




Office of the City Manager

WORKSESSION
March 20, 2012

To: Honorable Mayor and Members of the City Council
From:  Christine Daniel, Interim City Manager
Submitted by: Wendy Cosin, Interim Director, Planning and Development Department
Subject: Annual Climate Action Plan and Precautionary Principle Update

SUMMARY

This report serves as the second annual report to City Council on implementation of the Berkeley Climate Action Plan (CAP) and related policies.

The City and its community partners are making substantial progress at implementing CAP recommendations. As is outlined in this report, key CAP strategies advanced over the past 12-18 months include:

- *Money for Energy Efficiency (ME2)*: To date, the ME2 program created the equivalent of nine full-time annual jobs in the energy efficiency services sector. The program uses federal stimulus funds to provide substantial rebates for energy upgrades in homes and businesses.
- *Multifamily Building Energy Efficiency Solutions (BEES)*: Through a grant from PG&E and in partnership with the cities of Emeryville and Oakland, the City launched the BEES program to identify policies to capture energy savings and increase energy affordability in existing apartment buildings.
- *Bicycle and Pedestrian Pathways*: The City continues to enhance the bicycle and pedestrian network. In 2011 the City completed the 9th Street Bicycle Boulevard Extension and initiated completion of the West St. Pathway along the Santa Fe Right-of-Way. The City also secured \$1.9 million in federal funds to extend the Bay Trail out to the Berkeley Marina.
- *Residential Recycling Cart Program*: New user-friendly residential recycling carts are contributing to a significant and sustained increase in recyclables collected and waste diverted from the landfill.

In addition to launching these and other new strategies and sustaining existing climate action efforts related to energy use, transportation, solid waste, and urban forestry, staff is working to ensure that the community stays up-to-date on our progress (see Attachment 1 and www.cityofberkeley.info/climateprogress for detailed CAP progress metrics).

According to the best available data, while the community is making significant gains at reducing greenhouse gas (GHG) emissions in certain sectors, we currently are not achieving targeted reductions in community-wide GHG emissions. Residential building energy use-related emissions declined significantly over the last 10 years, but commercial building energy use-related emissions increased in that same time period. Reliable transportation data are not available, but given the increase in transportation-related emissions at the state and national levels, and given the increase in Berkeley's population since 2000, it is reasonable to assume that Berkeley's transportation-related emissions have also not decreased significantly since 2000.

An important next step for staff is to not only continue implementation of Berkeley's CAP, but also to conduct additional quantitative analysis of what is driving the community GHG emissions trend and of the emissions reduction potential of present and future CAP strategies.

This report also serves as the annual update on implementation of the Precautionary Principle. Adopted by the City Council in 2003, the Precautionary Principle serves as a guide to making decisions involving the acquisition and use of commodities, services, and activities that minimize the negative impacts on human health and the environment. The City implements the Precautionary Principle by specifying standards for environmentally preferable products and services, as well as by adopting maintenance and operations procedures.

CURRENT SITUATION AND ITS EFFECTS

Advancing the CAP is a multi-pronged and collaborative effort that requires leadership and expertise from a diverse range of City departments and community stakeholders. Outlined below are the five main elements of CAP implementation, some of the key strategies advanced over the past 12-18 months within each element, and relevant progress metrics. See Attachment 1 for additional detail and progress metrics. Progress metrics are also available at www.cityofberkeley.info/climateprogress.

1. Building energy use: Increase energy efficiency and renewable energy use

Money for Energy Efficiency (ME2) Program (www.cityofberkeley.info/me2). ME2 is a limited-time-only program that provides cash incentives for energy upgrades in Berkeley homes and businesses. The program targets are to provide rebates for performance-based energy efficiency upgrades in 120 single-family homes, 270 multifamily units, and 180,000 square feet of non-residential/mixed use buildings by September 2012. These rebates are fully subscribed. In addition, the program targets include providing subsidized energy upgrades to 90 single-family and duplex homes through the Green Energy Training Services (GETS) workforce development program administered by Rising Sun Energy Center. GETS rebates are still available. To date, 64 single-family homes, 96 multifamily units, and over 140,000 square feet of commercial space have completed energy efficiency upgrades through the ME2 program. On average, single-

family program participants will achieve an estimated 35 percent energy performance improvement due to measures installed through the ME2 program.

Multifamily Building Energy Efficiency Solutions (BEES) (www.cityofberkeley.info/bees). Approximately half of Berkeley's residential units are in multifamily buildings. Over 90 percent of Berkeley's multifamily buildings were constructed prior to 1980 when state energy standards for new construction were enacted. The BEES project is designed to identify policy options that make it easier for property owners to invest in energy improvements in their buildings. Staff will present City Council and community stakeholders with a range of policy options by fall 2012.

Helping Berkeley Residents and Businesses Go Solar. Over 800 solar photovoltaic (PV) systems have been installed since 2000. Solar hot water systems have also increased significantly. The City is removing barriers to solar in several coordinated ways, including:

- The Berkeley Solar Map (www.cityofberkeley.info/solarmap) enables residents to view existing solar PV and solar hot water installations in Berkeley and to calculate the solar potential of their own roof.
- The Smart Solar Program (www.ebenergy.org/smartsolar) provides free, independent, project-specific solar assessments for residents and businesses. The program is administered by Community Energy Services Corporation through a partnership with the City.
- Standardized solar permitting process: Through funding from the U.S. Department of Energy, the City is partnering with the East Bay Green Corridor and several cities and counties in the region to develop standard solar permitting processes and paperwork across cities. The effort is designed to make it easier and more efficient for solar installers to secure the necessary permits, which will also lower costs for consumers.

Municipal Building Energy Upgrades. Existing City-owned buildings have become more efficient since 2000. Total energy consumption per square foot decreased 18 percent between 2000 and 2010. However, because of a 23 percent increase in the square footage of municipal buildings, overall energy use increased by five percent. Staff is conducting an analysis to estimate the full costs of meeting CAP 2020 targets and identifying strategies to finance implementation. Municipal energy targets will be met by a combination of comprehensive energy efficiency retrofits, retro-commissioning of existing buildings, and the development of the full potential for on-site energy generation (i.e., solar).

The City is also participating in the Regional Renewable Energy Procurement Project. The project is a collaboration convened by Alameda County, Silicon Valley Network and Contra Costa County involving over 25 Bay Area agencies seeking to collectively negotiate to purchase and finance clean energy systems, including on-site solar photovoltaic, solar thermal and wind turbines.

Green Building Program. The City continues to offer a suite of services to remove barriers to green building in the new construction and remodel markets. These services

include a free green building consultation with a building inspector designed to identify potential green measures for inclusion in a project. The City also developed and provides several Berkeley-specific green building permit guides on issues such as rainwater harvesting and graywater use, green roofs, solar, and more.

East Bay Energy Watch. Berkeley is a founding member and ongoing partner in East Bay Energy Watch, a \$6 million per year collaboration between PG&E, energy service providers, and local governments in Alameda and Contra Costa Counties. The partnership provides resources and guidance for several essential energy programs in our community, including California Youth Energy Services, Smart Lights, and Smart Solar. These are helping to drive down residential and commercial energy use in Berkeley.

East Bay Environmental Network (EBEN). In close partnership with Bayer and PG&E, the City launched EBEN to provide a forum where East Bay businesses can get support from utility providers, local governments and each other to become more productive and sustainable. EBEN is an innovative, peer-to-peer network of professionals in different sectors.

Building energy use progress metrics (see Attachment 1 for additional metrics and detail):

- Total residential energy consumption decreased 10 percent between 2000 – 2010
- Commercial electricity consumption decreased 7 percent between 2000 - 2010, but commercial natural gas consumption increased 10 percent in that same time period
- Municipal energy consumption decreased 18 percent per square foot between 2000 – 2010, but due to the acquisition of additional building space, total municipal energy consumption increased 5 percent
- The total community-wide greenhouse gas emissions levels from building energy use, including residential, commercial and municipal, decreased approximately one percent between 2000 and 2010. This is largely due an increase in commercial natural gas consumption and to the fact that the GHG emissions associated with electricity use increased. Due to drought in several recent years less of PG&E's electricity was produced from hydropower and more was produced from natural gas, a fossil fuel-based energy source.
- The number of buildings in Berkeley that have a green building certification or have been recognized for a high-level of energy performance continues to grow. For example, within the last two years the number of LEED buildings nearly tripled (from 5 buildings in 2009 to 14 in 2011).

2. Sustainable transportation & land use: Reduce vehicle miles traveled and increase vehicle fuel efficiency and use of low-carbon fuels

Bicycle and Pedestrian Pathways

After many years of work, Berkeley completed the 9th Street Bicycle Boulevard Extension, connecting West Berkeley to Emeryville. The City also initiated completion of

the West St. Pathway along the old Santa Fe Right-of-Way, connecting Strawberry Creek Park to Ohlone Park, and providing improved access to the North Berkeley BART station. West St. Pathway construction will be completed in late 2012. The City also secured \$1.9 million in federal funds to extend the Bay Trail out to the Berkeley Marina.

Complete Streets

The City repaved portions of the California St., 9th St., Channing Way, and Milvia St. Bicycle Boulevards, and upper Marin Ave. bike lanes. Integrated into the repaving efforts was implementation of elements of the Pedestrian Plan. Over the past year, City staff received training in Complete Streets policy and best practices and expects to recommend a Complete Streets Policy to City Council in 2012.

Bicycle Parking

Over the past year Berkeley installed over 680 new bicycle parking spaces at schools and on sidewalks citywide. In partnership with BART, The City also continues to operate the nation's largest Bike Station in Downtown Berkeley.

Electric Vehicle Charging Infrastructure.

Electrification of the transportation sector is fundamental to achieving state and local GHG reduction goals. To remove barriers to electric vehicle charging, the City recently released a Plug-In Electric Vehicle Charging Station Permit Guide and has initiated the process of identifying zoning ordinance amendments that could make it easier for residents and businesses to install charging equipment.

Land Use Planning for the South Side, Downtown and West Berkeley.

The City implemented changes to West Berkeley zoning that allow for more flexible and intense use of existing buildings and land. These changes are designed to improve walkability and better utilize existing buildings, among other benefits. The City also completed the South Side Plan, which includes regulations that allow for higher intensity of development and also enables the City's first "car-free zone" – an area within the South Side in which the provision of parking spaces would not be required for a new development. The South Side plan promotes higher housing and job intensities and, as a result, promotes transit use. The Downtown Area Plan (DAP) is also nearing completion and includes a range of policies that promote a high-density, pedestrian and bike-friendly Downtown. Green development standards for new buildings are part of the zoning to implement the DAP, including LEED Gold Rating and Parking and Transportation Demand Management features such as: transit passes, unbundled parking, car share spaces, and the option to pay a fee in-lieu of providing required parking spaces.

Transportation & land use progress metrics:

- Approximately 15 percent of Berkeley adults walk to work on a daily basis, a rate much higher than the county and state rate of 3 percent
- Eight percent of adult Berkeley residents commute to work by bicycle. This high rate of bicycle commuting ranks fourth in the nation out of the 375 cities that

provide bicycle commute data and third nationwide out of cities the size of Berkeley or smaller

- The City and its partners provided over 600 new bike parking spaces at schools and on sidewalks in 2010 – 2011
- The number of available car share vehicles (94) in Berkeley in 2011 is second only to San Francisco in the Bay Area

3. Waste reduction and recycling: Increase source reduction and maximize recycling and reuse

Residential Recycling Cart Program. Berkeley's residential recycling cart program contributed to a significant and sustained increase in curbside recycling. In the 12 months since the introduction of the new recycling carts (October 2010), curbside recycling increased 22 percent in comparison to the prior 12 months, representing almost 1,470 tons of additional recycling material. During this period (November 2010-October 2011) collection of mixed material (glass, metal, and plastic) increased by 71 percent (almost 940 tons) and paper and cardboard collection increased by 10 percent (almost 530 tons).

Single Use Bag Reduction Ordinance. Single use bags, whether plastic or paper, contribute to climate change through their production, transportation and disposal. The Zero Waste Commission drafted a Single Use Bag Reduction Ordinance in 2009 prohibiting the distribution of single-use plastic checkout bags at all retail stores in Berkeley and requiring a fee for paper checkout bags. Berkeley's draft ordinance helped to inform the county-wide Single Use Bag Ordinance adopted by the Alameda County Waste Management Authority in January 2012. The countywide ordinance will become effective January 1, 2013. On January 31, 2012, City Council referred to the City Manager and the Zero Waste Commission a recommendation to build on the ordinance adopted by the Alameda County Waste Management Authority by adopting a similar ordinance that would apply to all retail non-restaurant businesses. The county-level ordinance applies to a subset of retail non-restaurant businesses.

Plant Debris Landfill Ban. In January 2010 Alameda County adopted a countywide plant debris landfill ban that prohibits large waste generators and transfer stations from sending plant debris to the landfill. Through the enforcement of the ordinance, the City of Berkeley Transfer Station is changing generator behavior and is diverting tons of plant debris that would otherwise go to the landfill.

Construction & Demolition (C&D) Debris Ordinance Improvements. Effective March 2011, the City modified its Construction and Demolition Ordinance to maintain consistency with the 2010 California Green Building Standards. As a result, all newly constructed buildings, building renovations valued over \$100,000, and demolitions valued over \$3,000, must divert 100 percent of asphalt, concrete, soil, and land clearing debris and 50 percent of other C&D debris from landfill disposal. In Alameda County, C&D debris makes up approximately 20 percent of the total waste stream, making it one of our primary diversion targets. The Berkeley Transfer Station continues to improve its mixed C&D debris program, which diverts over 10,000 tons of C&D debris each year.

Waste reduction & recycling progress metrics:

- Total solid waste disposal decreased approximately 45 percent between 2000 – 2010
- Residential composting increased over 60 percent between 2007 – 2010
- Berkeley's C&D diversion policies resulted in approximately 43,000 tons of C&D debris being diverted from the landfill between 2008 - 2011

4. Preparing for climate change impacts: Increase Berkeley's resilience to climate change impacts

Urban forestry. Urban forestry management staff continues to plant new and replacement trees and to maintain existing trees. The urban forest reduces local air temperatures, helps mitigate stormwater runoff, and sequesters GHG emissions, among other benefits.

Water efficiency and recycling. Staff continues to promote the City's Guide to Conserving Water through Rainwater Harvesting & Graywater Reuse.¹ Department of Parks, Recreation and Waterfront staff also works closely with East Bay Municipal Utility District to increase water efficiency for outdoor water use on City land. The City also enforces the State Water Efficient Landscape Ordinance and the Bay Friendly Basics which requires all new or renovated landscapes to design low maintenance landscapes and efficient irrigation systems.

Climate resilience progress metrics:

- Community-wide water consumption is 20 percent lower in 2010 than the 2000 baseline.
- The Urban Forestry Division planted over 900 street and park trees in 2011; Berkeley has gained 4,000 street and park trees since 2000

5. Community outreach & empowerment

Berkeley Climate Action Coalition. To foster increased collaboration and aligned messaging between the City and community-based organizations and institutions, and to raise the profile of the local climate action effort, City staff and the Ecology Center are partnering to assemble a coalition of organizations focused on accelerating CAP implementation.

Precautionary Principle

This report also serves as the annual update on implementation of the Precautionary Principle. Adopted by the City Council in 2003, the Precautionary Principle serves as a guide to making decisions involving the acquisition and use of commodities, services, and activities that minimize the negative impacts on human health and the environment. The City implements the Precautionary Principle by specifying standards for environmentally preferable products and services, as well as adopting maintenance and

¹ The Guide to Conserving Water through Rainwater Harvesting and Graywater Reuse is available at www.cityofberkeley.info/sustainable

operations procedures. CAP-related efforts to reduce GHG emissions are consistent with the Precautionary Principle. The City participates in the Alameda County Green Purchasing Roundtable to share resources and technical assistance and explore opportunities for collaborative procurement.

Below is a summary of how the Precautionary Principle informs the City's procurement activities:

- *Office Supplies and Equipment* - Staff is working with the new local, independent office supply vendor to monitor compliance with current purchasing policies of 100% recycled content, chlorine-free paper and polyvinyl chloride (pvc)-free office products. Staff is also developing specifications for green printing services.
- *Janitorial Supplies and Services* - City operations and contract janitorial services specify Green Seal Certified products.
- *Building Maintenance and Supplies* – Staff monitor all new City construction and renovations, such as the animal shelter renovations and the branch libraries, to assure that LEED-Existing Building Operation and Maintenance Standards and LEED New Construction criteria are met. These include high-efficiency building equipment; recycled content, rapidly renewable or reused finish materials; low-VOC paints and sealers; and low emitting or salvaged furniture.
- *Automotive* – The City fleet utilizes re-refined motor oil, recycled anti-freeze and ultralow-sulfur diesel fuel. Fire trucks use B5 biodiesel. The recently purchased residential refuse disposal vehicles are all low-emissions vehicles that meet regional emissions standards. Five of the ten trucks are Compressed Natural Gas, and the other half are clean-burning diesel.
- *Road Maintenance and Infrastructure* – Staff is currently conducting a pilot program evaluating LED street lights and working with Alameda County to identify alternatives for traffic paint and road building materials.
- *Landscape* – Municipal landscapes are maintained to Bay Friendly standards, which include integrated pest management and water efficiency. Park maintenance staff completed Bay Friendly Maintenance Professional Training.

BACKGROUND

Adopted by City Council on June 2, 2009, the CAP is the community's guide for reducing greenhouse gas (GHG) emissions to 33 percent below 2000 levels by 2020 and 80 percent by 2050. CAP strategies are designed to not only reduce GHG emissions, but also to achieve several other benefits, including improved public health due to less local air pollution and more active transportation modes; improved access to green jobs due to increased demand for solar and energy efficiency upgrades; and cost savings for residents, businesses, and the City government due to reduced energy use.

POSSIBLE FUTURE ACTION

Consistent with and building on the projects and programs outlined above and in the CAP, staff has several priorities for the coming year. They include:

- *Raise the profile of the local climate action effort.* By continually publicizing outcomes and trends illustrated through the City's climate action progress metrics, and by building a coalition of leading organizations focused on

collaboratively advancing the CAP, the City will increase awareness of and engagement in local climate action projects and programs.

- *Conduct additional analysis of Berkeley's GHG emissions trend.* Staff is working with regional and state agencies to quantify the impact on GHG emissions of the City's waste diversion programs and to obtain transportation data that illustrate transportation-related emissions over time, among other analyses.
- *Develop options for updates to the Residential and Commercial Energy Conservation Ordinances.* Berkeley's RECO and CECO serve as minimum standards for energy and water efficiency in existing buildings. The City is working with several other local governments in Alameda County to update these standards to be consistent with building science and to capture deeper energy savings.
- *Save energy and reduce solid waste disposal in existing multifamily buildings.* Vast energy-saving and waste diversion potential exists in these buildings if some key barriers can be addressed. Staff will be placing significantly more focus on addressing these barriers in the coming year, including a significant outreach and assistance effort to multifamily (and commercial) properties to ensure that building owners and tenants have access to the tools and information they need to participate in basic recycling.
- *Secure financing for deep energy savings in municipal buildings.* Staff seeks to put municipal buildings on a path to achieve 33 percent energy use reductions by 2020. Because the City already installed many relatively low-cost energy efficiency measures, such as lighting retrofits and boiler tune-ups, the focus in 2012 will be on deeper upgrades such as HVAC and envelop improvements. Staff is currently developing a Request for Proposals for energy management services that will include identifying financing options that enable the costs of the energy upgrades to be paid back through the associated energy savings.
- *Advance development of Berkeley's electric vehicle charging infrastructure.* Staff will develop zoning ordinance amendments and other guidance that remove barriers to charging equipment installation in the private and public realms. Staff will also begin to identify strategic locations for publically available charging stations. In the meantime, staff continues to partner with City CarShare to incorporate plug-in electric vehicles into City CarShare pods in the Downtown, Southside/Telegraph and Elmwood Areas. There is currently one plug-in hybrid City CarShare vehicle available in the Center St. Garage as well as a publically available parking space for PEV charging. Staff is in negotiations with City CarShare to add a second electric City CarShare vehicle in the Center St. Garage.
- *Roll out the Berkeley Transportation Action Plan.* This \$4 million program is designed to reduce vehicle miles traveled by combining parking pricing strategies and enhanced parking management and real-time information with outreach and incentives for public transit, carsharing, cycling, and walking.
- *Enhance Safe Routes to School and Safe Routes to Transit.* In 2012, the City will construct \$998,000 of Safe Routes to Schools capital improvements at four elementary schools (Malcolm X, Rosa Parks, Berkeley Arts Magnet and

Thousand Oaks). The City will expend \$538,000 for Safe Routes to Transit capital projects on upper Solano and Shattuck at Vine.

- *Conduct an urban forest inventory.* Urban forestry management staff is preparing to conduct a comprehensive inventory of Berkeley's street and park trees. The inventory will enable more efficient management of the urban forest by providing statistics such as tree location, species, size, condition, recommended maintenance, and more. Potential planting locations will also be recorded.
- *Complete the Streets and Open Space Improvement Plan (SOSIP).* The SOSIP provides recommendations for making the Downtown more attractive for pedestrians and cyclists and for improving watershed health, livability, and economic vitality. The SOSIP will be presented for approval by the Council in the near future.

FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

Current climate action priorities are funded by existing grants and General Fund allocations. Staff continues to seek additional grant funding to maintain and scale-up existing efforts.

CONTACT PERSON

Timothy Burroughs, Climate Action Coordinator, Planning Department, 510-981-7437

Attachments:

1: Berkeley Climate Action Plan Metrics: 2011 Progress Update