
WAPA	291,999	-	319,594	-
Purchased Power	8,427	7,198	64,016	54,373
Renewable Owned Generation (Wind)	13,643	-	11,499	-
Fossil Generation	1,164,097	1,184,348	1,063,716	1,154,763
Total Fort Collins Operational Control	1,478,166	1,191,546	1,458,825	1,201,136
RECs	81,358	(56,684)	20,000	(11,053)
Total Net Utilities Operational Emissions	**1,478,166**	**1,134,862**	**1,458,825**	**1,198,083**

GHG Reductions

GHG reductions are also calculated based on avoided emissions from programs and services related to the Energy Policy.

Reductions in the community gross emissions are reported for the following in Table A-5:

- Customer electricity and natural gas savings from Utilities efficiency programs (gross savings).
- On-site distributed renewable energy.

- Metered renewable energy.
- REC based renewable energy.
- Electric vehicle charging energy (when data becomes available).
- CFC-11 destruction from the Refrigerator and Freezer Recycling Program.

Table A-5: Energy Policy, 2009 Gross Avoided Greenhouse Gas Emissions

Source	Unit Reduction	Emissions Factor	Emissions Reduction (Metric Tons CO_2)
Energy Efficiency Programs (2002 – 2009)			
Electricity savings	63,625 MWh	1,624 lb/MWh	46,881
Natural Gas Savings		12 lb/Therm	
RFR Program CFC	3,291 units	4,680 per lb CFC-11	5,919
Metered Renewable Energy	13,643 MWh	1,624 lb/MWh	10,052
Electric Vehicle Energy		TBD	
On-site Renewable Energy	423 MWh	1,624 lb/MWh	311
RECs	81,358 MWh	1,536 lb/MWh	56,684
Total			**119,847**

Adopt pricing policies that reflect the short term and long term costs, both direct and indirect, of generating and delivering electricity.

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 is scheduled for completion in 2010. Platte River is studying changes to wholesale rates, as described in the objectives related to Fort Collins coordination with Platte River.

Continuously reduce energy use through verifiable energy efficiency programs, independent of population growth and economic trends. Achieve annual energy efficiency and conservation program savings of at least 1.5% of annual energy use (based on a three year average history).

Utilities has provided programs and services to help customers manage their energy use for over 25 years. This section summarizes energy efficiency programs and services for residential, commercial and industrial customers (Table A-6). Energy efficiency and load management are also called "demand side management" (DSM). Efficiency programs are a reliable energy resource for Utilities and Platte River and many of the programs are a collaborative effort, both in funding and implementation.

Planning and budgeting for 2009 was based on the prior version of the Energy Policy. Full implementation of the new policy is expected starting in 2010.

Efficiency program results for 2009 include:

- Electricity savings from 2009 efficiency programs totaled over 10,200 megawatt-hours in annual electricity use, or 0.7% of the community's electricity use. This is equivalent to the annual electricity use of over 1,150 typical Fort Collins homes.
- The *cost of conserved energy* (CCE), a measure of the cost per kilowatt-hour saved by efficiency programs, in 2009 was 2.0 cents per kWh. This is significantly lower than the 4.2 cents per kilowatt-hour average wholesale cost from Platte River.
- Cumulative annual electricity savings in 2010 from efficiency programs (2002 through 2009) will be approximately 50,000 megawatt-hours.

The following tables and figures provide additional information.

Table A-6: 2009 Energy Efficiency Programs and Services

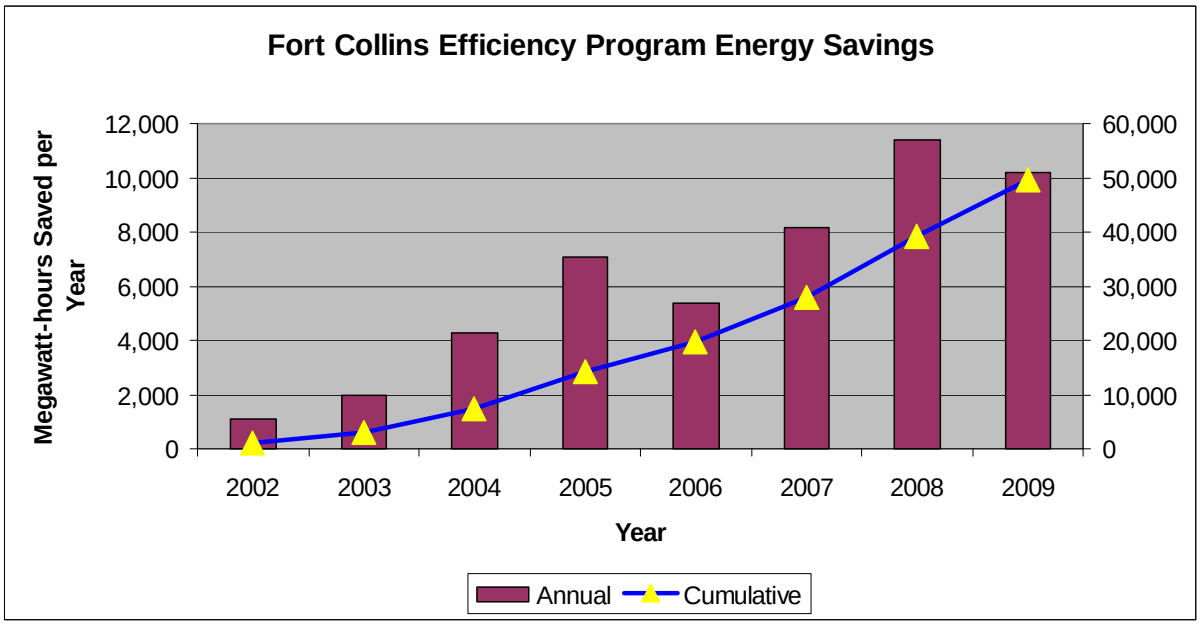
Program	Description
Business Efficiency Program	The Business Efficiency Program includes: • Commercial efficiency assessments • Rebates • Education and Outreach See *fcgov.com/conservation/biz-index.php*
Consumer Products Program	The Consumer Products Program provides rebates for ENERGY STAR qualified products at local retailers for: • Clothes Washers • Dishwashers • Compact Fluorescent Light Bulbs • Special Promotions The Consumer Products Program also includes the Refrigerator and Freezer Recycling Program. See *www.fcgov.com/conservation/res-index.php*
Home Energy Reports	The Home Energy Reports program started in late 2009, providing customized reports for 25,000 customers which put their electric use in the context of similar homes. See *fcu.opower.com*

Table A-7: 2009 Energy Efficiency Program Results

Description	Business Efficiency Program	Consumer Products	Home Energy Reports*	Total
Activity results (projects, units, bulbs, e	136	52,430	25,000	77,566
Customer gross savings (MWh)	9,779	2,782	281	12,842
Customer gross savings (kW)	2,240	318	32	2,590
Net-to-gross discount factor	85%	49%	100%	78%
Customer net savings (MWh)	8,312	1,363	281	9,956
Customer net savings (kW)	1,904	80	32	2,016
Utility distribution efficiency	97.5%	97.5%	97.5%	97.5%
Utility net savings (MWh)	**8,525**	**1,398**	**288**	**10,212**
Utility net savings (kW)	**1,953**	**82**	**33**	**2,068**

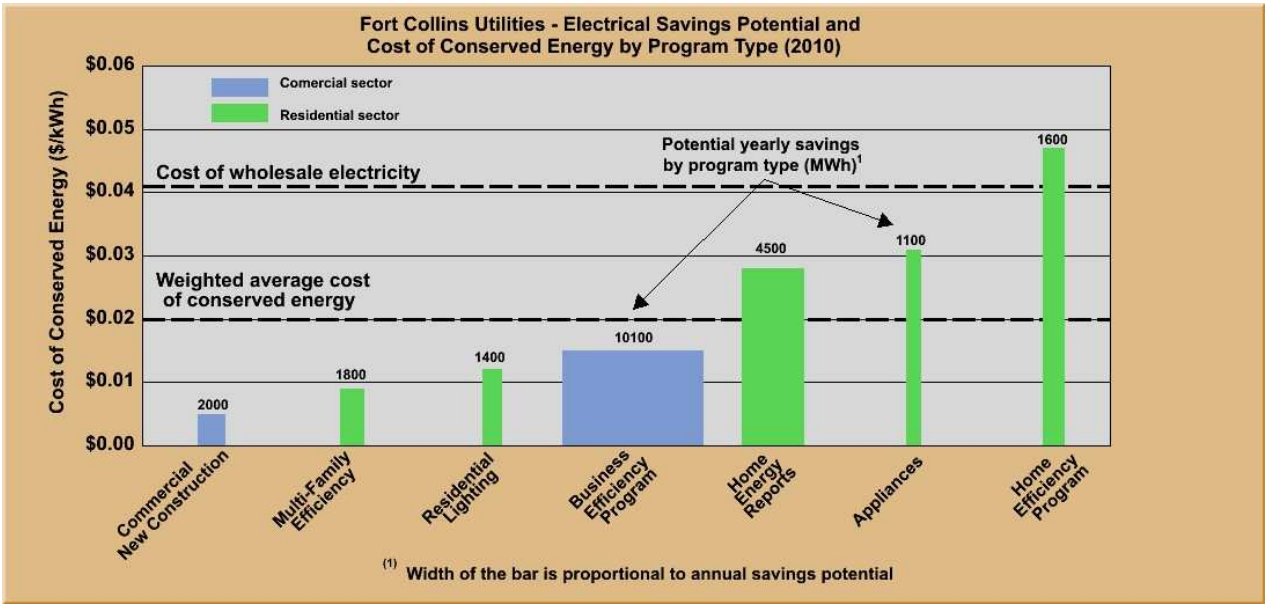
* one month of savings reported for 2009

Figure A-2: Annual and Cumulative Energy Efficiency Results, 2002 – 2009



During 2009, Utilities completed an energy efficiency plan to derive a budget and program plans for the 2010/2011 budget cycle. The plan mapped out the potential to reach the 1.5% efficiency results level, or 22,000 megawatt-hours of annual savings. The 2010 budget is based upon reaching these goals, equivalent to the electricity use of 2,500 typical Fort Collins homes. Council approved the first half of a projected 3.6% rate increase to fund the Energy Policy efficiency goals in late 2009. Figure A-3 below shows the projected energy savings by program area from the efficiency plan.

Figure A-3: 2010 Energy Efficiency Program Plan



For renewable energy resource investments, balance the interrelated factors of carbon reduction cost-effectiveness, impact on power plant operations and local economic benefits.

Fort Collins Utilities' renewable energy strategy targets meeting policy initiatives to increase use of renewable energy, customers who volunteer to subscribe for additional renewable energy and customers who select to install on-site renewable energy systems.

Fort Collins Utilities purchases renewable energy from Platte River Power Authority sufficient to meet the requirements of both policy and the Green Energy Program. In 2009, the City's renewable program was supplied from two types of sources. Wind turbines at two sites in Wyoming provide both electricity and Renewable Energy Credits (combined). In addition, Renewable Energy Credits (RECs) with no associated electricity are purchased by Platte River from multiple renewable sources in the region.

Platte River added a new wind plant capacity to their portfolio with the Silver Sage project, located in southern Wyoming, which began operation in fall 2009. Platte River's portion of Silver Sage is 12 megawatts of wind capacity, providing both energy and RECs combined.

Fort Collins also offers rebates for on-site renewable projects, which have generally been comprised of photovoltaic systems on residential and commercial customer buildings. Support for on-site renewable energy installations expanded in 2009. The Pilot Net Metering program initiated in 2005 was formally adopted under new City ordinances in 2009, and the incentive program for rooftop PV nearly doubled from 2008. Fort Collins' net metering offers residential and small commercial electric customers full retail buy-back provisions for electricity generated by solar photovoltaic (PV) systems connected to the electric grid. Cumulative customer sited renewable energy capacity is shown in Figure A-5.

Maintain a minimum fraction of renewable energy in compliance with State of Colorado requirements. In coordination with Platte River Power Authority, develop generation resources and the delivery of renewable energy to meet minimum requirements.

The State of Colorado also has a Renewable Energy Standard (RES) for municipal utilities with more than 40,000 meters, including Fort Collins. The Colorado RES requires Fort Collins to have a minimum of 1% renewable energy through 2009, increasing to 3% in 2011, 6% in 2015 and 10% in 2020. Renewable energy comprised 6.4 percent of total electrical energy purchases in 2009, surpassing the state renewable energy standard of 1.0%.

Offer voluntary renewable energy programs, whereby customers can support renewable energy and local renewable energy projects through opt-in premium pricing.

The Green Energy Program facilitated the purchase of over 36,000 megawatt-hours of electricity, comprising 39% of overall renewable energy purchases. Utilities has offered renewable energy to customers since 1998. In 2007, the *Wind Power Program* went through a re-branding to the *Green Energy Program*. This program is a premium-priced rate option for customers who wish to have all or a portion of their electricity generated from renewable sources. The amount of energy purchased through the Green Energy Program varies from year to year, but has been approximately 2.3% of community electricity use. Utilities' Green Energy Program is certified by Green-e.

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.

Renewable energy comprised 6.4 percent of total electrical energy purchases in 2009, surpassing the state renewable energy standard of 1.0%. Renewable energy purchases were 95,000 megawatt-hours. Figure A-4 shows total renewable energy purchases from 1998 to 2009.

Include renewable energy sources that can be scheduled to maintain system stability and reliability.

The renewable resources providing energy in 2009 are not able to be scheduled because they are intermittent by nature and the energy generated cannot be stored for later use. One of the goals of the RDSI and Smart Grid projects is to advance the technology such that intermittent resources can be effectively utilized for maintaining system stability and reliability in future years.

Figure A-4: Renewable Energy Purchases (1998 – 2008)

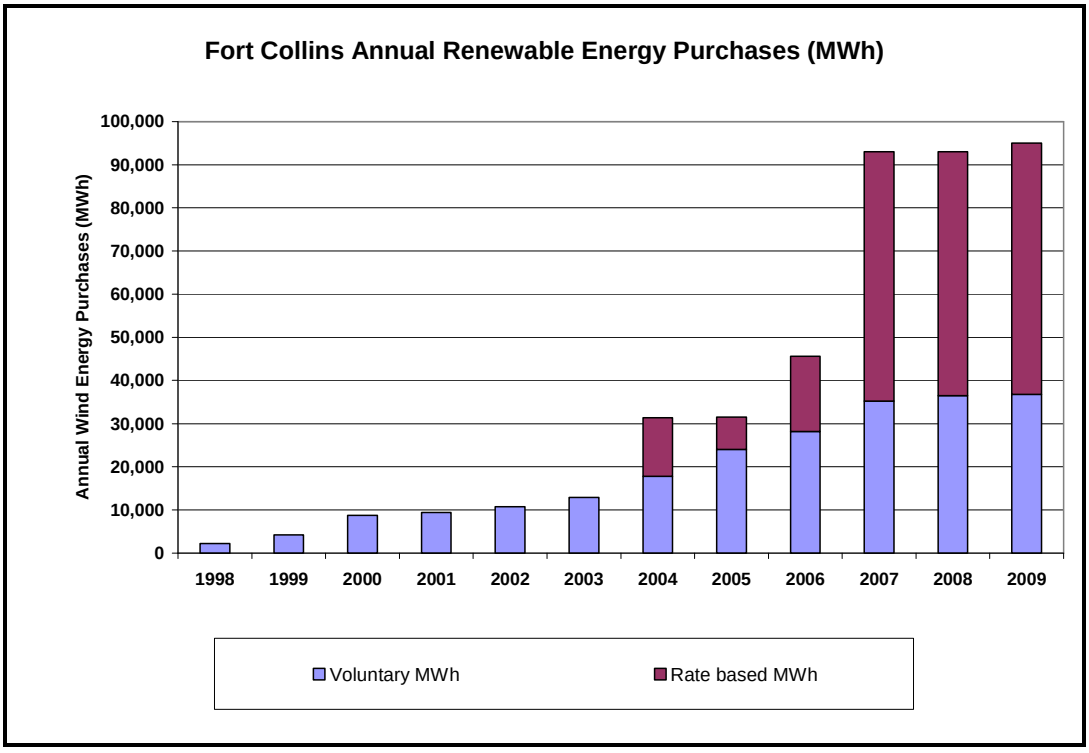
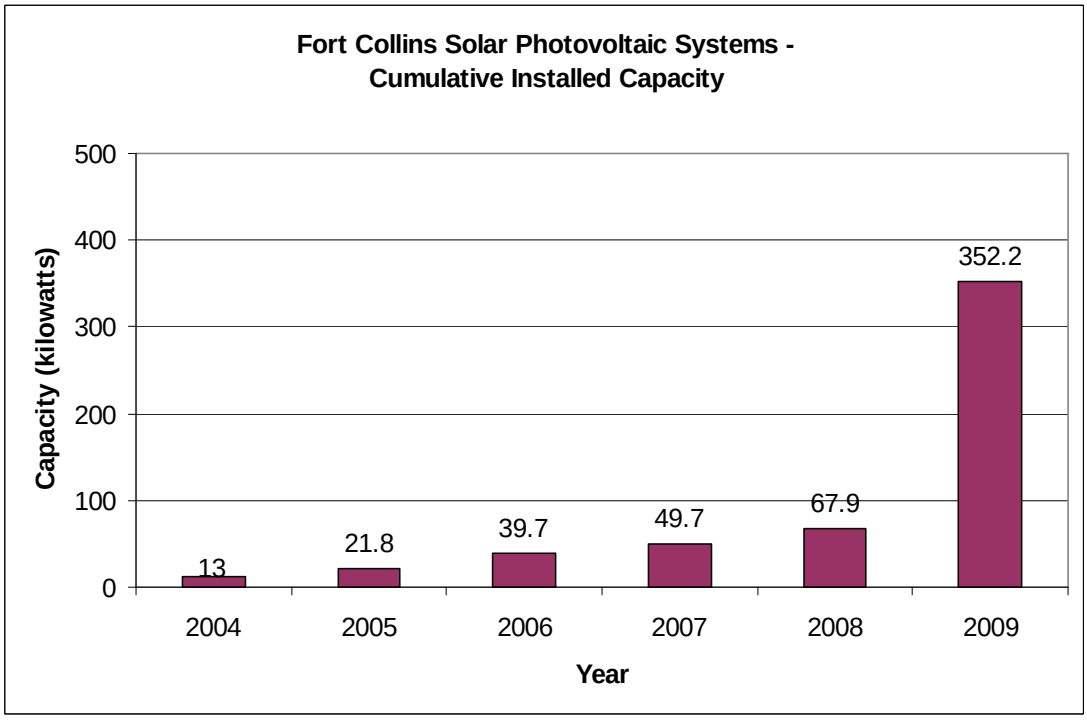


Figure A-5. Installed Solar PV Capacity 2004-2009



Promote sustainable practices in homes and businesses by requiring highly energy efficient new buildings and supporting increased efficiency in existing buildings.

Utilities continued implementation of the Integrated Design Assistance program for commercial new construction projects. The program provides design and performance incentives for high performance commercial projects based on exceeded code requirements and verified energy savings.

Utilities continued to provide direct support and leadership for the on-going implementation of the Northern Colorado ENERGY STAR® Homes Program. The program is jointly funded by regional partners and the Governor's Energy Office to expand the market for high performance new homes using the ENERGY STAR label (*nocoenergystarhomes.org*).

In mid-2009, Utilities focused on the development of a comprehensive program targeting improving efficiency in existing homes. The result is the Home Efficiency Program, which launched in January 2010. The program components include low-cost comprehensive efficiency audits, rebates for improvement measures, trained and qualified participating contractors and defined installation standards based on industry best practices.

During the last quarter of 2009, staff also focused on the development of a Green Building Program. The Green Building Program is intended to define a framework for delivering high performance residential and commercial buildings with both minimum performance standards (codes) and above code voluntary measures. Recommendations to City Council will be forthcoming in Spring 2011.

Participate in research, development and demonstration efforts to remain at the forefront of emerging technologies and innovative solutions.

The Department of Energy (DOE) co-funded Remote Distributed System Integration (RDSI) project will demonstrate integration of renewable energy and demand response to reduce feeder peak loads and maintain system reliability. The Smart Grid Innovation Grant (SGIG), also co-funded by DOE, will install advanced metering infrastructure and initiate smart grid in Fort Collins.

Develop a plan for reporting and continuous improvement on the sustainability of electric utility operations.

To reflect the values of Utilities' customers, employees and the community, Utilities produced its first-ever Sustainability Report in 2008. In 2009, our second report outlines key performance indicators, as required by the Global Reporting Initiative, and will guide Utilities' operations in the years ahead (*fcgov.com/utilities/gri.php*).

The process accomplished more than identifying issues for a triple bottom line approach. This approach hinges on the integration and balance of the three pillars of sustainability– economic, environmental and social responsibility. What began as an effort to involve the Utilities organization in discussing environmental impacts, broadened to become far more strategic in focus. The second report underscores the importance of addressing the short- and medium-term strategic issues ahead, from securing water supplies and modernizing the electric distribution system to managing infrastructure assets in the immediate future and in the coming decades.

Other significant challenges that will require attention in the coming years include managing the transfer of knowledge and assuring business continuity as our workforce continues to retire, assuring financial stability and responding to increased regulatory requirements.

Enhance Local Economic Health Goal

Maintain the financial health of Fort Collins Utilities' Light & Power Service Unit to support the vision of the Energy Policy.

Continue to meet the Utilities Light & Power fund financial policies.

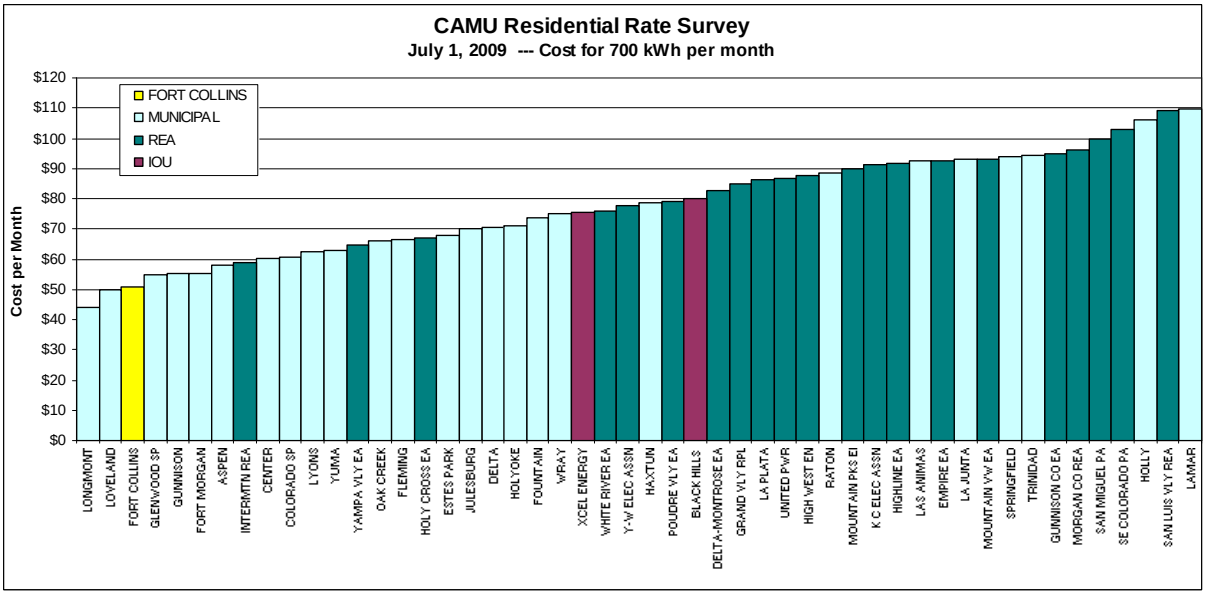
Maintain sufficient revenues through biennial budget planning for on-going operation and maintenance of the electric system and meet the projected requirements of the asset management plan.

As of year end 2009, the Light & Power Fund met all working capital reserve policies. Over the last few years the Utilities began to draw down reserves to minimum levels through the elimination of the purchase power reserve requirement. Due to the intentional reduction in reserve levels, 2009 rates did not fully cover the cost of operations resulting in a negative change in net assets for 2009. Change in net assets is projected to return to positive in 2010 and reserves are projected to remain at or above minimum policy levels during the next five years. The Light & Power Fund's 2010 revenue bond issue was rated AA- by Standard and Poor's on May 6, 2010. This is a reflection of the Light & Power Fund's overall financial health.

Maintain regionally competitive rates that promote energy efficiency and conservation.

Electric rates did not increase in 2009. As of July 2009, Fort Collins typical residential customer bills were in the lowest 6% of utilities in Colorado reporting to the Colorado Association of Municipal Utilities (CAMU). Figure A-6 shows a chart of the residential rates developed by CAMU.

Figure A-6: 2009 Residential Rates Comparison



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.

One of the overall goals of the Energy Policy is to help keep customer's energy bills affordable by helping them to manage their utility use, in combination with the historically low rates provided by Utilities. However, this is the first time that Utilities has developed and reported on a metric related specifically to affordability. It is expected that stakeholders will provide feedback on this model for future reporting purposes.

The metric is a percentage of the median household income (MHI) required to pay for electricity bills, based on estimated typical use by low income families and Fort Collins electric rates. Calculations also are done with bills estimated for electricity and natural gas to give a more representative picture of energy bills. The metric will allow Utilities to track over time the impact of rates, typical electricity use and family income data to improve the understanding of affordability. It also may provide information which can be used to improve programs and services for those most in need. Results of the affordability metric analysis are shown in Table A-9 below.

Sources of information and assumptions:

- Median Household Income (MHI) values reported by Larimer County and defined thresholds defined for Median, Low Income, Very Low Income and Extremely Low Income (Table A-8, *www.co.larimer.co.us/compass/median_family_income_ec_ind.htm*).
- Average Fort Collins single family home electricity use of 789 kWh per month.
- Utilities Residential Energy Only Rates: $4.20 customer fixed charge; $0.07176/kWh

Table A-8: 2009 Larimer County Median Family Income Data

2009 Larimer County Median Family Income Data				
Number of Persons per Household	**Median (100%)**	**Low Income (80% MFI)**	**Very Low Income (50% MFI)**	**Extremely Low Income (30% MFI)**
1	$52,650	$42,100	$26,300	$15,800
2	$60,150	$48,100	$30,100	$18,050
3	$67,700	$54,150	$33,850	$20,300
4	**$75,200**	**$60,150**	**$37,600**	**$22,550**
5	$81,200	$64,950	$40,600	$24,350
6	$87,250	$69,750	$43,600	$26,150
7	$93,250	$74,600	$46,600	$27,950
8	$99,250	$79,400	$49,650	$29,750

Table A-9: Utility Bill Affordability Summary

Utilities Affordability Calculation		
Electric Utility Only		
Residential Average Bill (annual)	$	730
MHI (Family of 4)	$	75,200
Percentage of Income		1.0%
Low Income Average Bill	$	527
Low Income (80% of MHI)	$	60,150
Percentage of Income		0.9%
Very Low Income (50% of MHI)	$	37,600
Percentage of Income		1.4%
Extremely Low Income (30% of MH	$	22,550
Percentage of Income		2.3%
Electric and Natural Gas		
Residential Average Bill (annual)	$	1,122
MHI (Family of 4)	$	75,200
Percentage of Income		1.5%
Low Income Average Bill	$	919
Low Income (80% of MHI)	$	60,150
Percentage of Income		1.5%
Very Low Income (50% of MHI)	$	37,600
Percentage of Income		2.4%
Extremely Low Income (30% of MH	$	22,550
Percentage of Income		4.1%

Promote the benefits of clean energy solutions to existing and potential customers.

Utilities developed the Fort Collins Conserves strategic outreach plan with "Make Efficient Choices" campaigns in the fall and spring to promote programs. Staff continued planning and implementation of the Residential and Business Environmental Program Series. Utilities Energy Services team continued to provide strategic, technical and financial support to the Climate Wise program.

Strive to invest climate improvement monies locally in programs that have long-term positive impacts.

Utilities continues to focus on developing trade ally networks and collaboration with local retailers for providing efficiency products and services to customers as they relate to Utilities programs and rebates. Rebates and incentives leverage private sector funding with an approximate 3:1 ratio.

Work closely with Platte River Goal

Develop closer working relationship with the other Platte River cities.
With other member cities, provide policy guidance to Platte River to:

- ***Design, operate and maintain the electric generation and transmission system to minimize the risk of system outages.***
- ***Develop long-term planning policies for Platte River that facilitate innovative solutions to future energy challenges.***
- ***Design, operate and maintain the electric generation, transmission and distribution system to maximize system efficiency.***
- ***Avoid the construction of new base load generation facilities.***
- ***Reduce impacts from fossil fuel use in current and future generation facilities.***
- ***Diversify the portfolio of energy sources that serve the City.***

A list of items providing general information on how the Fort Collins, the other member municipalities and Platte River work together is provided below.

- ***Integrated Resource Planning*** – In coordination with the owner Municipalities (Estes Park, Fort Collins, Longmont and Loveland), Platte River prepares an Integrated Resource Plan (IRP) every five years. Annual updates also are developed. An IRP provides information associated with the planning of resource acquisitions to meet customers' future electrical energy needs, including capacity and energy supply resources, renewable energy and demand side management (DSM). Both "supply side" and "demand side" options are considered. The planning process balances rates, reliability and environmental stewardship, with the resulting plans informed by both technical analysis and public review.

  The most recent IRP was written for the period 2007 through 2011. Development of the next plan will begin soon, with focus on the planning period 2012 to 2016.

- ***Climate Action Plan*** – In June 2009, Platte River completed its first joint Climate Action Plan (CAP). A consultant was hired to assist in the Platte River CAP development (KEMA, Inc.). The CAP was coordinated with the Municipalities and about a dozen public events were conducted to share the draft plan with utility staffs, citizen advisory groups, large customers (key accounts) and the general public. The final CAP document (approved by the Platte River Board) was provided to the Colorado Governor's office and other interested parties and is currently available in hard copy or on Platte River's web site at *http://www.prpa.org/environment/i/capjune2009.pdf*.

  During 2010, the Municipalities were interested in evaluating the potential for reducing coal generation and replacing it with gas. A "white paper" summary of the evaluation was shared with the Municipalities in multiple venues. The study shows large rate increases (about 140%) would be required to completely change from coal to natural gas, but also shows significant reductions in CO2 emissions are possible (to below 50% of current emissions).

  Platte River staff also participated in the climate planning efforts of the Municipalities, including serving on panels for the Fort Collins Climate Action Plan and the Longmont Integrated Sustainability Plan. Platte River and the Municipalities will continue to work together on the issue of greenhouse gas accounting and mitigation as legislation, regulation and public policy evolve over time.

- ***Renewable Energy Supply Policy*** – Planning for renewable energy supply is guided by a Renewable Energy Supply Policy (Policy), approved most recently by the Platte River Board of Directors in July 2007. This Policy is intended to guide Platte River as it plans for and acquires new renewable sources to meet the needs of the Municipalities. Guidance is provided regarding the level of renewable sources to be obtained, the type of sources considered acceptable to meet the Municipalities' renewable requirements, the anticipated impacts of renewable sources on future resource planning, the timing of resource acquisition and the approach to be used for pricing renewable sources for sale to the Municipalities.

  Based on current forecasts, the next renewable resource will be needed in approximately 2014. Platte River continues to track developments of regional renewable energy projects that may become available between now and then. Two such projects were offered for 2010 delivery of additional wind energy from Colorado and Wyoming wind plants. These were deemed too expensive at the time, but other projects may be suitable in the future to support the FortZED project or other potential needs.

- ***Common Energy Efficiency Programs*** – The Municipalities and Platte River currently invest significant resources in DSM, which can include energy efficiency, peak clipping, distributed generation and other technologies that exist on the customer side or "demand side" of the retail electric meter. Two broad categories of programs are in place: (1) "Common Programs" – those operated by Platte River in each of the Municipalities and funded jointly by Platte River and the Municipalities, and (2) Specific Municipal Programs – unique to each Municipality. A high level of coordination occurs among the Municipalities and Platte River related to planning and implementing DSM. The 2010 budget for DSM funded by Platte River is approximately $1.9 million and the total combined budget is about $6.6 million (with about $3.9 million coming from Fort Collins). Long-term planning for DSM investments by Platte River have been primarily based on Integrated Resource Plans (see above), developed jointly with the Municipalities.

- ***Power Supply and Organic Contracts*** – For the last few years, Platte River and the Municipalities have been working together to update these contracts. Through execution of the Organic Contract by the four Municipalities, Platte River was established and details for its governance were set in 1975. The Organic Contract is a single agreement among the four Municipalities. The Power Supply contracts are four separate, functionally identical agreements between Platte River and each Municipality. These contracts provide details of power supply and transmission service from Platte River to each Municipality. They also provide requirements for setting and reviewing wholesale rates. Both agreements have been extended in the past and Platte River and the Municipalities are currently negotiating further extensions through 2050.

  A key change during the current round of contract extensions involves Municipal generation, as the power supply contracts have been updated to provide for ownership and operation of generation by the Municipalities. Except for the small amounts of generation from hydropower facilities owned by Loveland and Longmont, the power supply agreements have historically required that the Municipalities purchase all their electric power and energy from Platte River.

- ***Tariff Changes to Facilitate Distributed Generation*** – Over the last several years, distributed generation technology has expanded significantly. This is particularly true for

distributed PV solar generation located within the Municipalities. Platte River has worked closely with the municipal utility rate staffs to ensure simple, flexible treatment of this type generation as it is installed by retail customers. Platte River's parallel generation tariff (Tariff 3) now has provisions for net metering of customer-owned generation and about fifty such systems are operating in the four owner municipalities (mostly PV solar). Platte River now only becomes involved in Customer generation when these systems are at or above 1,000 kW. Tariff 3 also has provisions for renewable energy generation developed by "third parties" and sold to retail customers via long-term contracts.

- ***Wholesale Rate Structure Study*** – A joint team from the Municipalities and Platte River is working together to consider a potential new wholesale rate structure. The current rate, composed of "demand" and "energy" charges, has been in place since Platte River was formed. This type rate design was common at the time (1970's) for wholesale generation / transmission entities. The primary concern in rate making is to meet revenue requirements. Ideally, rates would be kept stable over time to avoid "rate shock" to customers. Also, any rate design would need to be feasible in terms of having adequate metering, billing and other technology systems in place for implementation.
- ***Smart Grid Development*** – Fort Collins, Longmont and Loveland are participating in a joint effort to integrate new smart grid technologies into the distribution systems. Platte River supports Fort Collins Utilities as it considers new "smart grid" technologies for enhancing system efficiency, reducing consumption and enhancing customer communications.
- ***Joint Renewable Energy Integration Study*** – A joint effort is planned among the Governor's Energy Office, San Luis Valley Rural Electric Association, Holy Cross Energy, Fort Collins Utilities and Platte River to study installation of distributed renewable energy additions on existing electric grids. Longmont and the other Municipalities may also be involved at some level. The objective of this work is to determine the costs and benefits of distributed solar PV and small hydro from the utility perspective, specific to the load profiles and unique characteristics of a small sample of non-profit Colorado utilities.

  Ambitious goals for addition of renewable resources make it crucial for utilities to clearly understand the value of distributed renewable energy systems and what future investments are justified in these technology applications. Understanding this value will enable utilities to optimally site new systems and to determine the costs and benefits of such systems. This effort should be completed by the end of 2010. Results will be specific to the Fort Collins / Platte River system (as well as the systems of other utilities involved in the study). Findings of the study will be available to all the owner Municipalities.
- ***Transmission Upgrades*** – Under the power supply agreements with the Municipalities, Platte River is responsible for providing transmission service to the Municipalities' substations. Working closely with the municipal utility staffs, several projects are underway to expand and upgrade Platte River's transmission system. These projects will enhance system reliability, allow the Municipalities to serve new load and improving physical security. A key goal of the effort is to provide two major supply sources to each major municipal substation so that load can continue to be served in the event that one line is out of service for any reason. Current projects are planned mostly in Fort Collins, Longmont and Loveland.

Fort Collins requested that Platte River build transmission to support the operation of the new Portner substation and other expansion of Fort Collins' distribution system. Fort Collins also requested installation of equipment needed to support the addition of two 50 MVA transformers at the Timberline substation in order to better serve new loads. Platte River also will rebuild two segments of existing line in southwest Fort Collins for double circuit operation to increase capacity and reliability. The final portion of this project is a section of underground line that connects the Dixon Creek Substation in Fort Collins to Loveland's Horseshoe Substation south of Fort Collins.

Platte River is also enhancing the physical security of its substations and will install new security walls around the perimeter of three substations. Existing security systems also will be upgraded at other substations, including new software, enhanced lighting and new perimeter detection systems. In addition, Platte River will replace fiber optic communication equipment in all Platte River substations and upgrade equipment to increase communication system capacity at the LaPorte Substation north of Fort Collins.

Appendix B: Energy Policy

2009 Energy Policy

Background

The citizens of Fort Collins created the municipal electric utility in 1935. In 1973, Fort Collins joined with Estes Park, Longmont and Loveland to create Platte River Power Authority, a joint-action agency charged with meeting the electric generation and transmission needs of the four cities. These organizations have demonstrated progressive long-term planning throughout their history. In 2003, City Council adopted the *Electric Energy Supply Policy* that recognized the interrelated planning goals of high reliability, low rates and minimizing environmental impacts.

This revised Energy Policy reflects five years of experience implementing the 2003 policy, the evolving electric utility industry and the interests of Fort Collins citizens. In May 2008, Fort Collins' City Council adopted greenhouse gas emissions goals of 20% below 2005 levels by 2020 and 80% below 2005 levels by 2050.

The purpose of this policy is to provide strategic planning guidance for Fort Collins Utilities' Light and Power Service Unit, the Energy Services group and the entire City government. The policy describes a mid-century vision and four goals with associated objectives and metrics.

2050 Vision

To ensure for the Fort Collins community highly reliable, competitive, carbon neutral electricity supplies, managed in a sustainable, innovative, responsible and efficient manner.

Goals

Goal #1: Provide highly reliable electric service.

Highly reliable electric service is a core responsibility of the electric utility, defined by reliability statistics, power quality and customers' perception of "up-time." Reliable service is critical for the physical and economic welfare of the community. Long-term planning, high standards and qualified staff responsible for the planning and maintenance of the electric infrastructure are the primary drivers of high reliability.

Exemplary service from knowledgeable, responsive and courteous staff is a part of customers' perception of Light and Power's reliability. Light and Power demonstrates the value of skilled and qualified employees through long-term planning for hiring, retention and succession. Continued financial health and adequate investment in Light and Power supports the reliable electric service goal.

Smart grid innovations are expected to have an increasing role in the electric system. Smart grid is the integration of an electric transmission or distribution system, a communications network, software and hardware to monitor, control and manage the reliability and overall system efficiency of the generation, distribution, storage and consumption of energy.

Goal #1: Objectives and Metrics

- Demonstrate and communicate the high reliability of the Fort Collins electric system by maintaining annual reliability metrics of:
    - Average System Availability Index (ASAI) greater than 99.9886%;
    - Customer Average Interruption Index (CAIDI) less than 60 minutes; and

    - System Average Interruption Frequency Index (SAIFI) less than 1.0.
- Apply appropriate construction standards and material specifications for long-term reliability.
- Create an asset management plan by 2010 for the long-term integrity of the electric utility infrastructure.
- Create a smart grid roadmap by the end of 2009, defining specific objectives and implementation plans.
- 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.
    - 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. Develop a methodology for tracking load management as a percentage of peak demand, considering utility programs, customer response and weather normalization.
    - Support customer efforts to reduce electric costs through managing peak loads.
- Annually report on human resources benchmarks designed to sustain a skilled and qualified Light and Power workforce.
- See Goal #4 for reliability related coordination with Platte River Power Authority.

Goal #2: Support the community's carbon emissions goal of reducing the City's carbon footprint 20% below 2005 levels by 2020 and 80% by 2050.

Fort Collins citizens place a high value on a healthy and sustainable environment. Fort Collins Utilities goal is to continuously move in the direction of sustainability, reducing impact on ecological systems while improving the well-being of the community.

Energy use, water use and transportation are major components of the community environmental footprint, and solutions that integrate the relationship between these sectors will result in optimal long-term outcomes. All energy sources have environmental impacts related to resource exploration, extraction, transportation, emissions and land use. Carbon emissions related to the provision of electric energy, including energy supply resources and operations, is a meaningful and pragmatic metric for measuring the community environmental footprint.

Fort Collins Utilities is committed to first maximizing the benefits of efficiency and conservation, moving toward clean and renewable energy sources, and adapting to the opportunities brought by innovation and emerging technologies in the electric utility industry.

Goal #2: Objectives and Metrics

- Develop a methodology for reporting carbon emissions and savings related to:
    - Overall electricity consumption;
    - Reductions in energy use from efficiency programs;
    - Substitution of fossil fuel based electricity with renewable or clean resources; and
    - Increases in use of electricity for transportation.
- Adopt pricing policies that reflect the short term and long term costs, both direct and indirect, of generating and delivering electricity.

- Continuously reduce energy use through verifiable energy efficiency programs, independent of population growth and economic trends.
    - Achieve annual energy efficiency and conservation program savings of at least 1.5% of annual energy use (based on a three year average history).
- For renewable energy resource investments, balance the interrelated factors of carbon reduction cost-effectiveness, impact on power plant operations and local economic benefits.
    - Maintain a minimum fraction of renewable energy in compliance with State of Colorado requirements. In coordination with Platte River Power Authority, develop generation resources and the delivery of renewable energy to meet minimum requirements.
    - Offer voluntary renewable energy programs, whereby customers can support renewable energy and local renewable energy projects through opt-in premium pricing.
    - 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.
    - Include renewable energy sources that can be scheduled to maintain system stability and reliability.
- Promote sustainable practices in homes and businesses by requiring highly energy efficient new buildings and supporting increased efficiency in existing buildings.
- Participate in research, development and demonstration efforts to remain at the forefront of emerging technologies and innovative solutions.
- Develop a plan for reporting and continuous improvement on the sustainability of electric utility operations.

Goal #3: Enhance local economic health.

Fort Collins Utilities' Light and Power Service Unit has supported our local economy with highly reliable service, and a history of low and stable electric rates. Going forward, competitive rates should be combined with energy efficiency and conservation programs to result in low and sustainable community energy bills, supporting economic activity in all areas.

Fort Collins Utilities' Light and Power Service Unit business activities also support the local economy as a direct and indirect employer, as a contributor to the City's general fund, by leveraging customer investment in energy efficiency, supporting research and demonstration projects and as a participant in clean energy collaborations.

Goal #3: Objectives and Metrics

- Maintain the financial health of Fort Collins Utilities' Light and Power Service Unit to support the vision of the Energy Policy.
    - Continue to meet the Utilities Light and Power fund financial policies.
    - 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.
- Maintain regionally competitive rates that promote energy efficiency and conservation.

- 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.
- Promote the benefits of clean energy solutions to existing and potential customers.
- Strive to invest climate improvement monies locally in programs that have long-term positive impacts.

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

Platte River provides a strong means for furthering the energy goals of Fort Collins and the other Platte River members. Platte River provides generation and transmission level electric services, while Utilities provides distribution service, metering and direct customer services. Fort Collins contracts with Platte River for all of the electricity delivered to customers, including renewable energy. Platte River is controlled by a board of directors comprised of two representatives from each of the four cities, typically the utilities director and mayor.

Goal #4: Objectives and Metrics

- Develop closer working relationship with the other Platte River cities.
- With other member cities, provide policy guidance to Platte River to:
    - Design, operate and maintain the electric generation and transmission system to minimize the risk of system outages.
    - Develop long-term planning policies for Platte River that facilitate innovative solutions to future energy challenges.
    - Design, operate and maintain the electric generation, transmission and distribution system to maximize system efficiency.
    - Avoid the construction of new base load generation facilities.
    - Reduce impacts from fossil fuel use in current and future generation facilities.
    - Diversify the portfolio of energy sources that serve the City.

Reporting and Policy Update

In order to provide transparency and document progress, the Utilities Executive Director will provide the City Manager, Electric Board and City Council with an annual status report on the Energy Policy. The report will document progress on the goals and objectives included in the policy, report policy related costs and benefits of policy initiatives and update plans for the next year.

The Energy Policy will be reviewed and revised in the fifth year after adoption.