

California's Sustainability Agenda

by David Crane

Author's note: In 2002 California enacted vehicle efficiency legislation requiring a reduction in tailpipe greenhouse gas emissions. In 2006 we imposed a cap on statewide greenhouse gas emissions. And in 2007 we adopted a Low Carbon Fuel Standard that requires a reduction in greenhouse gas per unit of energy from our transportation fuels. We intend to meet these requirements without any diminution in economic growth, and we believe meeting them will boost productivity, security and quality of life. This essay explains why.

It is common wisdom that sustainability is an environmental imperative. It is less universally understood that sustainability is necessary for economic growth and security. Governor Arnold Schwarzenegger of California recognizes the validity of all three assertions and thus has made sustainable economic growth a central theme in his administration.

Historically, economic development generally meant presenting an environment that employers found an attractive location for physical capital. Today, with California's economy increasingly more knowledge-based, economic development means presenting an environment that is attractive to human capital. As a result, clean air and water, abundant recreational activities, attractive land use and other indicators of environmental quality are now economic imperatives.

Similarly, California's economy depends on energy, much of it for the 24 million cars on our roads every day that are critical to our economic well-being. Unless one considers the funding and deployment of massive military resources needed to protect access as "sustainable," for economic risk one need look no further than to our dependence on unstable and faraway sources for 96 percent of our transportation fuels.

Likewise, sustainability is a security imperative. Worldwide competition for raw materials, especially as China and India grow, presents an increasing risk of military conflict.

Thus, the issue as the governor sees it is how California's economy can be converted into a sustainable growth engine. This is a transformational task that will likely see the modification of virtually every sector of our economy, one that generates nearly \$1.7 trillion of gross state product per year and has over 1 million employers and 17 million workers.

In Gov. Schwarzenegger's view, this transformation will occur only if and when suppliers and consumers find it in their own interests to engage in sustainable economic activity.

To date, few government policies have demonstrated many successful paths in this regard. For example, federal government policies over the past four decades have not succeeded in reducing the United States' dependency on oil. President Richard Nixon called for conservation. President Jimmy Carter sought to subsidize synthetic fuels. Others employed military force to secure distant oil fields and subsidize corn ethanol. Yet today the United States is still 97 percent dependent on oil for transportation.

Cause for Optimism

Two examples, however, offer cause for optimism.

First, since 1980 California has nearly tripled its gross state product per kilowatt-hour of electricity. As a result of policies that decoupled utility returns from sales, provided incentives for efficiency and established performance standards for appliances and buildings, California has saved its citizens more than \$56 billion and avoided the cost of 24 power plants. These steps cut both emissions and costs, thereby boosting productivity and economic growth while improving the environment. And we're not done. Recently our public utilities commission approved an even more aggressive energy-efficiency incentives program.

Second, in 1990 President George H. W. Bush signed into law legislation requiring a reduction in the sulfur dioxide emissions from coal-fired power plants that cause acid rain. That legislation established performance standards but permitted flexible forms of compliance, including trading. The net result was a dramatic reduction in emissions at a fraction of expected cost. It was so successful that President George W. Bush recently authorized a further reduction in those types of emissions.

These examples illustrate the transformation that is possible through the adoption of policies that match the size of the problems being addressed and that harness market forces in order to keep costs under downward pressure and induce innovation and positive economic consequences. In the governor's view, a transformation to sustainability is not possible unless governments employ policies that do the same.

In January 2007 the governor illustrated this transformational approach when he established the world's first Low Carbon Fuel Standard (LCFS) for passenger vehicles. Transportation is obviously critical to California's economic growth, and with cars accounting for 41 percent of California's greenhouse gases, California must reduce emissions from the transportation sector if it is to succeed in achieving the strict greenhouse gas limits the governor signed into law in 2006. The LCFS does this by setting a greenhouse gas performance standard for automotive fuels on a full life-cycle basis. It does not tell suppliers how to meet that standard, however, and it allows them to exchange credits with each other when they have exceeded or fallen short of the standard.

By 2020, and without any financial assistance from the public sector, the LCFS is expected to displace nearly 20 percent of California's gasoline consumption, increase the size of the state's renewable fuels market by three to five times, and boost to 7 million the number of advanced-technology vehicles on our roads. And that's just the start.

We see the LCFS as a market-oriented "change agent" since it creates an environment that induces technological change but without limiting choice, providing subsidy, picking winners or costing governments.

Promoting Alternative Fuels

Equally important, the LCFS fixes the principal reason why already-invented alternative fuels have not caught on. Huge amounts of financial and intellectual capital already have been deployed into the research and development of alternatives to oil, yet the United States remains 97 percent dependent on it for its transportation needs. Even California, which has devoted nearly two decades now to alternative fuels and is a large potential market, is still 96 percent dependent on oil. Why haven't alternative fuels penetrated more of that market?

The principal reason has been uncertainty of demand. Because oil prices fluctuate, no enterprise can be sure there will be lasting demand for alternatives to oil. As a result, little capital has been deployed into the expensive infrastructures required to distribute those fuels. In turn, consumers and car makers are justifiably leery of laying out capital for the production or acquisition of vehicles that cannot be filled up or serviced with as much convenience as a gasoline-powered car.

The LCFS changes this dynamic. Now everyone knows that, regardless of oil prices, in California there will be sustainable demand for alternatives. Indeed, the LCFS is expected to boost annual demand in California for clean fuels by more than \$10 billion per year just by 2020 and escalate thereafter.

The policy is already transforming our fuels market. The *Wall Street Journal* recently wrote about the new "gold rush" in California as alternative fuel makers and distributors, including well-established energy companies, compete to penetrate our market with new or improved technologies. Thus, in addition to transforming our fuels market, the LCFS will boost the economy by increasing productivity and creating a lasting market for clean-technology enterprises. Also, it enhances national security by diversifying resource demand.

Underlying the LCFS is recognition by the Schwarzenegger administration that the sharpest arrow in our policy "quiver" relates to California's massive demand for goods and services. Pretty much every enterprise on the planet wants access to our markets to satisfy our consumer demand. Accordingly, tweaking that demand is a powerful way to induce change. For example, by establishing an appliance efficiency standard while leaving the competitive landscape untouched, we modified demand but left it up to producers to battle it out and consumers to determine the winners. Likewise, by establishing a greenhouse gas performance standard, we leave it up to producers and distributors to fight it out in winning customers. As with any other product, producers and distributors still have to win those customers with good quality, good prices and good services, but they all have to leap over the same hurdle to get to those customers.

By contrast, we see little evidence that "supply-side" approaches have much of a transformational impact. On top of the fact that money is not in excess supply at the government level,

the money governments might be able to provide is paltry in comparison to that amount needed to transform markets of these sizes. Worse, and as the current ethanol market demonstrates, government support on the supply side for select technologies, which in the case of ethanol takes the form of encouraging the supply of corn-based ethanol while discouraging the supply of cane-based ethanol, usually distorts markets to the detriment of the overriding goal. Thus, apart from university-level research and development spending, we do not see government support on the investment side as an effective change agent.

Needless to say, another virtue of a demand-oriented approach is that it does not require government subsidies, tax breaks, incentives or any other financial assistance from the public sector. Instead it requires faith in capitalism. We have that faith, provided there is no bar to competition.

Were the LCFS to be adopted by the United States, businesses would be looking at a half-trillion-dollar alternative fuels marketplace. Worldwide it is a trillion-dollar annual market. Just imagine the exciting innovation and hard-nosed competition as the world's finest enterprises and minds compete to win – and transform into something sustainable – such a massive market.

A National Low Carbon Fuel Standard

So far 11 U.S. senators from both sides of the political aisle have proposed legislation calling for a national LCFS modeled on Gov. Schwarzenegger's standard. The European Commission has proposed an LCFS, and recently the newly formed Midwest Regional Greenhouse Gas Reduction Accord signed by 10 governors called for such a standard.

California is under no illusion that its sustainability agenda can make the world sustainable on its own. For example, we emit only 1 percent of the world's greenhouse gas pollutants, and that proportion is declining as the developing world picks up steam. So we know that without the rest of the world as a partner, we cannot defeat global warming. We also know that the prospects for success in that regard are challenging given that billions of our fellow world citizens are just now emerging from poverty and presumably have little or no interest in adopting measures that might slow down that emergence. Thus, we believe continued and robust economic growth is essential to success in bringing the world along in our battle against global warming. Accordingly, California's most important role is very likely to be one of setting an example for how to successfully transform to a sustainable economy while maintaining robust growth.

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