

Energy Efficiency on the West Coast

The Alliance's [Energy 2030 On the Road campaign](#) is making its next stop in the "city by the bay," bringing efforts to double energy productivity by 2030 to the community of [San Francisco on August 12](#). The half-day event, sponsored by Pacific Gas and Electric Company, will foster dialogues between leaders from state and local government, utilities, business, academia and nonprofit organizations regarding ways that these stakeholders can help drive energy productivity through modernization and investment, consumer education, and work in the public sector.

With San Francisco, San Jose, and the greater state of California currently leading the United States in energy efficiency, this event is especially exciting. University budgets are expanding as consumption declines, technology incubators in Silicon Valley are seeing exponential increases in venture capital for efficiency, and Californians are saving billions through public-private sector partnerships to reduce energy bills. Learn more about why we're so eager to visit San Francisco to celebrate their energy achievements and discuss ways to capitalize on the pathways advocates have paved for a more efficient West Coast.

Power Partnerships for San Francisco

Since San Francisco adopted its [Existing Commercial Buildings Energy Performance Ordinance](#) in 2011, building efficiency has become a top priority for many businesses. The ordinance requires owners of all nonresidential buildings larger than 10,000 square feet to have energy efficiency audits completed every five years and benchmark their energy performance annually. The public sector has been a model for such programs since it adopted its [Electricity Resource Plan](#) in 2002 with the goal of attaining a greenhouse gas free electric system by 2030. Spurred on by the Energy Performance Ordinance in 2011, the plan was ramped up with strong recommendations to increase energy efficiency efforts such as introducing new behind-the-meter initiatives and investing in combined heat and power systems.

The [results](#) of leaning into energy efficiency measures have been significant. The total energy intensity of San Francisco's benchmarked municipal buildings improved by 7.4 percent between 2009 and 2013 while the carbon footprint of the facilities simultaneously improved by 12.7 percent. Additionally, over 80 percent of the 135 public facilities in the Energy Star program performed equal to or better than the national average for similar buildings. This is no surprise as San Francisco is [ranked fifth](#) in the nation on the EPA's Energy Star Top Cities list. [According to Jared Blumenfeld](#), the EPA's Regional Administrator for its Southwest Pacific office, "San Francisco, Sacramento and San Jose have saved over \$150 million and reduced carbon dioxide emissions by 324,670 tons because of energy efficient buildings and upgrades." San Francisco alone has reduced carbon emissions by 250,826 tons, effectively saving \$118,902,275.

A major driver of San Francisco's success in energy efficiency has been Pacific Gas and Electricity Company (PG&E), which supplies 75 percent of the city's total electricity usage. The company's Pacific Energy Center in San Francisco offers a variety of technical assistance programs ranging from daylighting and shading analysis to enhance envelope design to demonstrations on optimizing electric lighting systems for different building models. After implementing several of PG&E's recommendations, including motion sensor lighting and variable speed ventilation, the University of California, San Francisco received nearly [\\$3 million in incentives](#).

[The University's latest project](#) of replacing an absorption chiller and upgrading the chilled water piping and pumping systems at its main campus hospitals reduced its utility bill by an estimated \$1.3 million annually and will save almost 411,000 kilowatt hours and more than 658,000 therms of energy each year. These savings are equivalent to avoiding nearly 8 million pounds of carbon dioxide, powering 921 homes for a year, or removing 551 cars from the road. This project is just one of many fostered by PG&E's partnership program which aims to incentivize energy savings in California universities and provides technical assistance along the way.

San Jose's Energy Efficient Vision

In 2007, the "the Capital of Silicon Valley" established its [Green Vision](#) with 15 year targets to transform San Jose into the nation's "greenest" city by 2022. Even with an ambitious agenda, [the city is on track](#) to meet many of its targets. Since 2007, over 12,000 of the targeted 25,000 clean tech jobs have been created with over \$47.2 billion dollars in clean technology venture capital invested locally. San Jose now receives 24 percent of its electricity from clean renewable sources and has converted 5,530 streetlights to more efficient LEDs, with goals to triple these numbers in the next 7 years. Over 11.5 million KWh have been saved through 850 energy efficiency projects and over 9.3 million square feet of green building construction and retrofits. In terms of transportation efficiency, Zipcar, the city's car share program, has expanded its fleet from 12 to 58 vehicles and 41 percent of the city's vehicle fleet runs on alternative fuel.

Despite its great achievements, San Jose is not content with becoming the nation's greenest city by 2022. With the innovative, forward-thinking attitude the Silicon Valley area is known for, San Jose has created an even more comprehensive plan for the future: [Envision San Jose 2040](#). The plan extends the 2022 goal of a 50 percent per capita energy consumption reduction through 2040 with an aim for further reductions. It also commits to achieve 100 million square feet of new or retrofitted green buildings by 2040. With the goal of making San Jose the "World Center of Clean Tech Innovation," the plan also aims to create at least 70,000 clean technology jobs, or at least 10 percent of San Jose's total jobs, by 2040.

Transportation remains a cornerstone of the city's clean energy vision as the plan specifically supports intensive job growth at planned and existing regional transit stations such as BART, High-Speed Rail, and Caltrans to support increased transit ridership and regional use of the transit system to save energy and limit emissions. Much like San Francisco, San Jose's action items for making great strides in energy efficiency are grounded in partnerships between public, private, and non-profit agencies for public outreach and education on energy efficiency programs and services along with city-sponsored business incubators for clean tech growth.

One such public program is the [Silicon Valley Energy Watch](#) (SVEW) program run by the local government, PG&E, and Ecology Action, which allows small and middle sized businesses and schools access to comprehensive energy efficiency expertise for a low-cost. Since 2010, SVEW has served over 3,250 customers, delivered over \$7.3 million in rebates, saved 57 million kWh, and reduced electricity demand by 10,039 kW, resulting in \$6.7 million annual savings for Santa Clara County PG&E customers. San Jose also partnered with Lawrence Berkeley National Lab to create [ProspeCT SV](#) (Providing real-time opportunities to showcase and pilot emerging Clean Technologies in Silicon Valley), which connects public and private investors with academics and clean tech pioneers, and [FLEXLAB](#), "the most flexible,

comprehensive, and advanced building efficiency simulator in the world.” According to Ashok Gadgil, head of the Lab’s Environmental Energy Technologies Division, “having a real-world place to evaluate and validate our research—especially one as rich in infrastructure as San Jose—is an unparalleled opportunity and will surely speed up market availability of better technology.”

Because of these partnerships, goals, and research and development, San Jose’s vision of becoming an energy efficiency leader has become a reality. The city has [ranked second](#) in the nation on the US Clean Tech Leadership Index for the last three years, second only to San Francisco.

Efficiency “Firsts” in California

Since the 1970s, California’s energy efficiency efforts [helped residents and businesses save more than \\$65 billion](#), reduced household electric bills to 25 percent below the national average, cut carbon pollution equivalent to the amount produced by 5 million cars annually, and [created 1.5 million full-time-equivalent jobs](#). The American Council for an Energy-Efficient Economy (ACEEE) ranked California second in the nation on its [Efficiency Scorecard](#) because of the state’s initiative to be the first to implement many efficiency standards and programs that have delivered enormous savings.

Known as the leading state in building energy codes and compliance standards, California became the first state to adopt legislation requiring commercial buildings to benchmark their energy use in 2007. Since then, California’s energy code has continued to be one of the most comprehensive with excellent compliance enforcement. The state is attempting to reach its target of zero net energy usage for residential buildings by 2020 and for nonresidential buildings by 2030 by continuing to update energy codes as technology allows. Because of California’s adoption of a new standard in 2013 that increases efficiency standards by 25 and 30 percent for residential and nonresidential buildings respectively, it is estimated that the state will [save \\$1.6 billion](#) over the next 30 years through building efficiency alone.

Another “first” for California was its adoption of an [energy efficiency standard in 2012](#) for battery chargers in devices such as cell phones, laptops, and power tools. With an average of 11 battery chargers per household and over 170 million chargers statewide, incredible savings potential exists for efficient charging technology. The standard is estimated to reduce electricity use from powering devices by 40 percent and save nearly 2,200 gigawatt hours (GWh) annually. Because of these drastic waste reductions, California ratepayers save more than \$300 million annually and eliminate 1 million metric tons of carbon emissions. Just this month, the Department of Energy has taken California’s cue by [ramping up its proposal](#) on nationwide standards for rechargeable batteries, saving consumers over \$1.2 billion.

California is also a leader in [combined heat and power systems](#) (CHP), or cogeneration, in which electricity and thermal energy are produced in a single integrated system. CHP systems can be nearly twice as efficient as the conventional method of producing usable heat and power separately, with an 80 percent efficiency rate. California was one of the first states to establish a [standard interconnection](#) policy for this type of applied technology so that parameters and procedures for connecting to the grid were explicitly established and CHP deployment could grow without monetary and transaction cost barriers. This policy and the programs that it encourages such as the utility-led Self-Generation Incentive Program (SGIP) - which incentivizes support for existing, new, and emerging natural resources - allows California’s combined heat and power potential to reach between [3,600 and 6,000 MW by 2030](#) and

aids in reaching the Obama administration's [executive order](#) targeting 40 GW of new CHP capacity by 2020.

West Coast Initiatives

In Oregon, non-profits have allowed citizens to use less and save more. [Energy Trust](#) helped primary utility customers save over \$1.9 billion on their energy bills, added \$3.9 billion to the state's economy, and kept more than 14.6 million tons of carbon pollution out of the atmosphere since 2002 by providing clean, energy efficient solutions. Success stories range from apartment complex residents who now save \$7500 a year from the installation of ductless heat pumps and energy efficient lighting to a health company with six hospitals who save \$344,000 in energy costs thanks to technical expertise and incentives provided by Energy Trust. [Oregon Manufacturing Extension Partnership](#) (OMEP) is another non-profit that has shown just as much enthusiasm for efficiency by leveraging support from the federal government with help from state and local organizations to help small manufacturing companies become more competitive in the global economy. Pacific Pure-Aid, the world's largest supplier of flavors and fragrances, saves 387,000 KW per hour and \$27,000 annually via energy efficiency improvements advised by OMEP.

Nevada's [Home Energy Retrofit Opportunities for Seniors program](#), or "HEROS," offers residential energy assessments and upgrades for disabled homeowners or for seniors over 60 years old for no cost through a network of non-profit organizations. Assessments can yield up to \$6,000 in energy savings. Nevada also serves its state employees through the newly approved [Direct Energy Assistance Loan](#) (DEAL) Program, which allocates \$1,500,000 from the Renewable Energy Fund for zero-interest loans to state employees for energy assessments and upgrades each year. The loan is easily repaid via a deduction on the employee's paycheck, making energy efficiency more accessible for Nevada's workforce.

In Arizona, the state's Corporation Commission established [requirements](#) in 2010 that make energy efficiency a sole resource for compliance as electric utilities must use efficiency programs to meet a percentage of their energy demand. Consumption reductions must take place gradually to meet a total 22 percent reduction by 2020. These standards work double duty by also conserving water and reducing pollution, providing a pathway for environmental stewardship while saving consumers a projected \$9 billion on their utility bills by 2020. Thanks to policies like this, Arizona consumers conserved more than 1.3 million megawatt-hours of electricity in 2013 and were ranked fourth in the nation by ACEEE for electricity savings improvements.

With energy efficiency champions in the local and state governments, these exciting steps forward are only a mark of the progress to come for business owners, households, non-profits, and industries on the West Coast and the Energy 2030 *On the Road* team looks forward to discussing pathways for expediting and expanding upon this development.