Low-Carbon Fuel Standard:
Helping California Break Its Addiction to Oil

California's families and businesses have suffered from approximately 30 gasoline price spikes since 2006, largely driven by volatility in world crude oil prices and unplanned refinery outages, together with seasonal changes in consumer demand.[1] The best solution to dealing with volatile California gasoline prices is to use less oil and encourage greater investments in cleaner, alternative fuels that help diversify our fuel supply. California's low-carbon fuel standard is one of the state's key measures developed to do just that. Together with new carbon pollution standards for cars and other oil-saving measures under California's clean energy law, the low-carbon fuel standard will help shrink consumers' overall fuel bills, reducing fuel costs by approximately $1,000 per household by 2022, an estimated total savings of $50 billion over the next decade.

WHAT IS THE LOW CARBON FUEL STANDARD AND HOW DOES IT WORK?

First adopted in 2007 as part of California's clean energy law, also known as AB 32, the low-carbon fuel standard program is a performance-based standard that sets pollution limits for transportation fuels sold in California. The program requires oil companies to reduce the carbon pollution from gasoline and diesel by 10 percent by 2020. Companies can utilize any number of cleaner fuel and technology solutions to meet the standard, including offering advanced biofuels, electricity, natural gas, hydrogen, or even cleaning up existing petroleum-based gasoline and diesel.

FUELING GROWTH IN OUR ECONOMY

In 2011, California consumers and businesses spent $70 billion on gasoline and diesel. More than $40 billion of that total left the state in the form of payments to oil companies and foreign oil producing countries. The low-carbon fuel standard will help the state reinvest this money in safe and cleaner fuel sources. A broad array of interests, including renewable fuel producers, electric utilities, natural gas providers, auto manufacturers, organized labor, health, and environmental groups support the low-carbon fuel standard.

California has the technologies to significantly reduce its dependence on oil and produce homegrown, clean fuels, but the state must ensure that transportation fuel providers are investing in putting those technologies in place and transitioning to these cleaner fuels.

In the same way that California took the lead in incubating and growing the silicon, computer, internet, and solar industries, the state can become a leader in expanding the clean fuels industry. Already, the low-carbon fuel standard is helping California become a clean-tech hub, attracting more than 50 percent of North America's investments, according to the Cleantech Group.[2] By creating new business opportunities and spurring innovation and investments in the clean fuels industry, numerous studies have shown that a clean fuels program can help grow the state's economy and raise the employment rate while reducing oil dependency.[3]

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PROTECTING OUR ECONOMY

Today, the transportation sector in California and nationally is almost entirely dependent on oil. In fact, 96 percent of the fuel used for cars and trucks is derived from oil. An extensive body of economic research has shown that past oil price volatility has caused negative impacts—reduced economic output and employment and increased inflation—that have contributed to lower gross domestic product (GDP) growth and recessions.[4] Researchers from the U.S. Department of Energy estimate that oil dependency cost our nation about $500 billion in 2011 alone, and approximately $2 trillion over the past five years due to reduced GDP growth, economic dislocation, and wealth transfer to oil producing countries.[5] Policies like the low-carbon fuel standard that phase in alternatives and reduce oil demand will yield important consumer and economic benefits.

Unfortunately, for every dollar spent by oil companies to develop new sources of crude oil, only a fraction of a penny is invested on producing alternative clean fuels.[6] In fact, California's transportation fuel supply—unlike nearly every other economic sector—is getting increasingly dirty due to investments in more expensive, harder-to-extract, dirtier crude oil sources like Canadian tar sands. The fuel standard fills a critical gap by increasing investments and supplies of cleaner, lower-carbon fuels.

Not surprisingly, oil companies want to weaken the low carbon fuel standard pollution targets rather than invest in cleaner fuels. With the top-five publically traded oil companies earning $137 billion in profits in 2011, it comes as no surprise that the industry would rather maintain the status quo than increase its investments in cleaner, alternative fuels.[7]

CLEANER, ALTERNATIVE FUEL PRODUCERS CAN GROW TO MEET THE DEMAND

Contrary to oil industry claims, many California and U.S. based companies are ready to produce clean fuels to meet the low-carbon fuel standard. By 2015, there will be between 73 million and 153 million gallons of biofuel capacity in California and between 1.6 billion and 2.6 billion gallons of capacity nationally. California alone is the corporate home for 24 of the nation's 74 advanced biofuel producers. In addition, eight advanced biodiesel producers already have facilities in the state.[8]

These California companies—and other clean fuels producers across the nation—will grow and benefit from programs like the low-carbon fuel standard. The clean fuel supply chain, which includes companies producing renewable feedstocks and enabling technologies and alternative fueling infrastructure, will benefit by expanding and creating more jobs. An analysis by Environmental Entrepreneurs (E2) predicts that between 18,000 and nearly 48,000 new jobs could be created in the advanced biofuels industry as state and federal clean fuel standards are implemented.[9]

The low-carbon fuel standard also incents utilities and natural gas transportation providers to increase the use of alternative fuels to support the growing plug-in electric vehicle market—with automakers producing more than 40 models over the next several years—for the transportation sector. This includes meeting the demand for alternatively fueled vehicles purchased by trucking and commercial fleets, transit agencies, and private companies such as Waste Management, United Parcel Service, AT&T, and Verizon—purchases largely driven by clean air policies and fuel cost savings.[10]

The governor, policymakers, and business leaders should continue support for continued low carbon fuel standard implementation and resist the oil industry's attempts to fight the standards. A consistent regulatory signal is critical for spurring investments and continuing growth and job creation in these clean fuel industries.

Endnotes

1 Calculated based on California Energy Commission data on estimated gasoline price breakdowns and margin details from 2006 through October 8, 2012. Gasoline price spikes were defined as periods where the average weekly price exceeds the prior two-week's average by more than 4 percent. In some instances where the price spike continues over a longer period (e.g., 2 months), more than one price spike may be considered if there are different causations (e.g., a crude oil price spike followed by unplanned refinery outages later on).

2 Whitney Bennett Michael, "Corporate Cleantech M&A Grew 153 Percent in 2011 Totaling $41.2 Billion," Cleantech Group, LLC, January 5, 2012, http://www.cleantech.com/2012/01/05/corporate-cleantech-ma-grew-1536-percent-in-2011-totaling-41-2-billion/.

3 Heidi Garrett-Peltier, "The Employment Impacts of a Low Carbon Fuel Standard for Minnesota," University of Massachusetts, Amherst, 2012, http://www.peri.umass.edu/fileadmin/pdf/published_study/MNcleanfuels_PERI_Sept14_2012.pdf; Northeast States for Coordinated Air Use Management (NESCAUM), "Economic Analysis of the Northeast/Mid-Atlantic (NE/MA) Clean Fuels Standard," September 2011, http://www.nescaum.org/topics/clean-fuels-standard; Jack Faucett Associates, Inc., "Economic Impact Analysis of the Low-Carbon Fuel Standard Rule for the State of Oregon, prepared for Oregon's DEQ, 2011, http://www.deq.state.or.us/aq/committees/docs/lcfs/appendixDeconimpact.pdf; Also see National LCFS Project that identified improvements in national economic output through a LCFS, 2012, http://nationallcfsproject.ucdavis.edu/.

4 For example, Raphael Sauter and Shimon Awerbuch, Ph.D., "Oil Price Volatility and Economic Activity: A Survey and Literature Review," IEA Research Reports, IEA, Paris, 2003; Donald W. Jones, Paul N. Leiby, and Inja K. Paik, "Oil Price Shocks and the Macroeconomy: What has Been Learned Since 1996," *The Energy Journal*, Vol. 25, No. 2 (2004), pp. 1-32; James D. Hamilton, "What is an Oil Shock?" (Working paper 7755, NBER, 2000); Gavin Davies, "How Big is the 2011 Oil Price Shock?" *Financial Times*, http://blogs.ft.com/gavyndavies/2011/02/24/how-big-is-the-2011-oil-price-shock/.

5 David L. Greene, Roderick Lee, and Janet L. Hopson, "OPEC and the Costs to the U.S. Economy of Oil Dependence: 1970-2010," (paper presented at "OPEC at 50: It's Past, Present and Future in a Carbon-Constrained World,": National Energy Policy Institute, Tulsa, Oklahoma, March 23, 2011) and "Low Carbon Transportation: A Crucial Link to Economic and Energy Security." http://www.arb.ca.gov/research/lectures/speakers/greene.pdf.

6 Simon Mui, Ph.D. and Elizabeth Landeros, "Oil Companies' Investments in Dirty Fuels Outpacing Cleaner Fuels by Fifty Times: Supplemental Information to the Air Resources Board on the Low Carbon Fuel Standard," NRDC, December 2012, http://www.arb.ca.gov/lists/lcfs2011/42-comments_of_nrdc_on_oil_industry_investments_lcfs.pdf.

7 Average annual profits from 2006 to 2010 from BP, Chevron, ConocoPhillips, ExxonMobil, and Shell as reported in their annual financial reports.

8 Mary Solecki, Anisa Dougherty, Bob Epstein, *Advanced Biofuel Market Report 2012 Meeting U.S. Fuel Standards*, Environmental Entrepreneurs, 2012, http://www.e2.org/ext/doc/E2AdvancedBiofuelMarketReport2012.pdf.

9 Environmental Entrepreneurs, Advanced Biofuels Market Report 2012, http://www.e2.org/ext/doc/E2AdvancedBiofuelMarketReport2012.pdf;jsessionid=C0EAB2CD6AD26D8D3533FEB0ACFA868D.

10 Testimony by Tim Carmichael, California Natural Gas Vehicle Coalition, Senate Transportation Committee Hearing, October 24, 2011.