ATTACHMENT A

CLIMATE ACTION PLAN BACKGROUND

Climate Action Plan

In May 2002, City Council passed a resolution to develop and implement a local action plan to reduce the community's greenhouse gas emissions, and to prepare an annual report summarizing progress. The resolution set an initial emissions reduction goal in alignment with the Kyoto Protocol target or 7% below the estimated 1990 level. This resolution and the goal built on environmental policies found in the Boulder Valley Comprehensive Plan (BVCP) and the City Council's Environmental Goal. Specifically, the BVCP has policies on energy conservation, encouragement of energy alternatives, city leadership in resource conservation, energy-efficient land use and energy-efficient building design and construction. The goal also arose from concerns about the potential negative impacts of climate change on the Rocky Mountain region and beyond. Climate change is largely caused by human consumption of fossil fuels. According to many studies, for Colorado, climate change will likely mean diminished snow pack, increased drought, more insect outbreaks in forests, an earlier and longer wildfire season, reduced habitat for native species, and less economic growth. These changes would be detrimental to local and regional tourism, farming, skiing, and other related industries.

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The CAP was approved by City Council in May 2006, and serves as a roadmap to achieving Boulder's goal and places Boulder on the path to a sustainable energy future. The CAP outlines baseline information, including the emissions inventory, and establishes the context for programs and priorities. The primary strategies for reaching the 2012 emissions reduction goal are to reduce energy use through conservation and improved energy efficiency, to shift to renewable energy sources for buildings and transportation, and to reduce vehicle miles traveled. The specific strategies are based on utility energy efficiency programs, and are modeled on programs and policies in use in other communities, staff research, and input from the community. Energy efficiency programs are the primary focus because investments in efficiency have a relatively short payback period, especially where utility rebates and tax incentives are available, make lasting improvements to buildings, and contribute to the goal of energy sustainability. The CAP also provides a framework to compare and analyze alternative policies, programs and strategies to facilitate Council's review and decision-making process. The CAP roadmap is continuously evolving in response to new information, legislation and opportunities.

The emissions reduction efforts endeavor to adhere to the following guiding principles:

- Complement other city policies and initiatives, including the BVCP;
- Balance cost burden across the sectors according to the city's investment in sector programs and services;
- Maximize utilization of external funding, such as Xcel Energy rebates, grants and federal tax incentives, when possible;
- Serve low income and underrepresented populations, such as the elderly and non-English speaking households; and
- Engage in strategic partnerships wherever possible.

An overarching strategy of the CAP assumes that the city will serve as a resource and provide programs and services to generate voluntary efforts to reduce greenhouse gas emissions. Additionally, the CAP recommends that city resources be focused on energy efficiency through audits, and information on local qualified contractors who can perform the work, and rebates and incentives to maximize implementation of efficiency measures. The city's efforts are designed to complement other services, most importantly Xcel Energy's Demand Side Management (DSM) programs. Providing information, education and support for renewable energy investment is another primary focus although currently far fewer resources are necessary to support renewable energy penetration, thanks in part to Federal and Xcel incentives. Expanding energy efficiency in the community creates obvious and tangential benefits. The CAP suggests that to reach a high level of efficiency, the city may need to consider implementing policies packaged with financial support or incentives. This approach is most suitable for existing buildings (residential and commercial) which represent a high proportion of city energy use and will not be affected by codes addressing new construction.

The CAP presents a broad range of programs, services and policy approaches for reducing emissions. Section VI—the Implementation Plan—describes recommended actions, costs and emissions reductions for implementing the CAP. Most of the actions are intended to be in place through 2012, with service levels and programmatic details subject to change in response to new circumstances and program evaluation. These actions include continuation of existing activities and programs, as well new actions that will achieve far greater emissions reductions. The Implementation Plan reflects participation rates and results that are believed to be reasonable, achievable and slightly conservative, so as not to overestimate results or under-estimate the necessary budget.

The Implementation Plan focuses on actions that complement and facilitate private sector investments and utility rebate programs. City resources are used to provide information, tools and resources to overcome the barriers to implementation of energy efficiency and renewable energy actions in all sectors, rather than pay for the actions directly. In addition to community programs, services and targets, the CAP outlines specific goals for the city organization with respect to expanding investments in energy efficiency and renewable energy. The Implementation Plan is updated as necessary to reflect significant shifts in strategy and funding, and to respond to external policies and initiatives. The CAP can be viewed at www.environmentalaffairs.com or www.beClimateSmart.com.

When adopted, the CAP anticipated a gap in emissions reductions necessary to meet the city's 2012 goal. To address this gap the CAP suggested purchase of renewable energy credits or RECs in 2013 and beyond, in order to achieve and maintain the GHG objective. In August 2006, when City Council determined the CAP tax rates to place on the ballot in November, it chose to eliminate the REC purchase and asked for more aggressive action to reduce emissions. Among other factors, this decision related to a desire to limit the maximum annual tax revenue indicated on the ballot, and also a desire to maximize other emissions reduction strategies and avoid purchasing RECs that require ongoing investment. This decision increases the challenge of meeting the goal yet it also provides the opportunity to consider other innovative options.

Greenhouse Gas Inventory

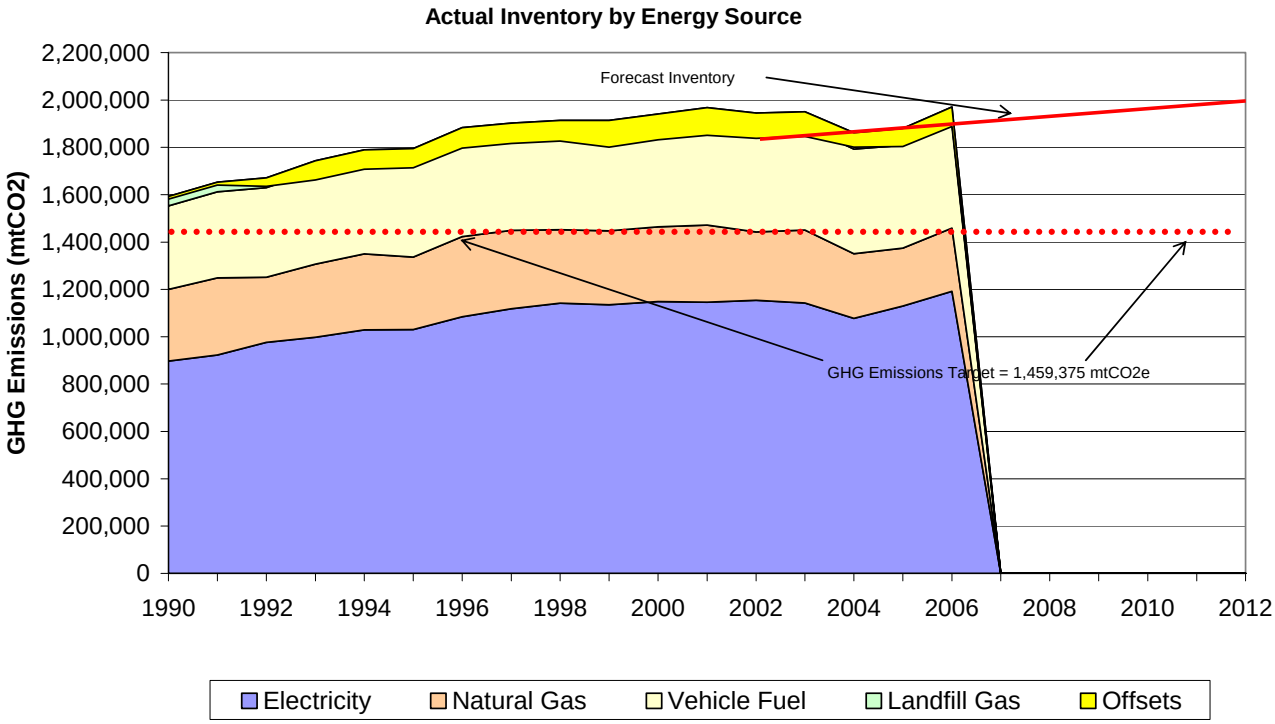
The city's greenhouse gas inventory tracks emissions from energy use, transportation and solid waste generation within the community. Staff estimates the GHG impact for most programs and initiatives and has incorporated tracking to refine estimates to improve projections but the inventory is the ultimate measure of progress toward the GHG goal. The primary data sources are community electricity and natural gas consumption from Xcel Energy, annual vehicle miles traveled from the city's Transportation Division, tons of garbage sent to the landfill reported by trash haulers operating in Boulder, and offsets from the purchase of renewable energy, such as wind power and biodiesel provided by suppliers and retailers. Production emissions from goods consumed in Boulder are not included in the inventory. The system translates these inputs into GHG emissions by sector and by fuel source. The vast majority of the city's emissions are related to electricity use, which is primarily derived from coal.

To better understand the inventory it is helpful to look at energy source and sector contributions.

Table 1: 2006 Emissions by energy source and sector source.

Energy sources	Percent	Sector sources	Percent
Electricity	61	Commercial and Industrial	58
Transportation	22	Transportation	22
Natural gas	14	Residential	17
Solid waste	3	Solid waste	3
	100		100

After experiencing declining GHG emissions from 2003 through 2005, Boulder experienced an increase in emissions in 2006. The 2006 inventory shows an increase of 4.6% from 2005 levels. The 2006 levels are the highest emissions levels since 1990. Increased energy use from redevelopment, new construction and more electrical equipment likely contribute to increased emissions. The following graph depicts the current trends of Boulder's GHG emissions based on energy source. It is important to note that the offsets depicted in yellow actually decrease Boulder's emissions. They are shown at the top of this graph for demonstrative purposes.



According to Xcel's 2006 annual report to Boulder, total electricity consumption increased by 5.5% and natural gas use increased by 9%. Possible, but not proven, reasons for the increase are increases in air conditioning from additional systems and longer use, increases in electric appliances, and new construction. Commercial buildings and industrial facilities continue to be the largest source of emissions at 58% of the total, a 4% increase from 2005. However, there was also 15% increase in the amount of renewable energy purchased either through renewable energy credit companies or Xcel's Windsource program.

Transportation emissions peaked in 2002 and have since fluctuated below this level. However, emissions did increase by 2% from 2005 to 2006. It appears that efforts to reduce vehicle miles traveled and encourage the use of alternatively fueled vehicles are helping stabilize emissions in this sector.

Overall, the city's 2006 emissions were 1,887,596 metric tons carbon dioxide equivalent (mtCO2). The community must reduce annual GHG emissions by 406,489 tons from 2006 levels by 2012 in order to meet the goals of the CAP. This represents a 22% decrease from 2006 levels. While this goal is challenging it is achievable. For example, if the amount of Boulder's electricity derived from wind increased to 25 percent (achievable through Windsource purchases) and 100 megawatts of solar PV were installed in Boulder, the 22% decrease would be realized and the GHG goal would be met.

The city's GHG inventory will be updated with 2007 data in June 2008 once all data has been received and staff will provide City Council with an updated inventory later in the summer.

Climate Action Plan Tax and 2008 Budget

In 2007, Boulder became the first municipality in the nation to tax energy use as a method to fund GHG emissions reduction strategies. This tax was approved by 60% of the November 2006 election voters and funds implementation of the CAP. Xcel Energy began collecting the CAP tax on Boulder customers' electricity use in April 2007. The ballot measure set minimum and maximum rates for each customer sector, residential, commercial and industrial, and currently the minimum rates are in place.

The initial CAP tax rates were set to generate an annual budget of $860,265. Sector rates generate revenues corresponding to the proposed 2007 expenditures for the sectors with the following breakdown: residential sector – 58%; commercial sector – 39%; and industrial sector – 3%. As sector expenditures change over time, sector contributions and tax rates will also be adjusted to maintain balance between revenues and expenditures. Council can adjust the tax rates up to the voter-approved maximum levels through an ordinance change.

CAP tax revenues were lower than projected in 2007. The primary reason is that April revenues did not equal a complete month's revenue due to Xcel Energy customer billing cycles. CAP expenditures were reduced to compensate for reduced revenue; $789,000 was collected in 2007. In 2008 the tax will be collected for a complete year and revenue projections are in line with the approved budget of $875,000.

CAP Progress Report

As requested in the 2002 GHG resolution, staff prepares an annual progress report summarizing the major activities and results achieved. A copy of the report was provided to City Council during the week of March 19 (included as Attachment B) and it is available on www.beClimateSmart.com. Because the report goes into detail about each program, summary information is provided in this section.

The city began laying the foundation for full scale CAP implementation in 2007. Most of the existing programs were expanded, with minor adjustments to improve effectiveness, and several new programs were added. Prior to 2007 the city's GHG programs were limited to residential and commercial energy efficiency and promotion of renewable energy through a wind challenge campaign. Beginning in 2007 a CAP brand or campaign name, ClimateSmart, was selected and marketing, education and outreach efforts were launched in the fall. Additionally the city began evaluating existing and potential actions to reduce transportation emissions to complement the efforts of the city's Transportation Master Plan.

Much was accomplished in 2007. Many CAP progress indicators were met, and each program with a participation rate limited by funding was at capacity. Some programs had a waiting list going into 2008. Interest and participation has been very good overall,

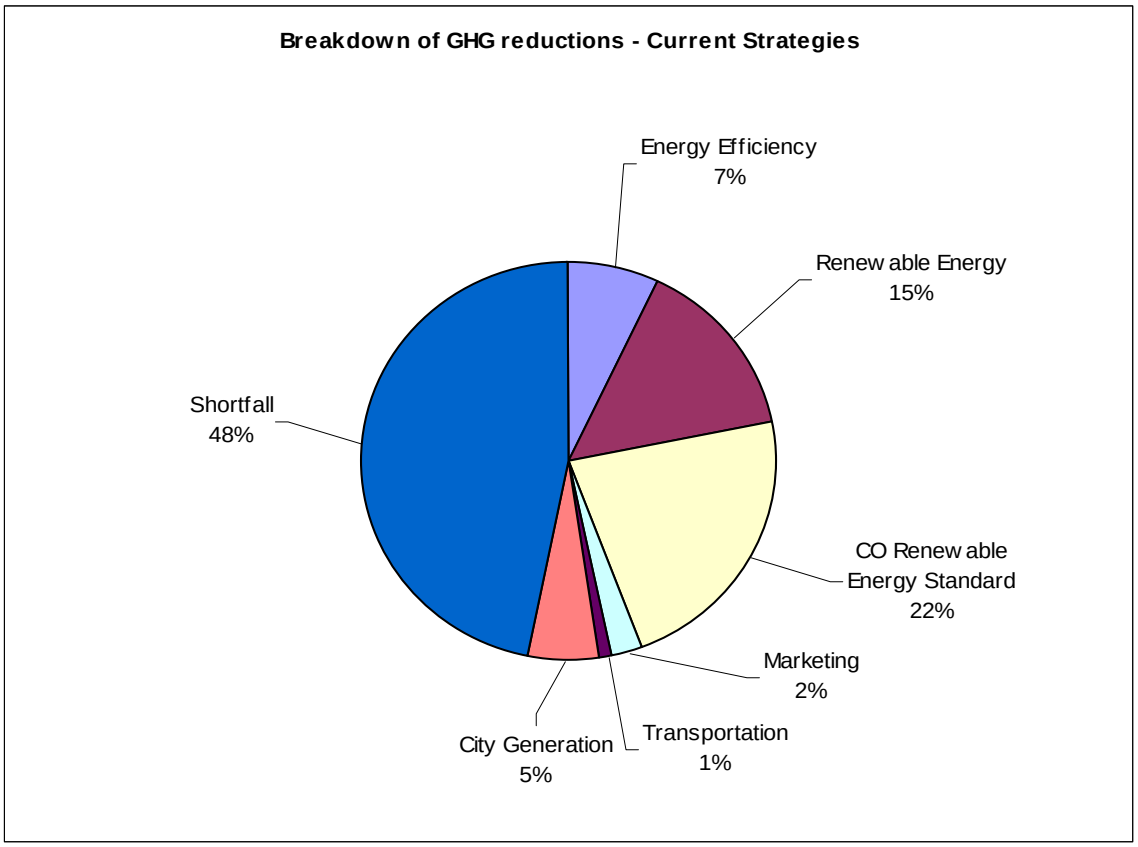
especially given the fact that Boulder has not had access to robust energy efficiency programs in the past. Previous Xcel DSM programs were limited to the commercial sector and few Boulder businesses were aware of the programs or participated. We are still working to develop or facilitate development of the full suite of information and resources to enable households and businesses to overcome barriers to taking the actions needed and anticipate that by the end of 2008 to be much further down this path. One challenge has been engaging multi-family housing and rental housing at a level that will adequately address energy use. By working with the Boulder Area Rental Housing Association, the CU Energy Green Teams and others, resources and services will be tailored to renters.

Preliminary results from the energy efficiency and renewable energy programs are promising. Because limited services were offered before 2007 and expanded services were provided throughout the year, actual implementation results will not be available until the end of 2008. Based on the information that we do have, we are confident that the work underway is building a solid foundation for future emissions reductions that will be reflected in the annual GHG inventory.

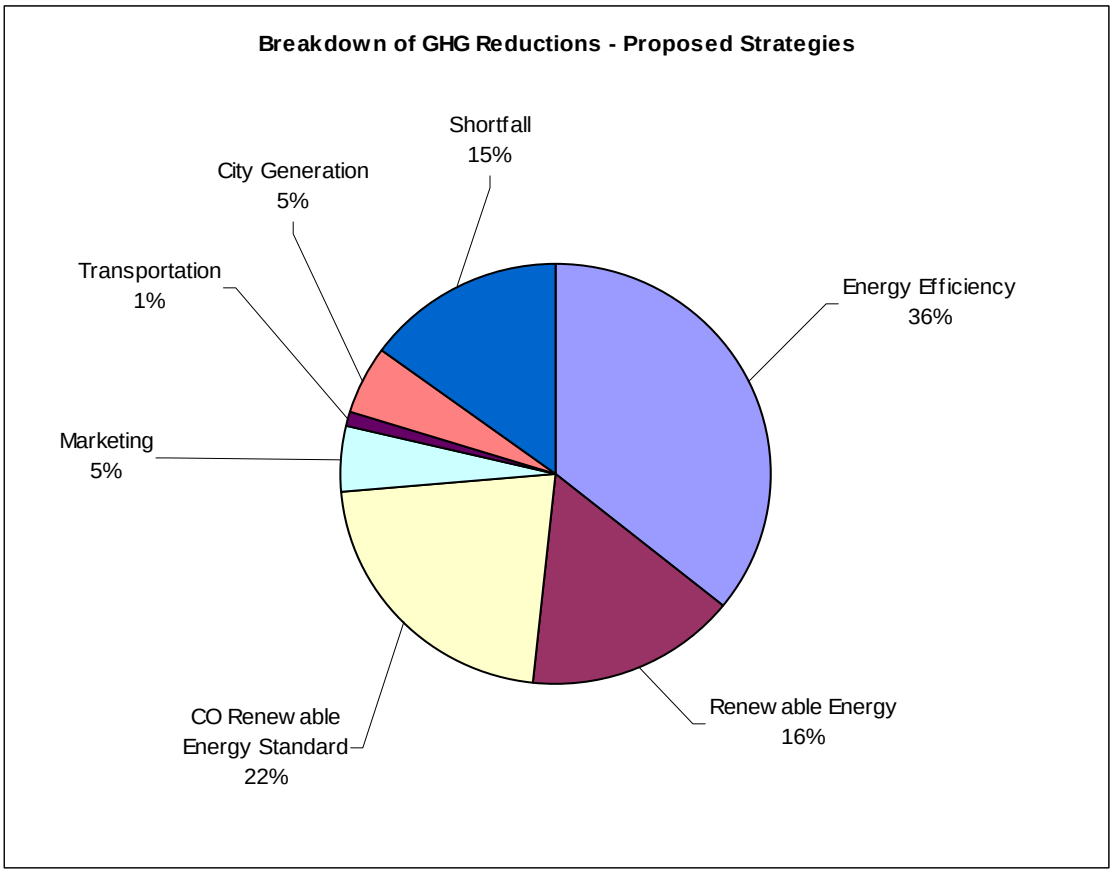
Examples of 2007 accomplishments:

- Completed 35 commercial building energy assessments;
- Completed 220 residential energy audits;
- Weatherized 20 lower income households;
- Provided 725 energy and water conservation kits ;
- Provided a subsidy for or distributed almost 15,000 energy-efficient compact fluorescent lights (CFLs);
- Provided over 1,500 high efficiency LED holiday lights in exchange for incandescent versions;
- Presented ClimateSmart programs on 22 occasions to over 600 people; and
- Sponsored a home energy makeover on a Boulder home, which will save $2000-$2500 per year on energy bills.

The CAP assumed programs and services would be expanded over time to enhance progress toward the goal. Achieving the goal involves a 22% reduction from 2006 emissions levels. The current programs and service levels are estimated to result in emissions levels that are short of the goal by about 48 percent.



Achieving emissions reductions through energy efficiency and renewable energy require information and time for property owners to incorporate investments into their budgets. Therefore staff is recommending expanding programs and services to increase emissions reductions achieved in the coming years. The proposed enhancements to the CAP are estimated to get the city much closer to the 2012 goal, falling short by about 15 percent.



Boulder County

Boulder County is an important partner in CAP implementation by providing matching funds for programs, contributions to marketing costs and grants and conducting relevant program research and analysis. County staff participate on the CAPAG and coordinate the Consortium of Cities' Energy Strategy Task Force which developed the Sustainable Energy Plan (SEP) in 2007. The SEP includes innovative program options and analysis, providing useful information for CAP staff. Finally, Boulder County staff worked with each community in the Consortium of Cities to encourage adoption of the SEP and participation in ClimateSmart programs and marketing. These efforts create a coordinated, regional initiative that leverages city funds and will increase the effectiveness of the CAP and ClimateSmart marketing and outreach.

Colorado Climate Action Plan

In November 2007, Governor Ritter released the Colorado Climate Action Plan (CCAP) which identifies climate change as "our generation's greatest environmental challenge" and calls for action to reduce GHG emissions. The Plan establishes objectives to reduce emissions of greenhouse gases by 20 percent from 2005 levels by 2020, and makes a shared commitment with other states and nations to even deeper emissions cuts by 2050. By 2050 reductions in GHG emissions of 80 percent are needed.

The CCAP calls for actions to reduce GHG emissions in the following areas:

- Recognize Agriculture as Part of the Solution
- Transportation
- Provide Greener Electricity
- Research and Innovation for Coal, Natural Gas and Renewable Energy
- Emissions Reporting
- Regional Carbon Emissions Trading
- Foster an Educated Workforce

The plan includes a framework of strategies to work toward the goal that builds on existing strategies and sets the stage for new initiatives. The Governor's Energy Office (GEO) plays a lead role in developing Colorado's New Energy Economy which is integral to the CCAP.

The GEO reorganized and expanded its staff, budget and program offerings in 2007 and will continue to grow in 2008. The city of Boulder has received funds and technical assistance to support a variety of programs including building codes training and a residential insulation pilot. A grant request to support new, innovative programs was submitted in March. Staff anticipates that GEO will be a valuable technical and financial partner for the CAP.

In 2008, GEO will be developing the Colorado Carbon Fund with the goal of creating a funding source and market for Colorado GHG offsets. City staff has been in communication with GEO on this project and is optimistic about the value of the fund to the CAP as a potential source of funds and to the Boulder community as a market for offsets.