

Climate Action Plan



June 2009

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Executive Summary



Berkeley Bicycle Patrol Officers Chris Waite (left) and Brian A. Mathis.

The science is clear. Global warming is a real and significant threat to humankind. However, our response to this threat presents opportunities to create a more livable, equitable, and economically vibrant community. By using energy more efficiently, harnessing renewable energy to power our buildings, enhancing access to sustainable transportation modes, recycling our waste, and building local food systems, we can keep dollars in our local economy, create new green jobs, and improve community quality of life. In fact, most of the actions in the plan will provide more savings – nearly \$500 million in total by 2020 – than initial costs.

Even beyond the benefits of local climate action, the impacts associated with climate change make action at all levels an urgent and absolute necessity. Globally, the rise in temperatures has profound implications for the availability of the natural resources on which economic prosperity and human development depend. The changing climate also has potentially severe economic, health, social, and environmental consequences for us close to home, including:

- Threats to coastal infrastructure due to a rising San Francisco bay: The bay rose seven inches over the past 150 years. Estimates are that by 2100, the bay could rise up to a meter.¹
- Increased incidence of large wildfires: The risk of large wildfires in California could increase by as much as 55% by century's end.
- Serious public health threats: Increasing temperatures exacerbate local air pollution, lead to intensified heat waves, and expand the range for infectious diseases.
- Water shortages: Due to rising temperatures, the Sierra Nevada mountain snowpack that supplies much of the state's water supply could decrease by 80% by century's end. Loss of snowpack threatens drinking and agricultural water supplies as well as hydropower generation and the health of the state's creeks and rivers.²

The cost of inaction, or inadequate action, is unacceptable. Berkeley citizens recognize this truth and are eager to get to work. In November 2006, Berkeley voters issued a call to action on the climate challenge by overwhelmingly endorsing ballot Measure G. The mandate was simple but bold: Reduce our entire community's greenhouse gas (GHG) emissions by 80% by the year 2050. The measure directs the Mayor to develop a Climate Action Plan to reach that target.

¹ San Francisco Bay Conservation and Development Commission website: www.bcdc.ca.gov/index.php?cat=56 (2008).

² Our Changing Climate: A Summary Report from the California Climate Center (2006).

Mayor Tom Bates embraced Berkeley citizens' call to action and provided leadership in engaging the community in a local climate protection campaign. This plan is the result of the campaign that Measure G set in motion. It is rooted in the vision for a sustainable Berkeley that emerged from the climate action planning process. The plan's purpose is to serve as a guide for setting the community on a path to achieve that vision.

Berkeley Measure G:

Should the People of the City of Berkeley have a goal of 80% reduction in greenhouse gas emissions by 2050 and advise the Mayor to work with the community to develop a plan for Council adoption in 2007, which sets a ten year emissions reduction target and identifies actions by the City and residents to achieve both the ten year target and the ultimate goal of 80% emissions reduction?

Passed with 81% of the vote in November 2006

Vision for the year 2050:

- New and existing Berkeley buildings achieve zero net energy consumption through increased energy efficiency and a shift to renewable energy sources such as solar and wind.
- Public transit, walking, cycling, and other sustainable mobility modes are the primary means of transportation for Berkeley residents and visitors.
- Personal vehicles run on electricity produced from renewable sources or other low-carbon fuels.
- Zero waste is sent to landfills.
- The majority of food consumed in Berkeley is produced locally, i.e., within a few hundred miles.
- Our community is resilient and prepared for the impacts of global warming.
- The social and economic benefits of the climate protection effort are shared across the community.

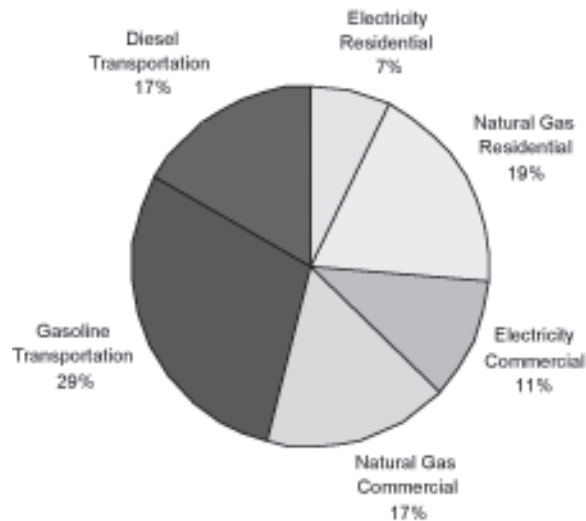


Berkeley's Emissions Inventory

To ensure that the community stays on course to meet its aggressive GHG reduction target, it is necessary to track our progress by conducting regular, community-wide GHG emissions inventories.

It helps to think of the inventory as a "snapshot" of our community's GHG emissions for a given year. It identifies the major sources and quantity of GHG emissions produced by residents, businesses, and public institutions. In 2005 Berkeley emitted approximately 576,000 metric tons of GHG emissions. The chart (top of page ES3) illustrates these emissions by source.

Berkeley's GHG Emissions by Source in 2005³



The inventory reflects the emissions that result from motor vehicles driven and electricity and natural gas consumed within Berkeley city limits. While there are important limitations in the inventory methodology, it does serve as a useful tool for tracking community emissions over time and for targeting climate protection strategies to address the main emissions sources.

Targets & Trends

Per Measure G, Berkeley's emissions reduction target is an 80% reduction below 2000 levels by 2050. This target is expressed in absolute tons and is not relative to projected growth. In order to monitor progress along the way, it is effective to set interim, short-term targets.

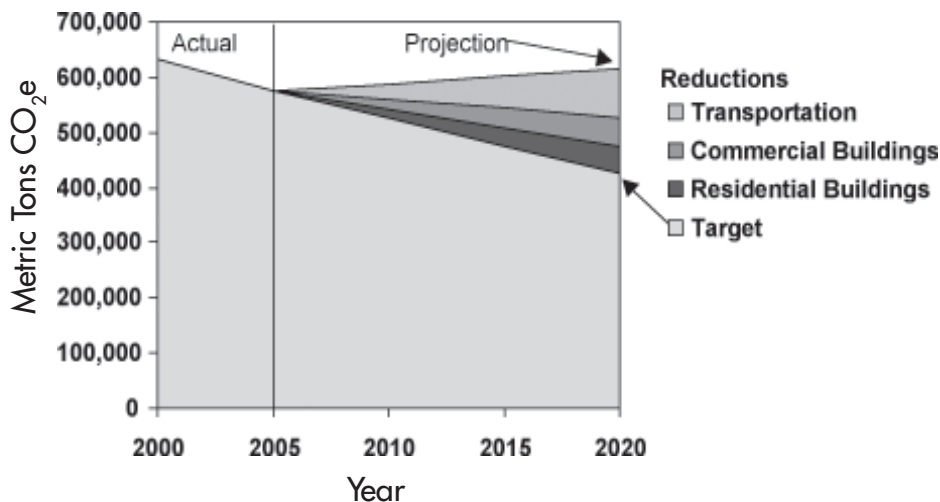


Figure 1: The top line illustrates Berkeley's GHG emissions (in metric tons) trend between 2000 and 2005 and the projected increase in emissions between 2005 and 2020. The wedges in the chart represent contributions to GHG reductions each sector is responsible for in order to achieve the overall year 2020 reduction target – a 33% reduction below 2000 levels.

The 2020 target is to achieve a 33% absolute reduction below 2000 community-wide emissions levels, which equates to about a two percent reduction per year in total community-wide emissions.⁴

This plan focuses on actions our community can and should implement between now and 2020, but in the context of promoting the types of innovative approaches that will be necessary to achieve the ultimate 2050 target.

³ Estimated from the Berkeley 2005 GHG emissions inventory conducted by ICLEI – Local Governments for Sustainability.

⁴ The 2020 target was determined from a linear extrapolation from year 2000 emissions levels to 80% below 2000 levels by the year 2050.

Based on forecasted emissions levels, a 33% reduction from 2000 levels equates to an annual GHG emissions reduction of nearly 188,000 metric tons by 2020.

Recent trends in Berkeley's community-wide GHG emissions show an almost nine percent decrease between 2000 and 2005, one of the largest reductions in GHG emissions documented by a U.S. city. However, the community cannot count on or fully identify the array of social and economic factors that contributed to this short-term trend. This plan outlines a series of actions aimed at continuing this trend and achieving Berkeley's emissions reduction targets.

Recommended Emissions Reduction Actions

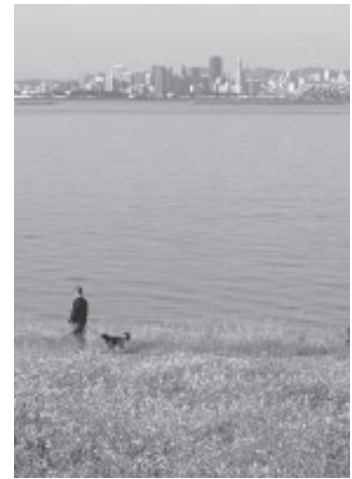
The Berkeley Climate Action Plan was designed under the premise that local governments and the communities they represent are uniquely capable of addressing the main sources of the emissions that cause global warming: the energy consumed in buildings and for transportation, and the solid waste sent to landfills.

Below is a summary of the core recommended strategies for each category of action included in the plan. See the corresponding chapters for detailed recommendations:

1. Sustainable Transportation & Land Use (Chapter 3)

The plan is designed to reduce vehicle miles traveled in the community by making cycling, walking, public transit, and other sustainable mobility modes the mainstream and to increase vehicle fuel efficiency and the utilization of low-carbon fuels:

- *Increase the safety, reliability, and frequency of public transit.*
- *Expand other mobility options, such as car share pods and shuttle buses, into areas where existing public transit is less frequent and accessible.*
- *Accelerate implementation of the City's Bicycle and Pedestrian Plans and continue efforts to make walking and cycling safe, healthy, and enjoyable alternatives to driving.*
- *Ensure that new development is "green" development, meaning that it is oriented toward transit and is coupled with enhancements to green and open space, urban forestry efforts, and water conservation efforts, among others.*
- *Manage parking effectively to minimize driving demand and encourage and support alternatives to driving.*
- *Create incentives for low-carbon vehicles such as electric vehicles and plug-in hybrids.*



1. Sustainable Transportation & Land Use



2. Building Energy Use



Berkeley's Shorebird Park Nature Center is a stowbale building that incorporates solar and wind energy systems to offset energy demand and reduce GHG emissions.

3. Waste Reduction & Recycling

4. Community Outreach & Empowerment

5. Preparing for Climate Change Impacts

2. Building Energy Use (Chapter 4)

The community's task is to reduce conventional energy use in every existing Berkeley home, business, and institution through high-quality energy efficiency retrofits and a greater reliance on renewable energy such as solar:

- *Strive to achieve zero net energy performance in new construction by 2020.*
- *Enhance and lower the cost of energy efficiency services and standards for existing residential and non-residential buildings.*
- *Develop a local, clean, decentralized renewable energy supply to meet a larger portion of the community's energy needs.*
- *Continue to increase energy efficiency and renewable energy use in public buildings.*
- *Prepare local residents for job opportunities in the emerging green economy.*

3. Waste Reduction & Recycling (Chapter 5)

These measures aim to eliminate solid waste at its source, i.e., the point of production, and to maximize reuse and recycling throughout the community:

- *Enhance recycling, composting, and source reduction services for residential and non-residential buildings.*
- *Expand the types of materials that can be recycled locally, such as certain plastics.*
- *Expand efforts to eliminate waste at its source by limiting the use of plastic bags and by increasing producers' responsibility for product waste and packaging.*

4. Community Outreach & Empowerment (Chapter 7)

The success of local climate action efforts rests on behavior change. Actions designed to educate and empower community members are fundamental to this plan:

- *Launch a coordinated outreach and education campaign to mobilize residents, businesses, and industry.*
- *Continue to expand the opportunities students have to learn about and take action on climate change.*
- *Increase awareness and action in the City government by providing training on how to increase sustainability at home and in the workplace.*

5. Preparing for climate change impacts (Chapter 6)

We live in a region that knows well the value of preparedness. Even as the community ramps up efforts to mitigate greenhouse gas emissions, it is critical that we start now to apply the region's preparedness doctrine to the risks associated with climate change. The City should partner with local, regional, and state agencies to develop a plan of action for climate adaptation.

From Planning to Action: Everyone has a Role to Play

While measuring GHG emissions, establishing reduction targets, and developing a Climate Action Plan are essential steps, the most important component of the community climate protection effort lies ahead: Implementation.

Turning this plan into action rests on more than just ideas and good intentions. It requires Berkeley residents, businesses, the City government, and other institutions to urgently rise to the challenge of making big changes – changes in our infrastructure, technological advances, ramped up green workforce development, and change in the decisions we make every day as members of the Berkeley community. Everyone must play a role.

The Climate Action Plan recommends strategies that support individuals' and businesses' efforts to consume less energy and produce less waste. Implementing the plan will, for example, increase access to public transit and make it safer to commute by foot or bicycle, provide incentives to make one's home or business more energy efficient, and increase the convenience of recycling and composting waste. The City is committed to playing a leadership role in eliminating barriers to local climate action.

In the meantime, individuals can start now to reduce their carbon footprint and save money at the same time. Here are just a few easy action steps to consider:

- Change your commute. Pick at least one day per week to ride your bicycle, walk, take public transit, or carpool to work. If you already do so, encourage a friend or family member to join you.
- Go unplugged. Many appliances are “vampires.” They suck electricity even when turned off. Plug your TV, stereo and other appliances into a power strip and turn it off when the appliances are not in use.
- Generate less waste. The average American generates over four pounds of trash each day. Generate less trash by taking simple steps such as using reusable coffee mugs and grocery bags.
- Save water. Install a low-flow shower head and faucet aerator. These easy-to-install devices can significantly reduce water consumption and the energy it takes to heat water.
- Grow your own food. Join a community garden or plant a garden in your yard. Local food production reduces the distance food must travel to get to our tables, among several other benefits.



The Edible Schoolyard (above), a program of the Chez Panisse Foundation, is a one-acre organic garden and kitchen classroom for students at the Martin Luther King Jr. Middle School in Berkeley.

Thanks to photographer Kiran Singh for the use of his photos from *Berkeley: The Life and Spirit of a Remarkable Town* (Berkeley: Frog Books, 2004):
Cover; p1 two middle; p2 top;
p4 top; p6 bottom.

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