

ISSUE BRIEF

CALIFORNIA'S GOLDEN ENERGY EFFICIENCY OPPORTUNITY

Significant Ramp-Up Needed to Meet State Climate Goals While Saving Customers Money

California has been the nation's trendsetter in using energy efficiency to reduce pollution and trim electricity bills while spurring significant job growth. Nevertheless, the urgent threat of climate change requires even stronger action. Thanks to the leadership of the State Legislature and governor, the state adopted even more ambitious goals. The Clean Energy and Pollution Reduction Act of 2015 (Senate Bill 350) includes a requirement to double energy efficiency by 2030, supporting the state's goal of reducing dangerous carbon pollution to 40 percent below 1990 levels by 2030 and 80 percent below by 2050.¹

To achieve the goal of doubling energy savings by 2030, the state's combined efficiency efforts will, over the next 15 years, have to cut projected electricity demand by one-quarter and natural gas use by more than 10 percent.² While more effort is needed, the state's efficiency policies have already produced enormous benefits for Californians and helped put the state on track to exceed the efficiency goals of the state's landmark Global Warming Solutions Act (Assembly Bill 32), which requires California to reduce greenhouse gas emissions to 1990 levels by 2020.³

BENEFITS FROM CALIFORNIA'S INVESTMENT IN ENERGY EFFICIENCY

DECREASES POLLUTION

- ▶ Avoided at least **50** LARGE POWER PLANTS since 1970s, 11 more expected to be avoided over the next decade 
- ▶ Cuts MILLIONS OF TONS OF POLLUTANTS contributing to asthma, other ills

CUTS ENERGY WASTE

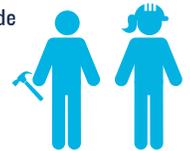
- ▶ Saved enough electricity since 2003 to power **MORE THAN HALF OF CALIFORNIA'S HOMES FOR ONE YEAR** 
- ▶ Met about 1/5 of the state's electricity need in 2013
- ▶ Helped keep per capita electricity use flat vs. 50% increase in rest of U.S. (since 1970s)

SAVES CALIFORNIANS MONEY

- ▶ Efficiency programs saved \$12 billion after costs (2003-2013)
 - ▶ Research projects yielded \$446 for every \$1 invested
 - ▶ Newest building codes to save \$6,000 per house
- ▶ Codes and standards saved approximately **\$75 billion** (since 1970s)

CREATES JOBS, SPURS ECONOMY

- ▶ Efficiency jobs grew 15% compared to 2% economy-wide (2002-2012)
- ▶ California produces 2x benefit for every unit of electricity compared to the rest of U.S.



HELPS LOW-INCOME CUSTOMERS

- ▶ Low-income efficiency programs served almost **3 MILLION HOUSEHOLDS** (since 2003)
- ▶ Saved enough electricity to power **90,000 HOMES** and enough natural gas for nearly **80,000 HOMES** for 1 year

HELPS MEET CLIMATE GOALS

- ▶ Slashed **30 MILLION** metric tons of CO₂ pollution, equal to annual emissions of **6 MILLION** cars (since 2003) 
- ▶ Cuts one of the largest sources of California's greenhouse gas emissions

For more information, please contact:

Lara Ettenson
lettenson@nrdc.org

www.nrdc.org/energy
www.facebook.com/nrdc.org
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If the state is to reach its ambitious goals, California will have to substantially expand its approach to smarter energy use. This can be achieved, for example, by increasing minimum energy standards for buildings and equipment, improving participation in efficiency programs that offer rebates to consumers for buying more efficient appliances, and implementing the new state law (Assembly Bill 802). This law provides commercial and multifamily building owners with energy use information and requires state agencies to take a new look at energy-saving opportunities.⁴ The state can cut additional energy waste by addressing policy issues that limit efficiency programs and by creating an environment that supports innovation.

Thankfully, efforts to address these challenges are already under way at the state’s energy agencies and through collaborative stakeholder forums. By moving decisively to seize the available opportunities, the Golden State can once again show the country that energy efficiency is the cheapest, cleanest, and fastest way to combat carbon pollution while also creating jobs, supporting economic growth, and saving consumers billions of dollars on their energy bills.

CALIFORNIA'S SUCCESS STORY DEMONSTRATES THAT ENERGY EFFICIENCY WORKS

California’s long—and bipartisan—commitment to energy efficiency has delivered significant health, environmental, and economic benefits. Since 2003, combined efficiency efforts have cut electricity demand by nearly one-fifth, even as the state’s economy has grown.⁵

Over the same time frame, efficiency efforts have kept more than 30 million metric tons of carbon pollution—equivalent to the annual emissions of 6 million cars—from entering the atmosphere.⁶ Using efficiency to reach the state’s climate goals is also expected to prevent the release of 2,000 tons of smog-forming nitrogen oxides by 2020, averting lung disease, hospital admissions for respiratory ailments, and emergency room visits.⁷

Golden State consumers can boast that their annual average electric bills are \$240 (or 18 percent) lower than the national average, thanks in large part to efficiency. Efficiency has also helped keep the state’s per capita electricity consumption nearly flat over the last 40 years—even as it increased by more than 50 percent in the rest of the nation—and is expected to help reduce overall demand through 2025.^{9,10}

While efficiency benefits everyone, it has been especially important to low-income households, which generally spend a disproportionate amount of their income on energy. Since 2003, nearly 3 million low-income households have benefited from customer-funded energy efficiency programs that provide insulation, more efficient appliances, and other energy-saving improvements at no cost.¹¹

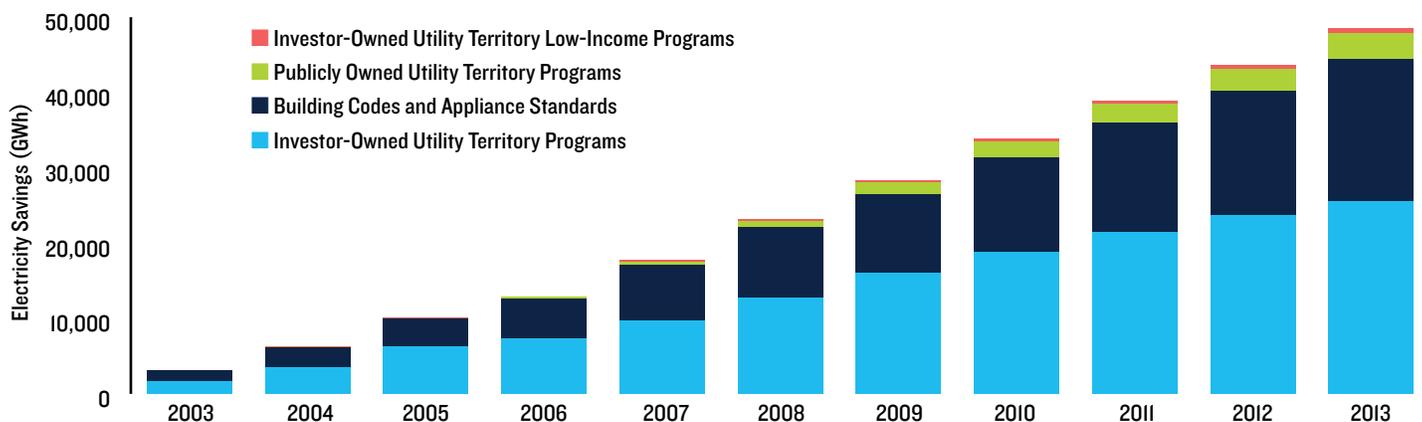
Some of California’s biggest energy savings have come from the state’s efficiency standards for appliances and buildings. Appliance standards alone have saved more than 10,000 gigawatt-hours of electricity since 2003, enough to power 2 million households for one year.¹² The 2013 building efficiency codes, which went into effect on July 1, 2014, are expected to cut energy consumption in new homes by 25 percent, saving each household \$6,000 on utility bills over the course of 30 years compared with similar homes built under the previous code.¹³

To continue advancing codes and standards, the state invests in efficiency research and development projects that have yielded big payoffs. A \$22 million investment in just 19 efficiency projects in a state-run energy research and development program is projected to save Californians \$10 billion over 20 years, or nearly \$450 for every \$1 invested.¹⁴

EFFICIENCY SPURS THE ECONOMY AND LEADS TO JOB GROWTH

Currently, more than 300,000 of the state’s green economy jobs, or nearly 70 percent, are related to improving energy efficiency in buildings.¹⁵ Efficiency employment grew by 15 percent from 2002 to 2012 and continues to be a bright spot in the economy.¹⁶ As California increases investments

CUMULATIVE ENERGY EFFICIENCY SAVINGS DUE TO CODES, STANDARDS, AND PROGRAMS⁹





to make buildings more efficient, additional workers will be needed to install efficiency improvements and to manufacture the goods that support those efforts.¹⁷

Most notably, when Californians save on their utility bills, they have more money to spend on other goods and services. This boosts the economy and in fact, represents efficiency’s largest contribution to new jobs across the state.

Energy efficiency helps keep California’s economy strong and growing. For example, thanks in part to efficiency programs, building energy codes, and appliance and equipment standards, California spends less of its gross domestic product on electricity than do other states with comparable populations and economies, and it is nearly twice as productive per unit of electricity consumed.¹⁸

Californians can also take pride in the fact that if their state were as energy inefficient as longtime rival Texas, they would be spending \$9.5 billion more on electricity each year, rather than investing that money elsewhere in the Golden State’s economy.¹⁹

CALIFORNIA HAS SUBSTANTIAL OPPORTUNITIES TO HELP MEET ITS CLIMATE AND ENERGY GOALS

The state is a leader on energy and climate action and continues to be ranked among America’s top-performing states for efficiency.²⁰ In fact, efficiency programs, codes, and standards have positioned California to exceed its

carbon pollution reduction targets in the federal Clean Power Plan, which limits carbon pollution from power plants, the largest source of U.S. greenhouse gas emissions.

Since the 2008 scoping plan laid out the implementation strategy for the Global Warming Solutions Act, electricity savings from energy efficiency have already reduced California’s annual climate-warming emissions by more than 8 million metric tons, equivalent to the annual pollution from nearly 2 million cars.²¹ While this is a great achievement, the state needs to significantly ramp up efficiency to achieve its long-term climate goals as noted earlier.

California state agencies have begun tackling many of the challenges that inhibit the expansion of energy efficiency initiatives. To help support these efforts, NRDC recommends that the State Legislature codify the state’s post-2020 greenhouse gas reduction goals to provide a long-term framework for updating efficiency policies. In addition, the state energy agencies should:

- Set a clear, unified vision and implementation plan for achieving the state’s full energy-savings potential, including clarifying the responsibilities of the different efficiency actors and prioritizing challenges to address.
- Establish a statewide collaborative group to resolve differences, ensure consistency on critical efficiency policy matters, and identify all possible efficiency opportunities.

- Align efficiency policies (e.g., rules for how to value efficiency) with climate goals to ensure efficiency is not only the primary energy “resource”(option) to meet Californians’ energy needs but also the leading approach to reducing greenhouse gas emissions.
- Implement the state’s energy data access and benchmarking requirements per Assembly Bill 802, which mandates that utilities provide whole-building energy usage information to multifamily and commercial building owners and establishes a statewide benchmarking system under which owners of large commercial and multifamily buildings will report certain information to the California Energy Commission, including a benchmarking score.²²
- Scale up efforts to implement new and updated appliance efficiency standards to better control the proliferation of plug-in equipment in homes;²³ collaborate with the U.S. Department of Energy to increase the stringency of federal efficiency standards where California is preempted; and continue to update building energy codes to achieve the state’s zero net energy goals.
- Ensure low- and moderate-income customers have access to quality energy-saving opportunities—for example, by expanding and improving coordination of efficiency programs for multifamily buildings.
- Pursue all available energy efficiency opportunities through an improved market assessment of what is feasible in the short and long term.

Even with California’s tremendous progress, enormous opportunities remain to save energy, reduce pollution, lower utility bills, and grow the state’s clean energy economy. The urgent threat of climate change makes it imperative for the Golden State to take its energy efficiency success story to the next level—for the sake of our health, our environment, and our economy. This is a challenge the state is sure to meet if the leadership in Sacramento, the state energy and climate agencies, and stakeholders continue to learn from other jurisdictions and collaborate toward this common goal.

ENDNOTES

- 1 California State Legislature, *Clean Energy Pollution Reduction Act of 2015*, Senate Bill 350 (De León, 2015); Governor Edmund G. Brown Jr., *Executive Order B-30-15* (California, 2015); Governor Arnold Schwarzenegger, *Executive Order S-3-05* (California, 2005).
- 2 **Projected natural gas savings source:** California Energy Commission (CEC), “California Energy Demand 2014–2024” (mid-case Additional Achievable Energy Efficiency (AAEE)), January 2014. **Projected electricity savings source:** CEC, “California Energy Demand 2015–2025 Updated Forecast” (mid-case AAEE), February 2015 and California Municipal Utilities Association, “2015 Energy Efficiency in California’s Public Power Sector,” March 2016. **2030 electricity demand source:** CEC, “California Energy Demand Forecast 2016–2026, Preliminary Mid Demand Baseline Case,” (No AAEE Savings), Form 1.5a: “Statewide, Electricity Deliveries to End Users by Agency (GWh),” July 2015; CEC, “2015 IEPR Self-Generation Forecast,” July 2015. **2030 natural gas demand source:** CEC, “California Energy Demand 2014–2024.” “Natural Gas Planning Area and Sector Mid,” Form 1.1: “State Natural Gas Planning Area,” January 2014.
- 3 CEC, “California Energy Demand 2014–2024” and California Air Resources Board (CARB), “Climate Change Scoping Plan,” December 2008.
- 4 California State Legislature, *Energy Efficiency*, Assembly Bill 802 (Williams, 2015).
- 5 CEC, “California Energy Demand 2014–2024” and CEC, Total Electricity System Power, “2013 Total System Power in Gigawatt Hours,” September 25, 2014.
- 6 Natural Resources Defense Council (NRDC), “California’s Golden Energy Efficiency Opportunity: Ramping Up Success to Save Billions and Meet Climate Goals,” August 2015, p. 9.
- 7 *Ibid.*, p. 5.
- 8 *Ibid.*, p. 20.
- 9 Energy Information Administration (EIA), *State Energy Database System*, Form 826 Monthly Utility Data. June 27, 2014; U.S. Census Bureau “American FactFinder,” Community Facts, California; and CEC, “California Energy Demand 2014–2024.”
- 10 CEC, “California Energy Demand Updated Forecast, 2015–2025,” Form 1.5b.
- 11 Low Income Oversight Board, data compiled from Investor-Owned Utilities’ 2013 Energy Savings Assistance Program reports. <http://liob.org/resultsqv.cfm?doctype=10> (accessed February 15, 2016).
- 12 NRDC, “California’s Golden Energy Efficiency Opportunity,” Appendix 2; EIA, “Electric Sales, Revenue, and Average Price,” Table 5a, 2013.
- 13 CEC, “New Title 24 Standards Will Cut Residential Energy Use by 25 Percent, Save Water, and Reduce Greenhouse Gas Emissions,” July 1, 2014.
- 14 CEC, “Energy Innovation: Moving Toward a Clean Energy Future,” February 2014, p.4 and California Public Utilities Commission (CPUC), “Research and Development: Electric Program Investment Charge,” <http://www.cpuc.ca.gov/General.aspx?id=4801> (accessed February 15, 2016).
- 15 Advanced Energy Economy Institute and BW Research Partnership, “California Advanced Energy Employment Survey,” p. 5, fig. 3,” December 2014.
- 16 Next 10, “2014 California Green Innovation Index,” 6th edition, 2014, p. 40.
- 17 American Council for an Energy Efficient Economy (ACEEE), “How Does Energy Efficiency Create Jobs?” November 14, 2011.
- 18 Next 10, “2014 California Green Innovation Index,” p. 14. **kWh data source:** EIA, “State Electricity Profiles,” 2012, Retail Sales + Direct Use, and “United States Electricity Profile 2012.” **GDP source:** Bureau of Economic Analysis, “Widespread but Slower Growth in 2013,” June 11, 2014, Table 1, “Real GDP by State, 2010–2013.”
- 19 Next 10, 2014 California Green Innovation Index, pp. 14, 52. The difference between California’s and Texas’s electricity bill as a percent of GDP is 0.47 percentage point. 0.47 percent of California’s GDP (which is \$2.03 trillion) is \$9.5 billion.
- 20 ACEEE, “The State Energy Efficiency Scorecard,” <http://aceee.org/state-policy/scorecard> (accessed January 4, 2016); Clean Edge, “2015 U.S. Clean Tech Leadership Index,” June 2015.
- 21 CEC, “California Energy Demand 2014–2024”; E3, “Developing a Greenhouse Gas Tool for Buildings in California,” April 2009; and CARB, *Emissions Factors Database* (EMFAC), www.arb.ca.gov/emfac/ (accessed February 15, 2016).
- 22 California State Legislature, *Energy Efficiency*, Assembly Bill 802 (Williams, 2015).
- 23 NRDC, “Plug-In Equipment Efficiency: A Key Strategy to Help Achieve California’s Carbon Reduction and Clean Energy Goals,” April 2015 and NRDC, “Home Idle Load: Devices Wasting Huge Amounts of Electricity When Not in Active Use,” May 2015.