

**Meeting the Goals of AB 32: Fuels of the Future**

**Informational Hearing of the  
Senate Transportation and Housing Committee**

**October 23, 2011**

**Testimony of Mary Nichols, Chairman, California Air Resources Board**

**TAKING AN INTEGRATED APPROACH TO AIR QUALITY AND CLIMATE**

Thank you, Senator DeSaulnier and Members of the Committee. It's a pleasure to be here today.

Through decades of bold policy action and effective implementation, California has led the world in reducing smog and toxic emissions from vehicles, to just a few percent of levels from decades ago. We are cleaning up diesel trucks and buses. We have brought natural gas into commercial vehicles – from buses to delivery trucks – and we are on our way to developing programs to achieve the goal of zero emissions from passenger vehicles.

Your leadership has brought us here. For decades, the California state legislature has developed cutting edge clean air policies that ultimately lead to models that others throughout the world want to follow. From the California Clean Air Act, to AB 1493, AB 32, AB 118, and SB 375, your bills are so influential that they are widely known simply by their bill number.

But we still have a long way to go. Many of our communities, especially those located near ports, distribution centers, freeways, and industrial operations still suffer from unhealthy air. Federal air quality standards will continue to tighten, to the point that we need to not only eliminate emissions from passenger vehicles, but also from goods movement and other sectors if we are to comply in the next two decades. And we know the imperative of reducing climate changing greenhouse gas emissions immediately, and very deeply in future, to less than 80 percent of 1990 levels by 2050.

We know we can meet each of these targets and achieve clean air in all California communities, but it will take all the available tools, especially when it comes to the transportation sector. This means dramatic efficiency improvements, smarter land use, and decarbonizing electricity and the fuels used throughout the transportation sector.

The linchpin in our integrated approach to clean air and climate change is clean energy. The fuels of the future are those that allow us to simultaneously achieve our air quality and climate goals, while providing energy security and economic stability. The challenge is accelerating the transition to these new sources of energy and fuels in the face of a massive investment and infrastructure – refineries, pipelines, gas stations, and the current vehicle fleet – that shackles us to petroleum.

When it comes to vehicles and the transportation sector – the largest source of greenhouse gas emissions in California – our goal is to promote advanced vehicle technologies that use the cleanest fuels and an alternative and commercially viable infrastructure for those fuels.

## **GROWING MARKETS FOR ZERO EMISSION VEHICLES**

Zero emission vehicles are integral to achieving our air quality and greenhouse gas emission targets. We expect that meeting our 2050 climate goals in the transportation sector will require 87 percent of light duty vehicles to be battery electric, fuel cell, or plug-in hybrid using renewable fuel in the form of electricity, hydrogen, or biofuels.

The commercial success of ultra-clean cars that have virtually eliminated smog-forming emissions from gasoline vehicles already, and the near-term availability of cars with zero smog and very low greenhouse gas emissions, is directly related to California's leadership through its Zero Emission Vehicle regulation. The rule continues to push clean technology investment by automakers, undoubtedly hastening the arrival of hybrid vehicles at the turn of the century, battery electric and plug-in hybrid vehicles today, and fuel cell vehicles in the 2015-2017 timeframe.

Our Board will consider proposed updates to the regulation as part of the Advanced Clean Cars package, which would likely lead to about 15 percent of new vehicle sales in California being ZEVs by 2025. The

latest update to the ZEV program was designed to both improve local air quality and put the transportation sector on a path to achieve our 2050 goals for greenhouse gas emissions reductions.

As ZEVs enter the market, we need to offer thoughtful support to develop the infrastructure necessary to enable market success without stranding public investments. Just today, Nissan announced a new six year environmental plan that includes a goal of 1.5 million cumulative ZEV sales by 2016, development of a new fuel cell vehicle model, and a number of other commitments to reduce emissions and tie transportation to renewable energy. Next month, automakers will show 17 fully electric and plug-in hybrid electric vehicles at the L.A. Auto Show.

As the automakers begin to commercialize ZEVs today and in the coming years, we need to support their viability by developing the necessary fuel supply and infrastructure.

For plug-in vehicles, our approach to infrastructure should:

- Enable convenient home charging, including opportunities for low-income, multifamily, or urban households,
- Expand access to charging at the workplace,
- Take a measured approach to public charging that is driven by market experience, and
- Accelerate efforts to integrate vehicle charging with grid operations and renewable power.

For fuel cell vehicles, we are continuing to develop hydrogen fueling stations to support the expected rollout of about 50,000 vehicles in the latter half of this decade. The State has co-funded several early stations using AB 118 funds, and we are currently working with stakeholders to expand the fueling network in a manner that supports an increasing number of fuel cell vehicles and a sustainable and profitable market for supplying and distributing hydrogen. As part of the Advanced Clean Cars rulemaking, our Board will consider amendments to the Clean Fuels Outlet program that would ensure that appropriate hydrogen infrastructure exists to support the early market.

## **ACCELERATE DEVELOPMENT OF NEXT GENERATION, LOW CARBON, SUSTAINABLE BIOFUELS**

Low carbon biofuels have a key role to play in our fuel future, especially as a compliment to electricity in plug-in hybrid vehicles, or in heavy-duty and off-road applications that are difficult to electrify.

As with each new alternative fuel, we must examine the widest range of options and challenges as we develop future biofuels.

We should prioritize waste resources for biofuels production, rather than energy crops. But in utilizing waste streams for fuels production (or any other use, for that matter), we need an integrated approach that prioritizes waste reduction and landfill diversion, protects air and water quality, promotes forest health, and targets projects that are most cost-effective and offer the greatest economic and environmental co-benefits, especially in rural communities.

We also need continued innovation and technology development, to ultimately enable a commercially viable next-generation biofuels industry to develop in California. We still need dramatic improvements in technology and logistics to reduce costs associated with collecting and distributing waste resources and to enable low-cost conversion of cellulose to fuel.

To the extent we do utilize energy crops, we should only do so where we can avoid converting land from forestry, some other natural state, or food production, and where we can protect water supplies by avoiding pesticide use and diversion of water from other necessary end uses.

## **LOW CARBON FUEL STANDARD**

The Low Carbon Fuel Standard is another key aspect of our integrated approach to reducing vehicle emissions. It requires reducing the “carbon intensity” of transportation fuels by 10 percent below 2010 levels by 2020. It’s a performance-based standard, and as such – technology neutral.

The program is designed to send a clear and certain market signal to encourage fuel producers to develop the fuels of the future. Investment in biofuels is strong, and we hope that the regulated entities will continue to invest in next generation technologies to enable the program to succeed.

We've included a very soft start and a number of flexible compliance mechanisms to help regulated parties comply with the standard at minimal cost. This December, the Board will consider amending the program to increase flexibility for refiners, fully account for emissions from crude oil, and increase the availability of credits.

Today, there are ample credits available at low cost for regulated entities to use now, or to bank for use in future years. Fuel producers – including some of the largest ethanol producers in the Midwest (ADM and POET) – are already responding to the program by producing biofuels more efficiently, with lower carbon intensity values.

As the standards tighten, we expect fuel producers will continue to innovate to produce conventional fuels and biofuels with lower carbon intensities. You'll hear that oil companies will not be able to comply within a few years, but updated data and scenarios by both ARB and CEC show that there are multiple ways to comply with the standard through the 2015-2017 timeframe, by blending ethanol and biodiesel in with the current stock. This information will be discussed with the LCFS Advisory Panel later this week.

As we approach 2020, compliance will likely require developing lower carbon ethanol and "drop-in" biofuels that can be used onboard conventional vehicles, expanding use of E85 fuel in flex fuel vehicles, and encouraging greater use of natural gas, electricity, and hydrogen.

The Low Carbon Fuel Standard is truly unique in that it is one of the first regulations to account for lifecycle emissions of a product. Proper accounting of emissions is key to the success of the program, but also challenging. To that end, we've consulted with domestic and international experts to make sure we use the best science to account for all greenhouse gas emissions associated with producing transportation fuels, from extraction, growing or harvesting, processing, delivery, and end use.

One of the more controversial aspects of the standard is our approach to accounting for the carbon intensity of various sources of crude oil. Just like for ethanol production, where various production pathways can lead to a wide range in the carbon intensity of the fuel – ranging from significant emissions savings to emissions increases – supply chains for different sources of crude oil can also lead to a wide range of emissions.

Just as it is important to account for differences in emissions among sources of biofuels, to make sure that California is indeed reducing the carbon intensity of its fuels, it is important to account for differences in emissions associated with oil supply. If we do not accurately account for emissions among different crude oil supply chains, we run the risk of losing the benefits of the program, including the clear market signal that we believe is necessary to develop clean fuels.

The fact is, fuel providers are complying with the LCFS today, and with good planning they will continue to be able to comply, leading to the development and use of cleaner fuels that help to achieve the State's air quality and climate change goals.

## **CONCLUSION**

I am optimistic that we have reached the turning point towards cleaner energy that we have been seeking for decades. Your leadership has brought us to this point in history; your vision is now becoming reality. But much work remains. I look forward to continuing to work with you for clean air and clean energy in California.

Thank you. I am happy to answer any questions.