MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

BYRON SHER AUDITORIUM

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APPEARANCES

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Mr. John Eisenhut

Supervisor John Gioia

Mayor Pro Tem Judy Mitchell

Mrs. Barbara Riordan

Supervisor Ron Roberts

Supervisor Phil Serna

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Dr. Daniel Sperling

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Mr. Richard Corey, Executive Officer

Mr. Alberto Ayala, Deputy Executive Officer

Ms. Edie Chang, Deputy Executive Officer

Ms. Lynn Terry, Deputy Executive Officer

Ms. Ellen Peter, Chief Counsel

Ms. La Rhonda Bowen, Ombudsman

Mr. Michael Carter, Branch Chief, Emissions Research and Regulatory Develpment Branch

Mr. Bart Croes, Chief, RD

APPEARANCES (CONTINUED)

STAFF

Ms. Sarah Pittiglio, Air Pollution Specialist, Climate Action and Research Planning Section, Research Division

Mr. Alex Santos, Air Pollution Specialist, On-Road Heavy-Duty Diesel Section, MSCD

Mr. Alexander Wang, Senior Attorney, Office of Legal Affairs

ALSO PRESENT

Mr. Don Anair, Union of Concerned Scientists

Ms. Diane Bailey, NRDC

Mr. Will Barrett, American Lung Association

Mr. Timothy Blubaugh, Truck and Engine Manufacturers Association

Mr. Tim Carmichael, CNGVC

Mr. Henry Hogo, South Coast AQMD

Mr. Brian Johnston

Ms. Jerilyn Lopez Mendoza, Southern California Gas Company

Mr. Bill Magavern, Coalition for Clean Air

Ms. Adrian Martinez, Earth Justice

Mr. Chris Mertens, CALSTART

Ms. Tracey Norberg, Rubber Manufacturers of Emission Control Association

Mr. Jeff Shaffer, Volvo Group Trucks

Mr. James Thomas, Nabors Completion & Production

APPEARANCES (CONTINUED)

ALSO PRESENT

Mr. Mike Tunnell, American Trucking Association

Mr. Doug Van Allen, Baker Hughes Oilfield Services, Inc.

Mr. John White, CEERT

Mr. Chris Wortman

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PROCEEDINGS

CHAIRPERSON NICHOLS: Good morning, everybody. Welcome to the December 12th public meeting of the Air Resources Board. We will begin with the Pledge of Allegiance and then do the roll call.

(Thereupon the Pledge of Allegiance was Recited in unison.)

CHAIRPERSON NICHOLS: Madam Clerk, please call the roll.

BOARD CLERK JENSEN: Dr. Balmes?

BOARD MEMBER BALMES: Here.

BOARD CLERK JENSEN: Ms. Berg?

BOARD MEMBER BERG: Here.

BOARD CLERK JENSEN: Mr. De La Torre?

Mr. Eisenhut?

BOARD MEMBER EISENHUT: Here.

BOARD CLERK JENSEN: Supervisor Gioia?

BOARD MEMBER GIOIA: Here.

BOARD CLERK JENSEN: Mayor Pro Tem Mitchell?

BOARD MEMBER MITCHELL: Here.

BOARD CLERK JENSEN: Mrs. Riordan?

CHAIRPERSON NICHOLS: Here.

BOARD CLERK JENSEN: Supervisor Roberts?

BOARD MEMBER ROBERTS: Here.

BOARD CLERK JENSEN: Supervisor Serna?

BOARD MEMBER SERNA: Here.
BOARD CLERK JENSEN: Dr. Sherriffs?
BOARD MEMBER SHERRIFFS: Here.
BOARD CLERK JENSEN: Professor Sperling?
BOARD MEMBER SPERLING: Here.
BOARD CLERK JENSEN: Chairman Nichols?
CHAIRPERSON NICHOLS: Here.
BOARD CLERK JENSEN: Madam Chairman, we have a quorum.
CHAIRPERSON NICHOLS: Thank you, everybody. This is a light agenda, but we have an couple important pieces of business that we need to take care of.
The first one is actually on the consent calendar.
I think I skipped our mandatory announcement about where the exits are. So I'm required to stop here for a minute and remind everybody that there are exits at the rear of the room and on either side of the stage. And in the event of an alarm going off, we're supposed to leave immediately and assemble outside the building.
Also to tell you that we will use our normal three-minute time limit for speakers and that we ask people to fill out a card in advance if they want to testify, with your name. If you have written testimony, you're not required to read it, because it will

automatically be in the record there. I think I've done that.

Okay. So we have one item on our consent calendar this morning, which is the appointment of a new member to the Research Screening Committee. This is a Committee that works very hard and does terrific work for us in developing our Research Plan and putting out requests for proposals and screening the proposals. We've had a vacancy now for a while. And fortunately, we have a very good candidate, Dr. Yifang Zhu, who is joining us.

So is there anybody who wishes to see this taken off the consent calendar? Did anybody sign up to speak on this item? If not, I guess what we do is just move the consent calendar; is that correct? Yes. Do I have a motion?

BOARD MEMBER BALMES: So moved.

BOARD MEMBER RIORDAN: Second.

CHAIRPERSON NICHOLS: All right. All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Any nos? Any abstentions? Great. All right.

We then move to the Agenda Item 13-11-1. This relates to our greenhouse gas and NOx reduction programs and the discussion about an optional NOx emissions

standard for heavy-duty engines that will pave the way for even cleaner trucks to travel on California's roads within the next few years.

The agenda item also includes amendments to other related on-road truck regulations, all designed to reduce truck emissions and facilitate the deployment of advanced technology vehicles. So it's a package of proposals, but we will be acting on them individually.

I think at this point I will turn this over to our Executive Officer who returned approximately 24 hours ago from a very fast trip to China and is looking quite awake actually. We are impressed. Good morning.

DEPUTY EXECUTIVE OFFICER COREY: Caffeine is amazing stuff. Very good. Thank you, Chairman Nichols.

The five related on-road truck items are new regulations and regulatory amendments intended to help usher in future generations of lower-emitting trucks and improve the enforceability of existing measures.

As Chairman Nichols described, the first of the five items is the new Phase I GHG standard.

The second item involves amendments necessary to harmonize ARB's existing tractor-trailer GHG regulation with the Phase I GHG standards. The tractor-trailer GHG regulation was an AB 32 discrete early action measure, in fact.

In addition to the GHG related items and as the Chair mentioned, staff's package includes new optional NOx emission standards for heavy-duty engines. These new optional standards are intended to encourage the development of lower NOx engines.

The package also includes amendments to ARB's diesel idling regulation and amendments to ARB's procedures for certifying heavy-duty hybrid vehicles.

All in all, today's proposal continues ARB's direction on trucks that are lower emitting both for criteria and GHG emissions.

Alex Santos of the Emissions Research and Regulatory Development Branch will provide staff's proposal for the new and amendments to the truck-related items. Alex.

(Thereupon an overhead presentation was presented as follows.)

AIR POLLUTION SPECIALIST SANTOS: Thank you, Mr. Corey. And good morning, Chairman Nichols and members of the Board.

As you know, the Air Resources Board has in place a comprehensive regulatory program that significantly reduce not only criteria pollutants from new and existing trucks and buses, but also greenhouse gas or GHG emissions from many of the long haul trucks operating throughout the

state.

Today, we are proposing that the Board approve several new regulations and regulatory amendments that are all related to on-road medium and heavy-duty vehicles and are designed to further reduce both GHG emissions and oxides of nitrogen, or NOx emissions.

Also, I would like to clarify that none of the regulations or amendments you will be considering today are related to the truck and bus regulation. Over the last several months, staff has been discussing proposed amendments to that regulation with stakeholders and over the last several weeks has been conducting public workshops throughout the state. Staff remains on track to bring proposed amendments to the Board in April of 2014.

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AIR POLLUTION SPECIALIST SANTOS: After a brief introduction, I will first discuss staff's proposal to adopt new Phase I GHG emissions standards for medium and heavy-duty vehicles and engines. This proposal will align California's standards with U.S. EPA's and will ensure a single national program for heavy-duty GHG vehicles and engines.

Second, I will present staff's proposed amendments to ARB's existing tractor-trailer regulation.

Next, I'll present proposed new optional NOx

standards for heavy-duty engines, followed by proposed amendments to our existing air toxic control measure to limit idling. This will then be followed by proposed updates to the certification procedures for heavy-duty hybrid vehicles.

Next, I'll provide an overview of our future plans for further reducing GHG and NOx emissions from on-road trucks through the development of Phase 2 standards.

And finally, I will conclude with staff's recommendations.

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AIR POLLUTION SPECIALIST SANTOS: The Air Resources Board has a long history of establishing emission standards for motor vehicles. The adopted standards for 2010 and subsequent model year heavy-duty diesel engines reduced the 2004 emission levels by 90 percent for both NOx and particulate matter. These emissions standards force manufacturers to install exhaust aftertreatment devices, much like catalysts were introduced to gasoline passenger cars in the 1970s.

Diesel particulate filters were installed to reduce particulate matter emissions and selective catalyst regeneration or SCR systems were installed to reduce NOx. California's in-use programs, such as the truck and bus

regulation, are already accelerating turn over to trucks that meet the 2010 standards in many areas of the state.

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AIR POLLUTION SPECIALIST SANTOS: In large part, all five proposals being considered today are being driven by aggressive GHG and NOx emission reduction goals established at both the State and federal level.

For GHG emissions, Assembly Bill 32 requires California to reduce GHG emissions down to 1990 levels by 2020. Further, the Governor's Executive Order directed that GHG emissions levels be reduced to 80 percent below 1990 levels by 2050. Heavy-duty trucks, buses, and motorhomes are a significant source of GHG emissions, responsible for about eight percent of the GHG emissions in California.

For NOx emissions, meeting the U.S. EPA's ozone standards by 2023 and 2032 remains a challenge. This is particularly critical in the South Coast and San Joaquin Valley air basins, the two regions in California with the worst air quality. In order for them to meet the federal ozone standards, an almost 90 percent further reduction in NOx is needed from today's levels. Currently, heavy-duty trucks emit about 30 percent of the mobile source NOx emissions in California.

Clearly, reducing GHG and NOx emissions from

heavy-duty trucks is critical if we are to meet these targets.

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AIR POLLUTION SPECIALIST SANTOS: Although today's heavy-duty trucks are significantly cleaner than those of a decade ago, to meet the targets I spoke of on the previous slide, the next generation of trucks must be even lower emitting. This will require further improvements in both engine and vehicle design.

Engines must become more fuel efficient, and trucks, tractors, and trailers must be made lighter and more aerodynamic. The fleet will need to contain a mix of vehicle types, including zero emission, hybrid, and extremely clean conventional gas and diesel engines.

The use of low carbon fuels will also play an essential role, as will tailoring engine and vehicle designs to optimize efficiency in specific applications.

Finally, we'll need to ensure our standards for new vehicles and engines and our in-use programs are vigorously and successfully enforced.

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AIR POLLUTION SPECIALIST SANTOS: Today's proposal is the next step toward future generations of cleaner more efficient trucks. It establishes California GHG standards identical to the existing federal standards,

creates optional NOx certification provisions designed to promote innovation and early emission reductions, and ensures test procedures are applicable to emerging hybrid technologies and it enhances enforcement and implementation of existing standards.

And as you will hear later in my presentation, today's action is only the first step in putting California on a path towards the deployment of the next generation of advanced trucks that will be needed to meet the State's long-term air quality, health, and climate goals.

I will now discuss the first element of staff's proposal.

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AIR POLLUTION SPECIALIST SANTOS: The first regulatory proposal involves new GHG emission standards for medium- and heavy-duty vehicles. They are referred to as Phase I emission standards because U.S. EPA is already committed to establishing a second phase of GHG standards, which I'll discuss towards the end of my presentation. The new GHG Phase I emission standards being proposed today are identical to the U.S. EPA's Phase I standards with a few minor distinctions that I will also highlight as part of my presentation.

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AIR POLLUTION SPECIALIST SANTOS: U.S. EPA's Phase I regulation was adopted in 2011 and established GHG emission standards for medium- and heavy-duty engines and vehicles. The GHG standards were established based on the use of existing off-the-shelf GHG emission reduction technologies for three distinct categories of vehicles: Semi-tractors, vocational vehicles such as dump trucks and cement mixers, and heavy-duty pickups and vans.

The Phase I program is currently underway beginning with 2014 model year engines and vehicles, increasing in stringency through the 2019 model year.

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AIR POLLUTION SPECIALIST SANTOS: Unlike the more traditional dynamometer testing used for engine certification, U.S. EPA's Phase I emission standards also require that semi-tractors and vocational vehicles be demonstrated as compliant using the GHG emission model, or GEM. Heavy-duty pickups and vans are required to meet a combined vehicle engine or whole vehicle standard and demonstrate compliance using chassis dynamometer testing.

Some of the anticipated compliance strategies to meet the Phase I requirements are listed here. Many are similar to those considered when developing the clean car regulations. Technologies to improve vehicle performance include improved aerodynamics, use of low rolling

resistant tires, and reducing vehicle weight through the use of light weight materials. Engine improvements like turbo compounding and the use of low friction lubricants are also available in the heavy-duty engine market.

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AIR POLLUTION SPECIALIST SANTOS: Staff's proposal involves new regulations and related amendments that would align California's GHG emissions standards and test procedures with those of U.S. EPA's, creating a nationally harmonized program.

Staff expects that nearly all engine and vehicle manufacturers would comply with the proposed ARB Phase I regulations by demonstrating compliance with the U.S. EPA Phase I requirements and then be considered deemed to comply with California's requirements.

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AIR POLLUTION SPECIALIST SANTOS: Since staff's proposal is designed to harmonize with the federal program, no additional direct emission benefits are expected from staff's proposal beyond what will be gained from the federal Phase I program. However, the benefits of the federal Phase I program in California are expected to be significant. As shown here, in 2020, the Phase I program is expected to lower CO2 emissions from affected vehicles by about seven percent. By 2035, those

reductions will grow to 12.5 percent.

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AIR POLLUTION SPECIALIST SANTOS: Although staff's proposal is aligned with U.S. EPA's Phase I regulation in structure and stringency, there are some minor distinctions between the two regulations.

First, staff is proposing to include U.S. EPA's Phase I definition of urban bus in ARB's Phase I regulation, but we propose to rename it to GHG urban bus. This difference in terminology is necessary to maintain California's existing definition of urban bus, which is slightly different than U.S. EPA's definition. This is a non-substantive revision and does not impact the stringency of the regulation, nor does it impose any additional requirements on manufacturers.

Because the federal program is already underway, manufacturers can generate early compliance credits before our program is implemented. Staff proposes to recognize these early compliance credits when evaluating compliance with ARB's Phase I regulation. Recognizing early credits granted by U.S. EPA would ensure that manufacturers have the same compliance flexibility in California as the federal program and that manufacturers can comply as planned with the harmonized regulations, rather than having to create a separate compliance plan for

California.

There would also be other relatively minor distinctions involving reporting, label, idling, and other requirements unique to California to improve the program's enforceability.

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AIR POLLUTION SPECIALIST SANTOS: Staff is proposing one 15-day change to our Phase I proposal. Staff's proposal includes a requirement that engines and vehicles certified for sale in California be labeled as such, which is a minor addition to the engine and vehicle labels manufacturers are already making for federally certified Phase I engines and vehicles today.

Manufacturers expressed concern regarding not having enough time to modify their labels to include the California information. To address this certain, staff is proposing to delay the California-specific labels until January 1, 2015.

That concludes my discussion of Phase I. I will now move onto staff's next proposal.

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AIR POLLUTION SPECIALIST SANTOS: The existing heavy-duty vehicle greenhouse gas rule applies to long haul tractor-trailers and is commonly referred to as the tractor-trailer greenhouse gas rule.

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AIR POLLUTION SPECIALIST SANTOS: The tractor-trailer GHG regulation was originally approved by the Board in January of 2010. It was an AB 32 discrete early action and one of the first GHG regulations that the Board approved.

The regulation reduces GHG emissions from tractors pulling 53 foot or longer box type trailers by requiring both the tractor and trailers to use state-of-the-art aerodynamic technologies and low rolling resistance tire technologies, which have been evaluated and approved by the U.S. EPA SmartWay Program.

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AIR POLLUTION SPECIALIST SANTOS: The current tractor requirements of the tractor-trailer GHG regulations are shown on the slide. The trailer requirements are not listed because they are not part of today's proposed amendments.

Overall, 2011 and newer model year sleeper cab tractors are required to be SmartWay designated models, while 2011 and newer day cab tractors are required to use SmartWay verified low rolling resistance tires. In addition, all pre-2011 model year sleeper cab and day cab tractors are required to use SmartWay verified low rolling resistance tires.

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AIR POLLUTION SPECIALIST SANTOS: The proposed amendments to the tractor-trailer GHG regulation are primarily designed to harmonize its requirements with those of the proposed Phase I rule I previously discussed. The proposed amendments would sunset the requirements for 2014 and newer model year tractors, since these tractors will be required to meet the GHG emission standards of the Phase I regulation.

However, the requirements of the regulation that apply to the 2013 and older model year tractors will not change, as these tractors are not covered under the Phase I rule.

Also, it is important to note that none of the proposed amendments impact the trailer requirements of the rule. They remain in place and unchanged.

Overall, none of these amendments would result in loss of GHG benefits since the Phase I GHG emission reduction requirements are more stringent in the aggregate than the requirements in the tractor-trailer greenhouse gas regulation.

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AIR POLLUTION SPECIALIST SANTOS: Along with a few minor clarifying changes, staff is also proposing to amend the definition of sleeper cab tractor to clarify

this a sleeper cab tractor is one that was originally manufactured with the sleeper compartment. Thus, the sleeper cab requirements would not apply, for example, to an originally manufactured day cab tractor that was later modified to be a sleeper cab. This was the original intent of the rule since preexisting tractors cannot easily be retrofitted to meet SmartWay requirements.

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AIR POLLUTION SPECIALIST SANTOS: While staff is not proposing any changes utility trailer performance requirements of the regulation, staff is proposing two 15-day changes to streamline implementation of the regulation. These proposed changes will not result in any loss of emission benefits.

The first 15-day change would temporarily exempt new trailers from the requirements of the regulation for three consecutive months following the month of their manufacture. This would allow the movement of non-compliant trailers during the trailer's delivery.

Staff also proposes to remove the requirement for owners of trailers to reapply for an extension to the trailer aerodynamic equipment compliance delay every year. Instead, once approved, the delay would remain in effect until SmartWay verified Aerodynamic technologies become available. When available, staff would notify the owner

to either install the technology within a specified time frame or demonstrate why the technology cannot be installed.

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AIR POLLUTION SPECIALIST SANTOS: Now I'll discuss staff's proposal for optional heavy-duty NOx standards.

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AIR POLLUTION SPECIALIST SANTOS: Through the adoption of increasingly more stringent NOx standards over the past 25 years, significant progress has been made towards lowering NOx emissions from on-road diesel trucks. From an emission standard of six grams per brake horsepower hour in 1990, the current emissions standard is more than 96 percent lower, at 0.2 grams per brake horsepower hour. While this is a significant accomplishment and while significant emission reductions have been achieved, there is still a need for greater emission reductions, given California's unique air quality attainment needs.

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AIR POLLUTION SPECIALIST SANTOS: Building on this success, staff is proposing three optional NOx emission standards, 50, 75, and 90 percent more stringent than the current 0.2 grams per break horsepower hour

standard.

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AIR POLLUTION SPECIALIST SANTOS: The optional low NOx emissions standard are technically feasible as many technologies exist today for reducing NOx from heavy-duty engines. In fact, certification test data shows about 8 percent of the model year 2012 engines sold already emit at levels 30 percent below the optional 0.1 grams per brake horsepower hour standard. Though these low-emitting engines were predominantly gasoline fuel, a significant percentage of them was made up of diesel fueled engines.

Staff is confident that advances or expanded use of one or more technologies will enable manufacturers to certify to even the lowest optional NOx standard. Particularly promising technologies include stoiciometric natural gas engines using an optimized three-way catalyst and diesel engines with improved selective catalytic reduction, or SCR.

Factors such as cost and product diversity in the marketplace prevent staff from proposing mandatory NOx standards today. However, staff is optimistic that adoption of the optional standards will help encourage development of lower-emitting engines and lay the groundwork for lower mandatory standards in the future.

And to spur further development of low NOx engines, research efforts are already underway to demonstrate their feasibility, even down to the 0.02 level as discussed in the next slide.

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AIR POLLUTION SPECIALIST SANTOS: The objective of the Southwest Research Institute project is to demonstrate the maximum NOx reduction possible from heavy-duty diesel and natural gas engines without incurring the greenhouse gas or fuel efficiency penalty.

Sponsored by the ARB, the target NOx emission rate for this project is 0.02 grams per brake horsepower hour, the same level as the most stringency optional NOx standard being proposed. The project should be completed by the end of 2015.

The National Renewable Energy Laboratory and Southwest Research Institute are also leading a study to commercialize lower NOx emissions this from heavy-duty natural gas engines. Sponsored by the South Coast AQMD, this project will test aftertreatment technologies aimed at achieving 0.02 grams per brake horsepower hour NOx. Once demonstrated, these natural gas powered vehicles would be put into normal on the road service. This project is expected to be completed by the end of 2016.

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AIR POLLUTION SPECIALIST SANTOS: In proposing optional NOx standards, it will be critical to ensure that there are adequate deployment opportunities and incentives for fleets to make the financial investment to purchase vehicles with lower NOx engines. Enticing fleets to make this choice include both financial incentives as well as regulatory drivers.

Current incentive funding programs can already provide vehicle buyers with a modest incentive to purchase vehicles equipped with a low NOx engine. In implementing the low NOx program, staff will continue to work to identify opportunities to increase funding for these engines and will work with local air districts on ways to preferentially fund low NOx engines in local programs.

As part of its April 2014 truck and bus regulation amendments, staff will evaluate potential changes to the regulation that could incentivize and facilitate the introduction of low NOx engines into fleets as they replace older trucks with newer ones meeting 2010 and later standards.

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AIR POLLUTION SPECIALIST SANTOS: Staff is proposing one 15-day change regarding the on-board diagnostic, or OBD, requirements for engine manufacturers that elect to comply with the optional low NOx standards.

Staff's proposed 15-day change would maintain the current OBD stringency level regardless of how the NOx certification levels are. Without such a change, meeting the existing OBD requirements would be very challenging for manufacturers and likely create a significant disincentive for them to produce low NOx engines at this time.

Staff will continue to monitor OBD compliance. And in the future when lower NOx mandatory standards are established, staff will revisit the stringency of the OBD requirements.

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AIR POLLUTION SPECIALIST SANTOS: Now I'm going to discuss the proposed amendments to the airborne toxic control measure to limit idling of diesel-fueled commercial motor vehicles. This rule, here in after referred to as the idling ATCM or simply ATCM, reduces emissions from idling diesel fueled commercial trucks and buses.

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AIR POLLUTION SPECIALIST SANTOS: The ATCM was designed to limit idling emissions and thereby reduce public exposure to diesel exhaust and other toxic air contaminants and to reduce NOx emissions. The measure was initially approved by the Board in July 2004 and became

effective on February 1st, 2005. It was later amended in October 2005 to include idling restrictions of sleeper trucks, idling emission standards for new engines, and emission performance requirements for alternative idle reduction devices.

The ATCM applies to diesel fueled commercial trucks and buses with gross vehicle weighting rating greater than 10,000 pounds. In general, it requires vehicle operators not to idle the main engine for more than five minutes. As an option, instead of shutting down, the engine is allowed to continue idling if it complies with a low NOx idling emission standard.

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AIR POLLUTION SPECIALIST SANTOS: Since its inception, the idling ATCM has significantly reduced idling emissions from trucks and buses. However, the program's current compliance rate could be improved because only the driver is held responsible when the rule is violated. And sometimes it is impractical to issue the citation directly to the driver. This may happen because the driver is resting in the sleeper cab or away from the vehicle conducting other business and he or she is not available to sign the citation at the time the violation occurs.

In these instances, ARB's enforcement staff has

no recourse to identify the delinquent driver and settle open unsigned citation. Thus, proposed amendments, as discussed on the next slide, are intended to improve compliance and enforceability of the existing regulation.

In addition, the existing regulation prohibits idling for more than five minutes within 100 feet of a restricted area. In the existing idling rule, the term restricted area is unclear. Staff's proposed modifications would clarify this definition.

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AIR POLLUTION SPECIALIST SANTOS: To improve compliance and enforceability of the existing ATCM, staff is proposing the extend the compliance responsibility to the vehicle owners and motor carriers. This would provide ARB enforcement staff with the authority to pursue the settlement of open citations with drivers, owners, and motor carriers associated with the vehicle in violation.

As discussed in the previous slide, staff is also proposing to modify the definition of restricted area to include schools, hotels, and motels. This was the original intent of the rule.

Staff is also proposing other minor non-substantive modifications to add clarity to the existing requirements. Staff is proposing that these amendments become effective beginning January 1st, 2015.

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AIR POLLUTION SPECIALIST SANTOS: The last regulatory proposal I'm going to discuss are the amendments to the heavy-duty hybrid electric vehicle certification procedure.

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AIR POLLUTION SPECIALIST SANTOS: In 2002, the ARB approved California interim certification procedures for 2004 and subsequent model hybrid electric vehicles in the urban bus and heavy-duty vehicle classes. These procedures are commonly known as the interim procedure. This interim procedure was adopted in conjunction with modifications to the public transit bus fleet rule to certify heavy-duty hybrid vehicles that could not be captured in ARB's existing heavy-duty certification procedures. The Board approved these interim procedures with the intention of revisiting procedures, if needed, in future years.

The interim procedure focused on urban buses. However, due to expanding commercialization and advancement of hybrid technology into more sectors of the heavy-duty market and the need to better quantify emission reductions from existing and future heavy-duty hybrid vehicles, staff believes that updates to the existing interim certification procedure are warranted.

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AIR POLLUTION SPECIALIST SANTOS: Since the approval of the interim procedure in 2002, advances in hybrid technology have resulted in its application to more diverse vocational applications other than just urban buses, such as beverage, package, and linen delivery vehicles.

The proposed amendments are needed to ensure that the test procedures adequately measure emissions from these different vocational hybrid vehicles and to account for new heavy-duty hybrid electric technologies, such as plug-in hybrid electric vehicles.

Additionally, staff is proposing amendments to clarify and enhance certification requirements, including updates to definitions and test procedures. It is staff's intent that the amended test procedures will remain voluntary, interim procedures. However, it is envisioned that the further revisions to these procedures will likely be included as part of the Phase 2 GHG program currently being developed.

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AIR POLLUTION SPECIALIST SANTOS: Staff is proposing four 15-day changes to the proposed amendments based on stakeholder comments in our proposal. These include amending the title of the proposed amendments in

the regulation order to include other hybrid vehicles, and three minor changes to the test procedures as listed on this slide.

This concludes my discussion on staff's proposal for all five regulations. Before concluding with a recap and staff's recommendations, I want to first provide you with a brief overview of a major program that will further reduce GHG and NOx emissions for medium- and heavy-duty vehicle fleet.

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AIR POLLUTION SPECIALIST SANTOS: In adopting the GHG Phase I program discussed earlier in this presentation, U.S. EPA made clear their intent to adopt a more stringent Phase 2 program that would go much further to reduce GHG emissions from medium- and heavy-duty trucks.

In June of this year, president Obama released his 2013 Climate Action Plan and renewed that commitment, pledging to develop a national Phase 2 as part of his second term.

Phase 2 is intended to cover model years beyond model year 2019.

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AIR POLLUTION SPECIALIST SANTOS: ARB is working jointly with U.S. EPA and the National Highway Traffic

Safety Administration on Phase 2. And the U.S. EPA is on schedule to adopt Phase 2 of its heavy-duty GHG program by the end of 2015. While the Phase I standards were based on the application of currently available off-the-shelf technologies, Phase 2 will set standards that are more technology forcing. Currently Southwest Research Institute, the national vehicle and fuel emissions laboratory, and others are evaluating fuel efficiency technologies for medium- and heavy-duty vehicles for Phase 2. The Phase 2 standards for medium- and heavy-duty vehicles and engines present a huge opportunity to achieve additional GHG emission reductions from one of the most significant sources of GHGs.

Upon U.S. EPA adoption of the Phase 2, staff will bring a proposed California Phase 2 program before the Board in early to mid-2016. At the same time, staff intends to propose the next set of mandatory lower NOx standards.

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AIR POLLUTION SPECIALIST SANTOS: As U.S. EPA begins work on Phase 2, they are considering regulating entities that were not included in Phase I, such as trailer manufacturers and additional vocational vehicle manufacturers.

Phase 2 stringency levels will be set considering

the use of additional technologies to reduce GHG emissions such as additional engine, power train, and aerodynamic improvements and hybridization, which will necessitate improvements to test procedures and the GEM model.

We look forward to working with U.S. EPA and the National Highway Traffic Safety Administration as the Phase 2 regulation is developed. As ARB staff works together with U.S. EPA and NTSA on Phase 2, we will be encouraging the inclusion of trailers as a way to achieve additional GHG benefits.

We will also strongly encourage U.S. EPA to include national NOx reductions in the national Phase 2 program, as well as to structure it in a way that will allow California to pursue the maximum feasible NOx reductions from heavy-duty vehicles.

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AIR POLLUTION SPECIALIST SANTOS: To summarize, staff recommends that the Board approve the proposed regulatory actions, along with the proposed 15-day changes. The proposed regulations and amendments will reduce GHG and NOx emissions from medium-duty and heavy-duty trucks, harmonize California requirements with federal requirements, and enforce enforcement and implementation of existing regulations.

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AIR POLLUTION SPECIALIST SANTOS: In closing, what I have described today represents the next step toward meeting our ambitious GHG and NOx emission reduction goals. The five proposed regulations and amendments all promote the development and use of new emission reducing technologies for heavy-duty vehicles and engines. They also position us to pursue additional GHG and NOx reductions via Phase 2 and future mandatory NOx engine standards.

That conclude my presentation. Thank you.

CHAIRPERSON NICHOLS: Thank you, Mr. Santos.

We have 17 witnesses who have signed up to speak on these items. They will be speaking, I'm sure, some of them only to one or two and some to all. So if at all possible when you get up to speak if you could identify specifically which one you want to focus on, that would be helpful. I know this is a complicated set of proposals. But I think they actually do integrate with each other. And it's been helpful to see how they fit together.

So we'll begin with Henry Hogo from South Coast followed by Chris Wortman and James Thomas.

We don't have our projector today, so you can't watch yourself on where you are on the list. But there's only 17. Good morning.

MR. HOGO: Good morning, Chairman Nichols and

members of the Board.

I'm Henry Hogo, Assistant Deputy Executive Officer, Mobile Source Division at the South Coast AQMD.

I just want to first express our appreciation and thanks to staff for reaching out to us on the proposed regulations and amendment, in particular, on the optional NOx standards. So we really need these standards to be in place.

And just want to make a comment. Staff didn't make this comment, that there are several engines at the .1 level. And we do need to finds ways to maximize funding for the cleaner engines. What we've seen in the past is that manufacturers come to that first level, but don't see any reason to go beyond that. So want to work closely with your staff on proposals to maximize funding and incentives for cleaner engines.

With that, I urge adoption of all the regulations and amendments. And we look forward to working with staff on Phase 2 and future regulations.

CHAIRPERSON NICHOLS: Thank you very much.

Chris Wortman and then James Thomas and Doug Van Allen.

MR. WORTMAN: Good morning.

First of all, I'd like to say that I'm totally in favor of clean air. Any of the new regulations for new

vehicles, I think that's a great idea. I think it's probably -- it's good. It can't be bad. I'm talking about the truck regulations and AB 32.

However, it has a lot of negative effects on people that are in small business and people that don't really run their trucks a whole lot. Basically, it's the new companies and the big companies that have no trouble at all with AB 32 or any other regulations, really, because after three years, their trucks are worn out. They're replacing them anyway. They run these trucks sometimes 24 hours a day with several drivers.

However, in my situation and a lot of people like me, that's not the case. I work construction. I have three dump trucks. Our season of work is very short. So we don't have -- we are not generating the income that these other guys are generating.

My newest truck is a '91. Okay. I have three trucks. I'm a small business. And it supports my family and three other families. So we have basically one year left with the current regulations. So what's going to happen in one year for me, my family, and how I'm going to support them, to be honest with you, I have no idea. I have no idea because the current technology will not fix my trucks. It's not there. And if it is there, it's so expensive that it doesn't really make any sense at all.

I got a lot of stuff written here, but I probably won't do it right. So I'm going to say that very soon the three guys that work for me, they're probably in their late 50s, early 60s, they're going to be without a job. And if one of my trucks has a major -- let's say it needs $10,000 worth of work, I can't see putting ten grand into this truck. So if that happened next week, that guy is out of a job starting next week. My income is going to be down. My income is already down due to the recession, the economy, the cost of doing business.

My kids are 14 years old. I have twins. I'm a single full-time dad. I'm raising them by myself. I have no other source of income. So they're 14. I'm kind of looking forward to putting them through college so they don't have to do what I do. They don't have to worry about what I have to worry about every single day.

Now, three brand-new trucks, I'd love to have them. I'll take them today. If there's no way that I can afford to have them, why wouldn't I want that? I'd love to have that. I know there's some grant programs out there. I'm going to look into them. But right now, I have no truck payments at all --

CHAIRPERSON NICHOLS: Go ahead.

MR. WORTMAN: Even a partial truck payment, at this point in time, I don't see how we can do that.

CHAIRPERSON NICHOLS: Could I just clarify with staff for a moment here? Because obviously your comment is a broad one and it's addressed to our truck and bus rule I think. I just want to make sure -- staff, speak up on this, please. The rules that you're proposing today are to affect new trucks. There's nothing in the rules that we're currently talking about right here at this moment that would require you to give up your older vehicles or replace them at all, as far as I know. Is that -- can I -- I just want to get that point clear. Okay.

MR. WORTMAN: Are you asking me?

CHAIRPERSON NICHOLS: No. I'm talking to the staff to explain that.

DEPUTY EXECUTIVE OFFICER COREY: That's correct, Madam Chair, that the proposals today are not. They're about new vehicles. That's not talk what Mr. Wortman is talking about.

I would like LaRonda Bowen to follow up with him on the side to discuss because there have been a number of measures underway to help streamline that transition.

CHAIRPERSON NICHOLS: Which we dealt with last month and we're working on right now.

So Mr. Wortman, I'm going to ask you to meet with Ms. Bowen perhaps outside, if you don't mind, just to

follow up on the current -- on the regulation that's effecting you that you're concerned about and see if there is anything we can do to be of some assistance.

MR. WORTMAN: I appreciate that. And the stuff I'm talk about it's already been decided.

CHAIRPERSON NICHOLS: Yeah. Exactly.

MR. WORTMAN: I mean, it doesn't mean that things can't be changed or some -- but it's really important. And you know, the trucks that are getting phased out, the older trucks, they're not going away. They're going other places. They're going to South America. They're going to Mexico. They're going all over the place. And if they were -- if we phase them out as a natural process here in California in a reasonable amount of time, those would get scrapped, melted, right here in California. But instead, they're being shipped out to other places and run far longer than I would run it. Far longer.

CHAIRPERSON NICHOLS: Understood.

MR. WORTMAN: It's created a whole new industry for somebody to make money.

CHAIRPERSON NICHOLS: Okay. Thank you, sir. Thanks for coming in.

Mr. Thomas and then Doug Van Allen.

MR. THOMAS: My name is James Thomas. I'm with Nabors Completion and Production Services. And I would

like to comment today on the optional low NOx standards.

In the staff report, they utilize the word optional and voluntary and state that this is an optional and voluntary program. We are concerned that they will modify the bus and truck regulation in the future to mandate these optional low NOx standards.

When we were developing the bus and truck regulation, we was told you'll be in compliance when you get to 2010 standard. And they actually made the statement that when you get to the 2010 standard, you're done.

And what we want to do is we've been investing in complying with the bus and truck regulation. We've invested millions on top of millions of dollars. We've purchased new vehicles. We've installed a lot of DPFs. You ask how many. I know over 200 tractors that we have purchased and an awful lot of DPFs. And we are in compliance and strive in the each state to be in compliance with that regulation.

If you modify the bus and truck regulation in the future, it will upset the apple cart. If the bus and truck regulation was the only regulation that we had to deal with, that would be one thing. But we are complying with the portable equipment registration, the off-road reg, and the on-road reg. And they all run in parallel.

And we're investing money in each one of those. And the investments that we're making are not funded by grants. They're funded by our company.

So all we're asking and requesting is that the Board would give us some assurances that the bus and truck regulation would not be mandated to these optional low standards. All we're asking is that there would be a natural flow of these engines into our system over a period of time. We've developed these strategies, and we want to make sure that we're not mandated to change them all at one time.

I'd like to point out about the cost analysis on this program. They say it's minimal cost and has no economic impact on the economy. Well, I read the EMA's comments, and they did generate a lot of barriers that's going to generate additional cost. So what we're requesting that staff work with the EMA and develop what is the true cost of this regulation. And then one of the things that they did not include is all of these costs are going to be transmitted to the chassis manufacturers and the chassis manufacturers to us. So all we ask is tell us what the end result is on the end user. And we thank you for your time.

CHAIRPERSON NICHOLS: Thank you, sir.

Mr. Van Allen and then Jerilyn Lopez Mendoza, and

Timothy Blubaugh.

MR. VAN ALLEN: Good morning, Madam Chairman, Board, staff members.

My name is Doug Van Allen. I'm with Baker Hughes Company.

Basically, I came to talk about pretty much the same thing that JT did. As he mentioned in the past on a truck and bus rule, we were told by staff once we got to 2010, we were done with our fleets. We spent a lot of money to get to the 2010 standards with our fleet right now. We were told during the truck and bus regulation building a lot of it was going to be optional or voluntary. And then it was mandated we had to reach that 2010 standard. Basically, we're looking for the same assurance from staff and from the Board that this won't be changed in the future.

Basically, we had to kind of suck it up with our Truck Replacement Program. We had to remodel it because all of our trucks that were below a 2007 were basically junked or scrap. We couldn't trade them in or sell them. So we had to start buying all new trucks again with that. We don't want to have to do that again. Not having a trade in for a truck makes it really tough to purchase another truck. It also cuts down the amount of trucks available for gentleman, like the man that was up here

talking about his dump trucks. If we bar him from using the trucks that we're selling, then he's basically out of business. We can't afford to buy new trucks.

The other thing that we were talking -- we'd like to talk about is on the EPA -- the Engine Manufacturers Association was talking about don't think staff really considered the research and development cost for the new engines, because it's not just the engines. It's the aftermarket stuff like the DFPs and the SCR systems. They don't create those. Those are created by other manufacturers. So they're going to have to work with them to make everything work. So we'd like to know that the cost is there.

The last thing I had was on the idling rule. And Bakers Hughes believes when we hire drivers to drive our vehicles, they should be responsible. If they get a ticket for speeding, they're held responsible. They get the ticket. If they get a ticket for running a red line, it comes back to me. I see -- because it's on our license plate. I look at the driver and I give it to him. We do not pay their speeding tickets. We don't pay their fines. We shouldn't be held responsible for them not following our idling policies.

That's all I have. Thank you. And have a Merry Christmas.

CHAIRPERSON NICHOLS: Thank you very much. Thank you and Merry Christmas to you, too.

Jerilyn. Welcome. A new face for the Southern California Gas Company.

MS. LOPEZ MENDOZA: Thank you, Chairman Mary Nichols.

Good morning. My name is Jerilyn Lopez Mendoza. I represent the Southern California Gas Company.

I want to thank Chairman Nichols for her warm welcome and thank the Board members for this opportunity to comment on the third of the five proposed rules you're considering within this Board item, the proposed adoption of optional reduced NOx emissions standards for heavy-duty engines.

Southern California Gas would first like to thank staff for including and citing two of our company's demonstration projects in its Initial Statement of Reasons for this proposed optional standard. We deeply appreciate the acknowledgement of our hard work.

Southern California Gas has conducted rigorous multi-faceted air quality analyses regarding zero and near-zero emission natural gas engine technology. Our analysis has led us to the conclusion that use of natural gas engines is a logical pathway for expedited market penetration for heavy-duty engines that meet one or more

of the optional low NOx standards you're considering today.

Indeed, as you already know, CNG and LNG heavy-duty trucks are already an essential part of successful reductions in particulate matter and NOx reduction throughout the state. We're convinced these proposed new optional low NOx standard can serve an important role in achieving the ozone and particulate matter standards in the South Coast and San Joaquin Valley air basins.

Further, as previously suggested, Southern California Gas urges the Board to convene a statewide stakeholder group of truck manufacturers, vendors, fuel suppliers, and operators, such as the ones you've heard from this morning, to address very ideas to expedite commercially available engines meeting the optional standards as soon as possible.

Additionally, to support long-term economic viability of cleaner engines, Southern California Gas is committed to supporting efforts by the State to reach out to other regions in the nation to gain their cooperation and purchasing and operating these cleaner heavy-duty trucks.

Because there is an acknowledged cost differential between natural gas trucks with .2 grams per

brake horsepower hour of NOx emissions and those with .5 or .05 or .02 grams per brake horsepower hour of NOx emissions, we believe in early and meaningful stakeholder discussion to address the cost differential via programs such as the Carl Moyer Memorial Air Quality Standards Attainment Program, could help get cleaner engines to the market sooner. Southern California Gas is eager to assist in such a convening effort.

We urge you to adopt the optional reduced emissions standard for heavy-duty engines, and I thank you for your time and consideration.

CHAIRPERSON NICHOLS: Thank you. And precisely on time.

Timothy Blubaugh and then Brian Johnson and Tracy Norberg.

MR. BLUBAUGH: Good morning. I'm Tim Blubaugh with the Truck and Engine Manufacturers Association.

ARB is proposing today to adopt rules that align with EPA's historic heavy-duty commercial vehicles and engine greenhouse gas program. We strongly support that effort.

Like the exceptional results we have achieved working with ARB and EPA to reduce criteria pollutants, we believe the National Greenhouse Gas Program will be the next success story. A cornerstone of that success is

having a single national program. ARB committed to that effort is and is following through. Thank you.

Yet, already, work has begun on developing more stringent second phase of the national program. We are encouraged that ARB will actively participate in developing that rule and intends to stay aligned with the EPA. We have noted to your staff and in our comments a few instances where ARB's proposed greenhouse gas rule deviates from the national standard. We have worked with staff to minimize those differences, and we hope the Board will adopt the changes to the final rule that staff has recommended.

Regarding the proposed optional low NOx standards, EMA generally supports programs designed to provide incentives for the purchase of advanced technology engines. However, you should know we have a number of significant concerns about the proposed rule. For example, the well known trade off and inverse relationship between with NOx emissions and greenhouse gas emissions will impede manufacturer's efforts to achieve better fuel efficiency and lower greenhouse gas emissions by improving the NOx conversion efficiency of SCR aftertreatment systems.

In addition, ARB's rigorous and exacting engine certification requirements are a significant impediment to

the ability to meet the proposed ultra low standards and diminish the likelihood that manufacturers will even invest in trying. Under ARB's regulatory protocol, manufacturers must account for measurement accuracy, variability, compliance margin, deterioration factors, and the like.

The availability of Carl Moyer Funds associated with proposed ultra low NOx emission limits theoretically may provide an incentive to purchase the new engines. But the NOx fuel efficiency tradeoff and the enormous certification burdens associated with measuring and complying with such standards under the existing regulatory scheme are substantial impediments to manufacturers investing the hundreds of millions of dollars likely needed to commercialize the ultra low NOx technology. We do appreciate, however, that staff has recommended a change to the rule, which we urge the Board to adopt.

Finally, please note that we are concerned that the atmospheric chemistry associated with reducing NOx and to achieve ozone compliance is still not wholly understood.

We are very interested and willing to work with the Board and staff on these important issues, especially if the Board might consider mandatory ultra low NOx

standards in the future. Indeed, we are already working with staff to augment ARB's own ongoing low NOx research.

One last point, we appreciate that ARB is updating and expanding their hybrid certification procedures. And we hope that the Board will improve the additional change recommended by staff. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Mr. Johnston and then Tracy Norberg.

MR. JOHNSTON: I'd like to thank the Board for their time this afternoon.

I'm Brian Johnston. I work for Lightning Hybrids. We're a hydraulic hybrids manufacture in Loveland, Colorado.

I'd like to comment on the test procedures for heavy-duty bus and truck. We're concerned at Lightning Hybrids, as well other hybrid manufacturers, that the test procedures do not go far enough to address the hydraulic hybrid as an entity. The verbiage that included us in the procedures said that "certification application and test procedures for determining compliance shall be determined by the Executive Officer on a case by case basis."

The test procedure as written can be executed by hydraulic hybrids with a simple inclusion of an energy change equation that is based on pressure instead of voltage and current. That takes the procedure to a much

simpler for us to execute level and is absolutely straight forward. As written, it seems that the Executive Officer can determine exactly how we comply with or can't comply with a certification process.

Hydraulic hybrids are not an experimental or fringe technology. They're fielded by UPS and multiple cities. There is 100 hybrid trash trucks already in California. And my company also has several fleets that we serviced outside of the state. UPS contacted us this week and said they would be happy to buy our trucks if they were ARB certified and HVIP eligible. This is a technology that is idealized for heavy-duty trucks and buses. It's the sweet spot for the technology. And I think it should be simpler for us to certify that technology in California.

Thank you for your time.

CHAIRPERSON NICHOLS: Thank you for your comment.

I think I'm going to ask staff to respond to that one at this time, if you would.

ADVANCED PLANNING AND DEVELOPMENT SECTION MANAGER HENROY-ROGALSKI: Thank you very much for coming in today. We certainly appreciate it. And I think you made some valid points. We're going to be proposing some 15-days changes to our certification change procedures. And we'd like to offer to work with you to address some of your

concerns during those 15-day changes.

MR. JOHNSTON: Great. My contact information is in my written comments.

CHAIRPERSON NICHOLS: Thank you.

Tracy Norberg is next and then Dr. Joseph Kubsh.

MS. NORBERG: Good morning, Chairman Nichols and members of the Board.

I'm pleased to be here this morning on behalf of the tire manufacturers that manufacture tires here in the United States.

Like has been said before by other speakers, we support the Board's efforts to implement Phase I and to align with the federal rules. From our perspective, this will lead to increased efficiencies and benefit both the environment and businesses. So we applaud you for that and thank you.

Likewise, we are very pleased you're looking to work directly with EPA and NTSA on Phase 2. I think that will hopefully streamline the process going forward. And we look forward to working with you and the other agencies on that.

From our perspective, the major issues we have are with how the regulations are going to be enforced and in terms of the in-use audits. And we did go over this in our written comments, so I won't go into a lot of detail

here other than to say from the tire manufacturers' perspective, they work closely with truck manufacturers for new vehicle certification. And the federal rules do recognize that when it comes to the owner-operator replacing tires with low-rolling resistance, there may be an incentive for them to do that, but there is not a specific mandate to do that for them in use. And we are interested in how the Board will look at the in-use provisions. And we have pulled out some of the preamble language that is cited in the EPA NTSA rule, and we encourage the Board to consider looking at that. And we're happy to work with the Board as you look at in-use provisions as well.

We have, I think, a track record of working closely with staff as they've worked through the tractor-trailer regulation with respect to SmartWay tires and we're ready and able to do that again as this process goes forward.

CHAIRPERSON NICHOLS: Thank you. Okay.

Dr. Kubsh and then Jeff Shaffer from Volvo and Adrian Martinez from Earth Justice.

MR. KUBSH: Good morning, Madam Chair, members of the Board.

I'm Joe Kubsh, the Executive Director of the Manufacturers of Emission Controls Association.

Our industry has a long history of supporting California's innovative technology-forcing mobile source emission programs, and I'm here today to indicate MECA's support for the proposed voluntary low NOx emission standards for highway heavy-duty engines.

These standards, once in place, will accelerate the introduction of new advanced emission control technologies that reduce NOx for both diesel and natural gas engines employed on new trucks and buses.

Selective catalytic reduction systems and diesel particulate filters are already being utilized to achieve impressive reductions in NOx and PM and improved fuel efficiency from today's engines. And MECA members are continuing to develop improvements to these classes of emission controls that will provide engine manufacturers with pathways for achieving the proposed voluntary NOx emission standards.

For diesel engines, examples of advanced NOx technology include improved SCR catalyst formulations, SCR catalysts that are coated directly on diesel particulate filters, and passively NOx absorber catalysts.

For stochiometric natural gas engines, engine manufacturers will be able to utilize advanced three-way catalysts formulations and configurations that have been commercialized for today's wide range of PZEV and SULEV

compliant light-duty gasoline vehicles.

As indicated in your staff, many of these advanced NOx emission control technologies will be evaluated in the upcoming heavy-duty NOx emission test program that was recently launched at Southwest Research Institute in San Antonio, Texas. And MECA is an important partner with CARB in that important test program.

MECA also encourages California to put in place necessary incentives to help drive market demand for these new heavy-duty engines that are certified to these low NOx voluntary standards that are in the proposal today.

I'd like to close by saying that I would like to ask the Board to please approve these proposed voluntary low NOx emission standards. And I want to thank the staff for bringing forward this proposal for your consideration today. Thank you.

CHAIRPERSON NICHOLS: Thank you, Mr. Kubsh.

BOARD MEMBER SPERLING: Chairman Nichols -- right here.

CHAIRPERSON NICHOLS: Sorry.

BOARD MEMBER SPERLING: This is Dan.

CHAIRPERSON NICHOLS: Oh, sorry. So focused on the outside group here. Good morning.

BOARD MEMBER SPERLING: Can I ask just a --

CHAIRPERSON NICHOLS: Of course.

BOARD MEMBER SPERLING: Are there any of these technologies that you're looking at that could meet the .5 and .1 and .05 standards that would not have any reductions in vehicle efficiency, engine efficiency? In other words, are we looking at some technologies that don't have trade-offs with the greenhouse gas rule?

MR. KUBSH: Yeah. We believe there are opportunities to achieve lower NOx without compromising fuel efficiency and greenhouse gas standards. And that's the goal of this test program that was mentioned by staff as well is to demonstrate these ultra low NOx technologies with little impact on engine fuel efficiency, for example.

One of the technologies I mentioned SCR coded filters for example is being commercialized in the light-duty diesel arena by Volkswagon. They made that announcement. That technology will be on new light-duty diesel vehicles in Europe starting next year. And that technology will be are here in the U.S. in 2015.

CHAIRPERSON NICHOLS: That's very helpful. Thank you. Good question.

Okay. Mr. Shaffer.

MR. SHAFFER: Good morning, Madam Chairman and members of the Board.

My name is Jeff Shaffer. I'm with Volvo Group Trucks, a manufacturer of heavy-duty vehicles and engines

for the U.S. and other global markets.

The Volvo Group would like to thank you, the Board, for the opportunity to make this statement. I do want to apologize for having to read my statement because I want to make sure that all our concerns are covered.

We'd like to focus our comments on the optional low NOx standards that are proposed for adoption at today's hearing. Volvo has serious concerns about the proposed regulation and ultimately the specter of an eventual mandatory regulation according to CARB's stated intent.

The most foundational of these concerns is linked to the basic question of whether introducing even more stringent NOx standards will, in fact, contribute to reduction in the ambient ozone. Recent studies have raised important questions about the chemical interactions between ambient ozone, NOx, and volatile organic compounds, measuring in some cases surprising increases in ozone under reduced ambient NOx levels. So until the science has satisfactorily demonstrated that even lower emitting engines will further reduce ambient ozone levels, rather than increase them, the Air Resources Board should not adopt NOx standards more stringently than exist today voluntarily or mandatory.

It's important that the Board also recognize the

long-standing condition that engine NOx reductions are traditionally associated with the detrimental effect on engine fuel efficiency, which means the pursuant of this ultra low NOx emitting engine is in direct conflict with other important goals of the Board, that of addressing climate change.

These fundamental issues, notwithstanding even if there were a technology known to be capable of complying with all aspects of the ultra low NOx standards throughout the regulated useful life, the lack of instruments capable of accurately measuring NOx at such low levels make it extremely difficult, if not impossible, to refine and calibrate engines deploying capable technology. This measurement accuracy issue is a concern, not only for the development and calibration of these engines, but even more so for the delicate job of demonstrating deterioration factors, as well as calibration of OBD monitors.

This brings us to the last of the concerns we want to comment on today, on-board diagnostic requirements. The introduction of a robust OBD system that meets the Board's system expectations while avoiding false detections in the field has proven to be an immense challenge to our industry, compelling the deployment of vast resources at a great financial burden. To comply

with these requirements in the context of ultra low NOx emission engine is sure to be all the more challenging.

Staff's proposed practice of pushing manufacturers to do the best that they can, rather than complying with requirements already demonstrated to be feasible by the time of rulemaking, is an unacceptable practice.

So let me close by saying that even if this regulation were beyond the reasonable technical capability of the manufactures for all the aforementioned reasons, the adoption of ultra low NOx standards before the ozone science is sufficiently mature could have negative repercussions. And, hence, Volvo encourages the Board to avoid such an action by not adopting the proposed optional standards today. Thank you very much.

CHAIRPERSON NICHOLS: Thank you.

We'll move on next to Adrian Martinez and then Don Anair and Diane Bailey.

MR. MARTINEZ: Good morning, Chair Nichols and members of the Board.

My name is Adrian Martinez. I'm with Earth Justice. I'm also -- Earth Justice is also participant in the California Clean Air Freight Coalition, which is a broad coalition of environmental justice, health, and environmental groups that have come together to work on

statewide freight issues.

We are here to support the proposals today, but also to ask that more be done despite the significant progress that's been made on truck and bus rule and other regulations on ships and harborcraft cargo handling equipment. There's still a lot more that needs to be done. This is based on the need to get further reductions to meet Clean Air Act goals, AB 32, and Executive Order goals, but also to clean up the toxic hot spots that have formed around ports, rail yards, and distribution centers throughout the state.

It's our understanding that staff is doing a lot of work on additional freight activities today. There's several packages related to freight. We'd like to see that the staff present to the Board about what the plan is to develop a freight plan. We think it's necessary to get to the next level of emissions reductions. And we'd like to see that happen soon, preferably early in the new year.

The main reason is, as we've heard today, there are a significant number of industry stakeholders, manufacturing stakeholders, but also impacted communities, the health community that need to be outreached as this plan is developed. So it's a significant process and effort to gather input about what's the smart path to tackle this very difficult problem.

So with that, we support but also ask that there be further action to identify what's the process to develop the freight plan in the new year. Thank you.

CHAIRPERSON NICHOLS: Okay. Thank you.

Don.

MR. ANAIR: Good morning, Madam Chair and members of the Board. I'm Don Anair with the Union of Concerned Scientists and Research. Am Deputy Director in the Clean Vehicles Program.

Five years ago, I testified before this Board as you were considering the first-in-the-nation greenhouse gas standards for trucks and trailers. And I want to use this opportunity to thank you for your leadership in establishing these standards which have now led to federal action. And we're supportive of moving forward today with the effort to align with those standards.

But I also wanted to take the opportunity to stress how important this next round of standards for Phase 2 will be in terms of achieving emission reductions -- greenhouse gas emission reductions and fuel consumption reductions from heavy-duty trucks with growing freight demand over the coming years. Even with current standards, we expect that fuel consumption emissions will increase. And analysis of potential technologies that are available today and in the coming decade show levels of

50 percent or more reduction available from heavy-duty trucks compared to the existing standards, which achieve about 23 percent for tractor-trailer. So the technology is out there. And we need to move forward in addressing the growing emissions from heavy-duty trucks on the greenhouse gas side of things.

One of the key pieces there as well I think and it was mentioned in the staff report is ARB's leadership on reducing emissions by implementing trailer standards. And that has not been taken up by the federal agencies yet. So California can provide a very important leadership role in making sure those are included in Phase 2 standards.

I also wanted to support the development of the NOx certification levels that are being proposed today. I think those are important to start to address the need for this 90 percent reduction in nitrogen oxide emissions to achieve our air quality standards.

And I think it's important to provide people who are purchasing these vehicles who might be advertised about lower emissions vehicles that they're actually certifying to a level they can assure them they're getting those reductions.

And finally, I just wanted to mention the vision for clean air analysis, which was brought before this

Board last year by staff of ARB and the air districts, really showed not only the tremendous reduction in nitrogen oxide emissions that are needed to achieve our air quality standards, but really quoting from that work zero and near zero emission technologies must become the norm. That is an enormous undertaking in the freight sector in particular.

So similar to the comments made by Mr. Martinez, we strongly support the development of this sustainable freight initiative and would like to see the Board take that up and define how that's going to move forward in a timely way.

And I'll just finish by thanking staff for bringing the proposals to the Board today and the Board's leadership on this.

CHAIRPERSON NICHOLS: Thanks, Mr. Anair.

Diane Bailey and Will Barrett and Chris Mertens.

MS. BAILEY: Good morning, Madam Chair, members of the Board and staff.

My name is Diane Bailey. I'm a Senior Scientist at the Natural Resources Defense Council. NRDC is also a member of the California Clean Freight Coalition that my colleague Adrian Martinez spoke about. Our coalition has several dozen groups across the state working towards transformational change of the freight sector and

addressing the ongoing health impacts in freight impacted communities.

We're here today in very strong support of this regulatory package impacting diesel trucks. But I wanted to talk to you more broadly about diesel trucks. Cleaning up diesel truck pollution in the state is really a top priority for us. We strongly support the general truck and bus regulation that you've heard a little bit about today. I know it's a little bit off topic. But the diesel truck regulation, the whole package, is really the cornerstone of clean air regs in the state. While we know the amendments are necessary to these regulations and we've heard very compelling comments today about some of the pressing economic pressures, particularly on small businesses, and we know that this agency has done a lot of outreach and given a lot of assistance to small businesses in meeting those regulatory requirements.

What we really want to emphasize is the tremendous public health benefits of those regulations and the need to preserve those health benefits along the way as you're considering those amendments.

Over the years, this agency has done so much to clean up diesel freight pollution, including the truck regulation. But about half a dozen other measures, cleaning up the freight sector, and we've come a long way,

but we still face tremendous health impacts in the freight-impacted communities. We have communities with asthma rates impacting about one in five children, many communities in our state. And cancer risks related to air pollution at an additional risk level of a thousand per million. So incredibly risks remain, despite the solid legacy of work in this area. So we have a lot of work to do.

And while we support this regulatory package before you today as a very important step forward, we hope that you'll consider much broader, bigger measures in the form of a sustainable freight initiative. And we hope you'll move forward quickly on that.

I know staff has been working very hard on freight-related measures. What we're hoping to see is a lot more work in the public light with reports to this Board and public hearings on this issue and bigger picture items looking at more transformational change, looking at zero and near zero emission technology to be implemented across the board in the freight sector and moving us away from fossil fuels.

We look forward to working with staff and continuing to support these important measures. Thank you so much.

CHAIRPERSON NICHOLS: Thank you, Ms. Bailey.

Will Barrett, Chris Mertens, and Tim Carmichael.

MR. BARRETT: Good morning. My name is Will Barrett with the American Lung Association of California.

The American Lung Association of California strongly supports innovative approaches to reducing harmful emissions. We believe the approval of the voluntary NOx certification standards will help to further this goal. By incenting reductions beyond the current standards, ARB continues to push for cleaner technology to protect the public's health. We find that to be a critical step in this process.

And given California's ongoing air quality challenges, it's critical that we explore and incentivize all possible options for reducing air pollution in our state to view the standard as a minimum and to push towards zero and near zero emission technologies which is particularly important in the freight sector. We support this package that staff has proposed and support ARB's overall commitment to moving forward with more sustainable goods movement strategies. More broadly, in its support, these are all in support of our air quality and climate change goals. We encourage you to take the sustainable freight issue some of my colleagues mentioned up as quickly as possible.

The Lung Association is also part of the

California Cleaner Freight Coalition and want to work with you as we go forward. So we do look forward to working with you in the new year to continue this important work in protecting the public's health as we go forward. So thank you very much. Happy holidays.

CHAIRPERSON NICHOLS: Thank you. To you, too.

Chris Mertens.

MR. MERTENS: Hi. Good morning, my name is Chris Mertens here on behalf of CALSTART today. Our comments will focus on the optional NOx standards and the hybrid electric certification procedure regulations.

CALSTART applauds ARB staff for moving forward with the voluntary low NOx standards. This is a very important step forward and generally in line with one of key recommendations from the CEC CalHEAT Truck Research Center.

We note the real key here is lower emission vehicles, not just engines. Hybrid and alternative fuel systems, such as range extended plug-in hybrid vehicles, can provide the same level of emission benefits, but would not be captured by an engine only certification. We encourage you to keep this in mind when thinking about how to provide incentives for cleaner technologies through Carl Moyer, Prop. 1B, and other avenues.

Vehicle electrification and hybridization can

provide substantial benefits in many different ways. We support the goals and standards and test procedures, but note that some of our members with innovative new technologies have raised technical concerns about whether or not the new procedures provide a clear path forward that allow them to certify their vehicles and get credit for the emission reductions provided by their technologies.

We'd like to thank staff for the work to date on these items and we look forward to continuing to work with you on certification procedures and incentive structures that ensure we are driving innovation across the board on zero and near zero emission trucks and buses.

Thank you very much.

CHAIRPERSON NICHOLS: Thank you.

Tim Carmichael and then Bill Magavern batting cleanup.

MR. CARMICHAEL: Good morning, Chair Nichols, members of the Board. Happy holidays to all.

Tim Carmichael with the California Natural Gas Vehicle Coalition. I'm here to comment specifically on the optional low NOx standards. We were one of the organizations many months ago now encouraged Eric White and others on the staff to pursue the development of these optional NOx standards because we strongly believe that

natural gas engines can achieve these standards in the near term. We have -- as we have discussed with staff, achieving these standards, though technically feasible, is going to cost more money. And the key piece, as staff noted in their presentation, are effective incentives both for the engine manufacturers to produce these engines and for the fleets to buy these engines once they're developed.

We look forward to working with staff on developing those effective incentives. There are a lot of interesting technologies and approaches that are in the works as we heard from the South Coast and others. And we're excited about what can be done in the near term. And that's the next, you know, two to three years in achieving these standards. Incentives is a key piece.

Couple other people noted, and this is another important detail is, you know, these emissions standards are getting so low that our testing equipment is having difficulty verifying that the engines are performing at those standards. That's another detail that we -- this agency and the developers need to continue to work together on.

With that, we're here to support this proposal and very appreciative of the staff's efforts to date. Thank you very much.

CHAIRPERSON NICHOLS: Mr. Magavern, if you want to preserve your position as last to speak, I'm going to have to take somebody else ahead of you who forgot to appear. So just stand by. You will get the last word.

And we'll hear from Michael Tunnel of the American Trucking Association. You did the right thing in signing up online. You just forgot to check in with the clerk.

MR. TUNNELL: I didn't realize I needed to check in. I apologize.

Good morning, Chairman Nichols and members of the Board. Good to see everybody here today.

I'm Mike Tunnell with the American Trucking Association. And I just want to take a moment to acknowledge staff and the work that they've done getting out the draft regulatory language early and giving us a chance to look it over and their willingness to discuss our questions and concerns about it. So thank you. That's been very helpful.

We support the proposed alignments with the federal Phase I greenhouse gas program. The new engine and vehicle standards, harmonizing those is very important. As you know, trucks travel all over the country internationally as well as throughout North America. So having harmonized standards is very

important. So we ask you to support that.

As far as the tractor-trailer in-use requirements having alignment eliminates the possibility of buying a new truck and having it not compliant with California standards. So it just makes everything in sync and eases travel for trucking companies throughout North America.

And I've got a little bit of everything. So if you can follow me here.

Optional low NOx standards, we want to maintain the technology neutral approach and a voluntary approach. And I think the proposal does that. I think cost feasibility and cost effectiveness are going to be the two factors in this. And it sounds like there's a lot of questions on where this goes. But you know somehow as things go forward, getting the largest pool of demand may help lower cost. And I think we would urge the State to really maintain control over the program and kind of try to keep it more broader in scope.

Our concerns with the low NOx standard is moving towards California-only standards. I think as you've heard in October, you've heard some today, you'll probably hear in April, the California in-use standards are really causing a lot of hardships, a lot of inequities. And as we move forward on this, I think we really need to be cognizant of that and try to avoid that approach in the

future. If we can, you know, get ahead of the game a little bit, hopefully this will not be needed in the future.

And lastly, I want to talk about the idling regulation, you know, adding owners and motor carriers to that regulation. And basically if they can't identify the drivers, there's a possibility of three copies of a ticket being out there. And it seems as you walk through this process that it may not be a very efficient process from perspective of staff resources, your staff resources, as well as figuring out who's paying the tickets, who's responsible, and how it all works from an enforcement perspective. So we'll just ask that that gets looked at a little closer. And I think there's more work to be done to get those tickets collected.

So thank you for squeezing me in.

CHAIRPERSON NICHOLS: Thank you.

All right, Mr. Magavern.

MR. MAGAVERN: Thanks.

Bill Magavern with the Coalition for Clean Air in support of the package that's before you this morning.

First, just briefly, we think that enforcement of the idling regulation is very important to public health and that it's appropriate to hold the owners as well as the drivers responsible. So we urge your adoption of

that.

And then on the optional low emission standard for heavy-duty vehicles, we think that it is both feasible and essential to adopt that optional standard. We know from the Vision for Clean Air that came from your staff and the South Coast and San Joaquin Air Districts that we need to reduce emissions in those air basins to very close to zero. So this is one step on the road, which is clearly going to be a very difficult road. But we will continue to advocate for the availability of incentive funding for those who comply with this standard. So we think that is an important piece that you're adopting today.

And finally, I want to join with my colleagues in the California Clean Air Freight Coalition in calling attention to the need for a broader sustainable freight initiative. And we have had some very good conversations with the staff as well as with a number of the Board members and look forward to continuing those conversations and working towards an actionable plan next year. Thanks.

CHAIRPERSON NICHOLS: Thank you.

That concludes the list of witnesses on these five items. So when it comes back to the Board for comments and questions, et cetera. I had a couple I guess, so maybe I'll just start.

One is to respond to the several comments that we heard from the environmental and public health communities about the desire for a more formal structured look at the freight work that's going on within ARB. And I've heard from several of you Board members. So I expect some of you may wish to comment further on this.

But clearly, there's a need to bring more focus if only in terms of public communications to what's going on at ARB. This is a terrifically important issue area, both for ground level pollution and for the planet. And it's also something that we're increasingly devoting staff resources and expertise and research money to, working with some of the large districts, especially South Coast.

So I think it would be a good idea for us to add to the rule specific resolutions that we're dealing with this morning, a resolution. I don't think it has to be very lengthy. But I think it should be explicit, that we do want to have a staff briefing for the Board early next year and that we are, in fact, as a Board really committed to moving this agenda item over for all the reasons that were stated, the need on the part of communities, the need for people to know where we're headed.

You know, I don't think any of us enjoy -- I don't mean to be negative about this. But the experience of having to go through a mandatory fleet turnover for

trucks is not one that anybody wanted or looked forward to. It was something we did because we felt we were compelled to do it by our overarching responsibilities to meet federal clean air standards. But the more we can get ahead of these standards and the more we can integrate our work and focus as we have in the past on the new vehicles and incorporating technologies as the fleet turns over, I think the happier we will all be.

So I think that becomes a part of the message here is that there are things we need to do to effect the way in which vehicles are operated. We're working through SB 375 and local planning and other things on hot spots and communities. We're working on other aspects of this program. But the focus in terms of our ARB's core expertise is really on the vehicle side of things and what can be done.

So I think if we could just state the Board's intention in this regard and ask the staff for a date if at all possible early next year when you think you could do an initial briefing on the work that's underway. I don't know if you've got that in mind already.

But, Mr. Corey.

DEPUTY EXECUTIVE OFFICER COREY: Yes, Chairman Nichols. We think we can return to the Board in January for the January Board item to discuss the plan going

forward and the process.

CHAIRPERSON NICHOLS: That's terrific. I didn't mean to preempt other Board members, but I know there is a lot of anxiousness about this.

We'll start with you, Mr. Gioia.

BOARD MEMBER GIOIA: I really appreciate our Chair pointing this out. I think this is an extremely important issue.

And I think what would be useful when the staff prepares this is to do it in a way that also identifies where there may be potential gaps. And I think part of getting it all in one matrix and presentation allows us to see I think: One the really good work that's going on; and two, where there may be opportunities to cover some gaps in trying to look at this sort of comprehensively and wholistically. Because there are a lot of separate efforts as you point out that address the freight issue.

And so part of it is a communication to the public and stakeholders about what we're doing, but it's also about identifying where there may be some potential gaps or where there may be need for even more aggressive steps. So if staff can prepare it with that in mind and -- I think it will be a great discussion. Thanks.

CHAIRPERSON NICHOLS: Dr. Balmes.

BOARD MEMBER BALMES: Madam Chairman, I also

would like to thank you for bringing this issue up and for the testimony we heard today about the importance of the sustainable freight strategy. But I was already appreciative of staff for having scheduled a January time slot. I received that notice a few weeks ago.

CHAIRPERSON NICHOLS: Oh, well you read your mail better than I do.

BOARD MEMBER BALMES: When it's the future schedule of our meetings. Got to know what you need to be ready for.

What I would just add to Supervisor Gioia's comments would be it's important that this came up in the context of truck regulations, but sustainable freight, as everyone knows, involves other modes of transportation. And it's the integration across the different types of freight transport that I think is important for us to have a plan.

One of the real strengths of the agency's efforts over the last few years has been the integration of greenhouse gas control with more traditional air pollution control efforts. I think we're doing a fabulous job at that. But we also have to integrate across these different freight transportation modes.

I'll be happy to be in support of the resolution and even try to put one forward, though I think somebody

else may be more succinct than me.

CHAIRPERSON NICHOLS: Thank you.

Turn to this side. Ms. Mitchell, I'll start with you.

BOARD MEMBER MITCHELL: I will echo my support also of freight policy. I have been approached by a number of people. And of course, this is an incredibly important issue in the South Coast region with the ports of Long Beach and the ports of L.A.

And I know a lot of work is being done in the state by various agencies in various contexts. And I think a report back from staff I would like to see how those efforts integrate with what we are doing.

And also another good point that was made is that freight travels across a lot of different modes. And it's not just trucks. It's the intermodal yards and the equipment in those intermodal yards. It's, you know, rail and, you know, a number of things that are already underway in looking at new technologies.

So I think a report on what's being done, the technology that's now being employed and the other agencies that are working on this, it's a big, big subject and a big task to pull all that together. But I think it would be useful for the Board to have a look at that, especially since we have a number of new Board members as

well.

Would this be the time to comment on the rest of the items that are before us or do you want too reserve that?

CHAIRPERSON NICHOLS: Why don't we just wrap this up as an item and get a resolution in place? I don't know that we need to write it up formally. Our counsel is telling me no, that the staff understands what the direction from the Board is. Hang on.

Yes?

BOARD MEMBER BERG: I would like to make one comment on the sustainable freight, if you're until making them.

CHAIRPERSON NICHOLS: Oh, yes. On that one, sure.

BOARD MEMBER BERG: So I'm very appreciative also of this direction and would be in support of a Board amendment. However, I also would like to comment that this is very complicated and very vital to the economics of the state of California.

And what is equally vital and what we heard more than three compelling testimonies is the role of medium and small businesses in this area. And I'm very pleased to hear the Chair say that we're really looking at new vehicles, new direction. But that in doing this, we

really, really, really have to bring small and medium size business to understand the entire freight avenues and policies and how it's working. Because sometimes we get lost in the big picture, and the smaller picture that really keeps the economic engine of the state of California is struggling. And we just need to make a commitment to that.

CHAIRPERSON NICHOLS: Thank you for that reminder.

BOARD MEMBER SPERLING: So let me just dig a little more deeply into what I think this might -- this kind of report or whatever it is, initiative we're talking about is. I would like to make sure that it does go beyond some of these narrower technology opportunities, although those are probably the most important parts of it in many ways.

But the whole concept of logistic sprawl, which is really a land use issue. I know we don't like to get into land use issues. But we're working with South Coast and the local governments. That is a big part.

We're seeing a lot more truck VMT happening because these warehouses and distribution centers are moving out to the periphery. That's one.

We would include last mile issues in this, meaning how can we get really efficient low carbon, low

emissions technology. I mean, I'm not advocating drones to deliver parcels to houses as Amazon did. But, you know, maybe that's part of it.

BOARD MEMBER GIOIA: We can beam them to houses. The Star Trek technology. How's that?

BOARD MEMBER SPERLING: We need to be looking forward. There's all the intermodal issues. There's port issues. There's the new technologies, like the catenary opportunities.

So, you know, echoing what we've heard here, this really is a time where we need to look at this in a broader way than is typical. And of course, as we learned in our sustainable freight workshop six months ago or so, this really is a partnership with a lot of other agencies.

And let me offer one. And one contribution is we at U.C. Davis together with USC and U.C. Riverside just won a National Center award from Department of Transportation to focus on sustainable transportation. I think you can tap into that Center to help put together some of these broader approaches.

CHAIRPERSON NICHOLS: Thank you.

Any additional comments? Yes, just on that item. And then we have to get to the actual resolutions in front of us.

BOARD MEMBER SHERRIFFS: That was great, that

detail.

Just emphasize also within that plan how we're going to do the collaboration and the public input, because that is so key. And some of the testimony I'm hearing people having the sense 2010 and done, I can't believe that really was the message, but I can understand people potentially having heard that. And so we need to be really involving broadly.

CHAIRPERSON NICHOLS: Thank you.

I would just add at the end here that the importance of logistics to California's economy is not something that we are alone in recognizing. And the California Transportation Agency is currently developing a freight plan for the state of California under direction from the Governor as is the federal government through a national freight planning effort. So our work is important because of our mandate to deal with the air pollution and greenhouse gases, we have some really important tools to bring. But we're not alone in this effort. So it's going to be part of something much larger and broader.

With that, I think we can say that the Board has given direction to the staff. The staff apparently has anticipated that direction by scheduling a briefing in January. Thank you, staff. And we'll move on. But

thanks to the community members and groups that brought this issue forward here today. We now move back to the items that are actually in front of us.

And I think -- Supervisor Roberts, did you have a comment on any of the specific ones at this point?

BOARD MEMBER ROBERTS: No. Well, I was ready to make a motion.

CHAIRPERSON NICHOLS: Okay. We've been asked to do them separately, given there's some separate issues and comments on each of them. So why don't we just start with Resolution 13-50, which is the standards and test procedures, the Phase I alignment issues there.

BOARD MEMBER SHERRIFFS: I would move approval.

CHAIRPERSON NICHOLS: We have a motion and a second. Are there any comments on this particular item? If not then we'll -- yes.

BOARD MEMBER SPERLING: Is this the one that addresses -- many of the people raised the question about the sophistication and capabilities of the testing technologies and protocols. Is that separate from this; right?

CHAIRPERSON NICHOLS: Dr. Ayala, if you just verify that.

DEPUTY EXECUTIVE OFFICER AYALA: I think a lot of what we heard today about the trade-off in technology is

related to the optional low NOx standard. And we can --

BOARD MEMBER SPERLING: That's separate. Okay.

CHAIRPERSON NICHOLS: Okay. We then have 13-51.

BOARD MEMBER ROBERTS: Move approval.

CHAIRPERSON NICHOLS: Moved by Supervisor Roberts.

BOARD MEMBER RIORDAN: Second.

CHAIRPERSON NICHOLS: Seconded by Mrs. Riordan. Okay.

And are there comments, questions, or any additional staff input on this one?

BOARD MEMBER MITCHELL: I'm wondering which one contains the idling issue.

CHAIRPERSON NICHOLS: The idling issue is --

BOARD MEMBER BERG: 13-53.

BOARD MEMBER SPERLING: We're doing the tractor-trailer now.

CHAIRPERSON NICHOLS: This one is the tractor-trailer.

BOARD MEMBER SPERLING: I have a question on that.

You know, we've never -- it seems like a good program. I see lots of trucks using the skirts now, but I never heard anyone evaluate it. When we first adopted it, there were a lot of concerns about, you know, everything

from the skirts falling off when there's snow storms, backing around turns to -- all kinds of things and how much these trailers were really used and how the payback was really going to be in one year. Have we done -- has anyone done any evaluation? If we're going to promote more of this and even get it into the national program, it seems like we ought to be able to evaluate it.

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: I think one of the reasons why you haven't heard of any complaints or the skirts falling off and things like that is because those complaints have gone away. The program has been actually very, very successful. We're seeing -- I can't remember the exact number. But compared to when the program first started, we were able to evaluate how many skirts were out there, for example. They were in the few hundreds. Now they're in the few thousands.

Not only that, but the cost of the skirts, for example, were well over $2,000 in the beginning. They're less than $1,000 now installed. The turn around time is less than a year. So the program has been very, very successful.

BOARD MEMBER SPERLING: Would it be appropriate -- here's a case where we actually did something pioneering and apparently successful. Shouldn't

we document -- shouldn't we document it that it really is -- that our beliefs are really borne out in reality?

DEPUTY EXECUTIVE OFFICER AYALA: I think the opportunity to document it is going to come. As you know, the National Academy of Sciences has commissioned a Committee to actually look at potential technologies that can help us with Phase 2.

And I know that one of the principle elements that they have been studying and will continue to study is our regulations. So I think the point is well taken. That's going to be a prime opportunity for us to chime in and actually highlight what you said it was an incredible success.

BOARD MEMBER SPERLING: But I'm saying real numbers and real data, because they're not doing that. They're just talking to us and we're telling them it's great. They're presumably believing it. But --

DEPUTY EXECUTIVE OFFICER AYALA: Well, I'm interpreting that as direction to staff. We would be happy to come back and conduct our assessment. Bring back to you the very good news story related to this regulation and put some numbers behind us.

CHAIRPERSON NICHOLS: Sounds like a good project for a grad stud at U.C. Davis to me.

BOARD MEMBER SPERLING: What a brilliant thought.

CHAIRPERSON NICHOLS: I mean, while we're thinking of who could do this work.

BOARD MEMBER ROBERTS: Sounds like we have to add to the next item.

BOARD MEMBER BALMES: I just wanted to make one clarifying comment to my fellow academic.

You had mentioned trailer modifications here, too, in your initial question to staff. I think we're only dealing with the tractors here in terms of the amendment to the tractor-trailer rule, just to be clear. Trailers will be in the future.

BOARD MEMBER SPERLING: I'm fine with what's being proposed here. I was thinking that, you know, this was an opportunity to actually affirm that what we're doing is a good idea.

BOARD MEMBER BALMES: I agree with that.

CHAIRPERSON NICHOLS: Okay. I think staff has heard that request and will work -- follow-up perhaps with some of our friends in academia who might be interested in assisting us in getting this work done. All right.

Any other comments or questions on the tractor-trailer? This is 13-50. We have a motion and a second. All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Any opposed?

Any abstentions? Okay. Great.

That brings us to 13-52, which is the optional reduced emission standard. And this is one that, of course, we heard quite a lot of comment on, both pro and con.

I think it's a pretty innovative and interesting approach. I agree that people should be aware of the fact that it could possibly lead to mandatory standards in the future. I think the staff has been very clear about that. But it's a great way to get some real world data and experience if, in fact, we can come up with sufficient incentives for people to try it. So it seems to me that's pretty much of a win-win.

BOARD MEMBER RIORDAN: I move approval, Madam Chair.

BOARD MEMBER ROBERTS: Second.

CHAIRPERSON NICHOLS: All in favor --

BOARD MEMBER MITCHELL: I have a comment. Thank you.

Obviously, I'm very much in support of this. We need to work toward future NOx emission reductions.

But I would suggest that when the Moyer program comes up for review in a year or so that we look carefully at that and we look at how those funds might be used in several different ways. One would be incentives for new

technology and testing equipment. We heard there's some problem with testing at these low levels.

Also help for small fleets, because these are the single owner-operators who probably can't afford to get into this technology, but we want to encourage them to do it.

Incentives and help for drayage trucks in our ports and for our intermodal facilities. So I'd like staff to consider that when Moyer funds come up for review. Thank you.

BOARD MEMBER SPERLING: I wanted to ask a broader question here. And you know, moving towards these NOx standards as well as the greenhouse gas we're going to talk about in a moment is just hugely important. Trucks lag behind cars by 20 years or more in adopting these standards. And I think there's lots of new technology, and we heard that that can be used.

The question I have though is the understanding what we really mean by we talk about -- I guess the words were laying the groundwork for future mandatory NOx standards. What authority -- I mean, I guess I should know this. But what authority do we have to do this? And under what osmosis would we be doing it?

I mean, because this is a really big deal. It's important to California.

SENIOR ATTORNEY WANG: Our authority is governed by -- we have the California Health and Safety Code give us the authority to establish emission standards for all new motor vehicles and all new motor vehicle engines that are either imported into the state or sold into the state.

BOARD MEMBER SPERLING: Is this the same as for light duty.

SENIOR ATTORNEY WANG: This crosses the gamut. It's both light-duty vehicles and heavy-duty vehicles and both on- and off-road sources.

So your question is limited to the context of on-road vehicles.

We're also directed by the California Clean Air Act and the Federal Clean Air Act to basically attain and maintain ambient air quality standards that are necessary for the protection of the health of our citizens and to protect the environment.

BOARD MEMBER SPERLING: So this is the same provision where Congress allows us to do standards -- our own standards for light duty. This is the same authority and the same provisions for heavy-duty also?

SENIOR ATTORNEY WANG: Yes. When you're talking about the provisions of the Clean Air Act Section 209 basically allow California, as you recognize, to establish our more stringent standards for on-road motor vehicles.

So that's not limited to light duty. It also extends to heavy.

BOARD MEMBER SPERLING: So the distinction here that I'm really getting at is that trucks cross, you know, our interstate commence. We've gotten into difficulty over this issue in the past. Are we -- do we really think that we really can do this and it will survive legal scrutiny?

SENIOR ATTORNEY WANG: Well, I think ARB has been regulating heavy-duty diesel engines since the mid '70s. It's a -- I think ARB recognizes basically the ability of trucks to travel across the country. We've established a number of regulations that apply to trucks and trucking industries. And as long as our regulations basically maintain the same requirements on a level playing field, then we don't foresee any difficulties with the legal challenges to our regs.

CHIEF COUNSEL PETER: Professor Sperling, I concur with what Mr. Wang just described. It's the same process where we would have to turn in a request to U.S. EPA for approval. So once that's approved, it's incorporated into the Federal Clean Air Act. And people can raise comments, which could be it's not technologically feasible or the other comments that you're raising about interstate commerce. Those would be dealt

within the U.S. EPA approval process.

Moreover, in terms of reaching outside the state of California, these only would apply to trucks that drive in California. So that is the takes care of the Constitutional issues in our view.

BOARD MEMBER SPERLING: We would presumably do what we did with light duty and hope other states also adopt it and eventually the Feds.

CHIEF COUNSEL PETER: Or the U.S. EPA then adopts our standards.

CHAIRPERSON NICHOLS: Which has happened numerous times with heavy duty as well as light duty in the past.

CHIEF COUNSEL PETER: Right. That's exactly correct.

CHAIRPERSON NICHOLS: Okay. We have a motion and a second on this one. Can we have a vote? Okay. All in favor please say aye.

(Aye)

CHAIRPERSON NICHOLS: Any opposed? Any abstentions?

I erroneously -- and I've been politely corrected by two of my colleagues -- failed to call for a vote on 13-50, which was the first Resolution, the one that dealt with the heavy-duty vehicle greenhouse gas emission standards and test procedures. We had the discussion. We

had a motion and second. We never took a vote.

May I go back and ask for the Board to please vote on the very first of these Resolutions. All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Opposed? And abstentions?

Hearing none, this is passed as well.

One of these items -- I don't want to skip over this -- had an issue that was raised by Volvo. Was that the optional standards issue that we just discussed? And there was a comment that was filed on that one also that was written comment. And I believe there was a response to that. Okay.

So we've dealt with any possible challenge as far as the CEQA compliance is concerned, but I really do want to express my dismay speaking from the vantage point of somebody who served on this Board back in the '70s and early '80s when we were hearing the comments of industry about how NOx control would make ozone worse and that, you know, we didn't understand the atmospheric chemistry.

The state of California and the federal government both have spent hundreds of millions of dollars, if not more, on modeling. We have the best atmospheric chemistry modeling in the world. Doesn't mean there isn't more that one could possibly learn.

But I just want to be on record as saying this issue about NOx control and the importance of it for dealing with long range ozone transport as well as the impacts of NOx itself on particle formation and so forth is one that really should have been settled. I'm just embarrassed as a former long-time Volvo owner to be having to deal with that issue right now.

BOARD MEMBER SPERLING: Different company.

CHAIRPERSON NICHOLS: All right. Let's hear about number three. 53. This is the idling limits. And the question of making them enforceable. Anybody have any questions or comments?

BOARD MEMBER MITCHELL: I would have a comment.

CHAIRPERSON NICHOLS: Yes.

BOARD MEMBER MITCHELL: And I have mentioned this to our staff. But the staff in the proposed regulation calls out the idling issue in the vicinity of schools, hotels, and motels. And because that is specifically called out, I would propose that we add language in the 15 day period that includes hospitals, senior care facilities, and child care facilities. I think those institutions represent sensitive receptors that also ought to be mentioned specifically in the regulation. So I'd ask for that.

CHAIRPERSON NICHOLS: Seems like a good idea.

Any concerns about that from staff's perspective?

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: There is no concerns. We will clarify that to make sure it's in there explicitly?

BOARD MEMBER MITCHELL: I agree with the truck owner responsibility. I know we've had a number of comments about that. But I think that's an important thing to include.

CHAIRPERSON NICHOLS: I don't see this as interfering with the ability of a company if they insist on making their drivers pay. That's between them and the driver. We're not doing anything to alter that arrangement.

BOARD MEMBER MITCHELL: And they become accountable because the owner/employer of that truck driver is accountable for that driver's behavior as well. So I think it's a fair process.

CHAIRPERSON NICHOLS: Okay. That's a motion. I'll take that as a motion.

BOARD MEMBER MITCHELL: Yes.

BOARD MEMBER SHERRIFFS: I did have a question. It sounded like this is different than the way a speeding ticket or a red light violation is handled. I want to get a little more clarity.

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT

BRANCH CHIEF CARTER: Only because with the speeding tickets it's easier to pinpoint who was at fault.

BOARD MEMBER SHERRIFFS: But the red light probably is the better corollary example of, well, who was driving.

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: It's not perfect. But it's certainly a lot better than what we had before where we weren't getting any -- we weren't getting a significant number of the citations closed.

BOARD MEMBER SHERRIFFS: But this is like the red light. Where does the ticket go? It goes to the truck owner, doesn't it?

CHAIRPERSON NICHOLS: You mean if you're caught by a camera at the light, it's whoever is the registered owner is.

BOARD MEMBER SHERRIFFS: It doesn't tell you who the owner is. It just tells you who the driver is. Just tells you the license plate. This is on par parallel to that process.

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: Yes.

CHAIRPERSON NICHOLS: Motion by Mr. Mitchell and a second by Mr. Sherriffs. Call a vote on this one.

BOARD MEMBER BERG: I have a comment.

CHAIRPERSON NICHOLS: Go ahead. As a truck owner.

BOARD MEMBER BERG: As a truck owner. I think we have to be careful that in the state of California the law is governing what you can force employees to pay and what you can't. It's very clear. So I don't think we can be cavalier to believe that owners can tell employees, well, they can pay certain things. For example, it is company's responsibilities for placarding and for other things within their trucks that are -- employees have responsibilities to do. And when they don't do that, the companies do have the responsibility for paying the ticket and you cannot legally be charging your employees for these violations.

That said, I do agree that enforcement is very important. And where an owner has authority over who drives -- and we certainly have authority over people's employment, I don't like -- I don't like that we are at this position, but I don't think we legally have any other options that I can figure out.

Where I am concerned is where there's owner responsibility who the driver is self-employed and they are not the employee. And in those cases, I think if there is a contract in place, that clearly defines that it is the driver's responsibility, I don't think that the

owner should have to pay for the ticket. They wouldn't have to pay for any other violation.

And so am I misunderstanding what we're trying to do? I'd like clarification on that.

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: Maybe Stephan can help me with this one.

In all the cases, it will be -- most cases, it will be on a case by case basis because -- just because of the scenario you just laid out. There are situations where it might be clear that it may not be the owner's problem or fault. It may be strictly the driver. So our enforcement team would have the assess that.

BOARD MEMBER BERG: But that will be clear, because being on the side of having enforcement actions and sitting across the table to negotiate these things, is this a case by case that it's very clear? Or is this a case by case that we can say, I'm sorry, you're still responsible because we had passed this amendment?

EMISSIONS RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: I can't answer that. Because as we just said, it's on a case by case. So I imagine there are cases that aren't very obvious, very clear who was at fault.

CHAIRPERSON NICHOLS: Can I be clear about this?

Because now you've confused me. I thought my statement was actually not to be flippant about who's responsible, but to say this regulation does nothing to change existing law about who is responsible for paying tickets. It is whatever the law is. Whether it's statutory or contractual between the owner and the driver, this regulation doesn't change it. It just gives us the ability to add another party who we can find to the enforcement chain. If I'm wrong about that, I need that clarified here by our attorneys.

BOARD MEMBER BERG: That's very helpful.

CHIEF COUNSEL PETER: I think what we're focusing on here is the facts that were set out by the Program staff. One of the concerns is that the driver is asleep. When you're having a speeding ticket, that obviously would not occur. You don't know who the person is.

So what they do is they post the ticket on the windshield. And then it's not responded to. And then the question is, who do you go back against?

And we can go back and check the wording of this after -- before it's finalized and sent to Office of Administrative Law. The way I was interpreting it and we'll check to make sure it's written this way, is that the notice then would go to the trucking company and then they would say this is -- this basically based on the

license number, this belongs to you.

At that point, the trucking company can then say, oh, the driver was X. See that's the part we don't have that hook right now. And then they would be dually obligated. If the company had the position that they are not allowed to do that or they have a contract to do that, that would be something that would be presented in the discussion about who is ultimately liable.

We would never collect from two different people, for example. There was a concern about three tickets floating around. We're not interested in making money. We have a gap right here where we don't know who's sleeping in the sleeper cab. But that was my understanding. We'll go back and check that. And we'll have to propose 15-day amendments if there is any ambiguity on that.

BOARD MEMBER BERG: Thank you very much. I'm comfortable with that.

CHAIRPERSON NICHOLS: Any other question or comments?

All right. Then we have -- we don't have a motion. We don't have a motion and a second.

BOARD MEMBER BERG: I think we do have a motion.

BOARD MEMBER MITCHELL: I made the motion.

CHAIRPERSON NICHOLS: You raised the question at

the very end. I apologize. We then went on to have further discussion. Got it.

So we are now ready to bring this back for a vote. All those in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Opposed? Abstentions? Okay.

Great. I think we are now at Resolution 13-54.

BOARD MEMBER RIORDAN: I move approval, Madam Chair.

BOARD MEMBER BALMES: Second.

CHAIRPERSON NICHOLS: This is the certification procedures. The staff has already indicated they're going to be working with the industry representative who was here to make this workable. So I don't think we have any further issues.

All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Any opposed?

Any abstentions? Great.

Okay. This was more complicated than usual. It was a test of my paper shuffling skills, which I have to say need improvement. So maybe next time we can get tabs or something. Anyway, this is really good. And it's nice to have this set of amendments done and to be able to move

on next year to the larger issues of a freight system. Thank you all very much.

We have one more item on the agenda today, which is our research plan. We'll just shift personnel here.

The last item on today's agenda is consideration of ARB's proposed research for fiscal year 2014, 2015. The annual research plan supports ARB's air quality planning efforts, helps us with our regulatory decision making, advances efforts to meet the Global Warming Solutions Act, as well as state implementation plans and other legal requirements, and facilitates important collaborations with other research funding organizations.

Mr. Corey, do you want to introduce this item?

DEPUTY EXECUTIVE OFFICER COREY: Yes. Thank you, Chairman Nichols.

There are 14 projects in this year's research planning being recommended for funding. The list of proposed projects was developed from a public solicitation of research ideas supplemented by extensive discussions with ARB program staff and other State and federal agencies.

The proposed research projects support ARB's regulatory priorities in three key areas: Health, air pollution, and climate change. If approved by the Board, the projects described in the research plan will be

developed into full proposals and then brought back to the Board for your final approval over the next several months.

With that, I'd like to introduce Sarah Pittiglio of the Research Division, who will describe this year's proposed research studies. Sarah.

(Thereupon an overhead presentation was presented as follows.)

AIR POLLUTION SPECIALIST PITTIGLIO: Thank you, Mr. Corey.

Good morning, Chairman Nichols and members of the Board.

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AIR POLLUTION SPECIALIST PITTIGLIO: Today, we will be asking the Board to approve the proposed 2014-15 research plan. $5.3 million is requested to fund 14 research projects that will support the Board's decision making for key policies and programs.

If the plan is approved today, staff will work with researchers over the next few months to develop projects into full proposals. We will then take proposals to the Board's Research Screening Committee for review, before returning to the Board to request approval and funding for each research project.

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AIR POLLUTION SPECIALIST PITTIGLIO: ARB's Research Program will continue to play an important role in meeting the challenges of increasingly stringent federal air quality standards and long-term climate goals.

The projects included in this research plan will improve ARB's ability to meet and demonstrate compliance with lower PM2.5 and ozone standards and to achieve greenhouse gas emission reductions consistent with climate goals through 2050.

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AIR POLLUTION SPECIALIST PITTIGLIO: For this year's research plan, ARB staff collected project concepts from across ARB's divisions to identify and prioritize research to support the agency's most pressing program needs.

Research concepts were also collected from an open, public solicitation. Staff will release a solicitation for draft proposals, which will target the University of California and California State University systems.

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AIR POLLUTION SPECIALIST PITTIGLIO: This year's research plan reflects ongoing coordination with federal and State agencies and will leverage multi-million dollar funding commitments from NASA, the National Institute of

Science and Technology, the California Energy Commission, the California Department of Food and Agriculture, and U.S. EPA to study California's air quality and greenhouse gas emissions.

We are also coordinating with the U.S. Department of Transportation on projects related to SB 375 and the mid-term review of ARB's Advanced Clean Cars Program. Continued coordination with the State and federal agencies enables ARB to participate in projects and studies outside the reach of ARB's research budget alone.

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AIR POLLUTION SPECIALIST PITTIGLIO: This research plan proposals funding projects in three ARB's key program areas. Funds will be used to address research needs related to health, air quality, and climate change.

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AIR POLLUTION SPECIALIST PITTIGLIO: ARB's health effects research has helped contribute to the scientific basis for the development of State and national ambient air quality standards. The program also investigates emerging toxicological issues as they relate to public health and quantifies the health benefits of ARB regulations.

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AIR POLLUTION SPECIALIST PITTIGLIO: This diagram

illustrates selected components of ARB's health Research Program. One components of ARB's health research seeks to characterize the health effects of exposure to air pollution. Single pollutant studies have demonstrated the negative health impacts associated with exposure to PM2.5 and ozone and have been essential to the process of establishing health protective levels for national ambient air quality standards. In this year's research plan, we intend to focus on the potential health impacts of ultra fine particles.

ARB's exposure assessment work examines the level have exposure to air pollution in homes, schools, in vehicles, and in urban settings. Findings from past studies have supported many ARB programs and legislation. Current research in the health program is focused on mitigation research that aims to develop strategies to reduce exposure to air toxics in multiple settings. We will hear more about this topic at a Board motoring this summer.

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AIR POLLUTION SPECIALIST PITTIGLIO: This year's proposed health research project cover the topics of health effects of ultra fine particles, toxicity testing, and indoor air exposure.

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AIR POLLUTION SPECIALIST PITTIGLIO: One health research emphasis for this fiscal year is to better understand the health impacts of ultra fine particulate matter. Ultra fine particles are defined as being less than 100 nanometers in diameter and come from tailpipe emissions from a number of other sources.

While there is a large body of literature showing that PM2.5 is associated with premature death, no comprehensive epidemiological study exists that could help determine safe levels of ultra fines. However, some published research suggests that there may be a health risk with the number of ultra fine particles independent from that known for PM2.5 mass.

Studies on inhaled ultra fines show that they can deposit in multiple organs throughout the body and can lead to increased levels of inflammatory markers in the brain. Although some ultra fine epidemiological studies have been published, the results are inconsistent and the studies lack adequate exposure assessment at the regional level.

Initial studies by ARB, U.S. EPA, and others on the health effects of ultra fine exposure have shed light on the potential mechanisms and pathways by which these particles can effect human health, including cardiovascular effects. The first two proposed health

studies have been developed to help fill the research gaps associated with the effects of exposure to ultra fine particles.

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AIR POLLUTION SPECIALIST PITTIGLIO: The first project on ultra fines will fill the need for a sound epidemiological study on the health effects of long term exposure to ultra fine particulate matter and focus on the risk of premature death.

This research proposal will address the strong spatial gradients of ultra fine particles concentrations by using a combination of modeling and air monitoring at the regional level. These measurements and models of ambient concentrations of ultra fines will be paired with an existing cohort that was funded by the U.S. EPA through a research grant to U.C. Davis to calculate the estimated risk of premature death associated with exposure to ultra fine particulate matter.

Results from this research project are expected to lead to a clearer understanding of the health effects of exposure to ultra fines, including health risk at ambient air concentrations.

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AIR POLLUTION SPECIALIST PITTIGLIO: The second ultra fine research project will determine whether

long-term exposure to ultra fines is associated with the development of neurodegenerative processes and related cognitive deficits.

Emerging evidence suggests that environmental factors, including exposure to air pollutants such as ultra fines, may play a role in neurodegenerative diseases such as Alzheimer's and Parkinson's. Results will help determine if exposure to ultra fines causes adverse changes in cognitive function and whether exposure activates the central nervous system's immune response, which is believed to be in early stage in the neuro degenerative process.

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AIR POLLUTION SPECIALIST PITTIGLIO: The next proposed project will develop a recommended standard operating protocol for PM2.5 toxicological assays used as a screening tool for assessing relative health risks of engine technologies and fuels.

Standard toxicological assays of PM2.5 emissions have been used as a screen by ARB as one method of ensuring that no unintended adverse health effects result as new engine technologies and fuels come into use. While these assays are based on established procedures in the literature, there is no standard protocol for sample preparation for these assays.

This study will provide a standard methodology for toxicity testing and improve our ability to compare results from different studies and ensure consistent and accurate emission testing.

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AIR POLLUTION SPECIALIST PITTIGLIO: Formaldehyde is a toxic air contaminant which poses a risk of cancer and other adverse health impacts. This study will collect data on how much fiberglass particle filters contribute to indoor formaldehyde concentrations across a range of humidity levels and other conditions typical of California homes.

Results from this study will help inform decision makers about whether synthetic and other formaldehyde-free filters are a part of the solution to reduce indoor formaldehyde exposures and inform revisions to California's building code.

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AIR POLLUTION SPECIALIST PITTIGLIO: As part of the Board's ongoing effort to improve California's air quality, ARB will continue to fund research to support State Implementation Plans, also referred to as SIPS. ARB's air quality research provides real world feedback to identify sources of air pollution and how they can be addressed by regulations. As air quality standards are

tightened and emissions change over time, previously unrecognized or poorly understood emission sources need to be evaluated.

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AIR POLLUTION SPECIALIST PITTIGLIO: This year's proposed air quality research projects cover the topics of atmospheric science and vehicle emissions.

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AIR POLLUTION SPECIALIST PITTIGLIO: Past and ongoing research in the area of atmospheric science has focused on the causes of and solutions to ozone and PM2.5 non-attainment in the San Joaquin Valley, South Coast, and other air basins.

CalNEXT 2010 is one of ARB's most important field studies that collect data that is required to develop robust models. The study employed two monitoring sites, multiple aircraft, and a research vessel that collected measurements on greenhouse gases, ozone, aerosol precursors.

The study was designed by staff from ARB and the National Oceanic and Atmospheric Administration to answer policy relevant science questions on air quality and climate in California. The synthesis report of the findings from the 2010 field study will be presented to the Board in the spring of 2014.

This year's projects on atmospheric science are focused on improving atmospheric modeling for SIP development. There are two proposed projects to improve aspects of ozone and particulate matter modeling for the San Joaquin Valley.

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AIR POLLUTION SPECIALIST PITTIGLIO: The first atmospheric science research project is focused on improving ozone models in the San Joaquin Valley by collecting vertical profiles of ozone concentrations. This picture depicts the variability of ozone concentrations in the vertical direction over the Los Angeles basin.

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AIR POLLUTION SPECIALIST PITTIGLIO: Collecting measurements in the San Joaquin Valley is essential to assess the atmospheric chemistry and impacts of ozone and its precursors in that air basin. This is because the extent to which ozone and its precursors above the traditional surface monitoring network, mix down after sunrise and kick start ozone formation on days with high concentrations is currently unclear. Results from this research project will improve ozone modeling for the SIP.

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AIR POLLUTION SPECIALIST PITTIGLIO: The second

air quality project will further the understanding of the formation processes, sources, and composition of PM2.5 in the San Joaquin Valley and be used to update ARB's SIP modeling.

This project will investigate the physical and chemical processes that led to high PM2.5 concentrations in the valley during NASA's Discover AQ field study in the winter of 2013. The study collected data from multiple flights during two high PM2.5 episodes. Analysis of this data will enhance the understanding of PM2.5 formation in the San Joaquin Valley and will provide updated information on the use in SIP modeling for the revised annual PM2.5 standard adopted by U.S. EPA in 2012.

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AIR POLLUTION SPECIALIST PITTIGLIO: Now I will turn to this year's planned vehicle emissions research.

The goal of the Vehicle Emission Research Program is to support ARB's efforts to attain national ambient air quality standards and develop regulations that reduce emissions of pollutants to the atmosphere and public health. Past research has demonstrated the efficacy of emission control technologies to meet new low NOx standards.

Current research on NOx control is focused on measuring the durability of these technologies and the

real world effect of our major in-use diesel rules, such as the truck and bus rule. On-road measurement studies, using multiple measurements methods are showing these policies are resulting in the expected emission reductions.

Additional research to support regulatory efforts is demonstrating the ability of new CNG and diesel to achieve further NOx reductions. Current research supports the mid-term review for reduced PM emissions from the Advanced Clean Car Program. This year, two research projects are proposed to evaluate the adequacy of existing emission standards for NOx and PM.

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AIR POLLUTION SPECIALIST PITTIGLIO: In 2011, mobile diesel off-road engines became subject to regulations that require compliance with stringent diesel particulate matter and NOx exhaust standards based on the use of advanced aftertreatment technologies that limit the emissions of these toxic pollutants. However, small off-road diesel engines, such as loaders, tractors, pumps, compressors, generators, and refrigeration units are allowed to certify to less stringent emission standards. The reason for the adoption of less stringent emission standards for small off-road equipment is that advanced aftertreatment was estimated to be much more costly than

for larger engines.

Recently, the economies of scale of today's market as well as the availability of additional exhaust control strategies and techniques warrant an updated analysis of the cost and feasibilities of applying these technologies to small off-road engines.

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AIR POLLUTION SPECIALIST PITTIGLIO: This graph clearly illustrates the higher emissions in NOx from small off-road engines. Small off-road equipment are estimated to contribute 22 percent of the total NOx from off-road equipment and twelve percent of the total off-road diesel particulate matter emissions.

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AIR POLLUTION SPECIALIST PITTIGLIO: This project will quantify the cost and performance of various emission control technologies for small off-road diesel engines. The results of this study will be used to determine whether or not new small off-road engines should be subject to more stringent exhaust standards, identify reasonable levels of exhaust control based on costs, and support possible future amendments to the off-road diesel engines regulations in the 2016 time frame.

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AIR POLLUTION SPECIALIST PITTIGLIO: California

is a participant in federally administered programs that allow manufacturers to certify some engine families to less stringent standards, as long as the manufacturer certifies enough engines below the more stringent current standard to ensure that its entire fleet average is at or about below Tier 4 levels. However, because these programs are administered on a national level, it is likely that some states, or some regions within a state, may receive a disproportionate share of higher emitting engines.

Currently, there is no way to evaluate the distribution of higher emitting engines from these federal programs within California. California's extreme ozone non-attainment areas need the full benefits of Tier 4 engines, making it essential to understand the impact of the federal averaging and flexibility provisions in those areas.

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AIR POLLUTION SPECIALIST PITTIGLIO: This proposed research project will identify regions in California where the higher emitting engines have been located and determine whether California has received more than a proportionate share of such engines. The study will identify and quantify the number of sites, such as landfills, construction sites, or mining operations, where

higher emitting engines are prevalent. Results from this study will identify possible options for ensuring that certain regions of California do not receive more than their proportionate share of higher-emitting diesel engines under these programs, including federal action or ARB regulation.

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AIR POLLUTION SPECIALIST PITTIGLIO: Now we'll turn to ARB's climate change research, which began with an estimation of the effects of climate change on public health and the economy and has helped identify cap and trade options.

The Research Program has expanded its climate research to include sources and potential mitigation strategies for greenhouse gases. These research efforts have led directly to some of the regulations and programs now in place to meet the 2020 greenhouse gas emission goals of AB 32.

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AIR POLLUTION SPECIALIST PITTIGLIO: This year's climate change research project covers the topics of transportation and technology and infrastructure and short-lived climate pollutants and nitrous oxide.

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AIR POLLUTION SPECIALIST PITTIGLIO: The goal of

the Transportation and Research Program is to provide research results to help California achieve its greenhouse gas reduction goals through multiple programs, such as the GHG rule, advanced clean cars, and the low carbon fuel standard.

A portion of ARB's transportation research is focused on the development of technology and infrastructure to reduce greenhouse gas emissions from the transportation sector. For example, a current research is supporting the low carbon fuel standard by investigating the capacity for the commercial production of renewable natural gas and drop-in fuels in California.

Additional research aims to quantify and identify barriers to adoption and use of advanced transportation technologies. For instance, research to support the Advanced Clean Cars Program will examine consumer response to ZEVs, purchase decisions, how ZEVs are used, and compliance strategies. Research in these areas is being coordinated with the U.S. EPA, the U.S. Department of Energy, and the National Highway Traffic Safety Administration. Finally, information on the benefits and impacts of the use of these technologies is monitored to determine if additional technology is needed.

Current research on this topic is examining strategies to promote the State goal of social equity in

integrated regional plans that address transportation, land use, and housing patterns.

Projects proposed for this year's plan will focus on reducing technology and infrastructure in the heavy-duty sector, as well as information to support the Advanced Clean Car Program.

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AIR POLLUTION SPECIALIST PITTIGLIO: ARB's tractor-trailer GHG regulation requires 53 foot and longer box-type trailers traveling in California to be equipped with aerodynamic technologies. Examples of these technologies include side skirts, rear trailer farings, undertray devices, and low rolling resistance tires, which result in improved fuel economy and reduced GHG emissions from the heavy-duty tractors that pull them.

This slide provides some examples of trucks with these types of technologies on 53-foot trailers.

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AIR POLLUTION SPECIALIST PITTIGLIO: These are examples of exempt trailers that are less than 53 feet. Additional work is needed to see if the aerodynamics of exempted trailers that spend less time on the highways can be improved as well and if those improvements would lead to a significant GHG emission reductions.

The annual vehicle miles traveled for non-53 foot

box-type trailers is about one-third of that accrued by all tractor-trailer combinations, which is clearly significant.

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AIR POLLUTION SPECIALIST PITTIGLIO: In this proposed research project, the investigators will conduct wind tunnel testing of each exempt trailer type to evaluate the impact on tractor fuel consumption due to the installation of the trailer aerodynamic technologies. This project will provide information that would be used by ARB staff to assess the potential GHG emission benefits from improved trailer aerodynamics on heavy-duty tractors pulling trailers that are exempted from the GHG regulation.

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AIR POLLUTION SPECIALIST PITTIGLIO: ARB's Advanced Clean Cars Program will provide long term, substantial emission reductions from light-duty vehicles consistent with the Clean Air Act deadlines and climate goals.

This project will determine the long-term emission benefits of plug-in electric vehicles based on the dynamics of these vehicles in the secondary market. While manufacture compliance with the Zero Emission Vehicle Program is based on new vehicle sales, the

expected emissions benefits will require that these vehicles, including plug-in electric vehicles, remain in the fleet past the first owner.

The results of this study will be useful to refine long-term projections of emission benefits from plug-in electric vehicles, and to inform future policy decisions beginning in 2016 on the treatment of these vehicles by various ARB programs, such as incentives, durability requirements, and vehicle crediting.

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AIR POLLUTION SPECIALIST PITTIGLIO: This proposed project will investigate how the near-term development of natural gas infrastructure in the heavy duty transportation sector can be implemented to include technology that can be best facilitate the long-term conversion to near zero technology.

The role of policies and incentives that encourage the use of infrastructure that can accommodate both natural gas and alternative fuels, such as hydrogen, will be explored.

The investigation will focus on infrastructure for medium- and heavy-duty fleets with a focus that includes potential synergies with light-duty infrastructure.

The results will provide information on a

seamless transition to low carbon fuels, improve the implementation of the low carbon fuel standard, and benefit California consumers.

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AIR POLLUTION SPECIALIST PITTIGLIO: This proposed project will analyze novel well-to-wheel pathways for the delivery of hydrogen fuel in the medium- and heavy-duty sector and assess the criteria pollutant and greenhouse gas emissions associated with each pathway.

The project will provide different cost and technology constraints for these pathways, as well as how that fits into the use of current natural gas transportation pathways.

Potential markets for hydrogen outside of the vehicle fuel sector will also be identified to ensure a more rigorous and sustainable market. Results from this project will support the implementation of the low carbon fuel standard and hopefully bolster the viability of the hydrogen market.

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AIR POLLUTION SPECIALIST PITTIGLIO: The Research Program's focus on the short-lived climate pollutants and nitrous oxide aim to improve emission estimates, verify emission reductions over time, and develop emission reduction strategies.

Over the past five years, ARB has inventoried California's sources of these gases. ARB's monitoring research demonstrates a 90 percent reduction in black carbon, which accounted for a significant decrease in atmospheric heating in California. Several research projects on refrigerants and other hydrofluorocarbons highlighted the importance and cost effectiveness of reducing these emissions, and led directly to the adoption of rules to reduce them from a number of mobile and stationary sources.

Research also led to the adoption of a protocol to provide incentives to recover and destroy ozone-depleting substances as part of the Cap and Trade Program.

Using California's existing greenhouse gas monitoring network and mobile monitoring platforms, ARB is currently investigating the sources and trends of methane and NO2 emissions in California to improve the inventory of these gases. The Board will be provided with an update on our efforts in the fall.

This year's proposed research will build on previous work by improving model of N2O emissions and determining climate forcing from brown Carbon.

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AIR POLLUTION SPECIALIST PITTIGLIO: Black and

organic carbon particles are abundant in the atmosphere and absorb in scatter light. Previous ARB funded research has quantified the climate forcing from black carbon in California. However, little has been done on the organic carbon portion.

A fraction of organic carbon absorbs sunlight, leading to atmospheric heating. This portion is referred to as brown carbon, because of its brown or yellow color. Primary sources are thought to be from biomass burning. Secondary organic particles formed in the atmosphere may provide another source of brown carbon.

The heating effect of brown carbon is not currently included in climate models. Therefore, this project will identify and characterize the contribution of brown carbon the air quality and climate forcing in California in order to improve these climate models.

The results will help us to determine the climate benefits of the ongoing mitigation of brown carbon emission sources in California, as well as providing information that can be used to improve global climate models.

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AIR POLLUTION SPECIALIST PITTIGLIO: This project will develop and deliver a modeling tool that will quantify the potential emission reductions from various

N2O mitigation strategies that have been identified through previous research sponsored by ARB, the California Department of Food and Agriculture, and the California Energy Commission.

N2O contributes about 15 million metric tons of CO2 equivalent or three percent of the California greenhouse gas inventory. The majority of N2O in California is produced by microbial-driven processes in the environment. The fluxes in N2O from soil are highly variable, both spatially and temporally. Process-based models are useful in capturing this variability.

The ability to quantify N2O emissions under a variety of management practices will help identify effective mitigation measures to reduce emissions.

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AIR POLLUTION SPECIALIST PITTIGLIO: If the 2014-15 Research Plan is approved today, staff will work with our research partners to bring full proposals in the Research Screening Committee. Then we will return to the Board to request approval and funding for each project.

We recommend that you approve the 2014-15 annual research plan.

CHAIRPERSON NICHOLS: All right. Thank you very much.

Does the Board have any questions about any of

the specifics or about the overall proposal?

Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Thank you. Appreciate that.

About $500,000 of this is devoted to atmospheric research in the San Joaquin Valley, which I think is very important. Appreciate that. Essential to what we try to accomplish in the valley.

What's the applicability of that research to other basins, other any thoughts on that?

RESEARCH DIVISION CHIEF CROES: Bart Croes from the Research Division.

These projects take advantage of specific measurements made in the valley. And I think the understanding of the physical and chemical processes that form PM2.5 will really inform chemical and photochemical models that are used in all air basins.

CHAIRPERSON NICHOLS: Okay. Other questions? Comments?

Yes, Ms. Berg.

BOARD MEMBER BERG: Thank you very much. That was a great presentation. It was long, and you did a great job.

On the plug-in electric vehicles in the secondary market, I agree that this is going to become more and more

vital information.

But my question is we're still struggling in the primary market of how we're dealing with some of these things. And looking back on some of the incentive conversations we've had with this Board where we seem to not have the data we need for that information, do we have current research projects going on for the primary market?

RESEARCH DIVISION CHIEF CROES: Yes, in prior research plans, we did adopt projects to have in primary markets.

BOARD MEMBER BERG: When will we be having some of that data?

RESEARCH DIVISION CHIEF CROES: All of these projects are aimed to be completed in 2015 and '16 in time for the review.

BOARD MEMBER BERT: But the prior, the ones on the --

RESEARCH DIVISION CHIEF CROES: Right, on the prior ones.

BOARD MEMBER BERG: They'll be done in '15 and '16?

RESEARCH DIVISION CHIEF CROES: Right.

BOARD MEMBER BERG: In time are for our mid-term review?

RESEARCH DIVISION CHIEF CROES: That's correct.

BOARD MEMBER BERG: Thank you.

CHAIRPERSON NICHOLS: I have to say these are among the most focused and targeted research proposals I've ever seen coming out of our program. And I think that's helpful.

Of course, we want to be supporting basic research and real science I guess as opposed to you know just doing reg development through the Research Program. But there's such a gap between what we know and what we need to know for really moving ahead on some of the more novel areas that we're in right now that I think we have to use our money very strategically. This is quite an impressive list of proposals.

We do have two people who asked to testify. First is Jerilyn Lopez Mendoza and the second is Mike Tunnell.

MS. MENDOZA: It is 15 to go still morning. So good morning, again.

Jerilyn Lopez Mendoza of the Southern California Gas Company.

I want to thank the Board members. You had a very rigorous dialog this morning, and I want to thank you for your patience.

I specifically want to comment on your proposed Air Pollution Research Plan for fiscal year 2014-2015.

The Gas Company is excited to see the scope and depth of these 14 research projects proposed by staff today. We're particularly supportive of and interested in two proposed research projects. First, the potential to built current natural gas fueling infrastructure to accommodate the future conversion to near zero transportation technology. And second, the wheel to wells pathways for zero and near zero technology in California's heavy-duty sector. These are under the climate change transportation and sustainable communities pages 27 and 28 of the proposed plan that was circulated.

We believe these projects will advance the use of natural gas as a long-term clean fuel for the future of California as we discuss with Chair Nichols and her senior staff last month.

Also, these projects, as you know, help to move forward AB 32 greenhouse gas reduction requirements as well as further ARB's progress on its low carbon fuel standard program.

Most importantly, So Cal Gas would like to offer its expertise to the ARB research team in moving these research projects forward. We're already working in close collaboration with the California Energy Commission in developing its transportation and fuel research priorities, as well as the South Coast Air Quality

Management District and others.

Southern California Gas has its own research development and demonstration program that can help to leverage the funds that you're spending on these two proposed projects to expand the project scopes with meaningful research findings, resulting in a better return for investments for your Board.

We look forward to discussing such a partnership with the ARB research team and support approval of the research plan, particularly the two projects I've highlighted. And again, I thank you for your time and consideration.

CHAIRPERSON NICHOLS: Thank you very much. I believe we have quite a bit of experience in partnering with other entities on Research Programs. I don't know the specifics of this one, but I'm sure the staff will be following up with you. So thank you.

MR. Tunnell.

MR. TUNNELL: Good morning, again. Mike Tunnell, American Trucking Association.

And just wanted to talk about one proposal that looks at the trailer aerodynamics for basically the non-regulated trailers under your in-use regulation. And I don't know how locked in these research projects are. So you know, what I'm going to just discuss is kind of

what we've seen in terms of aerodynamic testing. And maybe this is another project for Professor Sperling to pursue down the road.

But you know, what the proposal proposes is the do wind tunnel testing. And that is one of a number of types of aerodynamics testing that's available. And the fleets have done quite a bit of testing of aerodynamic technologies in the recent years. What we found is that, you know, different test methods and different aerodynamic technologies yield different results. And so there's really no consensus on what the best method is. They're all good in their own ways. And you may get different answers depending on which test method you use. So we would suggest trying to expand -- you know, add another test method, if possible, to this just so that you have kind of that interplay between the different test methods.

The other thing is just to ensure that California conditions are reflected in the testing. California does have one of the lower speed limits in the nation. And, you know, speed plays a very important factor in aerodynamic. And depending on what type of operations you have, where you're traveling, speeds will vary. So you know, wind patterns, travel -- types of travel are all important. And also the type of tractor that is pulling the trailer will have important implications in the

testing. So that should be reflected in this project.

And lastly, confirming the lab results to real world conditions. What fleets are finding is that they get one answer through lab testing, and they get another answer when they get out there in the real world. And we would -- you know, I think everybody would benefit if we can kind of get to the -- you know, as close to the correct answer as to what this technology does in the long run.

So thank you for allowing me to speak.

CHAIRPERSON NICHOLS: Thank you for raising those points. I trust staff will consider them as they move forward. I'm seeing head nodding out there. Okay. I see no other witnesses on this item. So we'll close the record and ask for a motion to approve the proposal.

BOARD MEMBER BERG: So I move.

BOARD MEMBER SHERRIFFS: Second.

BOARD MEMBER BALMES: I think I have to recuse myself. U.C. would be the beneficiary of multiple --

CHAIRPERSON NICHOLS: Okay. That probably would be the sensible thing to do.

BOARD MEMBER SPERLING: Ditto from this end.

CHAIRPERSON NICHOLS: We'll have two abstentions -- recusels on this item.

I'll call for a voice -- well, maybe it's easier

to do it by roll call then, so it will be clear.

Madam Clerk, would you please call the roll?

BOARD CLERK JENSEN: Ms. Berg?

BOARD MEMBER BERG: Yes.

BOARD CLERK JENSEN: Mr. Eisenhut?

BOARD MEMBER EISENHUT: Yes.

BOARD CLERK JENSEN: Supervises Gioia?

BOARD MEMBER GIOIA: Yes.

BOARD CLERK JENSEN: Mayor Pro Tem Mitchell?

BOARD MEMBER MITCHELL: Yes.

BOARD CLERK JENSEN: Mrs. Riordan?

BOARD MEMBER RIORDAN: Aye.

BOARD CLERK JENSEN: Supervisor Roberts?

BOARD MEMBER ROBERTS: Aye.

BOARD CLERK JENSEN: Supervisor Serna?

BOARD MEMBER SERNA: Aye.

BOARD CLERK JENSEN: Dr. Sherriffs?

BOARD MEMBER SHERRIFFS: Yes.

BOARD CLERK JENSEN: Chairman Nichols

CHAIRPERSON NICHOLS: Aye. The motions passes.

CHAIRPERSON NICHOLS: Thank you very much.

We do have one public comment sign up for the open public comment period. And that is from Mr. John White, who has been patiently sitting in the front here. John, this is your time.

MR. White: Thank you, Madam Chair. And good morning, Board members. I love to come to Board meetings. It always inspires ideas and memories and fondness.

I took the time to come over this morning because I wanted to continue to raise and emphasize the need that I see for some further -- a further sense of urgency regarding a short-lived climate pollutants that we've begun to better understand.

I was happy to see in the research plan that there is some attention being given. But we seem to be a little -- taking too much time to get ready to move on this. And I wanted to suggest that the Board really commend itself to the recent adjustments from the IPCC that really tell us that the methane problem is urgent. It's worse than we thought. Our measurements are not really measurements. They're mostly estimates. And estimates are off based on recent research that's been done in the atmosphere with airplanes. Also some amateur folks that have gone around and measured. So we don't have a good handle, for the -- which is unusual. Because normally in California and with this agency and the districts, we start with inventories. And we don't have good inventories for methane.

I also think that the oil and gas industry is the most likely place to start. I'm glad this is on the

Board's agenda. But I really wanted to urge you as a body to take this on fully.

I think there is some extraordinarily good science being done in this state. I think it would be useful if not to form a Scientific Advisory Committee, as we've suggested, to gather these folks at some point. Maybe a symposium of some kind, and really get on top of this research. EPA -- as my colleagues in Environmental Defense have recently been urged to adjust federal policy. There is a big role for them to pay in terms of how they treat methane as an ozone precursor and how we measure it and control it.

So to me, this is something that's within our wheelhouse. And it's really, really important. And it's been on my mind because I've been reading a lot of stuff about it.

Also, black carbon remains a concern. And in this case, we are downwind of our friends in China. And so it isn't just the fact that we generate a lot of black carbon in the diesel sector. The freight plan that you discussed earlier will have a bearing on that. But I also think that when we talk about wild fires, open burning, fireplaces, this is black carbon, too. It's not just public health.

So I just hope that the Board will give this some

of its full attention in the coming year. We are doing some work on our own to try to develop ideas and information to share with the staff. Colorado recently adopted some regs. So we'll be conveying some of that information to the staff.

But I just wanted to come today and tell you that this really is important. I know you're started on it. But I'd like to see if we could step it up a few notches and really get to work hard on this, because I think people will listen to this Board, not just for the actions you take, but for the science you highlight and the emphasis you place on these important pollutants as part of the global debate. So thank you for your attention.

CHAIRPERSON NICHOLS: Thank you, John. Thanks for joining us.

BOARD MEMBER SPERLING: Chairman Nichols, can I just support that statement very enthusiastically?

CHAIRPERSON NICHOLS: Sure.

BOARD MEMBER SPERLING: I've been thinking the same thing for quite a while. I think as it turns out, California is probably doing better than the rest of the country in terms of methane leakage. If that's really true, that's really important in terms of all of our policies that deal with the use of natural gas across the board. We really need to get on paying attention to the

situation.

CHAIRPERSON NICHOLS: It has multiple areas where the issue manifests itself. And John highlighted a couple of them. But there are many.

I guess my personal focus for this issue has been on the updated Scoping Plan, which as you know has a first draft out. But which needs to be revived.

MR. WHITE: We're actually glad you're taking more time to add some things.

CHAIRPERSON NICHOLS: In response to some very strong public comment that we received about the need to improve it. That is one of the things that we are definitely focusing on. But it really does pervades a number of different areas.

I just want to say in terms of highlighting the issue -- and I know it was not -- we have not been accused of doing nothing, but I do point out that we actually held a Haagen-Smit symposium on this issue a number of years ago since I've been back on the Board and have had reports to the Board, which is one of the ways in which we highlight the importance of issues.

So I think we may not be moving fast enough to satisfy everyone. We probably couldn't. But I do think that we have indicated in the past a significant interest and seriousness about this issue. And we'll try to step

it up even further.

BOARD MEMBER BALMES: If I could add one comment. Fracking is very controversial, period. But the methane release during fracking is something that, you know, is not always paid attention to. So I agree with Mr. White that the oil and gas industry is an area where -- is a sector we need to focus on with regard to methane release.

CHAIRPERSON NICHOLS: I'm sure they'll be pleased to know we'll be giving them even more attention in the coming year.

BOARD MEMBER BALMES: They deserve it.

MR. WHITE: Thank you, Madam Chair.

CHAIRPERSON NICHOLS: Thank you.

All right. Do we have any further comments? Any further business to come before this body? If not, it's my great pleasure to wish all of you a very happy holiday and a good new year and see you all back in January.

(Whereupon the Air Resources Board meeting adjourned at 11:58 AM)

CERTIFICATE OF REPORTER

I, TIFFANY C. KRAFT, a Certified Shorthand Reporter of the State of California, and Registered Professional Reporter, do hereby certify:

That I am a disinterested person herein; that the foregoing hearing was reported in shorthand by me, Tiffany C. Kraft, a Certified Shorthand Reporter of the State of California, and thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said hearing nor in any way interested in the outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 27th day of December, 2013.

TIFFANY C. KRAFT, CSR, RPR
Certified Shorthand Reporter
License No. 12277