

# Economic Impacts of AB 32

## Summary of Recent Analyses

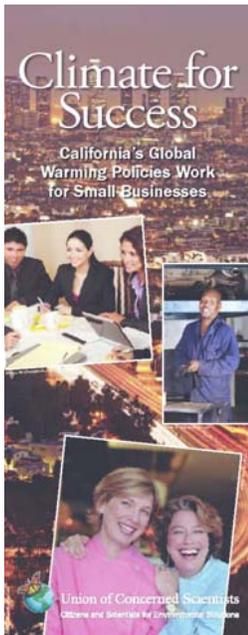
### The Economic Impact of AB 32 on California Small Businesses

By The Brattle Group, produced for the Union of Concerned Scientists

December 2009

[www.ucsusa.org/small-business](http://www.ucsusa.org/small-business)

*Summary: AB 32's economic impact on small businesses will be small and manageable.*



To examine how California's AB 32 global warming policies will impact small business bottom lines, UCS commissioned a first-of-its kind economic analysis specifically focused on the state's small businesses. The analysis ground-tests its results through a case study on Border Grill restaurant in Los Angeles. UCS economists and policy experts worked with The Brattle Group, a highly-regarded independent economic consulting firm, to produce the analysis. The peer-reviewed report uses empirical data on the cost characteristics of small businesses to estimate the economic impacts of AB 32 on small businesses in general. It also relies on actual financial records and historic energy bills from the Border Grill restaurant to forecast impacts on the restaurant's annual profits over the next ten years.

The average small business in California spends only 1.4 percent of its revenues on energy-related costs, like electricity, natural gas, and transportation fuel. Since most small businesses will not be directly regulated by California's global warming policies, these policies will only impact them *indirectly* to the extent that they cause energy prices to change. The analysis concludes that California's global warming policies will only increase the percent of revenue the small business spends on energy by a mere 0.3 percentage points—increasing the share of revenues dedicated to energy costs from 1.4 percent to 1.7 percent in 2020. And this is actually a very conservative estimate because the report does not factor in the full range of cost savings that could come from investments in energy efficiency.

The Border Grill case study assumed that incremental changes in the restaurant's energy costs due to global warming policies would be passed on to customers via a price increase. By 2020, the cost of a typical dinner would rise about 0.1 percent—or less than three cents for every \$20. This 0.1 percent increase pales in comparison to the effect of inflation over 10 years: a typical increase of 2 percent per year would add \$4.38 to a \$20 bill.

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### Many Shades of Green: Diversity and Distribution of California's Green Jobs

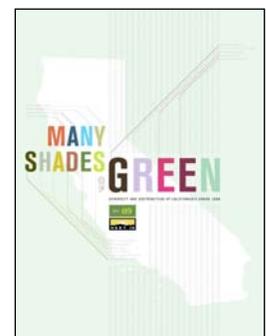
By Next 10 and Collaborative Economics

December 2009

[www.next10.org/next10/publications/green\\_jobs.html](http://www.next10.org/next10/publications/green_jobs.html)

*Summary: Green jobs are growing faster than the overall economy.*

Next 10 and Collaborative Economics provide the most comprehensive green jobs accounting to date, systematically tracking the most recent available data on green companies, job type, location and growth across every sector and region of California.



California green businesses have increased 45 percent in number and 36 percent in employment from 1995 to 2008 while total jobs in California expanded only 13 percent. As the economy slowed between 2007 and 2008, total employment fell 1 percent, but green jobs continued to grow five percent. The Sacramento Area led the pack with job growth of 87 percent from 1995 to 2008, followed by the San Diego Region (57 percent), the Bay Area (51 percent), and Orange County and Inland Empire (50 percent). Even in rural areas with a smaller economic base, green jobs are growing faster than the overall economy.

- Manufacturing represents 21 percent of all green jobs, and grew 19 percent, while manufacturing represents only 11 percent of all jobs in California (January 2008.)
- Half of all manufacturing jobs are split between energy efficiency and energy generation.
- Services accounted for 45 percent of all California green jobs, the largest portion in Environmental Consulting.
- With nearly 43,000 jobs in 2008, Air & Environment is the largest of California's green segments. While this segment's jobs remained steady, hovering around 35,000 from 1995-2005, since 2005 the number of green jobs in this segment has increased 24 percent.
- From 1995-2008, Energy Generation employment expanded 61 percent by nearly 10,000 jobs. Solar makes up the largest portion, and strongest growth (63 percent).
- Employment in Energy Efficiency increased 63 percent from 1995-2008.
- Employment in Green Transportation has increased 152 percent since 1995. Green Transportation Jobs are primarily in Motor Vehicles & Equipment and Alternative Fuels, with the latter growing faster at 201 percent, and representing 48 percent of all jobs in this segment.
- Green Logistics is an emerging field, only in the Bay Area at present, with employment growing by 1144 percent since 1995.

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## Energy Prices & California's Economic Security

By Professor David Roland-Holst, UC Berkeley, produced for Next 10  
October 2009

[www.next10.org/next10/publications/energy\\_prices.html](http://www.next10.org/next10/publications/energy_prices.html)

*Summary: If the state's climate program on hold, the state risks a loss of over \$80 billion in Gross State Product and more than a half million jobs by 2020. Implementing 33 percent renewable energy, combined with 1 percent annual improvement in energy efficiency, on the other hand, increases GSP by \$20 billion and generates 112,000 jobs.*



University of California researchers examine the economic impacts of putting the state's climate program on hold. If California remains primarily dependent upon fossil fuels, private electricity costs could escalate as much as 33 percent. Using updated price forecasts from the U.S. Department of Energy's Annual Energy Outlook (AEO), the study estimates that without diversifying California's energy portfolio toward more renewable fuels and energy efficiency, the state risks a loss of over \$80 billion in Gross State Product (GSP) and more than a half million jobs by 2020. Implementing 33 percent renewable energy, combined with 1 percent annual improvement in energy efficiency, on the other hand, shields the economy from higher energy prices and yields a growth dividend, increasing GSP by \$20 billion and generating 112,000 jobs.

- Without changing the state energy mix, under official fossil fuel energy price trends as projected in the U.S. Department of Energy's AEO, private electricity costs in California would be up to \$100 per person higher in 2020 (already \$100 above today's prices), making electricity up to 33 percent more expensive.
- If fossil fuels follow the AEO trend, and the state does not implement its climate policies, California's economy will shrink by \$84 billion, over a half million jobs in 2020.
- Diversifying California's energy portfolio to include 33 percent renewable energy and 1 percent annual improvement in energy efficiency significantly shields California's economy from higher energy prices, resulting in lower consumer costs, increasing GSP by \$20 billion and boosting jobs by 112,000 by 2020.

# Climate Policy and Economic Growth in California: A Comparative Analysis of Different Economic Impact Projections

By Dr. Chris Busch, Center for Resource Solutions  
December, 2009

[www.resource-solutions.org/pub\\_pdfs/Climate%20Policy%20and%20Economic%20Growth%20in%20California.pdf](http://www.resource-solutions.org/pub_pdfs/Climate%20Policy%20and%20Economic%20Growth%20in%20California.pdf)

*Summary: The mainstream of results of several macroeconomic analyses show that climate solutions are affordable and economic growth will be robust at the same time that pollution reductions of the magnitude called for by AB 32 are achieved.*



The California Air Resources Board (CARB) has developed the most sophisticated state-level economic modeling program in the nation as part of its mandate to implement AB 32. In addition to CARB's analysis, there have been two other principal efforts to quantify the macroeconomic impacts of AB 32 implementation, one by researchers at the University of California (Roland-Holst 2008) and a cooperative effort between Charles River Associates and the Electric Power Research Institute (EPRI/CRA 2007). Broadly speaking, each of these three principal modeling exercises follows a standard approach: comparing a business-as-usual (BAU) scenario assuming that AB 32 is not implemented with a scenario in which AB 32 is implemented. Each of these three principal analytical efforts employs a Computable General Equilibrium type of economic model.

This report also considers a more recent entry in the modeling debate, a study conducted by Varshney and Tootelian (2009) of the California State University, Sacramento. Unlike the other studies, Varshney and Tootelian do not develop a BAU scenario. Their approach is to impose CARB's estimates of the costs of AB 32 implementation (ignoring the benefits) on 2008 data to evaluate economic impacts. They also use a less sophisticated approach called an input-output model.

The results of CARB's macroeconomic modeling efforts to date fall within the mainstream of results of macroeconomic analyses, which yield a broad consensus that climate solutions are affordable and economic growth will be robust at the same time that pollution reductions of the magnitude called for by AB 32 are achieved. It is notable that all macroeconomic modeling shows continued strong economic growth even as most of the benefits of climate solutions are typically left out of the models.

The Varshney and Tootelian (VT) study is the outlier among the studies. Their finding of much higher costs relative to the other analyses follows from the fact that their analysis includes only costs and no benefits.

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## Daydreams of Disaster

Report to the California Attorney General

By Dr. Frank Ackerman, Stockholm Environment Institute and Tufts University  
December 2009

[www.sei-us.org/climate-and-energy/Ackerman%20Review%20Dec%202009.pdf](http://www.sei-us.org/climate-and-energy/Ackerman%20Review%20Dec%202009.pdf)

*Summary: Sanjay Varshney and Dennis Tootelian's report on the economic impacts of AB 32 is unsound and unreliable.*

Sanjay Varshney and Dennis Tootelian have authored two recent reports on the economic impact of implementing California's greenhouse gas law, AB 32, and on the cost of state regulation on California small businesses. Their studies predict that AB 32 will result in losses as large as 10 percent of California output (gross state product), and that the losses from state regulation overall are responsible for a loss of one-third of California's output.



Both studies are unsound and unreliable economic analysis. The losses they project would be serious economic impacts – if they were real. They are, however, entirely unreal; they should be viewed merely as daydreams of disaster.

The report on the economic impacts of AB 32 is deeply flawed in numerous ways:

- The authors count only the costs of AB 32's energy efficiency, conservation, and clean energy measures, not the savings. In the strange world of their scenarios, money spent on fuel-efficient cars, better insulation, and energy-saving new appliances will not conserve a single gallon of gasoline, save a single kilowatt-hour of electricity, or create a single job. This one-sided calculation hopelessly skews the results.
- The authors assert without any proof that the carefully researched estimates of AB 32's costs prepared by the California Air Resources Board must be far too low. Their own estimates of AB 32's costs are highly exaggerated, based on unsubstantiated guesses and back-of-the-envelope calculations. Among their mistakes:
  - They assume no savings in energy use from expenditures to build a zero net energy home, even though by definition a household's energy bills would go to zero;
  - They incorrectly assign the savings resulting from new, more fuel efficient cars as a cost imposed on older cars;
  - Their estimate of increases in food costs is rife with speculation and overlooks the extensive literature on the energy and transportation requirements for food;
  - Their estimate of increases in the costs to small businesses is based on double counting of small business receipts and arbitrary assumptions about the costs and cost increases businesses face.
  - Overall, their estimate of losses from AB 32 is more than an order of magnitude greater than comparable estimates from serious, well-documented studies of the economic impact of climate policies.

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## California Climate Risk and Response

By David Roland-Holst and Fredrich Kahrl, UC Berkeley, produced for Next 10  
November 2008

[www.next10.org/research/research\\_ccrr.html](http://www.next10.org/research/research_ccrr.html)

*Summary: If the state were to take no action to reduce or minimize expected impacts from future climate change, the costs across sectors would include tens of billions per year in direct costs, even higher indirect costs, and expose trillions of dollars of assets to collateral risk by the end of the century.*

This report provides for the first time a comprehensive examination of the economic impacts of climate change and adaptation in California, compiling the most recent available science on climate damage, assess its economic implications, and examine alternative strategies for adaptation.

If the state were to take no action to reduce or minimize expected impacts from future climate change, the costs could be severe. The state has \$4 trillion in real estate assets, of which \$2.5 trillion are at risk from extreme weather events, sea level rise, and wildfires, with a projected annual price tag of \$300 million to \$3.9 billion over this century, depending on how warm the world gets. If no action is taken in the face of rising temperatures, six additional sectors, including water, energy, transportation, tourism and recreation, agriculture, and public health, would together incur tens of billions per year in direct costs, even higher indirect costs, and expose trillions of dollars of assets to collateral risk.

Climate response – mitigation to prevent the worst impacts and adaptation to climate change that is unavoidable -- on the other hand, can be executed for a fraction of these net costs by strategic deployment of existing resources for infrastructure renewal/replacement and significant private investments that would enhance both employment and productivity.

