



Office of the City Manager

WORKSESSION
June 3, 2014

To: Honorable Mayor and Members of the City Council
From:  Christine Daniel, City Manager
Submitted by: Eric Angstadt, Director, Planning and Development Department
Subject: Climate Action Plan Update

SUMMARY

The purpose of this report is to provide City Council with an annual update on progress toward achieving the Berkeley Climate Action Plan (CAP) goals. According to the best available data, Berkeley's 2012 community-wide greenhouse gas (GHG) emissions, including emissions from transportation, building energy use, and solid waste disposal, are approximately 8% below 2000 baseline levels. There was effectively no change in emissions levels between 2011 and 2012. Staff is aware of few communities that can illustrate an overall reduction below baseline levels in community-wide GHG emissions. However, Berkeley has much more work to do. The community is not currently on a trend to achieve the target of reducing community-wide emissions 33% below 2000 levels by 2020. Current emissions levels are approximately 18% higher than our targeted trend.

The report also highlights several key existing and planned efforts designed to accelerate reductions in local global warming emissions and to achieve other community benefits. These efforts include continuing to focus growth along transit corridors, expanding electric vehicle charging infrastructure, updating the City's minimum requirements for energy efficiency in existing residential and commercial buildings, conducting additional energy upgrades in municipal buildings, and rolling out the next phase of the Alameda County Mandatory Recycling Ordinance.

CURRENT SITUATION AND ITS EFFECTS

Progress toward Climate Action Plan Goals

According to the best available data, Berkeley's 2012 community-wide greenhouse gas (GHG) emissions, including emissions from transportation, building energy use, and solid waste disposal, are approximately 8% below year 2000 baseline levels. Community-wide emissions between 2011 and 2012 are effectively unchanged.¹

¹ 2013 data are not yet available; there is generally a 12-18 month lag in the provision of data to the City.

The emissions reductions since 2000 are significant, especially given increasing population, and can be attributed to a few different factors. One major factor is household energy consumption, which declined 13% since 2000. It is difficult to pinpoint what exactly is driving reductions in residential energy use. Appliances such as refrigerators and building systems such as furnaces are becoming more and more efficient, but we are also charging more and more electronics. One factor likely affecting the trend is single-family and multifamily property owner participation in ratepayer-funded energy efficiency incentive programs such as Energy Upgrade California, although data on the Berkeley-based energy reductions resulting from these programs are not available. Mild weather may also be affecting residential energy trends.

Other factors affecting total community-wide GHG emission trends include reduced electricity consumption in the commercial sector and an overall decline in the rate of GHG emissions produced per unit of electricity consumed, which affects all sectors. Due to changes in the mix of energy used to produce electricity as required by State law, the GHG emissions produced per kilowatt hour (kWh) of electricity consumed is 21% lower in 2012 than in 2000.

Also affecting Berkeley's emissions trends is a substantial reduction in the amount of solid waste that the community sends to landfills. Solid waste disposal decreased approximately 40% since 2000, although disposal has trended up 13% since 2010.

Finally, community-wide emissions would be significantly higher if vehicle miles traveled were increasing at a rate comparable to Berkeley's population growth. Instead, data from the Metropolitan Transportation Commission (MTC) suggests that transit oriented development in combination with ongoing improvements to bicycle and pedestrian infrastructure are enabling Berkeley residents and visitors to drive less. Vehicle miles traveled attributed to Berkeley decreased an estimated 3% since 2000 despite an approximate 10% increase in population in that same time period.

Staff is aware of few communities that can illustrate an overall reduction in community-wide GHG emissions. Berkeley's emissions reductions stem from actions taken at all levels of society, including households, businesses, major institutions, and local and state government, to increase energy and water efficiency, reduce solid waste disposal, and increase non-car forms of transportation.

However, Berkeley has much more work to do. The community is not currently on a trend to achieve the target of reducing community-wide emissions 33% below 2000 levels by 2020. Current emissions levels are approximately 18% higher than our targeted trend.

In November 2012, staff presented City Council an analysis that identifies a combination of state and local policies that can help fill the gap between current and targeted GHG emission levels. That analysis still holds. Staff estimates that state climate action policies, such as the Renewables Portfolio Standard, the Low Carbon Fuel Standard, and the "Pavley" Clean Car Standards could achieve approximately 60% of the

emission reductions needed to meet Berkeley's 2020 target. An additional 15% (bringing the total to 75%) of the gap between current and targeted emissions levels could be achieved by existing and planned local initiatives, such as transportation demand management efforts, local solar and energy efficiency efforts, and zero waste. Additional, accelerated work is needed to identify and implement strategies at all levels of government that could help achieve the remaining 25% of Berkeley's targeted emission reductions. As part of last year's annual CAP report, staff identified several high-priority short-term strategies that will help fill the estimated remaining emissions "gap." Over the past year staff has focused on ongoing management of existing climate action initiatives while also rolling out new high-priority projects and programs.

Summary of Existing and Short-Term Emission Reduction Initiatives

Transportation accounts for approximately 54% of community-wide GHG emissions. Reductions can be achieved through vehicle efficiency and clean fuel measures, which are mainly, though not exclusively, addressed at the state level, and by local land use and transportation demand management efforts that reduce vehicle miles traveled. Over the past year, staff has focused on the following:

Transit oriented development – Where people live affects how much they drive. The City continues to focus new compact, mixed-use development along transit corridors in designated Priority Development Areas (PDAs). Over the past 18 months, over 1,000 residential units have completed the entitlement process for construction in Downtown Berkeley. This growth is consistent with California's SB 375, which sets regional targets for emissions reductions from passenger vehicles, and with the City's Climate Action Plan goals.

Bicycle and pedestrian infrastructure – Berkeley has the 4th highest bike to work rate in the U.S. and the highest walk to work rate in the San Francisco Bay Area. To support and encourage cycling, the City installed over 800 new bike parking spaces in 2010 – 2012. Construction will begin in 2015 on the Hearst Avenue Complete Street Project, including innovative bikeways and pedestrian facilities. The City has completed seven Safe Routes to Schools projects in the last decade and has funding or pending grant applications for projects at six more schools. Staff is working with MTC to bring Bike Sharing to Berkeley and will begin updating the Bicycle Plan in 2014.

Electric vehicles – The number of EVs registered in Berkeley increased 85% over the last 8 months, bringing the estimated total to 375 as of this writing. An EV produces approximately 70% less emissions than a conventional vehicle. The City is making it easier to own and operate an EV in Berkeley by streamlining charging station permitting and installing new charging stations in Center St. Garage. Staff has applied for additional grants to install more public EV charging stations. Staff is also developing a pilot program for on-street EV charging.

Parking policy – The goBerkeley Parking and Transportation Demand Management pilot launched in July 2013 with the goal of reducing the amount of people that drive to work and improving parking availability at on-street meters. Provision of free AC Transit

EasyPasses and changes in parking rates and time limits have been shown to change driver behavior and shift parking demand. Staff is in the process of making adjustments to the program to further advance program goals. The recommended adjustments will improve the ability of the goBerkeley pilot program to achieve the goal of reducing emissions resulting from vehicle use by promoting alternative modes of travel, and by managing parking to reduce traffic congestion from drivers searching for an available parking space.

Building energy use, including residential, commercial, and municipal, accounts for approximately 44% of community-wide GHG emissions. Reductions can be achieved through a combination of increased energy efficiency and cleaner electricity. Over the past year, staff has focused on the following:

Residential and Commercial Energy Conservation Ordinance Update – RECO and CECO serve as Berkeley's minimum requirements for energy efficiency in existing homes and businesses. In September 2013 City Council directed staff to update the ordinance and to incorporate energy information disclosure as a market mechanism to accelerate energy improvements. Staff has initiated a public process to gather input on updates to the ordinance and will present a draft updated ordinance to City Council in 2014.

Energy upgrades in municipal buildings and infrastructure – Municipal buildings are increasingly energy efficient; municipal energy consumption per square foot decreased 12% since 2000. However, due to a 26% increase in building square footage, total municipal energy use increased 11% since 2000. Several recent and current projects will result in significant energy reductions. In summer 2014, the City is retrofitting all streetlights to energy efficient LED bulbs; this will reduce streetlight energy use by 50% and save over \$380,000 in utility costs annually. Through operational improvements affecting building heating, cooling, and lighting, the City already reduced energy consumption in the Planning Department by 35%. The City is also making significant energy improvements in 1947 Center St., including installation of new high-efficient boilers and a cooling tower. Finally, the new library branches are designed to be energy and resource efficient.

Property Assessed Clean Energy (PACE) - PACE loans provide financing for renewable energy installations, energy and water efficiency improvements and electric vehicle charging infrastructure on private properties. Property owners repay the cost of the financing on their property tax bills. Residential PACE loans in Berkeley were suspended due to actions of the Federal Housing Finance Agency (FHFA). A new State loan-loss-reserve program will enable the resumption of PACE loans in the community later this year.

Community Choice Aggregation (CCA) - The success of the Marin Clean Energy program has generated more interest in acquiring cleaner electrical energy through CCA. The Alameda County Board of Supervisors will be considering a resolution to explore CCA and it may be possible for Berkeley and other communities to participate in

the process. Staff continues to look for opportunities for a CCA that would minimize the City's financial exposure and provide the community with access to cleaner electricity sources.

Solid waste disposal accounts for approximately 2% of community-wide GHG emissions. Although it is a small contributor of emissions compared to buildings and transportation, strategies such as recycling and composting reduce landfill waste and are consistent with the City's Zero Waste by 2020 goal. Over the past year, staff has focused on the following:

Expanded plastics collection – As of July 2013 the City began accepting additional clean plastic containers such as yogurt tubs, plastic takeout containers, and plastic cups. The change has resulted in an approximate 20 ton per month increase in the amount of plastic materials collected for recycling.

Mandatory recycling – In partnership with StopWaste.Org (the Alameda County Waste Management Authority), the City began rolling out the Alameda County Mandatory Recycling Ordinance in July 2012. The ordinance requires that businesses that produce large volumes of solid waste and multifamily properties with 5 or more units provide adequate recycling service. As of July 2014, Phase 2 of the ordinance takes effect and requires food-generating businesses and multifamily properties to also provide adequate compost service. Phase 2 also expands the recycling requirement to cover all businesses. Staff expects a significant increase in recycling and composting due to this ordinance.

Recycling in schools – In partnership with Berkeley Unified School District (BUSD) and Green Schools Initiative staff, City Zero Waste Division staff assisted BUSD to increase its solid waste diversion rate from 36% to approximately 58% and to save money by right-sizing its solid waste collection service levels.

Summary of Climate Change Adaptation and Resilience Initiatives

In addition to efforts underway to reduce global warming emissions, staff is placing increasing emphasis on analyzing present and future impacts of climate change and advancing local and regional **climate change adaptation** strategies. Climate change is a global issue with local impacts. The San Francisco Bay Area is experiencing and will continue to experience climate change-related disruption, including sea-level rise, increasing average temperatures and an increase in the incidence of heat waves, and changes in precipitation patterns. Staff is working with regional, state, and federal government agencies to better assess climate change hazards and the associated risks to the Berkeley community. The City was recently selected by the Rockefeller Foundation to participate in the "100 Resilient Cities" initiative, which we believe will help to accelerate Berkeley's climate change adaptation efforts. Other City of Berkeley efforts underway that help to advance climate impact readiness include:

Water efficiency – Community-wide water consumption decreased 15% since 2000, although it has increased 7% since 2010, mainly due to increased landscape irrigation

over the last three years of drought. Staff is working to obtain and analyze water consumption data for City facilities specifically. Consistent with East Bay Municipal Utility District (EBMUD) requests, the City is taking steps to reduce its water consumption by at least 10% this year by reducing irrigation in certain parks and medians, mitigating leaks in City facilities, and, potentially, using reclaimed water for street sweeping and some irrigation. Staff is also replacing the cooling tower at 1947 Center St., which will save approximately 300,000 gallons per year. The City also continues to work with EBMUD to encourage residents and businesses to use less water.

Urban forestry – Berkeley’s urban forest reduces local air temperatures, helps to reduce stormwater runoff, and sequesters GHG emissions, among other benefits. The City has gained over 4,600 street and park trees since 2000. According to an inventory of the urban forest conducted in 2013, there are over 35,400 street and park trees in Berkeley, with an additional 10,620 planting sites inventoried. The estimated replacement value of these trees is \$13,659,900. Staff plants an average of 600 street and park trees per year.

Achieving Scale – Integrating Sustainability throughout City Operations

Achieving scale with Berkeley’s climate action efforts requires that environmental sustainability be integrated throughout City operations and that it is part of everyone’s job. The City’s Sustainability Working Group (SWG) was established in May 2013 to help achieve this objective. It is a multi-departmental team chaired by the Deputy City Manager. To date, the SWG has implemented three main strategies:

- 1) *Created a new “Environmental Sustainability” section in all reports to City Council.* The new section requires all City staff to consider and articulate the linkages between the subject of the report and the City’s environmental sustainability goals.
- 2) *Integrated environmental sustainability practices in Citywide work plan.* For the FY 2015 Citywide work plan, each City department was tasked with identifying practices designed to integrate environmental sustainability into the department’s operations.
- 3) *Launched the Berkeley Environmental Achievement Awards.* The awards are designed to celebrate City employee actions that benefit the environment and contribute to a culture of sustainability throughout the City government. The first annual awards were presented during Earth Week on April 25, 2014. Over 30 nominations were submitted by City staff. The 2014 Grand Prize Winner was Natalie Krelle-Zepponi for her work to integrate recycling and composting into the City’s Meals on Wheels program.

The SWG will continue its efforts to increase the scale and impact of the City’s environmental sustainability work. One important short-term priority for the group is to develop a training on environmental sustainability for all City staff.

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.

The City reports a range of climate action performance metrics online at www.cityofberkeley.info/climateprogress.

ENVIRONMENTAL SUSTAINABILITY

The Climate Action Plan is designed to guide community-wide efforts to reduce global warming emissions and improve environmental performance. CAP policies and programs have contributed to reductions in energy use, solid waste disposal, and vehicle miles traveled in the Berkeley community.

POSSIBLE FUTURE ACTION

The purpose of this report and the associated work session is to provide City Council with an update on GHG emission trends to date and to provide an opportunity for discussion on policy and program options for closing the gap between current and targeted GHG emission levels.

FISCAL IMPACTS OF POSSIBLE FUTURE ACTION

Current climate action priorities are funded by existing grants, enterprise funds, and General Fund allocations. Staff continues to seek additional grant funding to maintain and scale-up existing efforts. The fiscal impacts of accelerating CAP implementation are currently unknown and dependent on policy choices.

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