

# Driving Progress, Fueling Savings

## *How California Is Tackling Global Warming, Cutting Oil Use, and Saving Drivers Money*

### **CALIFORNIA DRIVES PROGRESS**

*California has implemented a suite of practical strategies to reduce carbon emissions from cars and trucks, benefiting state residents in many ways. In addition to helping prevent the worst impacts of global warming and spurring investment and innovation in clean transportation technologies, the state's clean vehicle and fuel policies are reducing oil use, saving consumers money, and improving public health—particularly in communities most affected by air pollution.*

*Oil companies, however, are trying to stop this progress, using misinformation and scare tactics to weaken public support for state climate policies. But California's climate policies are working—and setting an example for other states and the federal government to follow—and it's critical that the state keep moving toward a clean transportation future.*

The California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, is a ground-breaking law that calls for reducing the state's global warming emissions to 1990 levels by 2020, laying the foundation for a low-carbon future. Since the bill's passage, the California Air Resources Board (CARB) has implemented a suite of practical policies to meet this target—including reducing emissions from cars and trucks, which represent the single largest source of the state's carbon pollution. California has enjoyed many benefits related to these policies, from reduced consumer spending on gasoline and improved public health in communities affected by air pollution, to increased private-sector investment and innovation in the next generation of climate-friendly technologies.

Perhaps not surprisingly, oil companies are standing in the way of progress. Despite the fact that transportation accounts for nearly 40 percent of California's emissions (see Figure 1), the oil industry wants to be exempt from California's climate policies (CARB 2014a). They are using scare tactics, such as skyrocketing gas prices, to avoid accountability for their carbon emissions and delay the transition to cleaner fuels. Californians should not be fooled by the oil industry's misleading claims. The state's climate policies are working—bringing lower transportation costs, cleaner air, and more transit choices to communities.



*A major focus of California's climate policies is reducing emissions from transportation, the largest source of emissions in California.*

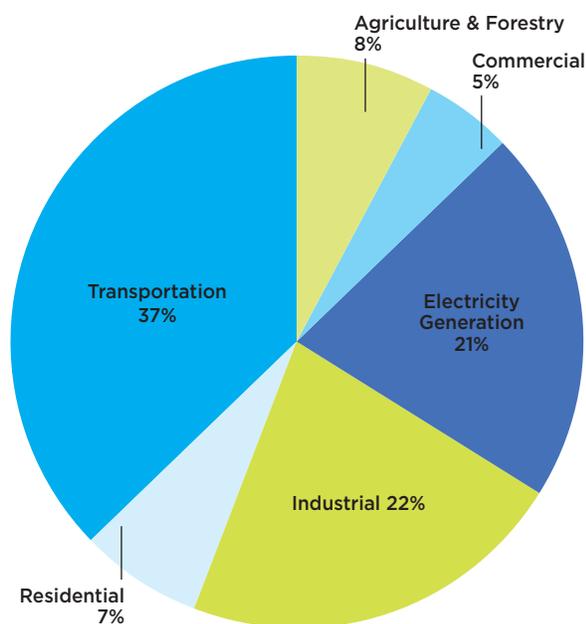
## The Benefits of California's Clean Transportation Solutions

California has pursued successful strategies to reduce carbon emissions from cars and trucks. These include a flexible market-based cap on carbon emissions (see Box 1), stringent emissions standards for new vehicles, a requirement that automakers produce electric cars and other advanced-technology vehicles, a policy to scale up the use of clean fuels, and improved land-use and transportation planning to improve walkability and access to transit in local communities. In addition to reducing the state's carbon emissions, these policies are delivering important benefits to Californians.

### REDUCING OIL USE

The price of gasoline has historically had large fluctuations, but has tended to go up over the long run. In California, the average per-gallon price of gasoline climbed from \$2.47 in

FIGURE 1. California Global Warming Emissions by Sector, 2012



*Transportation is the largest source of heat-trapping global warming emissions in California, accounting for nearly 40 percent of the state's total annual global warming emissions.*

Note: Emissions are measured in terms of carbon dioxide equivalent. Electricity generation includes in-state and imported generation.

SOURCE: CARB 2014A.

### BOX 1.

## Transportation Fuels and California's Cap-and-Trade Program

A cornerstone policy in California's effort to tackle global warming is a market-based program to limit carbon emissions, known as cap-and-trade. The program creates economic incentives for major carbon polluters—oil refineries, electric utilities, and other large industries—to cut their emissions. Cap-and-trade encourages companies to find the least-expensive ways to reduce their emissions, either by upgrading their facilities and equipment or purchasing carbon permits.

The central framework is a declining cap on global warming emissions that requires major carbon polluters to acquire a permit, known as an "allowance," for every ton of carbon pollution they emit. The total level of carbon pollution collectively emitted by the covered entities cannot exceed the number of allowances available under the cap, which declines 2 to 3 percent each year through 2020.

By including gasoline and diesel fuel in the program, California is holding oil companies accountable for their global warming pollution. Any exemption or delay in accounting for fuel emissions under the cap-and-trade program would undermine California's ability to meet its carbon-reduction goals.

2009 to \$3.89 in 2013 (see Figure 2), and the average California driver spent \$2,475 on gasoline in 2013 (CEC 2014a). Oil companies like to point to taxes and regulations as a reason for high fuel prices, but the majority of the cost of gasoline actually comes from the cost of the oil itself: for every \$50 spent to fill up a vehicle's gas tank within the past five years, \$30 went to pay for the crude oil that was turned into gasoline while \$9 went to refining, distribution, and marketing (UCS 2013a).

The real solution to high and volatile gasoline prices is simply to use less oil. Fortunately, California's low-carbon transportation policies are making progress toward this goal. Oil consumption fell 12 percent from 2006 to 2012, helping Californians save money on fuel and reduce emissions (EIA 2014). Going forward, gasoline consumption is forecast to decline—by about 2 billion gallons annually in 2022 compared with 2012—thanks primarily to the state's requirements for less-polluting, more-efficient vehicles (CEC 2014b). In

addition, the state’s Low Carbon Fuel Standard (LCFS) is helping drive production of non-petroleum-based vehicle fuels such as electricity and advanced biofuels. In 2012, alternative fuels accounted for more than 7 percent of fuel used by cars and trucks, and the share of transportation powered by cleaner alternatives is rising as electricity, advanced biofuels, and other clean fuels scale up (CEC 2014b).

**REDUCING PAIN AT THE PUMP**

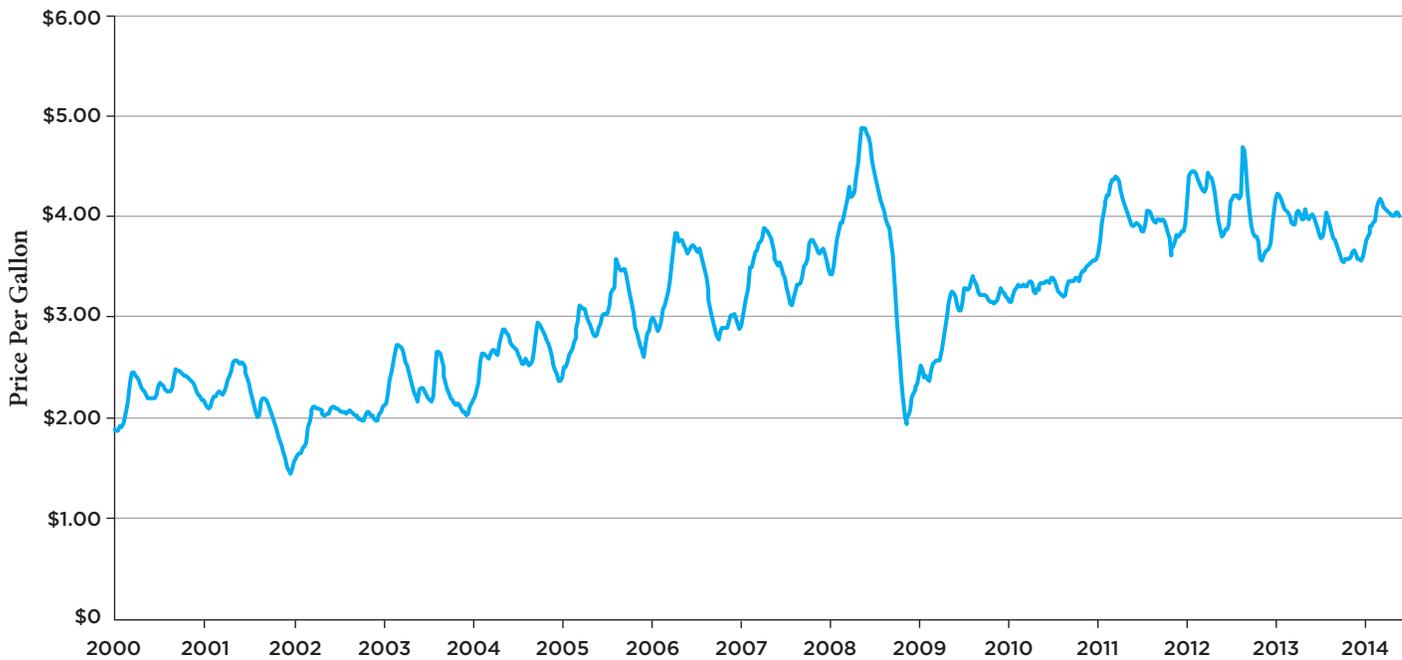
California’s cleaner fuels and vehicle policies are saving consumers money. A California driver who purchases an average new model year 2015 car, for example, can expect to save an estimated \$3.90 each week over the life of the vehicle, compared with a driver who purchased a new vehicle in 2008 (see Figure 3).<sup>1</sup> The comparative savings grow to \$5.20 per week for the owner of a new vehicle in 2020 and \$9.00 per week for someone buying a new vehicle in 2025. California’s low-carbon transportation policies will also help those looking to purchase a used vehicle; according to UCS analysis,

a 10-year-old used car in 2025, for example, will save its driver \$7.50 a week, or nearly \$400 a year, over the remaining lifetime of the vehicle compared with a 10-year-old used car purchased in 2015.<sup>2</sup>

**IMPROVING PUBLIC HEALTH AND SUPPORTING DISADVANTAGED COMMUNITIES**

California’s transportation system is the primary source of smog-forming nitrogen oxide and diesel particulate matter emissions in the state (CARB 2013)—emissions that do not affect all Californians equally. Low-income communities are more likely to live in close proximity to transportation corridors, and therefore face greater exposure to diesel particulate matter and other toxic air pollutants (Hricko et al. 2014). Fortunately, the state’s carbon-fighting strategies are improving air quality, both in these vulnerable communities and statewide. A recent study found that California’s LCFS and cap-and-trade programs will save \$8.3 billion in health costs between now and 2025 by reducing

FIGURE 2. California Gasoline Prices, 2000–2014



*Gasoline prices have increased significantly since 2000, and are vulnerable to extreme volatility.*

Note: Year markers represent per-gallon prices on the first Monday in January of that year. Historic gas prices have been adjusted for inflation.

SOURCE: BLS 2014, CEC 2014A.

asthma attacks, hospitalizations, and other health impacts associated with poor air quality (EDF/ALAC/TT 2014).

In addition, at least one-quarter of the proceeds from the sale of carbon permits in the cap-and-trade program are being invested to benefit communities that are disproportionately impacted by air pollution. In California's 2014–2015 fiscal year, more than \$200 million will be spent to benefit disadvantaged communities. This funding includes investments in public transit and advanced freight technologies such as electric trucks and buses.

#### CLEAN TRANSPORTATION INVESTMENT AND INNOVATION

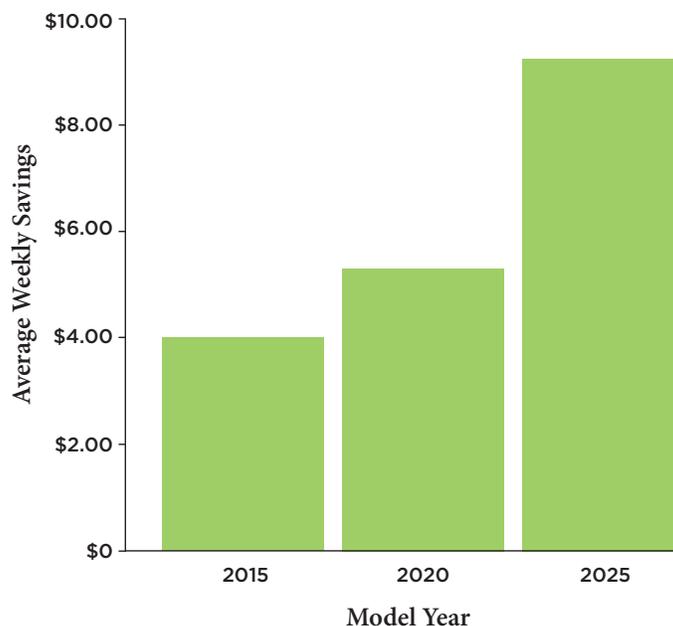
California's climate policies are driving a clean technology boom in the state. More than \$5 billion in venture capital was invested in California's clean transportation sector between 2006 and 2013 (NXT 2014) and California's share of total U.S. patent registrations in this sector nearly doubled, jumping from 4.9 percent in 2006 to 9.4 percent in 2011 (Collaborative Economics Inc. 2013). In 2012 and 2013, California had the most or second-most new patents among states for battery, hybrid-electric, and fuel cell systems, and for biofuel and biomass technologies. Clean technology investments are also leading to more jobs; employment in California's clean transportation sector more than doubled between 2002 and 2012, to 8,500 jobs (NXT 2014).

### Overcoming Oil Industry Opposition

Chevron, Exxon-Mobil, and other large oil companies lead the list of major carbon polluters, responsible for most of the carbon that has been emitted into the atmosphere over the last 150 years (Heede 2013). These companies make huge profits from the status quo and have a significant interest in ensuring oil continues to be the dominant transportation fuel. It is not surprising, therefore, that the oil industry is fighting California's climate policies.

**At least one-quarter of the proceeds from the sale of carbon permits in the cap-and-trade program are being invested to benefit communities that are disproportionately impacted by air pollution.**

FIGURE 3. Average Weekly Savings Over Lifetime (vs. Model Year 2008 New Vehicle)



*California's clean transportation policies save drivers money over the lifetime of the vehicle, and as vehicles become more fuel-efficient these savings will grow.*

Note: This figure represents the net savings over the lifetime of an average new vehicle purchased in 2015, 2020, and 2025 compared with a new vehicle in 2008, and reflects costs from California's global warming emissions and zero-emissions vehicle standards, Low Carbon Fuel Standard, and cap-and-trade program. For our methodology, see [www.ucsusa.org/ab32saves](http://www.ucsusa.org/ab32saves).

Oil companies are attempting to weaken public support for California's clean transportation policies by focusing on the price of gasoline. But as UCS analysis has shown, the savings from more efficient vehicles more than offset the modest costs of improving fuel efficiency and producing cleaner fuels. The industry also seeks to obscure the fact that the only long-term solution to rising gas prices is to use less oil—which is precisely what California's clean transportation policies will achieve— while also downplaying the consequences of climate change (see Box 2) and lobbying against long-term emissions reductions.

California's climate policies are reducing carbon emissions, saving consumers at the pump, cutting oil use, and cleaning our air. It's a clean transportation future that works for *all* Californians, and sets a leading example for other states—and ultimately, our federal government—to follow. It's critical that the state keep moving forward toward this goal.

BOX 2.

## The Costs of Inaction

Communities across California are already coping with many impacts of climate change, which are certain to worsen without strong action to reduce emissions.

**Wildfires.** California is experiencing hotter, drier conditions, which are contributing to larger wildfires and longer wildfire seasons. The wildfire season in the Western United States has grown from five months, on average, in the 1970s to seven months today, and the annual number of large wildfires has increased by more than 75 percent over the same time period (UCS 2013b). California has suffered seven of the 10 most costly wildfires in the nation, including three that cost between \$1.6 billion and \$2 billion in insured losses (UCS 2014).

**Drought.** Rising temperatures, reduced snowpack, and earlier snowmelt have exacerbated drought conditions in California. As temperatures have warmed over the past century, the prevalence and duration of drought has increased in the American West (Andreadis and Lettenmaier 2006). Droughts can be devastating for ecosystems and the economies that depend on them. A study by the University of California–Davis found that, during the summer of 2014, drought directly cost the state’s agriculture industry nearly \$1.5 billion, mostly due to having to leave many fields fallow (Howitt et al. 2014). Droughts can also lead to increased energy costs for California ratepayers as relatively inexpensive hydropower is lost. During the 2007–2009 dry period in California, ratepayers were charged an additional \$2 billion to cover the purchase of electricity from natural gas plants,

which was needed to replace diminished hydropower generation (Christian-Smith, Levy, and Gleick n.d.).

**Heat waves.** Global warming is increasing the frequency and duration of heat waves in California—and not just during daytime hours. Recent modeling finds that extreme heat waves with high nighttime temperatures are at least five times more likely in California now than 40 years ago (Mera, Mote, and Allen 2014). Heat waves with a strong nighttime component exacerbate the impact of daytime heat, possibly increasing mortality rates. Extreme heat brings greater risk of death from dehydration, heat stroke, heart attack, and other heat-related illnesses, particularly for vulnerable populations. An extended California heat wave in 2006 contributed to more than 650 deaths (Hoshiko et al. 2010).

**Coastal flooding.** Rising temperatures are leading to increased sea levels due to thermal expansion of warming oceans as well as melting land ice (glaciers, ice caps, and ice sheets). The risks of rising seas include tidal flooding, shoreline erosion, saltwater intrusion, larger storm surges, and permanent inundation. California currently has at least 260,000 people and \$50 billion in property vulnerable to a 1-in-100-year coastal flood (a flood that has a 1 percent chance of occurring in any single year). As early as 2050, given current projections of sea-level rise, today’s 100-year storm could occur once every year. By the end of this century, rising seas could put around 480,000 people (nearly half a million) at risk from a 1 in 100-year coastal flood (CEC 2009).

Photo credits: © U.S. Forest Service (wildfire); © Peter Gleick (drought)



California is already dealing with harmful consequences of climate change, including larger wildfires and exacerbated drought. Climate policies enacted as a result of AB32 are reducing the heat-trapping emissions that are the primary cause of global warming.

## ENDNOTES

- 1 A model year 2008 vehicle is used as the basis for ownership cost comparisons because California's global warming emissions vehicle standards first came into effect with model year 2009.
- 2 For all underlying assumptions related to this analysis, see [www.ucsusa.org/ab32saves](http://www.ucsusa.org/ab32saves).

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### NATIONAL HEADQUARTERS

Two Brattle Square  
Cambridge, MA 02138-3780  
Phone: (617) 547-5552  
Fax: (617) 864-9405

### WASHINGTON, DC, OFFICE

1825 K St. NW, Suite 800  
Washington, DC 20006-1232  
Phone: (202) 223-6133  
Fax: (202) 223-6162

### WEST COAST OFFICE

500 12th St., Suite 340  
Oakland, CA 94607-4087  
Phone: (510) 843-1872  
Fax: (510) 843-3785

### MIDWEST OFFICE

One N. LaSalle St., Suite 1904  
Chicago, IL 60602-4064  
Phone: (312) 578-1750  
Fax: (312) 578-1751