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## OPEN FORUM

### Getting the carbon out

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California is once again leading on environmental policy. Today, we will unveil the recommendations of an interdisciplinary University of California team about how to implement Gov. Arnold Schwarzenegger's new policy to reduce global warming emissions from our cars and trucks.

This new policy, the low-carbon fuel standard, will require oil companies and other fuel providers to reduce carbon and other greenhouse gas emissions of transportation fuels by at least 10 percent by 2020.

When added to other policies to improve vehicle technologies and increase green transportation options, what emerges is a balanced approach to fighting global warming and our addiction to oil.

The California Air Resources Board is expected to adopt this new standard at its June meeting as the most important of the "early action" items to meet the state's global-warming goals. The low carbon fuel standard concept is supported by presidential candidates Sens. Barack Obama, D-Ill., and John McCain, R-Ariz., is part of Democratic Sen. Dianne Feinstein's climate policy strategy and is a key component of the "Advanced Clean Fuels Act of 2007" introduced by Sen. Barbara Boxer, D-Calif.

With a low carbon fuel standard, government will not pick winners. Fuel providers will choose how they reduce the carbon intensity of their products, from options such as blending low-carbon biofuels into conventional gasoline, selling low-carbon fuels such as hydrogen, or buying credits from providers of other low-carbon fuels (such as low-carbon electricity or natural gas).

This allows businesses to identify new technologies and new strategies that work for them and for their customers.

At first, fuel providers will most likely offer liquid fuels that work in today's cars but are made from biomass. Much of it will be ethanol made from corn. Over time, the need to lower the carbon intensity of fuels will encourage innovation to improve

biofuels. Then, as the low-carbon fuel standard tightens, it will hasten the transition to a new generation of fuels and vehicles, including plug-in hybrids and hydrogen fuel-cell vehicles.

Eventually, consumers will have an array of low-carbon fuel and vehicle choices.

A low carbon fuel standard has two primary strengths. First, it creates a durable but flexible framework to guide the transition to a low-carbon future. Second, it stimulates innovation and investment in low-carbon and very-low-carbon fuels and vehicles.

The first advantage is key to the second. Oil companies and automakers consistently tell us that they are amenable to carbon controls that are predictable and based on science. Indeed, several major oil companies tell us they support this proposal and believe it should be adopted broadly, beyond California. They say they prefer this approach over mandates for specific technologies and fuels. They appreciate the flexibility and certainty it provides, though they will undoubtedly quibble over the magnitude or speed of the emission-reduction requirements.

The low-carbon fuel standard addresses not only global warming, but the intertwined problems of high oil prices and foreign oil dependence. It does so by stimulating private companies to develop new technologies and bring them to market. Thus, it will, for the first time, create viable alternatives to petroleum, which lessens the need for oil imports and undermines OPEC cartel pricing.

The result will be less volatile and, yes, lower fuel prices.

An alternative to this low-carbon fuel standard would be taxes or caps on carbon, possibly placed across the entire economy. However, these approaches would not effectively stimulate technological innovation in transportation fuels, an absolute necessity if we are to solve global warming and energy problems. Neither gasoline price increases in the United States in the last five years nor decades of very high fuel prices in Europe have caused the oil industry to begin to change their fuel sources. Under a cap-and-trade approach, fuel providers will almost certainly seek to buy credits elsewhere and pass the cost on to consumers.

This points toward a sector-specific approach, not a one-size-fits-all mentality. In electricity generation, for instance, emission caps are effective, for the simple reason

that there are many existing choices to reduce carbon emissions, including natural gas, hydropower, nuclear, wind and so on. In residences and commercial businesses, product standards will continue to work well. In transportation, a low carbon fuel standard is needed to stimulate the development of alternative fuel technologies, while complementary vehicle standards will improve fuel efficiency.

The low carbon fuel standard differs significantly from President Bush's proposal to indiscriminately expand "alternative fuels" without paying attention to their environmental consequences. His plan would likely bring us coal-based liquid fuels and more of today's corn-based ethanol, but it does not provide the incentives and rules needed to transform these technologies so that they can compete in energy markets that take climate change seriously.

Solving the climate change and oil import problems will take time, our cars last for more than 15 years, on average, and the energy supply system also changes slowly.

If we are successful, the new low carbon fuel standard will give the American agricultural, energy and automotive industries incentives to start now to lower the carbon intensity of today's fuels and begin to develop the next generation of truly low-carbon fuels and vehicles.

With the climate changing, there's no time to waste.

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