California's Energy Efficiency Success Story:
Saving Billions of Dollars and Curbing Tons of Pollution

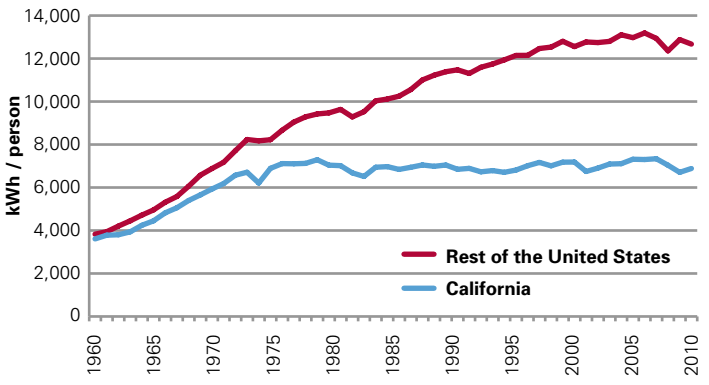
California's long, bipartisan history of promoting energy efficiency—America's cheapest and cleanest energy resource—has saved Golden State residents more than $65 billion,[1] helped lower their residential electricity bills to 25 percent below the national average,[2] and contributed to the state's continuing leadership in creating green jobs.[3]

These achievements, which began in the 1970s and continued under both Democratic and Republican leadership, have helped California avoid at least 30 power plants[4] and as much climate-warming carbon pollution as is spewed from 5 million cars annually.[5] This sustained commitment has made California a nationally recognized leader in reducing energy consumption and improving its residents' quality of life.[6] California's success story demonstrates that efficiency policies work and could be duplicated elsewhere, saving billions of dollars and curbing tons of pollution.

CALIFORNIA'S COMPREHENSIVE EFFICIENCY EFFORTS PRODUCE HUGE BENEFITS

LOW PER CAPITA CONSUMPTION: Thanks in part to California's wide-ranging energy-saving efforts, the state has kept per capita electricity consumption nearly flat over the past 40 years while the other 49 states increased their average per capita use by more than 50 percent, as shown in Figure 1. This accomplishment is due to investment in research and development of more efficient technologies, utility programs that help customers use those tools to lower their bills, and energy efficiency standards for new buildings and appliances.

Figure 1: California Per Capita Electricity Consumption vs. Rest of the Nation



Source: EIA.[7]

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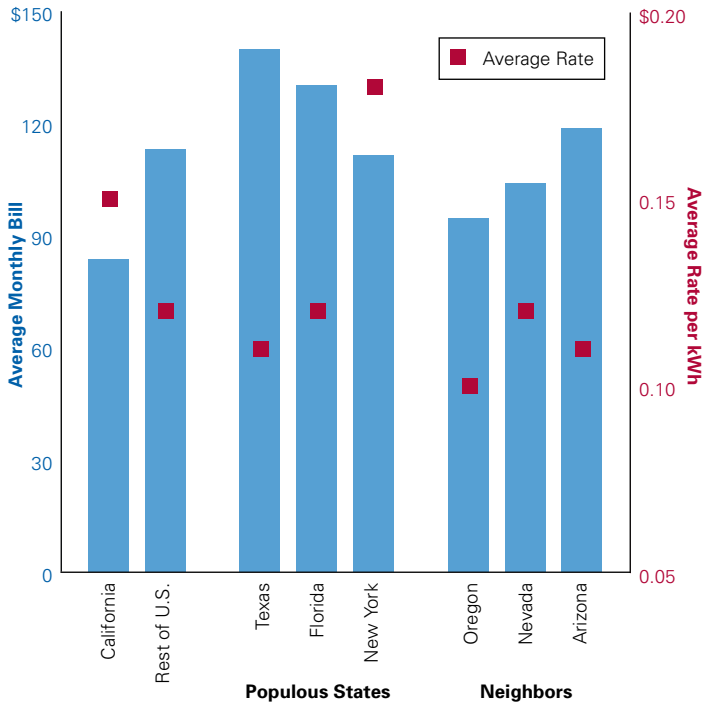
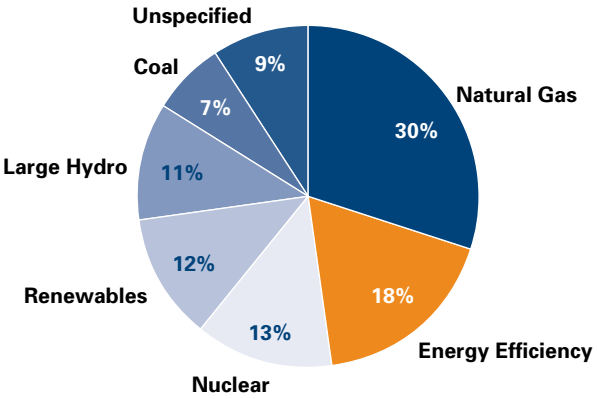
Figure 2: Comparison of Residential Electric Bills and Rates



Source: U.S. Energy Information Administration (2011)

Figure 3: California Power Mix (2011)

Energy efficiency costs less than half of what the fossil-fuel alternatives would be in California.[10]



Source: CEC, NRDC analysis

ECONOMIC ADVANTAGES: Energy efficiency has saved Californians $65 billion since the 1970s.[8] It has also helped slash their annual electric bills to the ninth-lowest level in the nation, nearly $700 less than that of the average Texas household, for example.[9] There is no doubt that energy efficiency is a good investment that uses the resources we have more effectively—and it costs utilities less than half of what the fossil-fuel alternatives would be in California.[10]

Clean energy opponents often decry California's relatively high per-kilowatt-hour rates, but households care more about their total monthly utility bills. And compared with the national average, the other most populous states, and its neighbors, Californians win hands-down with lower bills (see Figure 2).

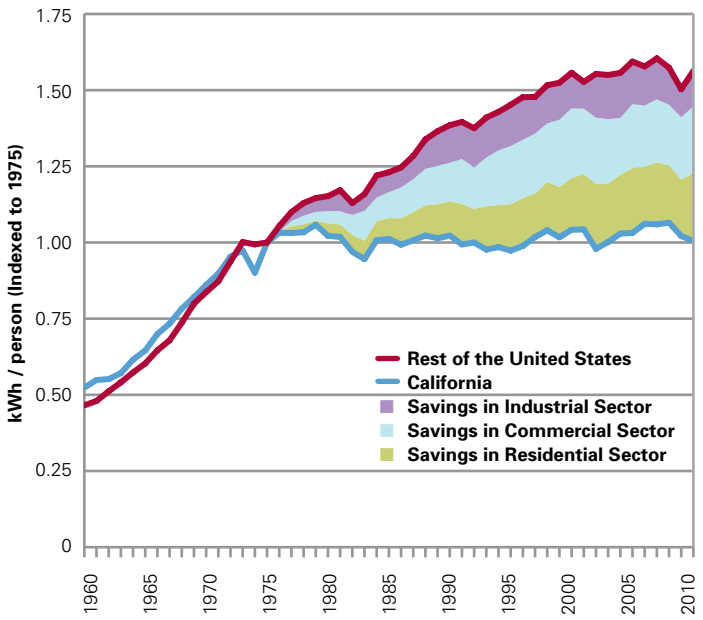
Lower utility bills also improve California's economic productivity. Since 1980, the state has increased the bang for the buck it gets out of electricity and now produces twice as much economic output for every kilowatt-hour consumed, compared with the rest of the country.[11] California also continues to lead the nation in new clean-energy jobs, thanks in part to looking first to energy efficiency to meet power needs.

In 2012 alone, more than 26,000 green jobs were added in the state.[12] Efficiency investments create jobs both directly (for example, contractors installing insulation and better windows) and throughout the economy as consumers spend their utility bill savings on more job-intensive goods and services.

ENVIRONMENTAL BENEFITS: Decades of energy efficiency programs and standards have saved about 15,000 megawatts of electricity and thus allowed California to avoid the need for an estimated 30 large power plants.[13] Efficiency is now the second-largest resource meeting California's power needs (see Figure 3).[14] And less power generation helps lead to cleaner air in California. Efficiency savings prevent the release of more than 1,000 tons of smog-forming nitrogen-oxides annually, averting lung disease, hospital admissions for respiratory ailments, and emergency room visits.[15] Efficiency savings also avoid the emission of more than 20 million metric tons of carbon dioxide, the primary global-warming pollutant.

HELPING LOW-INCOME FAMILIES: While California's efficiency efforts help make everyone's utility bills more affordable, targeted efforts assist lower-income households in improving efficiency and reducing energy bills. More than 1 million households benefitted from programs providing free energy-savings upgrades like weatherization and efficient refrigerators from 2009 through 2011.[16]

Figure 4: Per Capita Electricity Savings Allocated by Sector



Source: EIA, SEDS database (2012)

BUSTING THE MYTHS ABOUT CALIFORNIA'S ENERGY EFFICIENCY

Although California has kept per capita electricity consumption nearly flat over the past four decades, some naysayers incorrectly claim this would have been achieved even without efficiency policies.

MYTH #1: INDUSTRY'S DECLINE. Some contend that the flat usage is the result of industry's departure from the state, but heavy industry has been leaving the entire country, not just California. In reality, much of the progress in per capita consumption is due to changes in California's residential and commercial sectors, which together account for about 80 percent of the per capita usage variance between California and the rest of the nation.[17] The industrial sector accounts for the remaining 20 percent and California has a long history of efficiency programs that help explain that gap.

MYTH #2: CALIFORNIA SUNSHINE. Some argue that level per capita consumption is due to California's weather. But the state has always enjoyed good weather, so this factor cannot be credited with the widening disparity between California's electricity use and consumption in the rest of the United States. Mild winters are not a significant factor because heating needs in California and elsewhere are largely satisfied with energy sources other than electricity. As for the summers, most of the state's population increasingly lives in Southern California and the Central Valley, which have hot summers and relatively significant air conditioning loads. Nonetheless, household per capita energy consumption trends (including electricity and home heating fuels, adjusted for year-to-year weather variations) show California far outstrips every other state in continuous efficiency progress.[18]

MYTH #3: HIGH PRICES. Perhaps the embodiment of the everything-would-have-happened-anyway philosophy is the misconception that high prices created the energy savings in California. However, research shows that electricity demand is quite insensitive to price.[19] Most people are unaware of the per-kilowatt-hour cost of their electricity because it is buried in complicated bills.

While higher rates help make energy efficiency investments more cost-effective, decades of research and experience show consumers leave even highly worthwhile energy-savings opportunities untapped due to a number of market barriers.[20] For example, a homeowner rushing to replace a broken clothes washer might not find efficient options at the store, might lack information about the relative efficiencies of different models, or might not be able to afford the higher up-front cost of a more efficient machine even though the energy savings over time would more than compensate for it. This is where state and federal efficiency policies and programs can break down obstacles and enable customers to upgrade efficiency and lower their utility bills.

CALIFORNIA'S EFFICIENCY SUCCESS CAN BE REPLICATED—AND EXPANDED

Although some of California's flat per capita electricity consumption may be attributed to factors independent of energy policy (such as more people per household, on average), the simple truth is this: *Efficiency policies that produce more energy-saving technologies work.*[21] California has reaped substantial energy-savings benefits thanks to policies that can be easily adopted elsewhere: more research and development of new technologies, utility programs to help consumers lower their bills, and minimum standards that ensure new buildings and appliances are not energy guzzlers.

Still, enormous potential remains to save energy more cheaply than it can be produced. In California alone, studies have identified opportunities over the coming decade that could keep more than 10 new power plants from being built, saving utility customers billions and helping to reduce carbon emissions to 1990 levels as required by California's Global Warming Solutions Act.[22]

Meanwhile, California's strong bipartisan support for efficiency as the least expensive and cleanest energy resource is helping keep the lights on, generating jobs, and producing major reductions in pollution. And that's no myth.

Endnotes

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17 EIA, *State Energy Data System* (June 2012).

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