

Thank you, Chairman DeSaulnier and members of the committee for the opportunity to testify today. My name is Simon Mui, and I am a scientist with the Transportation Program of Natural Resources Defense Council (NRDC). NRDC is a nonprofit organization of scientists, lawyers, and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.3 million members and online activists, 250,000 of whom are Californians.

California's Low Carbon Fuel Standard (or LCFS) is one of the state's key strategies for meeting our AB32 carbon pollution reduction targets and protecting our economy from high and volatile oil prices. California's transportation system is currently 95% dependent on oil¹, leaving our state and local economy vulnerable to price shocks.² This year, Californian families and businesses will spend an estimated \$65 billion dollars at the pump, and will send an estimated \$41 billion outside our state to import crude oil and other petroleum products.³

The LCFS requires the oil industry to help diversify our fuel supply by replacing petroleum with cleaner, fuels like advanced biofuels, electricity, natural gas, and hydrogen. Many of these fuels will be domestically produced, meaning less money being sent abroad. As a performance-based standard, the LCFS leaves it up entirely to the oil industry to choose which fuels and how much, as long as they reduce the carbon emissions from the fuel pool by 10 percent by 2020. It holds all fuel providers to the same high bar whether they produce here or abroad. By 2020, the LCFS will cut our oil dependency by 15% and cut 23 million metric tons of carbon pollution.⁴

A clear, consistent, and certain investment signal from the LCFS is key to ensuring that oil companies increase their investment and commitment to lower-carbon fuels. Despite the tremendous

¹ <http://www.nrdc.org/energy/plugin.pdf>

² http://www.calstart.org/news_and_publications/CALSTART-in-the-news/CALSTART-Press-Releases/National-Security-Leaders-Call-for-Action-Oil-Depe.aspx

³ Estimates based on latest figures available from CA Board of Equalization, California Energy Commission, and Energy Information Administration data sources.

⁴ CARB (2009), *Staff Report: Initial Statement of Reasons*, ES-24. Estimates for petroleum reduction range from 14% to 18% depending on the type of alternative fuel used to comply.

growth in biofuels over the past decade, total oil company investments in lower-carbon alternative fuels remain dwarfed by their traditional investments in oil production. As shown in Figure 1, the International Energy Agency estimates that globally, oil companies' capital investments averaged \$340 billion annually on oil exploration and production over 2004 to 2009. This compares with the \$10 billion spent annually on capital investments for biofuels, with only \$2 billion of this annually coming from oil companies.⁵ So perhaps not surprisingly, this vast disparity in investments demonstrates that we cannot depend on the oil industry itself to break our dependency on oil.

The LCFS, then, is critical to providing choice and competition in the transportation fuel markets. The LCFS, by creating regulatory certainty, incentivizes new businesses and private capital markets to invest in commercializing clean, alternative fuels.⁶ Any weakening of support for this standard undermines private capital investments in clean fuels, a fact to which the oil industry and clean fuel industry are well aware. What is needed is continued long-term, regulatory certainty for the LCFS. Low-carbon fuel suppliers and investors need to know that their investments today will be rewarded tomorrow and beyond.

As shown in Figure 2, the LCFS requirements are eminently achievable. Going from today's levels to 2015 and then 2020 can be accomplished by strategies such as: switching to greater use of non food-based advanced biofuels, improving the carbon footprint of current conventional biofuels, and expanding use of electricity, natural gas, and hydrogen going forward. This isn't rocket-science or some future far-off fuel, it is about leadership and commitment to investing and scaling-up what we already have and know how to do.

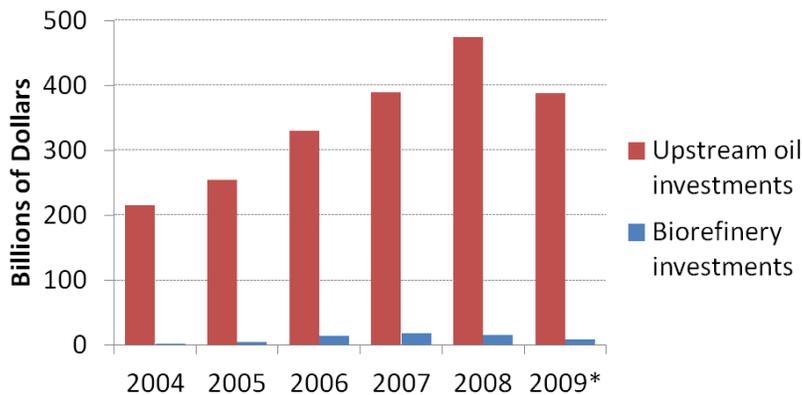
⁵ International Energy Agency (2009). <http://www.iea.org/ebc/files/impact.pdf>. Oil company investments in biofuel facility investments are more difficult to estimate, but media reports suggest this is likely less than \$10 billion over this time period.

<http://online.wsj.com/article/SB10001424052970204731804574386960944758516.html>

⁶ <http://www.e2.org/ext/doc/E2%20Advanced%20Biofuel%20Mkt%20Report%202011.pdf;jsessionid=2D312586244F1E0634A11F58B9517457>

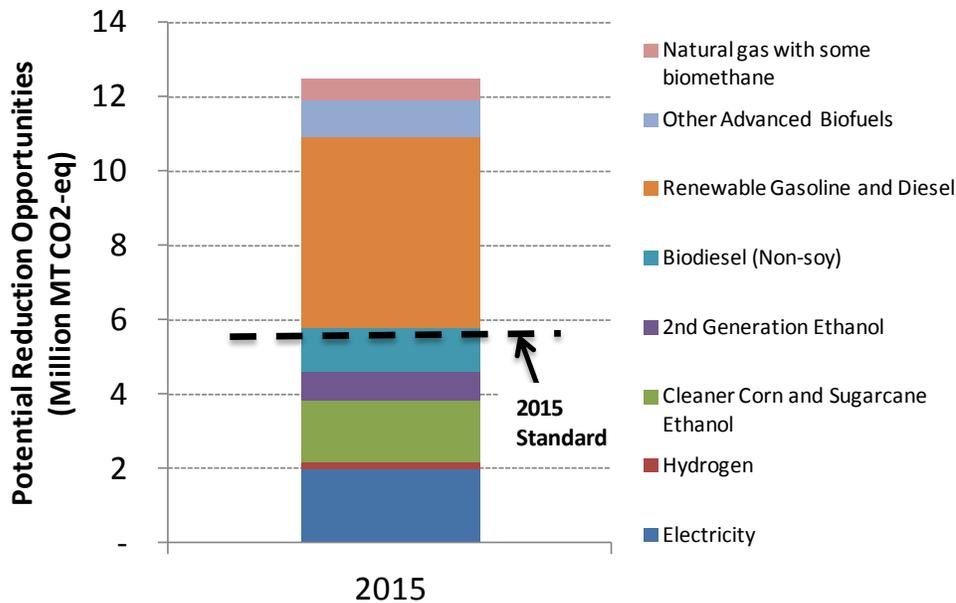
Chairman DeSaulnier and other members of the committee, diversifying our fuel supply with clean, domestically-produced alternative fuels is critical to meeting the state’s environmental and health goals. It is also critical to protecting consumer pocketbooks and jobs against high and volatile oil price. It’s clear the technology exists to meet the LCFS requirements cost effectively. Instead of sending our money out of the country to import oil and petroleum products, we can invest our money in creating a new clean fuels industry and jobs in the US. California, with its high-tech expertise, is poised to lead this new industry, but it needs policymakers to remain firmly behind its ground breaking LCFS standard. Thank you for your attention, and I’ll be happy to answer any questions.

Figure 1: Global investments over 2004-2009. Source: International Energy Agency. <http://www.iea.org/ebc/files/impact.pdf>



*Specific oil company investments in biofuel facilities are difficult to ascertain, but various media reports suggest these are less than \$2 billion annually over the time period.

Figure 2: Potential reduction opportunities from clean, alternative fuels allowing compliance with the LCFS. For reference, the LCFS standard for 2015 requires a reduction of approximately 5.8 million metric tons of CO₂-eq from California's transportation fuels.



Assumptions:

- The year 2015 was selected based on the market survey data obtained from E2. An analysis of 2020 is currently being conducted by various stakeholders and ARB.
- Advanced biofuel volumes are based on the E2 report, *Advanced Biofuels Market Report 2011: Meeting the California LCFS*, August 2011. It is assumed that California attracts twice its national share of potential advanced biofuel volumes due to the LCFS.
- For natural gas, the California Energy Commission 2009 *Integrated Energy Policy Report* forecasts were utilized for 2015. It is assumed that the LCFS credit value results in greater use of biomethane for transportation purposes, with 25% of CNG use sourced as biomethane.
- For electricity and hydrogen, it is assumed that California's Zero Emission Vehicle requirement is met for 2015 together with implementation of the 33% RPS requirement by 2020. Additional credits are assumed to be generated from plug-in heavy-duty trucks, as shown in ARB's *Initial Statement of Reasons* (2009) for the LCFS. Other truck-related and large non-road opportunities are included, as identified in a report by TIAX (2009), *Electric Transportation and Goods Movement Technologies in California: Technical Brief*. It is conservatively assumed that ARB only credits for additional electricity consumption beyond the *expected* scenario.
- For conventional biofuels like ethanol and sugarcane, it is assumed that the fuels delivered to California improve by 10% versus the industry average, default value. Numerous plant submissions, as reported on the ARB website, suggest that the industry average is already being exceeded.
- Note that the above chart does not show reduction opportunities from oil extraction and production itself.