



The Economic Case for California's Landmark Climate and Clean Energy Laws AB 32 (2006), SB 350 (2015) and SB 32 (2016)

Smart energy policies spark economic growth & job creation in California

- California has reduced its GHG emissions by approximately 10 percent since peak levels in the early 2000s, while continuing to **grow its economy at a rate above the national average**.ⁱ The state is well on its way to meet the AB 32 GHG reduction target of below 1990 levels by 2020.
- With 1 in every 6 advanced energy workers nationwide, **California has the largest advanced energy industry by employment of any state** in the country. Employment in the state's **advanced energy industry grew 18 percent in 2015**, six times the rate of statewide employment growth. **More than 500,000 California workers spend some or all of their time on advanced energy work**, including energy efficiency, advanced electricity generation, biofuels, advanced grid technology, and advanced vehicles.ⁱⁱ
- In the energy efficiency sector specifically, **California has the largest workforce in the nation, with more than 320,000 workers**, who spend about 50 percent of their time on energy efficiency services.ⁱⁱⁱ
- SB 350's increase of the Renewable Portfolio Standard (RPS) to 50 percent by 2030 will create an estimated additional **354,000-429,000 direct job years and a total of 879,000-1,067,000 total job years** from the construction of new renewable generation.^{iv}
- In addition to the **RPS creating about 53 million hours of blue-collar and 15 million hours of white-collar construction work** from 2002 to 2015, the quality of the jobs has been high - supporting skilled workers with family-sustaining compensation and benefits.^v
- In the San Joaquin Valley alone, home to many of California's more rural communities where unemployment has remained higher than other areas of the state, construction on **RPS-related projects created 88,000 total jobs** and resulted in a **total economic impact of \$11.6 billion**.^{vi}
- California **generates the most manufacturing output, jobs and exports of any state** in the United States.^{vii}
- California's 35-plus year history with energy efficiency shows that **50 new jobs were created** across the state's diverse economy **for every job forgone in the oil, gas and electric power sector**.^{viii}
- Analysis from University of California researchers estimates that AB 32 policies could **increase household incomes by \$48 billion and create about 400,000 jobs**.^{ix}
- California **can reduce greenhouse gas emissions while growing the economy**; we have been doing it for the last 35 years. Innovative energy policies over the past three decades have **saved Californians \$56 billion on household energy costs** and allowed them to reduce expenditures on imported fossil fuels and redirect spending to **create 1.5 million full-time jobs**.^x
- The **transition toward a cleaner economy is well underway throughout the West Coast region** with a Gross Domestic Product (GDP) contribution of \$47 billion and 508,400 full-time equivalent clean jobs in 2010. It is estimated that **up to 1.03 million net new jobs can be created between 2010 and 2020 for the West Coast**. GDP contributions of up to US \$142.7 billion and increased investments of between \$147-192 billion are also possible during this period.^{xi}
- California's **Low Carbon Fuel Standard (LCFS)**, a key component of AB 32, **could create as many as 9,100 new jobs for California**. This number could be higher, particularly if the state attracts more clean fuel production facilities and technology providers.^{xii}
- In the San Joaquin Valley, the total economic benefit of programs created by California's clean energy policies is **more than \$13.4 billion** so far.^{xiii}

California consumers & businesses save billions due to energy efficiency

- In 2016, **California led the nation in energy efficiency**, due in part to AB 32 and SB 350.^{xiv}
- The state's commitment to energy efficiency **has saved consumers billions of dollars**; in fact, residents' monthly electricity bills have increased only \$4.25 on average in the last 25 years.^{xv}
- The recent improvements made to California's Energy Savings Assistance Program (ESAP) to help more low-income multi-family residents will reduce energy waste to help lower electricity bills.^{xvi} On average, **each residence saves about \$50 each year on energy bills under the ESAP.**^{xvii}
- California's new energy efficiency standards for computers and monitors **will save consumers approximately \$373 million annually** and save enough energy to power about 350,000 homes each year.^{xviii}
- Simple energy efficiency improvements to existing buildings yield **\$3 in savings on average for every \$1 invested.**^{xix}
- **Manufacturers generate \$59 in state GDP for every dollar spent on electricity**, compared to \$38 for the rest of the nation.^{xx}
- Seventy percent of energy efficiency businesses in California are **small businesses.**^{xxi}
- AB 32 enables Californians to spend less to heat and cool their homes because energy efficiency measures will allow households and businesses to use less energy. Californian homeowners are expected to **save \$200 a year on electricity** due to AB 32.^{xxii}
- **Consumers directly benefit from California's efficiency policies.** While California's average electricity rates per kilowatt-hour are higher than the U.S. and other large states, average monthly residential bills in California were twenty percent lower than the U.S. average in 2014.^{xxiii}

California's climate and clean energy programs are driving billions of investment dollars into the state

- In 2015, California again led the country in attracting more clean tech investment than any other state - **\$9.8 billion – an increase of 35 percent from the previous year.** Of the total clean technology investment in the country, 68 percent of investments were made in California.^{xxiv}
- At \$40.6 million, **Silicon Valley ranked 1st in clean tech funding in the U.S.** in the first quarter of 2015.^{xxv}
- Policies like AB 32, SB 32 and the RPS are **driving demand for renewable energy and energy efficiency**, and as a result, **corporate investors have shifted their emphasis.**^{xxvi}
- The LCFS is **driving investment in low carbon biodiesel, ethanol, renewable diesel, biogas, and electricity.**^{xxvii}

AB 32, SB 32 and the LCFS will lessen California's dependence on oil

- In the first eight years of AB 32, **California's petroleum consumption decreased more than 14 percent.**^{xxviii}
- AB 32 has spurred complementary clean transportation policies in California, **which will help households save between \$1,210-1,530 annually in fuel costs** by 2030.^{xxix}
- Reduced demand for imported fuels through a suite of AB 32 policies will shield Californians from the price volatility of these fuels. A first-of-its-kind study found significant savings if an oil price shock occurred in 2020, with California **consumers and businesses saving between \$2.4 and \$5.2 billion, and the average household saving up to \$362.**^{xxx}
- The LCFS is likely to **lower the average price of transportation fuels and bring greater stability to fuel prices** in response to fluctuating crude oil prices, as the number of competitors selling in the wholesale fuel market increases as well as the diversity of fuel types.^{xxxi}
- By mid-2016, the LCFS had helped **displace 5.3 billion gallons of gasoline and 1.2 billion gallons of diesel fuel.**^{xxxii}
- In 2014, **the state received more than 20 percent of its total electricity from renewable sources**, compared to 6.8 percent for the U.S.^{xxxiii}

California's climate and clean energy policies will help stabilize the state's economic future

- The most expensive way to respond to climate change is to ignore it. Californians are already feeling climate change impacts, and if left unchecked **climate change could cost California as much as \$47 billion every year in direct damages** and put at risk trillions of dollars of real estate, infrastructure, and other assets.^{xxxiv} Unrestrained greenhouse gas pollution also threatens water resources and important industries like tourism, entertainment, agriculture, and recreation that fuel the state's economic engine.
- In 2030, the **estimated climate benefits (the avoided economic damages) of California's climate measures will be between \$2.4 and \$11 billion.**^{xxxv}
- By spurring greater use of clean alternative fuels and vehicles, the **LCFS will result in \$1.4-\$4.8 billion in societal benefits by 2020 from reduced air pollution and increased energy security.**^{xxxvi}

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ⁱⁱ "Advanced Energy Jobs in California 2016," Advanced Energy Economy, April 2016.

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ⁱⁱⁱ "Energy Efficiency Jobs in America," Environmental Entrepreneurs and E4TheFuture, December 2016.

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^{iv} "Job Impacts of California's Existing and Proposed Renewables Portfolio Standard," UC Berkeley Labor Center, August 28, 2015.

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^{vi} "The Economic Impacts of California's Major Climate Programs on the San Joaquin Valley," Next 10, January 19, 2017.

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^{vii} "California's Manufacturing and Benefits of Energy Efficiency," Next 10, Sept. 2015.

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^{viii} Ibid.

^{ix} Ibid.; see also David Roland-Holst, UC Berkeley, "Climate Action for Sustained Growth: Analysis of ARB's Scoping Plan," April 19, 2010.

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^x David Roland-Holst, UC Berkeley, "Energy Efficiency, Innovation and Job Creation in California," Next 10, October 2008.

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^{xiii} "The Economic Impacts of California's Major Climate Programs on the San Joaquin Valley," Next 10, January 19, 2017.

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^{xiv} "The 2016 State Energy Efficiency Scorecard," American Council for an Energy-Efficient Economy, September 26, 2016.

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^{xv} "Energy Efficiency Jobs in America," Environmental Entrepreneurs and E4TheFuture, December 2016.

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^{xvi} "CPUC Adopts Major Improvements to Low Income Efficiency Program," Natural Resources Defense Council, November 10, 2016.

<https://www.nrdc.org/experts/maria-stamas/cpuc-adopts-major-improvements-low-income-efficiency-program>

^{xvii} "Energy Savings Assistance Program" Fact Sheet, California Public Utilities Commission.

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^{xxiv} Ibid.

^{xxv} PwC Cleantech MoneyTree Report: Q1 2015." PwC, May 2015.

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