



Berkeley Climate Action Plan: Tracking our Progress

Building Energy Use – Community-wide Greenhouse Gas Trend



Goal: Reduce conventional energy use and the associated greenhouse gas (GHG) emissions in Berkeley homes, businesses and institutions through high-quality energy efficiency upgrades and increased reliance on renewable energy sources such as solar

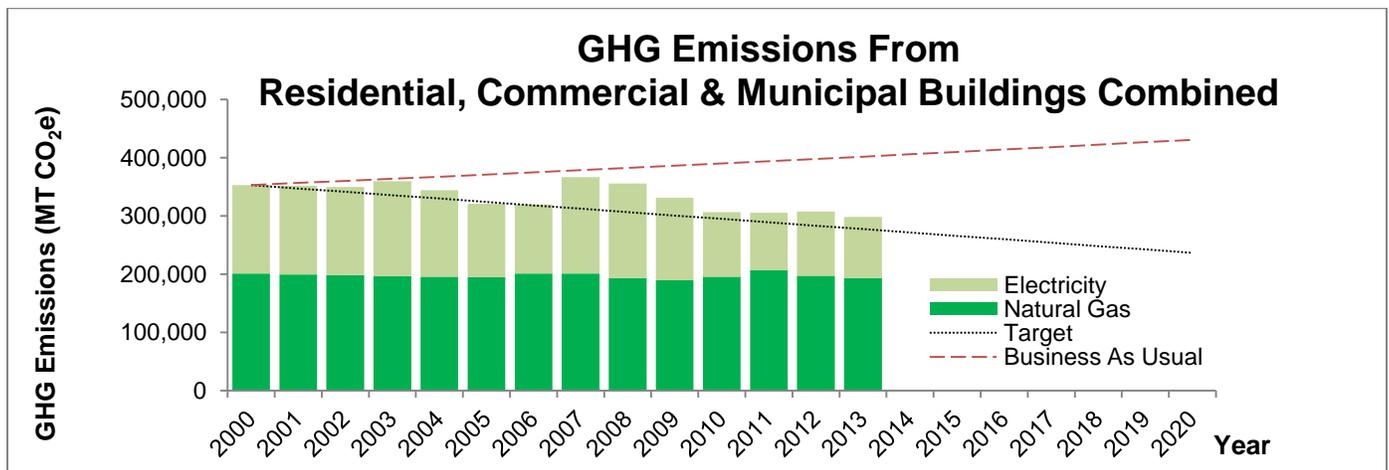
Performance metric: Annual GHG emissions associated with energy use in buildings (excluding energy consumed in buildings on the campuses of UC Berkeley and Lawrence Berkeley National Laboratory)

Target: Achieve a 33% (2% per year) reduction below 2000 levels by 2020 in the community-wide GHG emissions associated with energy use in buildings.

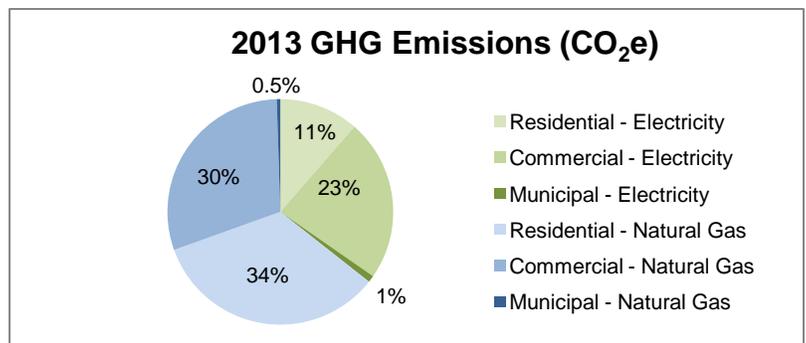
Status: The GHG emissions resulting from energy consumption in Berkeley’s homes, businesses, and city government buildings decreased approximately 16% between 2000 and 2013. This represents a 26% reduction below Berkeley’s forecasted “business-as-usual” scenario, meaning a modeled scenario in which the community is not taking action to reduce local emissions and emissions grow annually by a growth factor based on population (see chart below). The 26% reduction below forecasted business-as-usual levels represents the aggregated emissions reduction benefit in Berkeley of actions taken on building energy use at all levels of society, including households, businesses and other organizations, and government. In the absence of these actions, such as increased energy efficiency in homes and businesses, Berkeley’s building energy use-related emissions would be much higher than they are today.

Driving this trend are significant reductions in consumption of [residential electricity](#), [residential natural gas](#), and [commercial electricity](#). Commercial natural gas consumption increased approximately 16% since 2000.

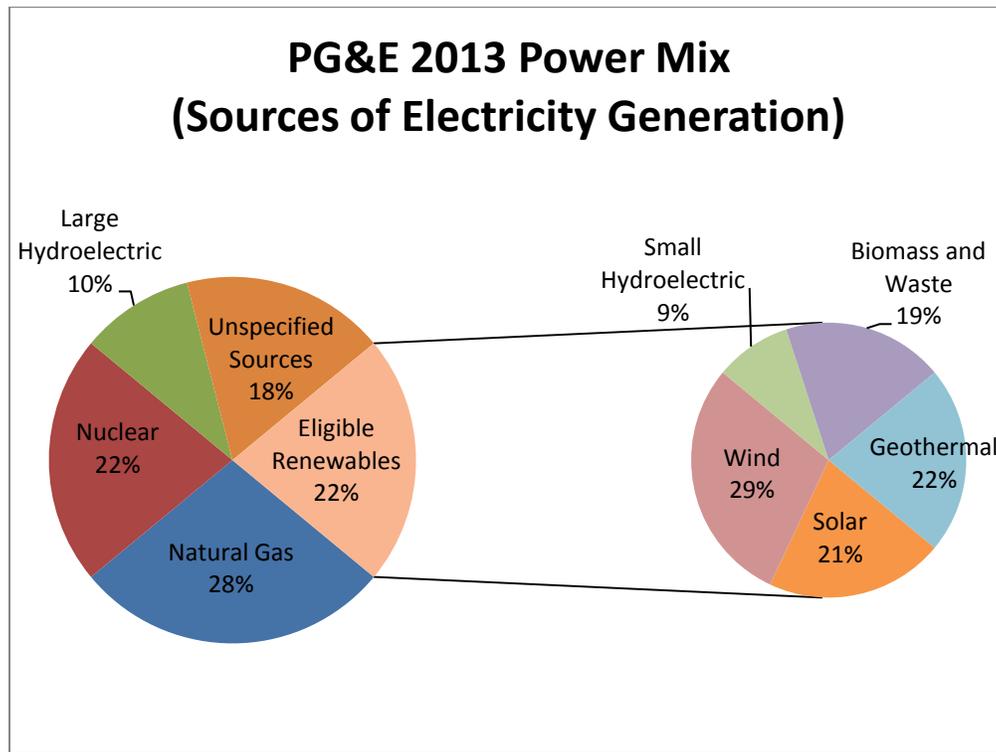
Also affecting the GHG emissions associated with building energy use is the rate of GHGs produced per unit of electricity consumed. Due to changes in the mix of energy used to produce electricity, the GHG emissions produced per KWh of electricity consumed (emissions intensity) is 25% lower in 2013 than in 2000.



The largest source of building energy use-related GHG emissions is natural gas consumption, which accounts for approximately 65% of building-related GHG emissions. The main sources of natural gas consumption are space and water heating. Electricity consumption accounts for about 35% of total building energy use-related GHG emissions.

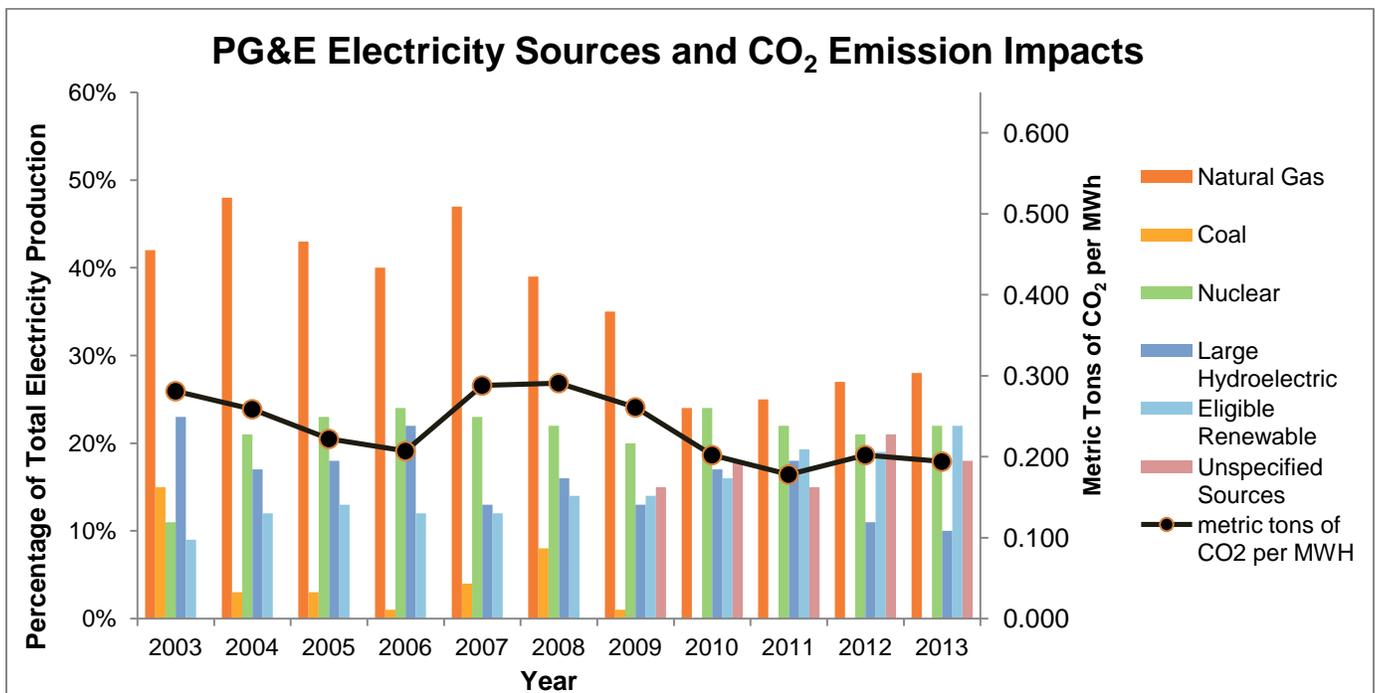


Emissions intensity plays a role in building energy use-related GHG emissions, and is determined by the mix of energy sources used to produce electricity. In 2013, approximately 22% of PG&E's electrical generation came from eligible renewable energy sources (e.g., wind, geothermal, biomass).



Under California law (Renewable Portfolio Standard), all electricity retailers are required to increase procurement of eligible renewable energy resources to 20% of total procurement by 2013, 25% by 2016, and 33% by 2020.

Twenty-two percent of PG&E's electricity mix came from eligible renewable sources in 2013. This represents a significant increase over the 14% in 2009 and 9% in 2003. This shift is reflected in the chart below.



Why is this metric important?

GHG emissions resulting from energy consumption in Berkeley are a significant source of Berkeley's carbon footprint. Actions to reduce energy consumption not only reduce emissions, but also have the potential to save businesses, residents, and government money, improve building comfort, and put local energy service providers to work.

Resources and assistance for community members:

[Residential Energy Conservation Ordinance](#): Adopted by the City of Berkeley in 1987, RECO requires that every home or apartment building sold or transferred in Berkeley or undergoing renovations valued at \$50,000 or more must meet a basic set of energy and water efficiency requirements.

[Commercial Energy Conservation Ordinance](#): Adopted by the City of Berkeley in 1994, CECO requires commercial property owners to complete certain energy conservation measures in their buildings upon transfer of property ownership or when additions or renovations are made.

[Bay Area Green Business Program](#): Businesses receive advice, recognition and technical assistance at no cost from Green Business Program coordinators and their public agency/utility partners.

[SmartLights](#): SmartLights offers businesses free, independent, start-to-finish technical assistance and instant rebates to help defray the cost of upgrading and/or repairing existing equipment.

[SmartSolar](#): Smart Solar is a free, independent service for East Bay residents and businesses offering energy education and site-specific project advice to help advance uptake of solar installations.

[Berkeley Solar Map](#): The Berkeley Solar Map is an interactive tool for viewing the locations of existing solar installations in Berkeley. In addition, it allows users to calculate the benefits of going solar by determining the potential size and cost for solar electric and hot water systems on any rooftop within the City of Berkeley.

[Income-qualified programs](#): The City and its partners offer a range of services that provide free or low-cost energy-saving measures designed to improve home comfort and lower utility bills.

[California Youth Energy Services](#): A summer program staffed by local youth, CYES provides free energy and water efficiency services to the community.

[Energy Upgrade California](#): Energy Upgrade California is a statewide one-stop-shop for home improvement projects that lower your energy use, conserve water and natural resources, and make your home healthier and more comfortable.

Data sources and technical notes: Energy consumption data and sources of electricity generation data are provided by PG&E, with the exception of the electricity emission factors for years 2000-2002 which were provided by ICLEI. Analysis uses a three-year historical average as an estimate for the 2013 emissions intensity factor, which will be released by PG&E in early 2015. Building energy use data do not include energy consumed in buildings on the campuses of UC Berkeley and Lawrence Berkeley National Laboratory. Population data used to model Berkeley's "business-as-usual" emissions forecast were obtained from [Building Momentum: Projections and Priorities 2009](#), published by ABAG in August 2009.

Tracking our progress: Review Climate Action Plan performance metrics at www.cityofberkeley.info/climate.