

# **COST OF AB 32 ON CALIFORNIA SMALL BUSINESSES—SUMMARY REPORT OF FINDINGS**

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# **COST OF AB 32 ON CALIFORNIA SMALL BUSINESSES—SUMMARY REPORT OF FINDINGS**

## **EXECUTIVE SUMMARY**

### **PURPOSE OF THE STUDY**

The objective of this research is to describe the impact and cost of AB 32 on California small businesses. Previous studies document the cost of federal regulations on small businesses. The purpose of this study is to identify and establish the various impacts and cost of the AB 32 burden on small business in California and to assess the extent to which this disadvantages small business. This cost is in addition to the cost of federal regulation or state regulation that is widely documented by previously published studies.

Issues addressed in this study include:

- What is the impact of the additional costs associated with implementing AB 32 on the state's economy and on consumers?
- What is the impact of the additional costs associated with implementing AB 32 on small businesses in California?
- How does the cost of AB 32 impact selected industries and economic sectors of California's economy?

### **METHODOLOGY**

IMPLAN was used to compute the overall impact, and a specially designed feeder input model were created to provide input to the IMPLAN model that was used for various scenarios described later in this Summary Report.

The total direct, indirect, and induced costs arising due to the multiplier effect are presented in four ways:

- ***Output*** accounts for total revenues lost including all sources of income for a given time period for an industry in dollars. This is the best overall measure of business and economic activity because it is the measure most firms use to determine current activity levels.

- **Employment** demonstrates the number of jobs not generated and is calculated in a full-time equivalent employment value on an annual basis.
- **Indirect Business Taxes** consist of property taxes, excise taxes, fees, licenses, and sales taxes that would have been paid by businesses but now lost. While all taxes during the normal operation of businesses are included, taxes on profits or income are not included.
- **Labor Income** includes all forms of employee compensation that would have been paid by employers but now lost (e.g., total payroll costs including benefits, wages and salaries of workers, health and life insurance, retirement payments, non-cash compensation), and proprietary income (e.g., self employment income, income received by private business owners including doctors, lawyers).

To provide data for the IMPLAN analysis, the analysts developed a “feeder” economic model that specifically addresses the variables. This model not only provides the data used in the IMPLAN analysis, but allows for a consideration of the impacts at the consumer level.

## **Costs of AB 32 Used in the Computations**

As previously indicated, there is some uncertainty as to what the actual costs of AB 32 will be. Even the ARB in its Scoping Plan indicated that it was using “...estimated costs and savings ... as model inputs for individual measures.”<sup>1</sup> Furthermore, it indicated that “The level of detail on the costs and savings for the different measures included in the Scoping Plan vary widely. Because some of the measures are in the later stages of regulatory development, their costs and savings estimates were readily available. For other measures, the costs and savings were specifically estimated for the Scoping Plan. Many of these estimates are preliminary, and are likely to change during the regulatory process.”<sup>2</sup>

Given the extended time frame and complexity of this Act, some degree of estimation is to be expected. Accordingly, it was deemed appropriate to use three approaches for estimating the economic impact of AB 32 on California’s economy. One focuses on the minimum impact using the costs that were identified by ARB, another based on the anticipated costs to California consumers and/or businesses, and the third based on the anticipated costs to California small businesses.

### **Scenario One: Minimum Impact**

According to the ARB, the annualized cost of implementing AB 32 is \$24.878 billion.<sup>3</sup> As previously indicated, various analysts believe that there are considerably more costs associated with AB 32 that either were deliberately not taken into account in the ARB

<sup>1</sup> ARB, “Climate Change Scoping Plan,” December 2008, p. 73.

<sup>2</sup> ARB, “Climate Change Scoping Plan Appendices, Volume II,” December 2008, p. G-I-1.

<sup>3</sup> ARB, “Climate Change Scoping Plan Appendices, Volume II,” December 2008, p. G-I-8.

analysis or are “hidden costs” that were not acknowledged by ARB. The economic analysis completed by ARB fails to address several key economic issues and variables or the uncertainty surrounding their costs. Examples include:

- Costs or disruptions to prices of crops arising due to changes in land use.
- Costs of reporting, monitoring, and enforcing compliance.
- Future availability of alternative fuels or any major fluctuations or disruptions in the demand supply equation and resulting prices.
- Availability of vehicles utilizing alternative fuels, and costs associated with technology advancements needed to make the vehicles commercially affordable and reasonably priced.
- The cost of financing of the new production facilities, or of the required investments for both production and distribution.
- Volatility in forecasts of prices of crude, gasoline, and diesel.
- Research and development costs for lower carbon intensity alternative transportation fuels.

Initial estimates suggest that billions of dollars of costs will result from the implementation of AB 32. In addition to the costs suggested by ARB, others include infrastructure and capital investment costs upward of \$60 billion, \$5 billion for new home construction, \$36 billion for more fuel-efficient cars, and billions in higher food costs due to higher transportation costs and change in land use. In summary, the implementation costs of AB 32 could easily exceed \$100 billion upfront.

Given the uncertainty of costs and greater uncertainty surrounding the suggested benefits or savings that may never be realized, the \$24.878 billion cost was used for computational purposes as the minimum cost scenario. As indicated by the LAO, the scoping plan “includes an inconsistent and incomplete evaluation of the costs and savings associated with its recommendations.”<sup>4</sup> Therefore, it is likely that this cost is the minimum that will be incurred by businesses and consumers. As previously indicated, the savings identified by ARB are considered too speculative to consider at this time, in part because the outcomes are uncertain and the savings require major investments by businesses and/or consumers that might not be possible.

## **Scenario Two: Expected Impact to Consumers**

The expected economic costs of implementing AB 32 are based on the costs that are projected to be incurred by California consumers. This is predicated on the assumption that the costs to businesses will be shifted through the delivery chain to their customers. Ultimately, therefore, they will reside with consumers. Even if these costs are not or

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<sup>4</sup>Letter to the Honorable Roger Niello dated December 12, 2008 from Mr. Mac Taylor, Legislative Analyst, p. 12.

cannot be passed down the delivery chain, they will be incurred and absorbed by businesses. In essence, they will be costs to customers or lost profits to businesses, which will impede their abilities to survive and grow. Given that businesses may not be able to pass down all the increased costs to final consumers, estimates of costs to consumers are likely conservatively stated.

Based on these five increases alone, the shift in spending will result in a higher cost to California households of \$3,857 per year. This is shown below:

<b>Number of housing units in California in 2008</b>	<b>13,530,719</b>		
	<b>2008</b>	<b>Increase</b>	<b>Total</b>
<b>Consumer Expenditure Category</b>			
Housing costs	\$13,761	\$2,048	\$15,809
Transportation (Gas and maintenance only)	\$3,448	\$756	\$4,204
Natural Gas	\$452	\$35	\$487
Electricity	\$1,113	\$124	\$1,236
Food (at home and away)	\$7,645	\$895	\$8,539
Total of above	\$26,418	<b>\$3,857</b>	\$30,276
All Other Consumer Expenditures	\$34,975		\$33,179
<b>Total</b>	<b>\$61,393</b>		<b>\$63,455</b>
Percent increase in total cost to housing units		<b>6.47%</b>	
Increased total cost to housing units		<b>\$52,194,231,336</b>	
% decrease in All Other costs to maintain current total costs		<b>11.63%</b>	

With 13,530,719 household units in California in 2008,<sup>5</sup> the total cost of just these five factors is nearly \$52.2 billion. This means that Californians are either going to incur higher costs of nearly 6.5% or reduce their spending in “other areas” by more than 11.6%.

Accordingly, the hoped-for savings that might accrue are too speculative to include as off-sets to the costs. Therefore, the cost of \$52.2 billion was used as the expected cost of ARB in this scenario.

### **Scenario Three: Expected Economic Impact to Small Businesses**

Small Businesses are the lifeblood of the economy in California. There are approximately 718,220 small businesses that comprise 99.2% of all employer firms, provide 52.1% of the private sector employment, account for over 90% of new job creation, and contribute approximately 75% of the gross state product.<sup>6</sup>

According to the data from Bureau of Economic Analysis, the receipts from goods and services in California in 2002 (the latest data available) totaled \$2.695 trillion. The share of small business receipts of this was \$1.145 trillion. The GSP in California grew

<sup>5</sup> California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 1/1/2009.

<sup>6</sup> California Small Business Profile, Small Business Association Office of Advocacy.

37.76% from 2002 to 2009. Assuming that small business receipts grew at this same rate (in reality they likely grew faster since the marginal contribution by small businesses to the GSP is higher than those of large businesses), the receipts for small businesses in 2009 is estimated at \$1.578 trillion.

Most small businesses are sole proprietorships and financial data from research companies including BizStats show that on average small businesses earn a 10% net profit margin, with the balance 90% being absorbed by expenses and cost structure. From earlier discussion, there are five major areas of cost increases due to the implementation of AB 32 – transportation, housing, food, fuels, and utilities. While the cost increases for each of the five areas is likely to vary, and given estimates provided by several other research studies, it is reasonable to assume that small businesses will likely see at least an average 10% increase in its cost structure that has an exposure to these five costs.

A careful evaluation of the income statements of various industries using financial data from research companies such as American Fact Finder shows that the cost structure for all industries has an exposure to the five areas that ranges from 10% of their cost structure to 80% of their cost structure. Therefore, it is reasonable to assume that the average cost structure exposure for small businesses to the five areas is approximately 45%. A 45% exposure to increased transportations costs, housing costs, fuel costs, food costs, and utility costs that on average increase 10% due to the implementation of AB 32 results in an actual increase of costs to small businesses by 4.5% of its total costs, or \$63.895 billion in increased costs on sales of \$1.578 trillion.

Therefore, the cost of \$63.895 billion was used as the expected cost of ARB to small businesses in this scenario.

## **FINDINGS**

The analyses of the impact of these costs to California businesses and/or consumers were made using the three scenarios identified above.

The study separates the impact into the four categories of output, employment, labor income, and indirect business taxes. It further separates the impact in each category into the major industrial sectors such as manufacturing, wholesaling, retailing, real estate, professional services, administrative, education, health, arts/entertainment/recreation, accommodations/food services, other, farming, federal, and state/local.

- The direct AB 32 cost of \$24.878 billion results in a total loss of output of \$71.464 billion annually for the State of California (after including indirect and induced costs). The direct cost of \$52.194 billion cost to consumers results in total lost output of \$149.2 billion annually. The direct cost of \$63.895 million to small businesses results in a total loss of output of \$182.649 billion annually. The distribution of the output loss is the highest for the professional services sector, manufacturing, arts, entertainment, and recreation sectors.

- In terms of employment, this output loss is equivalent to the loss of roughly half a million jobs for the state due to minimum ARB cost, 900,000 jobs loss due to costs to consumers, and 1.1 million jobs loss due to costs to small businesses. A loss of 1.1 million jobs represents over 3% of the total population of California.
- In terms of labor income, the total loss to the state from the minimum ARB cost is \$30 billion, from costs to consumers is \$63 billion, and from costs to small businesses is \$77 billion.
- Finally, the indirect business taxes that would have been generated due to the output lost arising from the ARB cost is \$2.3 billion, from the costs o consumers is \$4.7 billion, and from costs to small businesses is \$5.8 billion.
- The total AB 32 cost of \$182.649 billion in lost output is one and a half times the total budget for the state of California. Further, given the total gross state output of \$1.8 trillion for California in 2008, the total lost output from AB 32 costs to small businesses is almost 10%.
- Most importantly, it helps to understand what these costs mean to the small business in California. The total cost of AB 32 is \$49,691 per small business in California, indirect business taxes not generated or lost were \$1,571 per small business, labor income lost was \$20,892 per small business, and finally roughly one third of a job (0.30) lost per small business.
- The increased costs to consumers due to AB 32 means either that they must spend more if they have the funds available or reduce their expenses in other areas. When considering where consumers can make more discretionary reductions in spending, they must reduce expenses by nearly 26.2% across the discretionary categories. This is shown below:

<b>Discretionary Expenditure Category</b>	<b>2008</b>	<b>Reduced</b>
Household operations	\$1,196	\$883
Housekeeping supplies	\$738	\$545
Household furnishings and equipment	\$2,418	\$1,785
Apparel and services	\$2,271	\$1,676
Health care	\$3,047	\$2,249
Entertainment	\$3,172	\$2,342
Personal care products and services	\$727	\$537
Reading	\$154	\$114
Education	\$1,012	\$747
	\$14,735	\$10,877
<b><i>Reduction per Expense Category</i></b>	26.18%	
<b><i>Increased cost to absorb due to AB 32</i></b>	\$3,857	

- To put into perspective the possible consequences of lost indirect tax dollars, how the lost General Fund revenues could be allocated among various state agencies was computed. Presented in Table 4 are only illustrations of the magnitude of the potential losses. With the minimum impact, these sample agencies would each have to reduce their General Fund budgets by nearly 31.7% to offset the lost tax dollars. If the impact on consumers resulted in lost business taxes, each of these agencies would have to reduce their General Fund budgets by more than 66.1% to offset the lost tax dollars. And, if the impact on small businesses resulted in lost business taxes, each of these agencies would have to reduce their General Fund budgets by nearly 81.0% to offset the lost tax dollars.

## CONCLUSIONS

The study analyzes the potential economic impacts of AB 32 on the state of California, its consumers, and the small businesses. Using three different approaches to measuring the economic costs, the study finds that the potential loss of output, jobs, indirect business taxes and labor income is substantial and significant.

On average, the annual costs resulting from the implementation of AB 32 to small businesses are likely to result in loss of more than \$182.6 billion in gross state output, the equivalent of more than 1.1 million jobs, nearly \$76.8 billion in labor income, and nearly \$5.8 billion in indirect business taxes. These are shown below:

Impact	Minimum Impact	Impact on Consumers	Impact on Small Business
Total Output	\$71,464,295,356	\$149,200,956,684	\$182,648,683,516
Total Employment	431,481	900,831	1,102,782
Total Labor Income	\$30,046,794,181	\$62,730,771,925	\$76,793,696,762
Total Indirect Business Taxes	\$2,259,805,798	\$4,717,953,057	\$5,775,619,069

The total AB 32 cost of \$182.649 billion in lost output is one and a half times the total budget for the state of California. Given that the total gross state output of \$1.8 trillion for California in 2008, the total lost output from AB 32 costs to small businesses is almost 10%. Accordingly, the total cost of AB 32 is \$49,691 per small business in California.

These estimated losses represent average losses, with some industries likely to see losses smaller than this and others experiencing much higher levels of losses. Given the uncertainty surrounding the several variables that impact the implementation of AB 32, the upper limit to the losses is unknown. Given conservative estimates including those provided by ARB, the losses resulting from the \$24.878 billion in ARB specified costs appear to be the minimum Californians are likely to experience.

It is important to recognize that this analysis focuses on the costs of AB 32 and not whatever savings there may be. The reasons why savings are not used as offsets to costs at this time are:

- There appears to be general agreement that the savings, if any, are unknown. This was recognized in ARB's Scoping Plan, indicated by the LAO's comments, cited by the ARB's peer reviewers, and others.
- Some of ARB's expected savings is derived from yet-to-be developed technologies. Whether these will provide the results anticipated by ARB, and whether they will be developed within California are purely speculative.
- As the LAO indicated, the ARB relies heavily on the Pavley regulations, which account for 70% of the benefits to be generated. Accordingly, even relatively small variations downward in this benefit will significantly alter the net effect. If the benefits were more broadly distributed among factors, small changes in some could more readily be offset by others.
- Some of the savings that are expected to accrue (e.g., solar water heating), require significant investments on the part of businesses and consumers. At this time, there is no indication that such costs could be absorbed by those entities so that the savings would be generated. Additionally, the payback period for the savings is highly speculative.
- This study did not consider all of the costs associated with AB 32., such as the costs or disruptions to prices of crops arising due to changes in land use, costs of reporting, monitoring, and enforcing compliance, future availability of alternative fuels or any major fluctuations or disruptions in the demand supply equation and resulting prices, availability of vehicles utilizing alternative fuels, and costs associated with technology advancements to make the vehicles commercially affordable and reasonably priced, cost of financing of the new production facilities, or of the required investments for both production and distribution, volatility in forecasts of prices of crude, gasoline, and diesel, and research and development costs for lower carbon intensity alternative transportation fuels. Some or all of these additional costs could well offset any savings that might be generated in the future.
- If there are savings, it is unknown whether they will remain inside the state or migrate to other states or countries.

If savings can be conclusively documented, these could serve as offsets to some of the costs included in the study. At this time, however, and given that ARB indicates that the savings are estimates, it was deemed imprudent to speculate on what those would realistically be and how they might impact California's economy, its residents, and small business.

Small businesses drive the economic engine in California. They comprise 99.2% of all employer firms and 99.7% of all firms. They account for over half the employment, over 90% of net new job creation, and 75% of the creation of gross state output. Costs borne

by small businesses due to the implementation of AB 32 must be carefully evaluated for a full understanding of their significance and impact on the state and residents.

Currently California is facing one of the highest unemployment rates, worst real estate markets with rising foreclosures, and people looking to move out of the state to find a more affordable living. Businesses, similarly are faced with some of the highest taxes, utility costs, and unfriendly regulatory environment that will likely result in more leakages of businesses elsewhere.

Each of the 50 states in the United States superimposes an array of regulations over and above those that exist at the federal level. An adverse impact on small business is bound to adversely impact the production of goods and services, the risk tolerance of the American enterprise, the productivity of labor, the quality of life, and the overall well being of the State and its citizens.

Legislative and regulatory mandates may result in practices, enact policies that raise the costs of operating for small business or provide a deterrent to small business growth, and hence provide disincentives for economic risk taking and entrepreneurship. This appears to be the case here. While the ultimate goals of AB 32 are not in question, the findings of this study suggest that the costs associated with the implementation of this Act will have a significant adverse impact on California's economy, consumers, and small businesses.

# **COST OF AB 32 ON CALIFORNIA SMALL BUSINESSES STUDY—SUMMARY REPORT OF FINDINGS**

## **SUMMARY REPORT OF FINDINGS**

### **INTRODUCTION AND PURPOSE OF THIS STUDY**

In March 2009, the California Small Business Roundtable (CSBR) commissioned Varshney & Associates to conduct an independent study to examine the possible impact of the Global Warming Solutions Act of 2006 (AB 32, Act) on the California economy, and specifically the impact it will have on small businesses in California (state).

#### ***Purpose of this Study***

The objective of this research is to describe the impact and cost of AB 32 on California small businesses. Previous studies document the cost of federal regulations on small businesses. The purpose of this study is to identify and establish the various impacts and cost of the AB 32 burden on small business in California and to assess the extent to which this disadvantages small business. This cost is in addition to the cost of federal regulation or state regulation that is widely documented by previously published studies.

Issues addressed in this study include:

- What is the impact of the additional costs associated with implementing AB 32 on the state's economy and on consumers?
- What is the impact of the additional costs associated with implementing AB 32 on small businesses in California?
- How does the cost of AB 32 impact selected industries and economic sectors of California's economy?

In addition to identifying the aggregate direct costs of regulation AB 32 to small business, this study measures the second order costs of this regulation as those resulting

from indirect and induced costs and which impact the state's GSP. An example of second order costs is how the cost of environmental regulation will likely be reflected in higher utility bills paid by the consumer. The increased utility costs will have a ripple effect throughout the entire economy, raising costs and impacting productivity and income in all sectors in the state.

As presented below, there can be little question that small business is important to California's economic health. And, there can be little question that legislation impacts all businesses and especially small businesses. Furthermore, AB 32 clearly is an important issue to California and the small business community. Policy recommendations from a Small Business & Entrepreneurship Conference held by the state cited this Act second in its list of recommendations, and requested that the California Air Resources Board (ARB, CARB) "...perform a comprehensive assessment of the interim costs for AB 32 implementation that affects small businesses and identify financing programs that could help alleviate those costs."<sup>7</sup>

### ***Significance of Small Businesses to California's Economy***

The significance of this study derives in part from the fact that over 90% of the firms in the United States employ fewer than 20 employees, and large firms (i.e., 500 or more employees) constitute only 0.3% of all firms. In California, according to the California Assembly Committee on Jobs, Economic Development and the Economy (JEDE) "Small businesses are an integral part of the California economy, comprising more than 99 percent of all businesses in the state. Small Businesses in California account for 90% of the net new job creation and over 75% of the net new gross state product. More than 50 percent of all employees in California work for small businesses."<sup>8</sup> Some facts on small business reported by JEDE include:<sup>9</sup>

- An estimated 3.6 million small businesses in California in 2006, with 2.3 million being self-employed firms.
- Nearly 2.5 million people employed by the 630,000 businesses in California with less than 20 employees in 2005.
- Approximately 115,000 new small businesses formed in 2006, compared to 149,000 that closed their doors. Approximately 50 percent of all small businesses fail within seven years of opening.

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<sup>7</sup> "Policy Recommendations of the Small Business & Entrepreneurship Conference Participants, Governor's Small Business Advocate Receives Policy Recommendations from Conference on Small Business & Entrepreneurship Participants, Office of the Governor, Press Release 11/21/2008 GAAS: 796:08.

<sup>8</sup> "An Overview of Small Business issues, Facts, Legislative Actions and Programs in California," California Assembly Committee on Jobs, Economic Development and the Economy.

<sup>9</sup> Ibid.

According to the Governor's Small Business Advocate, "...small businesses are the driving force in the California economy."<sup>10</sup> The Small Business Administration's (SBA's) Office of Advocacy concurs. The SBA received the results of a study it commissioned, showing that the success rate of small businesses has a direct impact on states' economic expansion. In the study, based on 14 years of data, researchers showed that "small firm (...) births have a larger impact than any other factor on Gross State Product (GSP). Economic growth will be faster when the net small firm establishment birth rate is positive."<sup>11</sup> In fact, one study commissioned by the SBA found that increasing small business births by 5% would result in a 0.465% growth in a state's GSP.

Accordingly, small business drives the economic engine and the GSP. An adverse impact on small business is bound to adversely impact the production of goods and services, the risk tolerance of American enterprise, the productivity of labor, the quality of life, and the overall well being of the state and its citizens.

## ***Regulatory Environments and Small Business***

Unfortunately, legislative and regulatory mandates can result in practices and policies that raise the costs of operations for small business or provide a deterrent to small business growth. Hence, they may provide disincentives for economic risk taking and entrepreneurship.

Substantial research exists at both the federal and state levels that attempts to understand, measure, and describe the impact that regulation may have on small business and the resulting loss to the economy. Hazilla and Kopp (1990) were early researchers in this field to provide estimates of the indirect effects of environmental regulations as well as the dynamic consequences. Their evidence suggests that these costs are substantial.<sup>12</sup>

Crain (2005) measured the impact of federal regulatory costs on small business by allocating the total impact into those due to economic regulation, workplace regulation, environmental regulation, and finally tax compliance.<sup>13</sup> He found that the burden of federal regulation falls disproportionately on smaller firms relative to larger firms. His study showed that the cost of federal regulation to small business totaled \$1.1 trillion in 2004 or 11% of national income. Furthermore, the average cost was \$7,647 per employee in firms smaller than 20 employees versus \$5,282 per employee for large firms that have more than 500 employees.

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<sup>10</sup>“Governor's Small Business Advocate Receives Policy Recommendations from Conference on Small Business & Entrepreneurship Participants,” Office of the Governor, Press Release 11/21/2008 GAAS: 796:08.

<sup>11</sup> Dunai, Martin, “California Economic Growth Slips in Rank,” Oakland Tribune, February 7, 2007.

<sup>12</sup> Hazilla, Michael and Raymond Kopp, “The Social Cost of Environmental Quality Regulations: A General Equilibrium Analysis,” *Journal of Political Economy*, Vol. 98 (4), 1990.

<sup>13</sup> Crain, Mark, *The Impact of Regulatory Costs on Small Firms*, Small Business Research Summary, 2005.

Keating (2007) created a small business survival index by ranking the policy environment for entrepreneurship across the United States from the friendliest to the least friendly states.<sup>14</sup> According to Keating, the biggest impediments to investment and entrepreneurship are bad public policy, poor public policy environment, and government imposed costs directly and indirectly affecting small business and entrepreneurs. He constructed the small business survival index using 31 different government imposed and related costs that affect small business. These costs include taxes, healthcare regulation, electricity costs, worker compensation costs, total crime rate, right to work costs, number of government employees, tax limitation states, state minimum wage, state legal liability costs, regulatory flexibility, trend in state and local government spending, per capital state and local government spending, protecting private property, and highway cost efficiency.

Based on this study, California ranked 49<sup>th</sup> among all states ranked from the friendliest to the least friendly for entrepreneurship in the Small Business Survival Index for 2007—just ahead of New Jersey. However, it did improve in rank to 45<sup>th</sup> for electric utility costs, but 50<sup>th</sup> (i.e., last) for gas taxes and 44<sup>th</sup> for highway cost effectiveness.

Huang, McCormick, and McQuillan (2004) measured economic freedom across the United States.<sup>15</sup> Economic freedom was defined to be the right of individuals to pursue their interests through voluntary exchange of private property under a rule of law. They argued that this freedom forms the foundation of market economies. Subject to a minimal level of government to provide safety and a stable legal foundation, legislative or judicial acts that inhibit this right reduce economic freedom. They gathered data on 143 variables per state from 1995 to 2003 that include tax rates, state spending, occupational licensing, environmental regulations, income redistribution, right-to-work and prevailing-wage laws, tort reform, and the number of government agencies, among others. From these they derived five data sets with calculated sector scores for each state by putting each variable into one of five sectors: fiscal (51 variables), regulatory (53), welfare spending (10), government size (7), and judicial (22). Each state's sector scores were calculated by ranking each variable within a sector from one (most free) to 50 (least free). California was ranked 49<sup>th</sup>, just being edged out by New York for the bottom spot.

Byars, McCormick, and Yandle (1999) perform a similar analysis and their study ranked California 44<sup>th</sup> out of 50 states.<sup>16</sup> This study demonstrated how a lack of economic freedom especially due to government interference and bad legislation can adversely impact the per capita income of the residents in that state.

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<sup>14</sup> Keating, Raymond J., *Small Business Survival Index 2007: Ranking the Policy Environment for Entrepreneurship Across the Nation*, Small Business Entrepreneurship Council, November 2007.

<sup>15</sup> Huang, Ying, Robert E. McCormick, and Lawrence McQuillen, *U.S. Economic Freedom Index: 2004 Report*, Pacific Research Institute, 2004. However, no estimates of the costs of state regulations are available.

<sup>16</sup> Byars, John D., Robert E. McCormick, and T. Bruce Yandle, *Economic Freedom in America's 50 States: A 1999 Analysis*, State Policy Network, 1999.

## ***The Consultants***

Varshney & Associates is a Sacramento-based registered and certified small, minority, and woman owned business providing business and healthcare consulting services. The project team for this study consisted of Dr. Sanjay B. Varshney and Dr. Dennis H. Tootelian. Dr. Varshney is Dean of the College of Business Administration and a Professor of Finance at California State University, Sacramento. Dr. Tootelian is the Director of the Center for Small Business and a Professor of Marketing at California State University, Sacramento. The project team has a strong background in economic and financial analyses, marketing research, and most importantly, small business. Dr. Varshney and Dr. Tootelian have conducted economic impact studies for a variety of public and private organizations. Brief descriptions of Dr. Varshney and Dr. Tootelian are presented in Appendix A.

## **BACKGROUND ON AB 32**

AB 32 is California's landmark global warming legislation. It is intended to reduce California greenhouse gas (GHG) emissions to 1990 levels by 2020 and to 80% below 1990 levels by 2050. Signed into law by the Governor of California on September 27, 2006, the bill establishes a timetable to bring California into near compliance with the provisions of the Kyoto Protocol. The ARB was designated as the lead agency for implementing AB 32.

As defined in the Act, "greenhouse gases" include all of the following gases: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). These are the same gases listed as GHGs in the Kyoto Protocol.

### **AB 32**

The law requires that by 2020 the state's GHG emissions be reduced to 1990 levels, a roughly 25% reduction under business as usual (BAU) estimates.

The Act calls for regulations to do the following:

1. Require the monitoring and annual reporting of GHG emissions from GHG emission sources.
2. Account for GHG emissions from all electricity consumed in the state, including transmission and distribution line losses from electricity generated within the state or imported from outside the state.
3. Where appropriate and to the maximum extent feasible, incorporate the standards and protocols developed by the California Climate Action Registry.
4. Ensure rigorous and consistent accounting of emissions, and provide reporting tools and formats to ensure collection of necessary data.
5. Ensure that GHG emission sources maintain comprehensive records of all reported GHG emissions.

Recognizing that there are potentially significant costs associated with implementation of AB 32, and possible impacts on small businesses, the Act required that there be:

- An evaluation of the total potential costs and total potential economic and non-economic benefits of the plan for reducing GHG to California's economy, environment, and public health.

- Account taken of the potential adverse effects on small businesses.
- Regulations that are equitable and seek to minimize costs and maximize total benefits to California.
- Safeguards such that that activities undertaken to comply with the regulations do not disproportionately impact low-income communities.
- Consideration given to the cost-effectiveness of the regulations.
- Steps taken to minimize the administrative burden of implementing and complying with the regulations.

The Act also required the ARB to prepare a “*Scoping Plan*” to achieve the maximum technologically feasible and cost-effective reductions in GHG emissions from sources or categories of sources of GHG by 2020. The Scoping Plan, approved in December 2008, contained a set of actions designed to carry out the objectives of AB 32.

### ***Elements of the Scoping Plan***

The Scoping Plan included goals, recommendations, and the expected economic impact of implementing AB 32. These are highlighted below.

### **Scoping Plan Reduction Goals**

The reduction goals of AB 32 are:

- Greenhouse gas emissions are to be reduced to 1990 levels by 2020 or about 15% from today’s levels.
- Meeting this goal means reducing annual emissions from 14 tons of carbon dioxide to 10 tons per person.
- The overall goal is to be able to enjoy clean air, water, and an environment that will benefit the health of Californians.

### **Scoping Plan Recommendations**

Key elements of California’s recommendations for reducing greenhouse gas emissions include:

- Strengthening the building and appliance standards while expanding the existing energy efficiency programs.

- Achieving a statewide renewable energy mix of 33%.
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system.
- Creating targets for reducing GHG emissions related to transportation and pursuing policies and incentives to achieve those targets.
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard.
- Establishing fees that are targeted to certain things in order to minimize the use. This includes water use, high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation.

Changes to specific measures and programs include the following:

- **Regional Targets:** ARB increased the anticipated reduction of greenhouse gas emissions for Regional Transportation-Related Targets from two to 5 million metric tons of carbon dioxide equivalent.
- **Local Government Targets:** ARB added a section describing the role that local governments will play in the successful implementation of AB 32.
- **Additional Industrial Source Measures:** Four additional measures were included to address emissions from industrial sources. It is anticipated that these proposed measures will provide 1.5 MMTCO<sub>2</sub>E of greenhouse gas reductions.
- **Recycling and Waste Re-Assessment:** ARB increased the anticipated reduction of GHG emissions from one to 10 MMTCO<sub>2</sub>E, incorporating measures to move toward high recycling and zero-waste.
- **Green Building Sector:** It is expected that green building systems have the potential to reduce approximately 26 MMTCO<sub>2</sub>E of greenhouse gases.
- **High Global Warming Potential (GWP) Mitigation Fee:** The fee is anticipated to promote development of alternatives to chemicals with very high GWP, and improve recycling and removal of these substances.
- **Modified Vehicle Reductions:** Heavy-duty vehicle GHG emission reduction and the tire Inflation measure is expected to achieve 0.9 MMTCO<sub>2</sub>E.

- Discounting Low Carbon Fuel Standard Reductions: this will overlap with California’s clean car law and has the result of discounting expected reduction of GHG emissions by approximately 10%.

## Scoping Plan Projected Economic Impact

Contained in the Scoping Plan was an analysis of the expected economic impact of implementing AB 32. To make this evaluation, ARB compared estimated economic activity under a BAU case to the results obtained when actions recommended in the Scoping Plan are implemented. The BAU case was an estimate of what the state’s economy will be in the year 2020 assuming that none of the measures recommended in the Scoping Plan are implemented. It noted that a number of the measures will be implemented anyway as the result of existing federal or state policies, but these were not included in the BAU model. Presented below is a table from the Scoping Plan that shows the results of ARB’s analysis.

**Table G-1: Summary of Economic Impact Modeling of the Scoping Plan Using E-DRAM**

Economic Indicator	2007	Business-as-Usual <sup>1</sup>	Recommendation <sup>2</sup>
Real Output (\$Billion)	2,535	3,597	3,630
Gross State Product (\$Billion)	1,811	2,586	2,593
Personal Income (\$Billion)	1,464	2,093	2,109
Income Per Capita (\$Thousand)	38.6	47.56	47.76
Employment (Million Jobs)	16.41	18.41	18.53
Emissions (MMTCO <sub>2</sub> E)	500 <sup>3</sup>	596	421
Carbon Prices (Dollars)	-	-	10.00

<sup>1</sup> Business-as-usual is a forecast of the California economy in 2020 without implementation of any of the measures recommended in the Scoping Plan.

<sup>2</sup> Includes all measures in the Recommendation in the Scoping Plan, plus additional emission reduction options expected to be undertaken because they are estimated to have a cost-per-ton lower than the market price, as a proxy for reductions from the cap-and-trade program.

<sup>3</sup> Approximate value. ARB is in currently estimating GHG emissions for 2007.

According to the ARB, the results of its economic analysis indicate that implementation of the Scoping Plan will have an overall positive net economic benefit for the state. Positive impacts are anticipated by the ARB primarily because the investments motivated by several measures result in substantial energy savings that more than pay back the cost of the investments at expected future energy prices.

Some of ARB's key economic impact findings include the following:

- The BAU case is anticipated to have the following impact:
  - Gross State Product Increases by \$775 billion between 2007 and 2020
  - Personal income grows by 2.8% per year from \$1.5 trillion in 2007 to \$2.1 trillion in 2020
  - Employment grows by 0.9% per year from 16.4 million jobs in 2007 to 18.4 million jobs in 2020
- Small Business Impacts:
  - Small businesses will not be affected in general. The only additional costs they will incur will be related to changes in the costs of goods and services they need, and changes in energy expenditures.
  - The Scoping Plan recommendation will likely have a slight but positive impact on small businesses.
  - Since small businesses will be saving more with a decrease in electricity usage, this will be a benefit. Small businesses typically spend more money on energy as a percentage of revenue compared to larger enterprises.

The overall conclusions were that the emission reduction target can be reached without causing harm to the state, and this can be done by increasing economic output, jobs and income. According to the ARB, due to the increased energy efficiency that is supposed to occur, consumers are expected to be better off because they will be spending less on energy, so no additional costs are expected. Business impacts are positive because the promotion of energy efficiency is likely to reduce energy costs for businesses of all sizes over time. California-based technologies also will be brought to the head of the growing global market in green technology, and this will provide jobs and income to many Californians.

The ARB found the primary impacts on small businesses will come in the form of changes in the costs of goods and services that they procure, and in particular, changes in energy expenditures. Due to the number of measures in the Scoping Plan that will deliver significantly greater energy efficiencies, its analysis projects that implementation will have a positive impact on small business in California even after taking into account the higher per-unit energy prices that are likely to occur between now and 2020. According to the ARB, small businesses also will benefit because of the robust economic growth and the increases in jobs, production, and personal income that are projected between now and 2020 as AB 32 is implemented.

## ***Issues Surrounding AB 32 and Scoping Plan***

While there appears to be little disagreement with the ultimate goal of AB 32, considerable concern has been expressed about the costs and economic impact of its implementation. Furthermore, the ARB's Scoping Plan and its estimates of the economic impact on California's economy and small business has met with mixed reaction at best.

### **Legislative Analyst's Office**

The Legislative Analyst's Office (LAO), a nonpartisan office of the California Legislature, made a review and analysis of ARB's Scoping Plan at the request of a member of the California Assembly.<sup>17</sup> Its conclusions were:<sup>18</sup>

- The scoping plan's overall emissions reductions and purported net economic benefit are highly reliant on one measure—the Pavley regulations....accounts for about 18% of the plan's emissions reductions ... and roughly 70% (\$11 billion) of the plan's net direct economic savings to businesses and consumers.
- The plan's evaluation of the costs and savings of some recommended measures is inconsistent and incomplete. The plan does not reflect the costs and savings of all of the emissions reduction measures that it recommends.
- Macroeconomic modeling results show a slight net economic benefit to the plan, but ARB failed to demonstrate the analytical rigor of its findings. The findings are highly dependent upon key assumptions, and ARB has not performed an analysis to determine how sensitive the macroeconomic findings are to changes in the key assumptions.
- Economic analysis played a limited role in development of scoping plan. Selection of particular measures and the mix of measures appear not to have been directly influenced by cost-effectiveness consideration or macroeconomic analysis. In fact, ARB deemed all measure included in the plan "cost effective" simply because they reduce GHG emissions, whatever the costs.
- The plan fails to lay out an "investment pathway." Such a pathway would describe, year-by-year, the investments required by implementation of the plan and the timing of the economic return on those investments. The modeling approach cannot identify the types of disruptions certain parties could face under the proposal. For example, it is possible some businesses could lose money or go out of business.

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<sup>17</sup> The Legislative Analyst's Office has been providing fiscal and policy advice to the Legislature for more than 65 years. It is known for its fiscal and programmatic expertise and nonpartisan analyses of the state budget. The office serves as the "eyes and ears" for the Legislature to ensure that the executive branch is implementing legislative policy in a cost efficient and effective manner

<sup>18</sup> Letter to the Honorable Roger Niello dated November 17, 2008 from Mr. Mac Taylor, Legislative Analyst.

The LAO letter further indicates, “The ARB acknowledges that these estimates of costs and savings associated with this measure are weak at present. The scoping plan is based on the uncertain assumption that fuel producers can produce ethanol and biodiesel at costs similar to the current and projected high price of gasoline and diesel. However, ARB did not provide us a basis to justify this major assumption...As a consequence; the bottom-line calculation of net annualized cost/savings could change substantially, depending on the development of more refined estimates for the fuel standard.”<sup>19</sup>

While some of the LAO’s concerns were addressed by ARB in subsequent communications, the LAO indicated that its observations and concerns about the AB 32 scoping plan and ARB’s economic analysis were generally not altered.<sup>20</sup>

## Comments from Other Sources

Similar concerns have been expressed by others. For example:

- Los Angeles County Economic Development Corporation: “The LAEDC is satisfied that the model adopted by CARB is a reasonable one for estimating the economic impact of greenhouse gas legislation. We are concerned, however, that some of the key assumptions are unrealistic, which may be contributing to an overstatement of the potential benefits of implementing AB 32....Our concerns...are focused on an unrealistic depiction of baseline conditions; dynamics of cost-benefit analysis; and distributional issues. We suspect that revising some of the key assumptions will produce a less optimistic outcome than currently forecast.”<sup>21</sup>
- Peer reviewers brought in by ARB to assess the Scoping Plan:<sup>22</sup>
  - Matthew E. Kahn, Ph.D.: The Economic Analysis and the five appendices contain too many uncertainties for AB 32 to be as flawless as it is presented. Although AB 32 offers many benefits, it will also impose costs that have not been taken into account.
  - Gary Yohe, Ph.D.: Not all of the new technology will emerge from California. This means that additional costs will be incurred to bring in some of the technology required to reach AB 32 goals. In order to achieve a thorough analysis, both the good and that bad must be displayed. It seems that concluding that this plan will cause no harm is inaccurate.

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<sup>19</sup> Ibid, p. 14.

<sup>20</sup> Letter to the Honorable Roger Niello dated December 12, 2008 from Mr. Mac Taylor, Legislative Analyst.

<sup>21</sup> The AB 32 Challenge: Reducing California’s Greenhouse Gas Emissions,” Los Angeles County Development Corporation, October 2008, pp. 2-3.

<sup>22</sup> Peer Review of the Economic Supplement to the AB 32 Draft Scoping Plan; Major Peer Review Comments and Air Resources Board Staff Responses; November 2008

- Robert Stavins, Ph.D.: The cost estimates that CARB has produced are significant understatements of the true costs, and are useless for identifying a cost-effective portfolio of policies to achieve the objectives of AB 32. “CARB’s baseline for its analysis is systematically biased in ways which lead to potentially sever underestimates of costs. In particular, CARB does not include in the baseline some very important existing policies that would be adopted whether or not AB 32 is implemented.”
- AB 32 Implementation Group: The Implementation group is not asking AB 32 to stop or be diminished. It simply wants it done correctly so that everyone can benefit. With the plan that has been created, there are many, including small businesses and low-income households, who would be highly impacted. It wants the major flaws identified by the LAO, peer reviewers, and others addressed. It points out that the AB 32 plan includes programs that are currently helping reduce greenhouse gas emissions and will continue to do so even if the AB 32 plan is not completely implemented quickly.
- The Analysis Group: There is no debate about whether the plan’s objective is a good one. It is clear that the reduction of greenhouse gas emissions is something that will benefit not only the state of California but also the entire country. “CARB’s analysis cannot be considered a reliable or economically sound assessment of the Scoping Plan’s economic impact.” AB 32 will result in an increase in energy costs for some businesses. This will cause a reduction in their competitiveness, as they will have to allocate more funds to energy expenditures.<sup>23</sup>
- Steven Moore, Senior economics writer for The Wall Street Journal: Employers are becoming extremely concerned as the implementation of AB 32 comes near because it is obvious that the negative impact has been underestimated while the benefits have been exaggerated. Even though none of the reviewers knew who the other reviewers were, they all came up with almost the same conclusion that the report was severely flawed and systematically underestimated costs. Other states are suggesting that business owners move their businesses out of California before the “cap-and-trade earthquake hits”. The overall goal of AB 32 is supported, but the consequences of putting it into action are too risky in the opinion of many.

## ***Sectors Most Impacted***

The sectors that will be most significantly impacted by proposed measures are energy, construction, transportation, and industry/consumer.

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<sup>23</sup> Judson Jaffe and Jonathan Borcek; Analysis Group. Comments on the Economic Analysis Supplement to the Draft Scoping Plan. October 21, 2008

Energy Sector: Major proposed measures include increasing California’s renewable portfolio standard (RPS) from 20% to 33%. The RPS requires that California utilities source 33% of the electricity they deliver from renewable resources such as wind, solar, geothermal and biomass. There is also a measure to encourage the installation of solar electric systems, in line with the Million Solar Roofs program.

Construction Sector: There are measures to increase building and appliance efficiency measures, including a major energy efficiency program for state buildings; encourage combined heat and power systems; implement stringent efficiency standards for new construction, and provide incentives for the installation of solar water heating systems.

Transportation Sector: Major proposed measures include implementing the Pavley standards (AB 1493), which would reduce GHG emissions from passenger vehicles by about 22 percent by 2012 and about 30 percent by 2016; and moving forward with a Low Carbon Fuel Standard, which would reduce the carbon content of California’s transportation fuels 10 percent by 2020. There are also several early action measures that target goods movement, including a measure to improve the efficiency of heavy-duty tractors and trailers and a measure to reduce emissions at California ports. The only major public transit measure proposes a high-speed rail system between Northern and Southern California.

Industry and Consumer Sectors: For a broad set of industries including manufacturing, gas and oil refining, and others, the main proposed measure thus far is to conduct energy efficiency and co-benefits audits and require investments in cost-effective efficiency measures determined by the audits. These sectors will also be covered by the proposed cap and trade policy. A key issue that impacts these industries is whether ARB will count the emissions produced by out-of-state companies whose products are consumed in California. If it does not, the result could be a “leakage” of jobs and carbon emissions out of California to states and countries with lower environmental standards. Additionally, all of these costs either will be borne by the companies, or more likely passed on in whole or part to the next levels in the delivery chain—and ultimately to the consumer.

Other Sectors: ARB also proposes measures that target agriculture, forests, high global warming potential greenhouse gases (such as SF6), recycling and waste, and the water sector. ARB also proposes 30% minimum emissions reduction by the state government, and plans to work with local governments on measures under their jurisdiction, including building codes, land use, and transit.

## METHODOLOGY

The primary model used for this analysis was IMPLAN. It provides modeling based on data and tools to assess economic impacts at the state, multi-county, and county levels. Widely recognized and used nationally and regionally, IMPLAN has more than 1,500 active users in the United States and internationally. These include clients in federal and state government, universities, and private sector consultants. A brief description of IMPLAN and partial list of its users are included in Appendix A.

IMPLAN was used to compute the overall impact, and a specially designed feeder input model was created to provide input to the IMPLAN model that was used for various scenarios described later in this Report.

The benefit of using input-output models, including IMPLAN, is that they help evaluate the effects of industries on each other based on the supposition that industries use the outputs of other industries as inputs. Some other models measuring economic activity examine only the total output or employment of an industry, and not the dual causality that may run both ways. The use of an input-output model provides a much more comprehensive view of the inter-related economic impacts. It examines economic relationships between businesses and between business and consumers. This impact analysis then measures changes in any one or several economic variables on an entire economy.

Each industry that produces goods and services has an influence on, and in turn is influenced by, the production of goods and services of other industries. These interrelationships are captured through a multiplier effect as the demand and supply trickle over from industry to industry (direct and derived demand) and thus impact total output, compensation, employment, etc. Multipliers may vary from one region to another depending on the strength of these interrelationships. IMPLAN data can be used to compute economic impact at the national, state, regional, and county levels. Of particular interest are industry output, employment, value added as measured by employee compensation, proprietary income, other property type income, and indirect business taxes), and final demand of institutions (i.e., households, federal government, state and local governments, businesses).

The full range of economic impacts includes direct, indirect, and induced costs resulting from the implementation of AB 32.

- **Direct costs** consist of economic activity contained exclusively within the designated sector(s). This includes all expenditures made and all people employed.

- **Indirect costs** define the creation of additional economic activity that results from linked businesses, suppliers of goods and services, and provision of operating inputs.
- **Induced costs** measure the consumption expenditures of direct and indirect sector employees. Examples of induced costs include employees' expenditures on items such as retail purchases, housing, banking, medical services, and insurance.

The total direct, indirect, and induced costs arising due to the multiplier effect are presented in four ways:

- **Output** accounts for total revenues lost including all sources of income for a given time period for an industry in dollars. This is the best overall measure of business and economic activity because it is the measure most firms use to determine current activity levels.
- **Employment** demonstrates the number of jobs not generated and is calculated in a full-time equivalent employment value on an annual basis.
- **Indirect Business Taxes** consist of property taxes, excise taxes, fees, licenses, and sales taxes that would have been paid by businesses but now lost. While all taxes during the normal operation of businesses are included, taxes on profits or income are not included.
- **Labor Income** includes all forms of employee compensation that would have been paid by employers but now lost (e.g., total payroll costs including benefits, wages and salaries of workers, health and life insurance, retirement payments, non-cash compensation), and proprietary income (e.g., self employment income, income received by private business owners including doctors, lawyers).

The **multiplier effect** for sales and employment reflect the diminished economic activity that comes from sales not generated, and expenses not incurred, by a business. When a business generates sales or ceases to do so, it must use some of that money to purchase other goods and other services and hire people to meet the demand for its products and services. If business activity is reduced, that spending which did occur will be lost.

Purchases not made by the business represent lost sales to other firms who must then also cease purchasing goods and services and reduce the employment of people to meet their new demand or layoff people if demand is diminished. The reduced hiring to meet reduced demand means fewer people will have income, which they will use to purchase goods and services for their households. Alternatively, the reduction in personnel will represent lost income that will not be diffused through the economy.

All of this brings lost sales to firms in the community. The net effect is that sales dollars are recycled in the community through this process of sales requiring additional purchases and employment, which result in sales for other firms who must use that

money to make their own purchases and hire people. However, if businesses reduce their spending or cease to exist, their past spending represents losses in economic activity within the geographic area<sup>24</sup>

The IMPLAN model can be used to quantify the multiplier effect that occurs when new output or employment is lost in the geographical area via the designated economic activities. The multiplier effect is generated when new output or employment is lost in one sector, but generates less output or employment in other sectors that supply goods and services (indirect impact) and consumer services to employees (induced impact).

The largest component of final demand is household consumption. It includes all payments made by households to all industries for personal consumption of goods and services. Part of total labor income may not be available for spending since it may be used to pay personal taxes, principal and interest on loans, credit card payments, etc. It is also expected that spending patterns will vary from one income level to another. For example at the lower income levels, higher proportional spending takes place on food, clothing, and shelter. At the higher income levels, disposable income is higher for luxury spending.

To provide data for the IMPLAN analysis, the analysts developed a “feeder” economic model that specifically addresses the variables. This model not only provides the data used in the IMPLAN analysis, but allows for a consideration of the impacts at the consumer level.

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<sup>24</sup> For example, assume Company A does not receive a new order for \$1,000 worth of its products, and the raw materials going into those products cost it \$700. Company A will not have to purchase the \$700 in raw materials to make those goods from another company (Company B). That \$700 becomes lost business for Company B, and it will have to reduce its purchases by some amount from its supplier (Company C) because it does not have to fill the order from Company A. Then, Company C will not have to purchase materials from its supplier (Company D) because it does not have to fill the order from Company B—and this cycle could continue.

Furthermore, Companies A, B, C, etc. may have to employ fewer people (or reduce the hours of employment) because they do not have orders to fill, and that results in less wages for existing employees. These employees will now have less money to spend for their personal use, and their reductions in purchases create lost orders for a variety of businesses within the area.

## FINDINGS OF THE STUDY

The findings of the analyses are presented in four sections. The first focuses on the direct costs that were used as input to IMPLAN. This provides the basis for computing the potential impact to California's economy and consumers, and to small businesses. The second, third, and fourth sections provide the results of the analyses based on impacts expected at the minimum level, impacts expected on consumers, and impacts expected on small businesses. These are based on different scenarios for the dollar costs of implementing AB 32. Since there seems to be considerable uncertainty among all parties involved in the implementation and review of AB 32, it was deemed appropriate to provide three scenarios.

### ***Costs of AB 32 Used in the Computations***

As previously indicated, there is some uncertainty as to what the actual costs of AB 32 will be. Even the ARB in its Scoping Plan indicated that it was using "...estimated costs and savings ... as model inputs for individual measures."<sup>25</sup> Furthermore, it indicated that "The level of detail on the costs and savings for the different measures included in the Scoping Plan vary widely. Because some of the measures are in the later stages of regulatory development, their costs and savings estimates were readily available. For other measures, the costs and savings were specifically estimated for the Scoping Plan. Many of these estimates are preliminary, and are likely to change during the regulatory process."<sup>26</sup>

Given the extended period and complexity of this Act, some degree of estimation is to be expected. Accordingly, it was deemed appropriate to use three approaches for estimating the economic impact of AB 32 on California's economy. One focuses on the minimum impact using the costs that were identified by ARB, another based on the anticipated costs to California consumers and/or businesses, and the third based on the anticipated costs to California small businesses.

### **Scenario One: Minimum Impact**

According to the ARB, the annualized cost of implementing AB 32 is \$24.878 billion.<sup>27</sup> As previously indicated, various analysts believe that there are considerably more costs associated with AB 32 that either were deliberately not taken into account in the ARB analysis or are "hidden costs" that were not acknowledged by ARB. The economic analysis completed by ARB fails to address several key economic issues and variables or the uncertainty surrounding their costs. Examples include:

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<sup>25</sup> ARB, "Climate Change Scoping Plan," December 2008, p. 73.

<sup>26</sup> ARB, "Climate Change Scoping Plan Appendices, Volume II," December 2008, p. G-I-1.

<sup>27</sup> ARB, "Climate Change Scoping Plan Appendices, Volume II," December 2008, p. G-I-8.

- Costs or disruptions to prices of crops arising due to changes in land use.
- Costs of reporting, monitoring, and enforcing compliance.
- Future availability of alternative fuels or any major fluctuations or disruptions in the demand supply equation and resulting prices.
- Availability of vehicles utilizing alternative fuels, and costs associated with technology advancements needed to make the vehicles commercially affordable and reasonably priced.
- The cost of financing of the new production facilities, or of the required investments for both production and distribution.
- Volatility in forecasts of prices of crude, gasoline, and diesel.
- Research and development costs for lower carbon intensity alternative transportation fuels.

Initial estimates suggest that billions of dollars of costs will result from the implementation of AB 32. In addition to the costs suggested by ARB, others include infrastructure and capital investment costs upward of \$60 billion, \$5 billion for new home construction, \$36 billion for more fuel-efficient cars, and billions in higher food costs due to higher transportation costs and change in land use. In summary, the implementation costs of AB 32 could easily exceed \$100 billion upfront.

Given the uncertainty of costs and greater uncertainty surrounding the suggested benefits or savings that may never be realized, the \$24.878 billion cost was used for computational purposes as the minimum cost scenario. As indicated by the LAO, the scoping plan “includes an inconsistent and incomplete evaluation of the costs and savings associated with its recommendations.”<sup>28</sup> Therefore, it is likely that this cost is the minimum that will be incurred by businesses and consumers. As previously indicated, the savings identified by ARB are considered too speculative to consider at this time, in part because the outcomes are uncertain and the savings require major investments by businesses and/or consumers that might not be possible.

## **Scenario Two: Expected Impact to Consumers**

The expected economic costs of implementing AB 32 are based on the costs that are projected to be incurred by California consumers. This is predicated on the assumption that the costs to businesses will be shifted through the delivery chain to their customers. Ultimately, therefore, they will reside with consumers. Even if these costs are not or cannot be passed down the delivery chain, they will be incurred and absorbed by businesses. In essence, they will be costs to customers or lost profits to businesses, which will impede their abilities to survive and grow. Given that businesses may not be able to

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<sup>28</sup>Letter to the Honorable Roger Niello dated December 12, 2008 from Mr. Mac Taylor, Legislative Analyst, p. 12.

pass down all the increased costs to final consumers, estimates of costs to consumers are likely conservatively stated.

Initially, Census Bureau statistics for consumer spending were used as the basis of how monies are allocated by households. These 2006 statistics were updated based on the Consumer Price Index (i.e., CPI-U) to arrive at figures for 2008.

According to various sources, the costs of AB 32 to consumers will be at least for electricity, gas and fuel, housing, food and other products.<sup>29</sup> As a result, this analysis assumed that costs to businesses and ultimately to consumers would increase in five areas:

- **Housing costs:** This includes the increased costs of new housing and possible retrofitting of existing homes in an attempt to adjust to higher costs of utilities (see below). It has been estimated by the AB 32 Implementation Group that AB 32 would add approximately \$50,000 to the cost of a new home. Because the median new home price in 2008 was \$335,990, this represents an increase of 14.9% in the cost of housing.<sup>30</sup> Applying this percentage to what consumers spend for their dwellings excluding mortgage/rent results in a cost increase of \$2,048.
- **Transportation costs:** Higher costs of fuel are likely to occur because consumers will have to purchase new cars, which provide better gas mileage, have their cars retrofitted to obtain better gas mileage, or simply pay the higher costs of gasoline/diesel. In its Scoping Plan, ARB indicated that the savings in fuel costs for new car buyers is \$30 per month.<sup>31</sup> Since the average household has 2.1 vehicles, this cost for those who cannot afford to, or will not, purchase new vehicles is \$756.<sup>32</sup> It will, of course, be even higher for those that purchase new cars and the savings over time are still uncertain.
- **Natural gas:** It is generally agreed that natural gas prices will increase because of AB 32. According to the LAEDC, ARB estimates that the retail price of natural gas will be 7.8% higher.<sup>33</sup>
- **Electricity:** It is generally agreed that natural gas prices will increase because of AB 32. According to the LAEDC, ARB estimates that the retail price of electricity will be 11.1% higher.<sup>34</sup>

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<sup>29</sup> "AB 32's Economic Analysis: Tens of Billions in Hidden Costs," AB 32 Implementation Group.

<sup>30</sup> CBIA/Hanley Wood Market Intelligence New Home Sales and Pricing Report, 2008.

<sup>31</sup> ARB, "Climate Change Scoping Plan," December 2008, p. ES-10.

<sup>32</sup> Bureau of the Census, Table 665. Average Annual Expenditures of all Consumer Units by Region and Size of Unit: 2006

<sup>33</sup> The AB 32 Challenge: Reducing California's Greenhouse Gas Emissions," Los Angeles County Development Corporation, October 2008, p. 4.

<sup>34</sup> Ibid.

- Food costs: Higher costs of transportation, utilities, etc. undoubtedly will increase the costs of food products, whether it is for in-home use or dining outside the home. Given that the cost of food is highly dependent on transportation, utilities, etc., it was assumed that the rise would be approximately half of the increased costs of gasoline and automobile maintenance (i.e., 11.71% of the current costs).

It is highly likely that other costs will increase as well. However, the analysis was limited to these in order to be somewhat conservative.

Based on these five increases alone, the shift in spending will result in a higher cost to California households of \$3,857 per year. This is shown below:

<b>Number of housing units in California in 2008</b>	<b>13,530,719</b>		
	<b>2008</b>	<b>Increase</b>	<b>Total</b>
<b>Consumer Expenditure Category</b>			
Housing costs	\$13,761	\$2,048	\$15,809
Transportation (Gas and maintenance only)	\$3,448	\$756	\$4,204
Natural Gas	\$452	\$35	\$487
Electricity	\$1,113	\$124	\$1,236
Food (at home and away)	\$7,645	\$895	\$8,539
Total of above	\$26,418	<b>\$3,857</b>	\$30,276
All Other Consumer Expenditures	\$34,975		\$33,179
<b>Total</b>	<b>\$61,393</b>		<b>\$63,455</b>
Percent increase in total cost to housing units		<b>6.47%</b>	
Increased total cost to housing units		<b>\$52,194,231,336</b>	
% decrease in All Other costs to maintain current total costs		<b>11.63%</b>	

With 13,530,719 household units in California in 2008,<sup>35</sup> the total cost of just these five factors is nearly \$52.2 billion. This means that Californians are either going to incur higher costs of nearly 6.5% or reduce their spending in “other areas” by more than 11.6%.

It is realized, of course, that ARB expects that the increased costs will provide benefits at least comparable to the costs that are incurred. However, this is predicated on two very significant assumptions. One is that the new technology that ARB expects to materialize will deliver on the promises that ARB is making. Since this is unproven and undocumented, it is not considered viable now. Second, it assumes that businesses and/or consumers have the capacity to invest in the new technology even if it does arrive. Given economic conditions within the state and nationwide, and the difficulties that both businesses and consumers are experiencing, this assumption is far from certain.

<sup>35</sup> California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 1/1/2009.

Accordingly, the hoped-for savings that might accrue are too speculative to include as offsets to the costs. Therefore, the cost of \$52.2 billion was used as the expected cost of ARB in this scenario.

### **Scenario Three: Expected Economic Impact to Small Businesses**

Small Businesses are the lifeblood of the economy in California. There are approximately 718,220 small businesses that comprise 99.2% of all employer firms, provide 52.1% of the private sector employment, account for over 90% of new job creation, and contribute approximately 75% of the GSP.<sup>36</sup>

According to the data from Bureau of Economic Analysis, the receipts from goods and services in California in 2002 (the latest data available) totaled \$2.695 trillion. The share of small business receipts of this was \$1.145 trillion. The gross state product in California grew 37.76% from 2002 to 2009. Assuming that small business receipts grew at this same rate, when in reality they likely grew faster since the marginal contribution by small businesses to the GSP is higher than those of large businesses, the receipts for small businesses in 2009 is estimated to be \$1.578 trillion.

Most small businesses are sole proprietorships and financial data from research companies including BizStats show that on average small businesses earn a 10% net profit margin, with the balance 90% being absorbed by expenses and cost structure. From earlier discussion, there are five major areas of costs increases due to the implementation of AB 32 – transportation, housing, food, fuels, and utilities. While the cost increases for each of the five areas is likely to vary, and given estimates provided by several other research studies, it is reasonable to assume that small businesses will likely see at least an average 10% increase in its cost structure that has an exposure to these five costs.

A careful evaluation of the income statements of various industries using financial data from research companies such as American Fact Finder shows that the cost structure for all industries has an exposure to the five areas that ranges from 10% of their cost structure to 80% of their cost structure. Therefore, it is reasonable to assume that the average cost structure exposure for small businesses to the five areas is approximately 45%. A 45% exposure to increased transportation costs, housing costs, fuel costs, food costs, and utility costs that on average increase 10% due to the implementation of AB 32 results in an actual increase of costs to small businesses by 4.5% of its total costs, or \$63.895 billion in increased costs on sales of \$1.578 trillion.

Therefore, the cost of \$63.895 billion was used as the expected cost of ARB to small businesses in this scenario.

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<sup>36</sup> California Small Business Profile, Small Business Association Office of Advocacy.

## Findings from IMPLAN Analyses

The analyses of the impact of these costs to California businesses and/or consumers were made using the three scenarios identified above. The findings of the IMPLAN analyses are presented in Tables 1, 2, and 3.

### IMPLAN Results

The study separates the impact into the four categories of output, employment, labor income, and indirect business taxes. It further separates the impact in each category into the major industrial sectors such as manufacturing, wholesaling, retailing, real estate, professional services, administrative, education, health, arts/entertainment/recreation, accommodations/food services, other, farming, federal, and state/local.

A summary of the findings from IMPLAN are shown below.

<b>OUTPUT</b>	<b>Minimum Impact</b>	<b>Impact on Consumers</b>	<b>Impact on Small Business</b>
Manufacturing	\$5,334,638,471	\$11,137,494,041	\$13,634,286,623
Wholesaling	\$2,134,095,407	\$4,455,498,725	\$5,454,328,062
Retailing	\$3,790,316,458	\$7,913,306,180	\$9,687,303,351
Real Estate	\$5,336,789,678	\$11,141,985,268	\$13,639,784,451
Professional Services	\$37,627,986,489	\$78,558,551,540	\$96,169,734,108
Administrative	\$960,838,671	\$2,006,009,401	\$2,455,714,624
Education	\$412,296,811	\$860,780,630	\$1,053,749,581
Health	\$2,835,699,049	\$5,920,285,247	\$7,247,488,885
Arts, entertainment, recreation	\$1,677,393,481	\$3,502,010,529	\$4,287,087,676
Accommodations, food services	\$1,645,461,653	\$3,435,344,317	\$4,205,476,229
Other	\$5,298,198,984	\$11,061,416,988	\$13,541,154,399
Farming	\$194,802,922	\$406,703,551	\$497,877,953
Federal	\$1,271,387,759	\$2,654,364,239	\$3,249,417,046
State and local	\$2,944,389,523	\$6,147,206,028	\$7,525,280,528
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$71,464,295,356</b>	<b>\$149,200,956,684</b>	<b>\$182,648,683,516</b>

<b>EMPLOYMENT</b>	<b>Minimum Impact</b>	<b>Impact on Consumers</b>	<b>Impact on Small Business</b>
Manufacturing	12,203	25,477	31,191
Wholesaling	11,015	22,996	28,151
Retailing	44,707	93,338	114,262
Real Estate	32,205	67,236	82,309
Professional Services	179,953	375,702	459,927
Administrative	11,385	23,769	29,098
Education	6,517	13,607	16,657
Health	24,938	52,065	63,737
Arts, entertainment, recreation	10,350	21,608	26,452
Accommodations, food services	25,706	53,667	65,698
Other	23,105	48,238	59,052
Farming	1,436	2,998	3,671

<b>EMPLOYMENT</b>	<b>Minimum Impact</b>	<b>Impact on Consumers</b>	<b>Impact on Small Business</b>
Federal	10,910	22,778	27,884
State and local	37,051	77,353	94,695
Foreign trade	0	0	0
Total	431,481	900,831	1,102,782

<b>LABOR INCOME</b>	<b>Minimum Impact</b>	<b>Impact on Consumers</b>	<b>Impact on Small Business</b>
Manufacturing	\$1,125,004,890	\$2,348,750,597	\$2,875,291,198
Wholesaling	\$823,151,654	\$1,718,550,681	\$2,103,813,626
Retailing	\$1,589,547,021	\$3,318,607,387	\$4,062,569,546
Real Estate	\$1,599,060,250	\$3,338,468,841	\$4,086,883,308
Professional Services	\$17,027,757,859	\$35,550,028,089	\$43,519,600,793
Administrative	\$469,168,650	\$979,515,850	\$1,199,102,770
Education	\$220,728,954	\$460,831,139	\$564,139,799
Health	\$1,608,668,620	\$3,358,528,889	\$4,111,440,549
Arts, entertainment, recreation	\$570,246,414	\$1,190,542,932	\$1,457,437,654
Accommodations, food services	\$593,914,730	\$1,239,956,969	\$1,517,929,206
Other	\$1,029,070,079	\$2,148,460,865	\$2,630,100,725
Farming	\$39,584,019	\$82,642,301	\$101,168,965
Federal	\$951,823,347	\$1,987,187,504	\$2,432,673,297
State and local	\$2,399,067,694	\$5,008,699,881	\$6,131,545,326
Foreign trade	\$0	\$0	\$0
Total	\$30,046,794,181	\$62,730,771,925	\$76,793,696,762

<b>INDIRECT BUSINESS TAXES</b>	<b>Minimum Impact</b>	<b>Impact on Consumers</b>	<b>Impact on Small Business</b>
Manufacturing	\$106,980,551	\$223,350,735	\$273,421,290
Wholesaling	\$302,837,752	\$632,255,364	\$773,993,696
Retailing	\$491,785,332	\$1,026,734,301	\$1,256,906,579
Real Estate	\$288,803,505	\$602,955,053	\$738,124,928
Professional Services	\$511,408,391	\$1,067,702,682	\$1,307,059,245
Administrative	\$12,680,553	\$26,474,069	\$32,408,999
Education	\$3,418,274	\$7,136,570	\$8,736,438
Health	\$22,780,992	\$47,561,454	\$58,223,734
Arts, entertainment, recreation	\$56,596,389	\$118,160,202	\$144,649,234
Accommodations, food services	\$100,477,535	\$209,773,911	\$256,800,811
Other	\$358,168,981	\$747,774,185	\$915,409,442
Farming	\$3,867,543	\$8,074,531	\$9,884,673
Federal	\$0	\$0	\$0
State and local	\$0	\$0	\$0
Foreign trade	\$0	\$0	\$0
Total	\$2,259,805,798	\$4,717,953,057	\$5,775,619,069

The direct AB 32 cost of \$24.878 billion results in a total loss of output of more than \$71.464 billion annually for the State of California after including indirect and induced costs. The direct cost of \$52.194 billion cost to consumers results in total lost output of more than \$149.2 billion annually. The direct cost of \$63.895 million to small businesses

results in a total loss of output of nearly \$182.649 billion annually. The distribution of the output loss is the highest for the professional services sector, manufacturing, arts, entertainment, and recreation sectors.

In terms of employment, this output loss is equivalent to the loss of nearly 431,500 jobs in the state due to minimum ARB cost, more than 900,800 jobs loss due to costs to consumers, and more than 1.1 million jobs loss due to costs to small businesses. A loss of 1.1 million jobs represents over 3% of the total population of California.

In terms of labor income, the total loss to the state from the minimum ARB cost is more than \$30.0 billion, from costs to consumers is more than \$63.7 billion, and from costs to small businesses is nearly \$76.8 billion.

Finally, the indirect business taxes that would have been generated due to the output lost arising from the ARB cost is nearly \$2.3 billion, from the costs o consumers is more than \$4.7 billion, and from costs to small businesses is nearly \$5.8 billion.

The total AB 32 cost of \$182.649 billion in lost output is one and a half times the total budget for the state of California. Further, given the total gross state output of \$1.8 trillion for California in 2008, the total lost output from AB 32 costs to small businesses is almost 10%.

Most importantly, it helps to understand what these costs mean to the small business in California. The total cost of AB 32 is \$49,691 per small business in California, indirect business taxes not generated or lost were \$1,571 per small business, labor income lost was \$20,892 per small business, and finally roughly one third of a job (0.30) lost per small business.

## Impact on Consumers

The increased costs to consumers due to AB 32 means either that they must spend more if they have the funds available or reduce their expenses in other areas. When considering where consumers can make more discretionary reductions in spending, they must reduce expenses by nearly 26.2% across the discretionary categories. This is shown below:

Discretionary Expenditure Category	2008	Reduced
Household operations	\$1,196	\$883
Housekeeping supplies	\$738	\$545
Household furnishings and equipment	\$2,418	\$1,785
Apparel and services	\$2,271	\$1,676
Health care	\$3,047	\$2,249
Entertainment	\$3,172	\$2,342
Personal care products and services	\$727	\$537
Reading	\$154	\$114
Education	\$1,012	\$747
Total	\$14,735	\$10,877

Discretionary Expenditure Category	2008	Reduced
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<i>Reduction per Expense Category</i>	26.18%	
<i>Increased cost to absorb due to AB 32</i>	\$3,857	

## Potential Impact on State Agencies

To put into perspective the possible consequences of lost indirect tax dollars, how the lost General Fund revenues could be allocated among various state agencies was computed. Presented in Table 4 are only illustrations of the magnitude of the potential losses. With the minimum impact, these sample agencies would each have to reduce their General Fund budgets by nearly 31.7% to offset the lost tax dollars. If the impact on consumers resulted in lost business taxes, each of these agencies would have to reduce their General Fund budgets by more than 66.1% to offset the lost tax dollars. And, if the impact on small businesses resulted in lost business taxes, each of these agencies would have to reduce their General Fund budgets by nearly 81.0% to offset the lost tax dollars.

## CONCLUSIONS

The study analyzes the potential economic impacts of AB 32 on the state of California, its consumers, and the small businesses. Using three different approaches to measuring the economic costs, the study finds that the potential loss of output, jobs, indirect business taxes and labor income is substantial and significant.

On average, the annual costs resulting from the implementation of AB 32 to small businesses are likely to result in loss of more than \$182.6 billion in gross state output, the equivalent of more than 1.1 million jobs, nearly \$76.8 billion in labor income, and nearly \$5.8 billion in indirect business taxes. These are shown below:

Impact	Minimum Impact	Impact on Consumers	Impact on Small Business
Total Output	\$71,464,295,356	\$149,200,956,684	\$182,648,683,516
Total Employment	431,481	900,831	1,102,782
Total Labor Income	\$30,046,794,181	\$62,730,771,925	\$76,793,696,762
Total Indirect Business Taxes	\$2,259,805,798	\$4,717,953,057	\$5,775,619,069

The total AB 32 cost of \$182.649 billion in lost output is one and a half times the total budget for the state of California. Given that the total gross state output of \$1.8 trillion for California in 2008, the total lost output from AB 32 costs to small businesses is almost 10%. Accordingly, the total cost of AB 32 is \$49,691 per small business in California.

These estimated losses represent average losses, with some industries likely to see losses smaller than this and other experiencing much higher levels of losses. Given the uncertainty surrounding the several variables that impact the implementation of AB 32, the upper limit to the losses is unknown. Given conservative estimates including those provided by ARB, the losses resulting from the \$24.878 billion in ARB specified costs appear to be the minimum Californians are likely to experience.

It is important to recognize that this analysis focuses on the costs of AB 32 and not whatever savings there may be. The reasons why savings are not used as offsets to costs at this time are:

- There appears to be general agreement that the savings, if any, are unknown. This was recognized in ARB’s Scoping Plan, indicated by the LAO’s comments, cited by the ARB’s peer reviewers, and others.
- Some of ARB’s expected savings is derived from yet-to-be developed technologies. Whether these will provide the results anticipated by ARB, and whether they will be developed within California are purely speculative.
- As the LAO indicated, the ARB relies heavily on the Pavley regulations, which account for 70% of the benefits to be generated. Accordingly, even relatively

small variations downward in this benefit will significantly alter the net effect. If the benefits were more broadly distributed among factors, small changes in some could more readily be offset by others.

- Some of the savings that are expected to accrue (e.g., solar water heating), require significant investments on the part of businesses and consumers. At this time, there is no indication that such costs could be absorbed by those entities so that the savings would be generated. Additionally, the payback period for the savings is highly speculative.
- This study did not consider all of the costs associated with AB 32., such as the costs or disruptions to prices of crops arising due to changes in land use, costs of reporting, monitoring, and enforcing compliance, future availability of alternative fuels or any major fluctuations or disruptions in the demand supply equation and resulting prices, availability of vehicles utilizing alternative fuels, and costs associated with technology advancements to make the vehicles commercially affordable and reasonably priced, cost of financing of the new production facilities, or of the required investments for both production and distribution, volatility in forecasts of prices of crude, gasoline, and diesel, and research and development costs for lower carbon intensity alternative transportation fuels. Some or all of these additional costs could well offset any savings that might be generated in the future.
- If there are savings, it is unknown whether they will remain inside the state or migrate to other states or countries.

If savings can be conclusively documented, these could serve as offsets to some of the costs included in the study. At this time, however, and given that ARB indicates that the savings are estimates, it was deemed imprudent to speculate on what those would realistically be and how they might impact California's economy, its residents, and small business.

Small businesses drive the economic engine in California. They comprise 99.2% of all employer firms and 99.7% of all firms. They account for over half the employment, over 90% of net new job creation, and 75% of the creation of gross state output. Costs borne by small businesses due to the implementation of AB 32 must be carefully evaluated for a full understanding of their significance and impact on the state and residents.

Currently California is facing one of the highest unemployment rates, worst real estate markets with rising foreclosures, and people looking to move out of the state to find a more affordable living. Businesses, similarly are faced with some of the highest taxes, utility costs, and unfriendly regulatory environment that will likely result in more leakages of businesses elsewhere.

Each of the 50 states in the United States superimposes an array of regulations over and above those that exist at the federal level. An adverse impact on small business is bound

to adversely impact the production of goods and services, the risk tolerance of the American enterprise, the productivity of labor, the quality of life, and the overall well being of the State and its citizens.

Legislative and regulatory mandates may result in practices, enact policies that raise the costs of operating for small business or provide a deterrent to small business growth, and hence provide disincentives for economic risk taking and entrepreneurship. This appears to be the case here. While the ultimate goals of AB 32 are not in question, the findings of this study suggest that the costs associated with the implementation of this Act will have a significant adverse impact on California's economy, consumers, and small businesses.

## TABLE ONE: PROJECTED MINIMUM ECONOMIC IMPACT

### *Output*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$892,714,900	\$4,441,923,571	\$5,334,638,471
Wholesaling	\$223,952,220	\$1,910,143,187	\$2,134,095,407
Retailing	\$302,117,966	\$3,488,198,492	\$3,790,316,458
Real Estate	\$844,706,200	\$4,492,083,478	\$5,336,789,678
Professional Services	\$6,032,326,944	\$6,595,660,057	\$37,627,986,489
Administrative	\$431,864,738	\$528,973,933	\$960,838,671
Education	\$2,547,963	\$409,748,848	\$412,296,811
Health	\$309,792	\$2,835,389,257	\$2,835,699,049
Arts, entertainment, recreation	\$1,050,140,832	\$627,252,649	\$1,677,393,481
Accommodations, food services	\$302,248,327	\$1,343,213,326	\$1,645,461,653
Other	\$868,065,241	\$4,430,133,743	\$5,298,198,984
Farming	\$8,167,131	\$186,635,791	\$194,802,922
Federal	\$64,716,619	\$1,206,671,140	\$1,271,387,759
State and local	\$77,805,035	\$2,866,584,488	\$2,944,389,523
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$11,101,683,908</b>	<b>\$35,362,611,960</b>	<b>\$71,464,295,356</b>

\*Includes \$24,878,000,000 in Direct.

### *Employment*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	2,646	9,557	12,203
Wholesaling	1,159	9,856	11,015
Retailing	2,867	41,840	44,707
Real Estate	5,611	26,594	32,205
Professional Services	31,519	38,195	179,953
Administrative	4,626	6,759	11,385
Education	41	6,476	6,517
Health	2	24,936	24,938
Arts, entertainment, recreation	4,636	5,714	10,350
Accommodations, food services	4,650	21,056	25,706
Other	6,377	16,728	23,105
Farming	66	1,370	1,436
Federal	580	10,330	10,910
State and local	380	36,671	37,051
Foreign trade	0	0	0
<b>Total</b>	<b>65,160</b>	<b>256,082</b>	<b>431,481</b>

\*Includes 110,239 in Direct.

## ***Labor Income***

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$225,290,682	\$899,714,208	\$1,125,004,890
Wholesaling	\$86,601,619	\$736,550,035	\$823,151,654
Retailing	\$119,972,262	\$1,469,574,759	\$1,589,547,021
Real Estate	\$163,890,456	\$1,435,169,794	\$1,599,060,250
Professional Services	\$2,584,131,656	\$2,834,745,051	\$17,027,757,859
Administrative	\$204,586,409	\$264,582,241	\$469,168,650
Education	\$1,188,554	\$219,540,400	\$220,728,954
Health	\$121,702	\$1,608,546,918	\$1,608,668,620
Arts, entertainment, recreation	\$341,820,659	\$228,425,755	\$570,246,414
Accommodations, food services	\$109,029,867	\$484,884,863	\$593,914,730
Other	\$357,825,767	\$671,244,312	\$1,029,070,079
Farming	\$1,589,313	\$37,994,706	\$39,584,019
Federal	\$49,804,215	\$902,019,132	\$951,823,347
State and local	\$36,457,834	\$2,362,609,860	\$2,399,067,694
Foreign trade	\$0	\$0	\$0
Total	\$4,282,310,995	\$14,155,602,034	\$30,046,794,181

\*Includes \$11,608,881,152 in Direct.

## ***Indirect Business Taxes***

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$34,227,584	\$72,752,967	\$106,980,551
Wholesaling	\$31,934,084	\$270,903,668	\$302,837,752
Retailing	\$16,369,880	\$475,415,452	\$491,785,332
Real Estate	\$92,650,246	\$196,153,259	\$288,803,505
Professional Services	\$117,339,320	\$156,645,823	\$511,408,391
Administrative	\$5,094,005	\$7,586,548	\$12,680,553
Education	\$16,340	\$3,401,934	\$3,418,274
Health	\$2,015	\$22,778,977	\$22,780,992
Arts, entertainment, recreation	\$22,708,934	\$33,887,455	\$56,596,389
Accommodations, food services	\$19,093,841	\$81,383,694	\$100,477,535
Other	\$20,258,899	\$337,910,082	\$358,168,981
Farming	\$183,928	\$3,683,615	\$3,867,543
Federal	\$0	\$0	\$0
State and local	\$0	\$0	\$0
Foreign trade	\$0	\$0	\$0
Total	\$359,879,076	\$1,662,503,474	\$2,259,805,798

\*Includes \$237,423,248 in Direct.

## TABLE TWO: PROJECTED EXPECTED ECONOMIC IMPACT TO CONSUMERS

### *Output*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$1,863,782,730	\$9,273,711,311	\$11,137,494,041
Wholesaling	\$467,560,537	\$3,987,938,188	\$4,455,498,725
Retailing	\$630,752,612	\$7,282,553,568	\$7,913,306,180
Real Estate	\$1,763,551,576	\$9,378,433,692	\$11,141,985,268
Professional Services	\$12,594,105,096	\$13,770,216,172	\$78,558,551,540
Administrative	\$901,633,877	\$1,104,375,524	\$2,006,009,401
Education	\$5,319,558	\$855,461,072	\$860,780,630
Health	\$646,773	\$5,919,638,474	\$5,920,285,247
Arts, entertainment, recreation	\$2,192,451,714	\$1,309,558,815	\$3,502,010,529
Accommodations, food services	\$631,024,773	\$2,804,319,544	\$3,435,344,317
Other	\$1,812,319,910	\$9,249,097,078	\$11,061,416,988
Farming	\$17,051,085	\$389,652,466	\$406,703,551
Federal	\$135,113,364	\$2,519,250,875	\$2,654,364,239
State and local	\$162,438,972	\$5,984,767,056	\$6,147,206,028
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$23,177,752,577</b>	<b>\$73,828,973,835</b>	<b>\$149,200,956,684</b>

\*Includes \$ \$52,194,230,272 in Direct.

### *Employment*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	5,525	19,952	25,477
Wholesaling	2,420	20,576	22,996
Retailing	5,986	87,352	93,338
Real Estate	11,714	55,521	67,236
Professional Services	65,805	79,743	375,702
Administrative	9,659	14,110	23,769
Education	86	13,521	13,607
Health	4	52,061	52,065
Arts, entertainment, recreation	9,678	11,930	21,608
Accommodations, food services	9,707	43,960	53,667
Other	13,313	34,925	48,238
Farming	138	2,861	2,998
Federal	1,211	21,567	22,778
State and local	793	76,561	77,353
Foreign trade	0	0	0
<b>Total</b>	<b>136,038</b>	<b>534,639</b>	<b>900,831</b>

\*Includes 230,154 in Direct.

## **Labor Income**

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$470,354,971	\$1,878,395,626	\$2,348,750,597
Wholesaling	\$180,804,177	\$1,537,746,504	\$1,718,550,681
Retailing	\$250,474,400	\$3,068,132,987	\$3,318,607,387
Real Estate	\$342,165,439	\$2,996,303,402	\$3,338,468,841
Professional Services	\$5,395,069,809	\$5,918,293,448	\$35,550,028,089
Administrative	\$427,129,181	\$552,386,669	\$979,515,850
Education	\$2,481,427	\$458,349,712	\$460,831,139
Health	\$254,085	\$3,358,274,804	\$3,358,528,889
Arts, entertainment, recreation	\$713,642,663	\$476,900,269	\$1,190,542,932
Accommodations, food services	\$227,629,197	\$1,012,327,772	\$1,239,956,969
Other	\$747,057,631	\$1,401,403,234	\$2,148,460,865
Farming	\$3,318,121	\$79,324,180	\$82,642,301
Federal	\$103,979,712	\$1,883,207,792	\$1,987,187,504
State and local	\$76,115,553	\$4,932,584,328	\$5,008,699,881
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$8,940,476,366</b>	<b>\$29,553,630,727</b>	<b>\$62,730,771,925</b>

\*Includes \$24,236,664,832 in Direct.

## **Indirect Business Taxes**

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$71,459,325	\$151,891,410	\$223,350,735
Wholesaling	\$66,670,995	\$565,584,369	\$632,255,364
Retailing	\$34,176,537	\$992,557,764	\$1,026,734,301
Real Estate	\$193,432,335	\$409,522,718	\$602,955,053
Professional Services	\$244,977,396	\$327,040,326	\$1,067,702,682
Administrative	\$10,635,106	\$15,838,963	\$26,474,069
Education	\$34,115	\$7,102,455	\$7,136,570
Health	\$4,207	\$47,557,247	\$47,561,454
Arts, entertainment, recreation	\$47,411,013	\$70,749,189	\$118,160,202
Accommodations, food services	\$39,863,536	\$169,910,375	\$209,773,911
Other	\$42,295,905	\$705,478,280	\$747,774,185
Farming	\$383,994	\$7,690,537	\$8,074,531
Federal	\$0	\$0	\$0
State and local	\$0	\$0	\$0
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$751,344,464</b>	<b>\$3,470,923,633</b>	<b>\$4,717,953,057</b>

\*Includes \$495,684,960 in Direct.

## TABLE THREE: EXPECTED ECONOMIC IMPACT TO SMALL BUSINESSES

### *Output*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$2,281,603,666	\$11,352,682,957	\$13,634,286,623
Wholesaling	\$572,377,814	\$4,881,950,248	\$5,454,328,062
Retailing	\$772,154,099	\$8,915,149,252	\$9,687,303,351
Real Estate	\$2,158,902,875	\$11,480,881,576	\$13,639,784,451
Professional Services	\$15,417,443,434	\$16,857,209,714	\$96,169,734,108
Administrative	\$1,103,761,304	\$1,351,953,320	\$2,455,714,624
Education	\$6,512,093	\$1,047,237,488	\$1,053,749,581
Health	\$791,765	\$7,246,697,120	\$7,247,488,885
Arts, entertainment, recreation	\$2,683,953,313	\$1,603,134,363	\$4,287,087,676
Accommodations, food services	\$772,487,237	\$3,432,988,992	\$4,205,476,229
Other	\$2,218,603,982	\$11,322,550,417	\$13,541,154,399
Farming	\$20,873,578	\$477,004,375	\$497,877,953
Federal	\$165,402,941	\$3,084,014,105	\$3,249,417,046
State and local	\$198,854,368	\$7,326,426,160	\$7,525,280,528
Foreign trade	\$0	\$0	\$0
<b>Total</b>	<b>\$28,373,722,469</b>	<b>\$90,379,880,087</b>	<b>\$182,648,683,516</b>

\*Includes \$63,895,080,960 in Direct.

### *Employment*

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	6,765	24,426	31,191
Wholesaling	2,963	25,189	28,151
Retailing	7,328	106,934	114,262
Real Estate	14,340	67,968	82,309
Professional Services	80,557	97,620	459,927
Administrative	11,824	17,274	29,098
Education	105	16,553	16,657
Health	5	63,732	63,737
Arts, entertainment, recreation	11,848	14,604	26,452
Accommodations, food services	11,883	53,814	65,698
Other	16,298	42,755	59,052
Farming	169	3,502	3,671
Federal	1,483	26,402	27,884
State and local	970	93,724	94,695
Foreign trade	0	0	0
<b>Total</b>	<b>166,536</b>	<b>654,496</b>	<b>1,102,782</b>

\*Includes 281,750 in Direct.

## **Labor Income**

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$575,798,682	\$2,299,492,516	\$2,875,291,198
Wholesaling	\$221,336,687	\$1,882,476,939	\$2,103,813,626
Retailing	\$306,625,498	\$3,755,944,048	\$4,062,569,546
Real Estate	\$418,871,734	\$3,668,011,574	\$4,086,883,308
Professional Services	\$6,604,533,175	\$7,245,050,594	\$43,519,600,793
Administrative	\$522,882,606	\$676,220,164	\$1,199,102,770
Education	\$3,037,711	\$561,102,088	\$564,139,799
Health	\$311,045	\$4,111,129,504	\$4,111,440,549
Arts, entertainment, recreation	\$873,626,370	\$583,811,284	\$1,457,437,654
Accommodations, food services	\$278,658,874	\$1,239,270,332	\$1,517,929,206
Other	\$914,532,278	\$1,715,568,447	\$2,630,100,725
Farming	\$4,061,971	\$97,106,994	\$101,168,965
Federal	\$127,289,777	\$2,305,383,520	\$2,432,673,297
State and local	\$93,179,054	\$6,038,366,272	\$6,131,545,326
Foreign trade	\$0	\$0	\$0
Total	\$10,944,745,462	\$36,178,934,276	\$76,793,696,762

\*Includes \$29,670,017,024 in Direct.

## **Indirect Business Taxes**

<b>Industry</b>	<b>Indirect</b>	<b>Induced</b>	<b>Total*</b>
Manufacturing	\$87,478,998	\$185,942,292	\$273,421,290
Wholesaling	\$81,617,241	\$692,376,455	\$773,993,696
Retailing	\$41,838,197	\$1,215,068,382	\$1,256,906,579
Real Estate	\$236,795,814	\$501,329,114	\$738,124,928
Professional Services	\$299,896,229	\$400,355,912	\$1,307,059,245
Administrative	\$13,019,274	\$19,389,725	\$32,408,999
Education	\$41,762	\$8,694,676	\$8,736,438
Health	\$5,151	\$58,218,583	\$58,223,734
Arts, entertainment, recreation	\$58,039,566	\$86,609,668	\$144,649,234
Accommodations, food services	\$48,800,099	\$208,000,712	\$256,800,811
Other	\$51,777,757	\$863,631,685	\$915,409,442
Farming	\$470,078	\$9,414,595	\$9,884,673
Federal	\$0	\$0	\$0
State and local	\$0	\$0	\$0
Foreign trade	\$0	\$0	\$0
Total	\$919,780,166	\$4,249,031,799	\$5,775,619,069

\*Includes \$606,807,104 in Direct.

## TABLE FOUR: HOW INCREMENTAL TAX DOLLARS COULD IMPACT STATE AGENCY BUDGETS

	Actual 2007-08 General Fund \$s	Reduce Budget to below due to Minimum Impact	Reduce Budget to below due to Impact on Consumers	Reduce Budget to below due to Impact on Small Bus.
<b>Indirect Business Taxes Lost</b>		\$2,259,805,798	\$4,717,953,057	\$5,775,619,069
Arts Council	\$1,115,000	\$761,776	\$377,549	\$212,228
California Conservations Corps	\$37,383,000	\$25,540,319	\$12,658,215	\$7,115,437
Children's Med. Services & Primary Rural Health	\$179,444,000	\$122,597,357	\$60,761,327	\$34,155,164
Coastal Commission	\$11,210,000	\$7,658,748	\$3,795,805	\$2,133,698
Department of Aging	\$49,071,000	\$33,525,640	\$16,615,875	\$9,340,117
Department of Child Support Services	\$400,168,000	\$273,397,490	\$135,500,428	\$76,167,515
Department of Conservation	\$11,583,000	\$7,913,584	\$3,922,106	\$2,204,695
Department of Developmental Services	\$2,788,254,000	\$1,904,954,033	\$944,127,489	\$530,713,047
Department of Fish & Game	\$85,135,000	\$58,164,809	\$28,827,465	\$16,204,498
Department of Food & Agriculture	\$98,014,000	\$66,963,829	\$33,188,408	\$18,655,872
Department of Forestry & Fire Protection	\$1,025,972,000	\$700,951,025	\$347,403,202	\$195,282,326
Department of General Services	\$10,179,000	\$6,954,362	\$3,446,700	\$1,937,459
Depart. of Housing & Community Development	\$9,998,000	\$6,830,701	\$3,385,411	\$1,903,008
Department of Parks & Recreation	\$141,940,000	\$96,974,370	\$48,062,141	\$27,016,696
Department of Public Health	\$349,937,000	\$239,079,330	\$118,491,766	\$66,606,604
Department of Rehabilitation	\$56,436,000	\$38,557,458	\$19,109,729	\$10,741,963
Department of Transportation	\$1,350,971,000	\$922,992,545	\$457,450,741	\$257,142,260
Department of Veterans Affairs	\$178,398,000	\$121,882,723	\$60,407,142	\$33,956,069
Department of Water Resources	\$161,324,000	\$110,217,650	\$54,625,735	\$30,706,224
Emergency Medical Services Authority	\$11,516,000	\$7,867,809	\$3,899,420	\$2,191,942
Employment Development Department	\$27,864,000	\$19,036,874	\$9,434,997	\$5,303,602
Environmental Protection	\$83,170,000	\$56,822,308	\$28,162,098	\$15,830,482
Science Center	\$17,460,000	\$11,928,790	\$5,912,111	\$3,323,316
State Library	\$46,836,000	\$31,998,673	\$15,859,084	\$8,914,710
<b>Total of Above</b>	<b>\$7,133,378,000</b>	<b>31.68%</b>	<b>66.14%</b>	<b>80.97%</b>

Source: California Department of Finance: Budget Summary, 2009-10.

## **APPENDIX A: DESCRIPTION OF PROJECT TEAM**

### **Sanjay B. Varshney**

Dr. Sanjay Varshney is the Dean of the College of Business Administration at California State University, Sacramento. He has also worked at the University of San Francisco, and previously served as the Dean of the Business School at State University of New York in Utica. He earned an undergraduate degree in Accounting and Financial Management from Bombay University, a Master's degree in Economics from the University of Cincinnati and a doctorate in Finance from Louisiana State University in Baton Rouge. He also holds the Chartered Financial Analyst (CFA) designation. Additionally, Dr. Varshney is the Principal in Varshney & Associates, a certified woman-owned minority small business.

Sanjay's research interests include market microstructure, new securities issuance and corporate valuation, and his publications have been included in numerous academic and practitioner journals including Journal of Economics and Finance, Journal of Management Research, Studies in Economics and Finance, Journal of Real Estate Finance and Economics, Contemporary Finance Digest, Advances in Financial Economics, and the Journal of Applied Business Research. Additionally, Dr. Varshney's research includes the economic cost of regulations such as compliance with Sarbanes Oxley, Securities and Exchange Commission, and others associated with private and public capital markets for businesses.

Sanjay has also served as a financial consultant for leading Wall Street firms such as UBS Financial Services, Salomon Smith Barney, Fleet Boston, Montgomery Securities, Goldman Sachs, J.B. Oxford, Charles Schwab, and Barclays among others. He is Partner and Principal in an asset management company providing portfolio management for high net worth individuals, trusts, pension programs, and corporations. He is also Partner and Principal of Varshney & Associates that provides management consulting and financial services to a variety of clients including the healthcare industry.

Sanjay has a strong training and background in statistics, econometrics, and research methodology including but not limited to research sample design, time series, and cross-sectional. He has conducted numerous research studies for both private sector and public sector entities. Most recently, he was contracted by SMUD to independently evaluate, verify, and validate the methodology and assumptions used by consultant and staff studies to support the Yolo annexation. Dennis Tootelian and he also completed a detailed economic study measuring the impact of the annexation on the four-county Sacramento region.

Sanjay currently serves on the boards of Wells Fargo Bank, SACTO, SARTA, Sacramento Metro Chamber of Commerce, CFA Society of Sacramento, The Sacramento Entrepreneurship Academy, and Comstock's Business Magazine. He is also a member of

the Chartered Financial Analysts Society of Sacramento, the downtown Rotary, and is engaged in a variety of business program activities. Dean Varshney has been featured widely in the media and on television including the Sacramento Bee, Prosper magazine, Comstock Magazine, the Business Journal, Sacramento Magazine, ABC, NBC, CBS, and Fox News.

Dr. Varshney has a very strong background in finance and economics. He brings an expertise in how costs of regulations impact business survival and profitability. He is the Principal of Varshney and Associates.

### **Dennis H. Tootelian, Ph.D.**

Dr. Dennis H. Tootelian is the Director of the Center for Small Business and a Professor of Marketing in the College of Business at California State University, Sacramento. He received his Ph.D. in Marketing from Arizona State University, with minor fields in Accounting and Management. Dr. Tootelian also is the Principal in Tootelian & Associates.

The Center for Small Business provides technical management assistance to small firms and is one of the oldest and largest of its kind in the United States. It routinely serves about one hundred small companies each year. Dr. Tootelian has won numerous awards for his work with small business, including Advocate of the Year by the District Office of the United States Small Business Administration.

Dennis has published approximately one hundred articles dealing with all facets of business, and has co-authored six texts on marketing and small business management. His academic research has appeared as articles in such journals as the Journal of Marketing, Journal of Retailing, Journal of Business Research, Journal of Health Care Marketing, and Journal of Professional Services Marketing. Results of some of his applied research and writing have appeared in The Congressional Record, The Wall Street Journal, Forbes, The Kiplinger Report, USA Today, ABC National News website, and even The National Enquirer.

Dennis has worked in a consulting capacity with businesses that are Fortune 500 companies (e.g., McDonald's Corporation, Merck, Johnson & Johnson, 3M, Target Stores, Nestles U.S.A., McKesson Corporation), professional and trade associations (e.g., California Pharmacists Association, California Dental Association), and federal and state governmental agencies (e.g., Centers for Disease Control, California Environmental Protection Agency, California Department of Parks and Recreation, California Department of Insurance). He also has served on the Board of Directors for a variety of publicly traded companies and not-for-profit organizations.

He also has a strong background in consulting to state government and the private sector. At the state and federal government levels, Dennis has conducted survey research for the California Integrated Waste Management Board, Franchise Tax Board, California Department of Food and Agriculture, California Department of Pesticide Regulation,

California Public Employment Retirement System, California Conservation Corps, and the Centers for Disease Control. On the private level, he has conducted marketing research for such Fortune 500 companies as Merck, McDonald's, Nestle USA, and the McKesson Corporation. Accordingly, Dr. Tootelian is an expert in small business matters and marketing research. His experience in working with small businesses is a critical resource for understanding the costs and benefits of regulation on small organizations.