

# CLIMATE POLICY AND ECONOMIC GROWTH IN CALIFORNIA

## New Studies Agree California's Economy Will Grow Strongly With AB 32 Implementation

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### Three updated forecasts of the economic impact of California's landmark global warming law, AB 32, have been released recently.<sup>1</sup>

The new results are from California Air Resources Board (CARB), Charles River Associates (CRA), and the University of California's Professor David Roland-Holst (DRH). Though the three analyses use different economic modeling frameworks, there is impressive consensus around the finding that the costs of AB 32 will be small. In short, the research indicates that AB 32 is a close-to-zero-cost insurance policy against catastrophic climate disruptions. Furthermore, under very modest assumptions about AB 32 boosting innovation, California's climate policy shows clear economic growth and job creation benefits. However, none of these analyses quantify additional benefits, such as improved energy security due to less dependence on imported oil and improved public health due to cleaner air and cleaner water.

### CARB Finds Significant Potential for Cost Savings From Energy Efficiency

These are analyses weighted heavily toward costs not accounting for many benefits, though the studies do factor in the monetary value of energy savings due to improved efficiency. A main difference among the analyses pertains to assumptions about the existence of energy efficiency measures that cost less to implement than they save in energy costs. The CRA study assumes that few such net benefit measures exist, resulting in little potential for policies to positively affect the economy. CARB and DRH anticipate a greater potential for cost saving through energy efficiency, savings that also change how people spend money—shifting expenditures from imported energy to other goods and services more likely to be produced in state. This provides a boost to the California economy. Costs are kept low in all the models by the gradual nature of the change, a 20% reduction over where the economy would be in 2020 if the economy were allowed to grow without pollution controls.

### Strong Growth Predicted With AB 32 Implementation

Despite their emphasis on costs and not benefits, the results of the different studies all suggest that the economy will grow strongly with AB 32 implementation. In the forecast of economic developments without AB 32, the measure of goods and services produced in California (Gross State Product, GSP) grows by 35.6%. In the scenario modeling implementation of California's blueprint for action, known as the Scoping Plan, CARB forecasts that the economy will grow 35.4%; CRA forecasts 33.7% growth, and DRH 35.5%. That's an average difference of less than 1% from business as usual GSP. This same finding—small changes that are dwarfed by growth through 2020—holds under a range of five policy scenarios, which were harmonized thanks to the collaborative modeling exercise launched by CARB. (Results are summarized in a graph and table on the following page.)

### Comparing Results Across Scenarios: Significant Economic Benefits Follow From Innovation

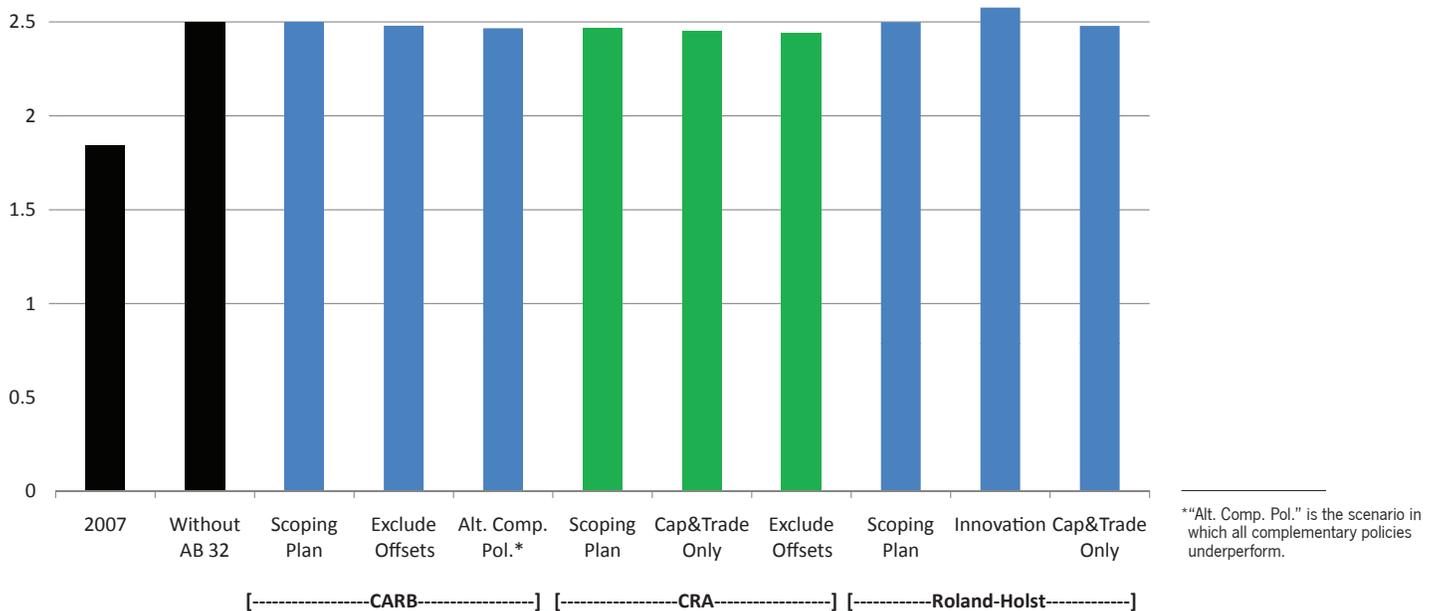
For CARB and DRH, the scenario representing the policies in the Scoping Plan is the lowest cost amongst the five harmonized scenarios. The worst performer for CARB is the case in which complementary policies in energy (e.g. 33% Renewable Electricity Standard) and transportation (e.g. Low Carbon Fuel Standard) deliver fewer emission reductions than expected. For DRH, macroeconomic results are best under Professor Roland-Holst's policy scenario that mimics the Scoping Plan but also adds the modest assumption that AB 32 boosts energy-efficiency innovation to a level in line with the historical average. 400,000 jobs are added to the economy due to AB 32 in the results of this scenario. The highest cost result found by DRH is one in which a cap-and-trade program is the only policy implemented.

Though "cap-and-trade only" was not one of the harmonized scenarios, CRA also ran it, and, contrary

#### NOTES

1. CARB. 2010. Updated Economic Analysis of California's Climate Change Scoping Plan (March 24) [www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/updated\\_sp\\_analysis.pdf](http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/updated_sp_analysis.pdf)
  - CRA (Charles River Associates). 2010. "Analysis of the California ARB's Scoping Plan and Related Policy Insights," (March 24) [www.crai.com/uploaded-Files/analysis-of-ab32-scoping-plan.pdf](http://www.crai.com/uploaded-Files/analysis-of-ab32-scoping-plan.pdf)
  - Roland-Holst, David. 2010. "Climate Action for Sustained Growth: Analysis of ARB's Scoping Plan," (April 16) [www.berkeley.edu/~dwrh/CERES\\_Web/Docs/ARBScooping\\_BEAR100419.pdf](http://www.berkeley.edu/~dwrh/CERES_Web/Docs/ARBScooping_BEAR100419.pdf)
- Thanks are due to CRA's Paul Bernstein who provided Gross State Product impacts via personal communication.
2. Economic and Allocation Advisory Committee, "Comments on the ARB's Updated Economic Impacts Analysis," revised 18 April 2010. [www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/revise\\_eaac\\_appendix.pdf](http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/revise_eaac_appendix.pdf)

## Forecasts of California Gross State Product in 2020 Under Different Policy Assumptions (Trillions of 2007 Dollars)



### Impacts on Gross State Product

	2007 (Trillions)**	Without AB 32 (Trillions 2007\$**)	Change in Scoping Plan Scenario	Best Scenario	Change in Best Scenario	Worst Scenario	Change in Worst Scenario
CARB	1.845	2.502	-0.2%	Scoping Plan*	-0.2%	Alt. Comp. Pol.	-1.4%
CRA	1.845	2.502	-2.0%	Cap & Trade Only	-1.4%	Exclude Offsets	-2.3%
DRH	1.845	2.502	-0.1%	Innovation	+3.0%	Cap & Trade Only	-0.9%

\* Since Scoping Plan is the best for CARB, our graph includes their "No offsets" case as a third scenario (-0.9%).  
 \*\* Trillions of dollars at the 2007 value of the dollar.

to DRH, found it to be the least cost approach under their modeling framework. The differences stem largely from different evaluations of complementary measures. DRH uses CARB’s measure-by-measure evaluation of policies, which, out of necessity, are analyzed separately from the macroeconomic work and then incorporated as an input. Some of these measures involve net costs, but others result in energy savings that exceed costs. On balance, CARB’s evaluation of complementary measures results in savings that exceed costs. In contrast, CRA’s assessment is that complementary policies are costly and so their inclusion worsens CRA’s results. The worst scenario for CRA is the no offsets scenario, which both excludes offsets and includes complementary policies.

### Don't Ignore Unquantified Benefits

In its review, the Economic and Allocation Advisory Committee praised CARB for its careful and competent work.<sup>2</sup> The Committee lists a number of impacts not considered (see page 17, “Potential Limitations of the Models and Their Implications for Cost Estimates”), such as cleaner air and related public health benefits on the positive side, or emission leakage on the negative. However, this list is not comprehensive

and does not recognize a number of valuable benefits that the models also fail to capture. One is technological innovation. As mentioned, the only innovation in the models is an improvement in energy efficiency over time that is actually less than the historical trend, except in DRH’s innovation scenario where the historical rate is achieved. Thus, all the models miss the lowering of costs for clean energy technologies through learning-by-doing and increasing economies of scale. Such innovation will not just lower abatement cost in California but also increase competitiveness for California clean tech firms in this rapidly expanding global market. Other important benefits that all models fail to consider include the energy security benefit—greater efficiency and use of clean energy also reduces our vulnerability to fossil fuel price spikes—and finally, the climate benefits of action, avoiding the costs of a destabilized climate. Considering these benefits of climate solutions, what the models have shown to be a negligible-cost insurance policy should really be viewed as a policy for economic security and even growth. ●

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#### NOTES

2. Economic and Allocation Advisory Committee, “Comments on the ARB’s Updated Economic Impacts Analysis,” revised 18 April 2010. [www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/revise\\_eaac\\_appendix.pdf](http://www.arb.ca.gov/cc/scopingplan/economics-sp/updated-analysis/revise_eaac_appendix.pdf)