APPEARANCES

BOARD MEMBERS
Ms. Mary Nichols, Chairperson
Dr. John Balmes
Ms. Sandra Berg
Mr. Hector De La Torre
Mr. John Eisenhut
Supervisor John Gioia
Mayor Judy Mitchell
Supervisor Ron Roberts
Supervisor Phil Serna
Dr. Alex Sherriffs
Professor Dan Sperling

STAFF
Mr. Richard Corey, Executive Officer
Dr. Alberto Ayala, Deputy Executive Officer
Ms. Edie Chang, Deputy Executive Officer
Ms. Lynn Terry, Deputy Executive Officer
Ms. Ellen Peter, Chief Counsel
Ms. La Ronda Bowen, Ombudsman
Ms. Brieanne Aguila, Manager, Program Data Section, Industrial Strategies Division
Mr. Steve Cliff, Assistant Division Chief, ISD
APPEARANCES (CONTINUED)

STAFF
Ms. Katherine Garrison, Air Resources Engineer, Carl Moyer Off-Road Section, Mobile Source Control Division
Mr. Jason Gray, Manager, Market Monitoring Section, ISD
Mr. Gregory Harris, Air Pollution Specialist, Transportation ad Toxics Division
Ms. Rajinder sahota, Chief, Climate Change Program Evaluation Branch, ISD
Ms. Danielle Robinson, Air Resources Engineer, Carl Moyer Off-Road Section, MSCD
Mr. Scott Rowland, Chief, Incentives and Technology Assessment Branch, MSCD
Mr. Abhilash Vijayan, Manager, Greenhouse Gas Technology and Field Testing Section
Mr. Erik White, Division Chief, MSCD

ALSO PRESENT
Mr. Will Barrett, American Lung Association
Mr. Rasto Brezny, MECA
Mr. Jack Broadbent, CAPCOA President, Air Pollution Control Officer, Bay Area Air Quality Management District
Ms. Karin Burns, Code REDD
Mr. Riley Duren, Chief Systems Engineer for the Earth Science Directorate, NASA Jet Propulsion Laboratory
Mr. Sean Edgar, Clean Fleets
Mr. Tony Fisher, Coalition for Clean Air
Mr. Anthony Fornier, BAAQMD
Mr. Frank Harris, Southern California Edison
APPEARANCES (CONTINUED)

ALSO PRESENT

Ms. Barbara Lee, Air Pollution Control Officer, Northern Sonoma County Air Pollution Control District
Ms. Jerilyn Lopez-Mendoza, Southern California Gas Company
Mr. Bill Magavern, Coalition for Clean Air
Ms. Melanie Marty, OEHHA
Ms. Christina McCain, Environmental Defense Fund
Ms. Michelle Passero, TNC
Mr. Matthew Plummer, PG&E
Mr. Bill Quinn, CEEB
Mr. Anthony Samson, California Chamber of Commerce
Mr. Matt Schrap, Crossroads Equipment Lease and Finance
Mr. Mik Skvarla, CCEEB
Mr. Mike Rogge, California Manufactureres and Technology Association
Mr. Tim Tutt, SMUD
Mr. Barry Wallerstein, SCAQMD
Mr. Michael Wang, WSPA
Mr. Mike Watt, San Diego Air Pollution Control District
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PROCEEDINGS

CHAIRPERSON NICHOLS: Good morning, everybody. We're ready to get started. Welcome to the July 24th, 2014, public meeting of the Air Resources Board. The Board will come to order. And we will begin with the Pledge of Allegiance.

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

CHAIRPERSON NICHOLS: A couple of announcements before we begin. A reminder that if you want to testify on any item or in the public comment period, we appreciate it if you fill out a request to speak card. They're available I guess out in the lobby and also from the Clerk of the Board here. We appreciate it if you would sign up before we begin hearing a particular item, because then the clerk can sort out the speakers' list and we have a better sense of timing.

All speakers should be aware that the Board imposes a three-minute time limit. It should be shortened in the event of a very lengthy item. But normally three minutes is what we allow. And we appreciate it if you state your name when you come up to the microphone.

The Board Clerk would like to take the roll, however, before I give my preamble here. So why don't we do that? Okay. 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 Mitchell?
BOARD MEMBER MITCHELL: Here.
BOARD CLERK JENSEN: Mrs. Riordan?
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: Great. I will not repeat
what I just said. But I will pick up this prepared script here, which I read every single month because it is exactly the same. We are required to point out the emergency exits to the rear and to my right and left up here. In the event of a fire alarm, we are required to evacuate the building and go down the stairs and out of the building until the all-clear signal is given. And then we return to the hearing room and resume where we left off. All right.

So this morning we begin with the consent calendar. We have a public meeting to consider five research proposals for the Board's consideration. And first, I need to ask the Clerk if any witnesses have signed up to testify. They have not.

Are there any Board members who would like to see this item removed from the consent calendar?

Seeing none, I will close the record on this agenda item and ask if the Board members have had a chance to review the Resolution. And can I have a motion and a second to adopt the Resolution Number 14-19 through 14-23?

BOARD MEMBER SHERIFFS: So moved.

BOARD MEMBER BALMES: Second.

CHAIRPERSON NICHOLS: Okay. We can just do this by a voice vote. All in favor please say aye.

(Aye votes)
(Board Member De La Torre not present at vote.)

CHAIRPERSON NICHOLS: Any opposed?
Any abstentions?

BOARD MEMBER SPERLING: Recusing.
BOARD MEMBER SERNA: Abstain.
BOARD MEMBER BERG: Abstain.

CHAIRPERSON NICHOLS: Three abstentions, but otherwise approved.

Clerk got that? Good. Okay.

The next two agenda items relate to the Carl Moyer Memorial Air Quality Standards Attainment Program, usually known just as the Carl Moyer Program.

The first item is an update on the joint Air Resources Board California Air Pollution Control Officers Association Program Evaluation. We did an evaluation along with the air district's organization, CAPCOA. AB 8, Assembly Bill 8, which reauthorized the Carl Moyer program to 2023 contained a requirement for ARB in conjunction with the air districts to evaluate the program's policies and goals in an effort to develop any appropriate recommendations for improvements.

Today, we're going to hear from the staff about the work they've undertaken and where this effort is headed.

At the completion of the staff presentation, I
would like to invite Board Member Berg to provide her thoughts on this effort in particular, because she's been actively involved in guiding these incentive programs over the last several years.

But I will now turn this over to Mr. Corey to introduce the item.

EXECUTIVE OFFICER COREY: Thank you, Chairman Nichols.

The Carl Moyer program is an incentive program that began in 1998 with the purpose of producing emission reductions primarily from diesel engines. The program's jointly implemented by ARB and local air districts.

In 2004, a suite of bills secured additional annual funding for the Carl Moyer Program and created an additional new source of local funding that complimented the Carl Moyer program. In addition, they also authorized expanding the focus of the program from solely reducing oxides of nitrogen to also reducing reactive organic gases and particulate matter.

Since its inception, the Carl Moyer Program has accrued a successful record of achieving important reductions in smog-forming and toxic emissions by repowering, retrofitting, and accelerating turn over of old highly-polluting engines. This program has been instrumental in helping to clean up California's vehicles
and equipment and achieving emission reductions beyond those required by regulation.

In implementing the provisions of AB 8, staff has been working in close cooperation with our air district partners to institute a stakeholder process on potential program improvements that will help achieve both a near-term and long-term emission goals -- rather, emission reduction goals.

I'd like to also extend our appreciation to Board Member Berg for her continued leadership in guiding ARB's incentive program and her willingness to work to bring all stakeholders together in this important effort.

I'd now like to ask Katherine Garrison of the Mobile Source Control Division to provide the update of the Carl Moyer review process in more detail and share staff's progress to date.

Following Katherine's presentation, Jack Broadbent, CAPCOA President and Air Pollution Control Officer of the Bay Area Air Quality Management District will provide his perspective.

Katherine.

(Thereupon an overhead presentation was presented as follows.)

AIR RESOURCES ENGINEER GARRISON: Thank you, Mr. Corey.
Good morning, Chairman Nichols and members of the Board.

Assembly Bill 8 required the Air Resources Board, in consultation with the local air districts, to evaluate the Carl Moyer program's long-term policies and goals. Today, I will present an update on the joint evaluation being performed by the ARB and the California Air Pollution Control Officers' Association.

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AIR RESOURCES ENGINEER GARRISON: I'll begin by providing some background on the Carl Moyer Program and the related Assembly Bill 923 program, then describe the AB 8 program evaluation process, and conclude with the next steps.

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AIR RESOURCES ENGINEER GARRISON: The Carl Moyer memorial air quality standards attainment program and the AB 923 incentive program provide funding to encourage the voluntary purchase of cleaner than required engines, equipment, and emission reduction technologies. Among the sources that these programs funds are locomotives, trucks, construction, and agricultural equipment, marine vessels, and school buses.

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AIR RESOURCES ENGINEER GARRISON: Currently in
its 16th year, the Carl Moyer Program began in 1998 as a NOx-only emission reduction program that was expanded in 2004 to include hydrocarbon and particulate matter reductions. The program is a partnership between ARB and the local air districts. All 35 air districts located in the state of California participate in the program in one way or another. The program provides emission reductions that are surplus. That is, early and/or beyond what is required by any federal, State, or local regulation. Each Moyer grant is subject to a cost effectiveness limit of $17,720 per ton of emission reductions achieved. This limit is adjusted annually for inflation.

It is important to note that the air districts have the discretion to select projects that best serve their local needs and that the program guidelines are frequently updated to meet air district's needs and help attain statewide air quality goals.

As part of that ongoing process, in the next agenda item, you will hear about proposed guideline changes to align the program with the recent amendments to the truck and bus regulation. The Carl Moyer Program receives approximately $69 million a year in funding with an additional $12 million per year provided by local air districts as matching funds. These funds are generated from both a portion of the smog abatement fee and from a
fee on each new tire sold in California.

To date, this has provided the Carl Moyer Program more than $900 million that has been used to replace over 41,000 highly polluting engines throughout the state.

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AIR RESOURCES ENGINEER GARRISON: The success of the program is due to the partnership between ARB and the air districts, which have complimentary rolls. ARB is responsible for the overall structure of the program, which entails establishing the guidelines that ensure that the reductions achieved will be surplus and SIP creditable, as well as allocating and disbursing grant funds to the air districts.

ARB also provides support for the districts through program liaisons and source category experts who assist in evaluation of project eligibility. That includes regulatory and guideline interpretation.

In addition, ARB has oversight responsibility for the program. ARB staff has developed the clean air reporting log, or CARL, database, where districts report projects and expenditures. This database tracks how and where funds are expended and ensures accountability. CARL is also used to support the periodic ARB reviews of each district's project and fiscal activities to ensure that the guidelines and statutes are being followed.
AIR RESOURCES ENGINEER GARRISON: The air districts have the responsibility for actual project implementation. They solicit and evaluate projects. And as mentioned earlier, they have the discretion to select those projects that best serve their specific local needs. The districts work directly with program applicants and are responsible for executing contracts, inspecting projects, and monitoring usage. The district's involvement with a given project extends over a period of years, as they must monitor each project throughout its contracted project life. Districts also ensure accountability by maintaining comprehensive records and reporting projects and expenditures regularly.

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AIR RESOURCES ENGINEER GARRISON: This regular reporting provides a picture of how the Moyer Program provides many different project opportunities for local districts to offer their community. This pie chart illustrates a break down of the projects funded in the last several years; significant amounts of funds have gone towards on-road trucks, off-road construction, and agricultural projects, marine vessels, and locomotives. However, every source category is used at least by one district to secure emission benefits that would otherwise
not be achieved.

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AIR RESOURCES ENGINEER GARRISON: And those benefits add up. Cumulatively, the Moyer Program has reduced approximately 150,000 tons of ozone precursors and 6,300 tons of particulate matter. These surplus emissions reductions help achieve SIP goals.

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AIR RESOURCES ENGINEER GARRISON: The popularity and success of the Moyer program led to its expansion in 2004. AB 923 expanded the Moyer program by adding funding from tire purchases to the program. More significantly though, it gave most local air districts the authority to approve an additional two dollar motor vehicle fee for reduction of air pollution from motor vehicles to be used for the following project types: Carl Moyer, lower emission school buses, agricultural assistance, and light-duty vehicle retirement programs. All together, AB 923 gives local air districts approximately $50 million a year.

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AIR RESOURCES ENGINEER GARRISON: Currently, 19 air districts have opted to collect AB 923 funding as shown here. As in the Moyer program, the air districts have the ability to select those projects that best serve
their local needs.

AIR RESOURCES ENGINEER GARRISON: Although school bus funding is the single largest category, a significant portion of the funding goes towards Moyer projects. Many districts use their AB 923 funds to supply their Moyer match requirement, and some spend beyond the required match on Moyer projects. Given that, any evaluation of Moyer goals and policies and potential changes must also consider effects on AB 923.

AIR RESOURCES ENGINEER GARRISON: Although the Moyer and AB 923 programs are very popular and successful, the enabling legislation included a sunset date of 2015 that would have reduced Moyer by one-third and eliminate the 923 programs all together. Fortunately, AB 8 changed that.

AIR RESOURCES ENGINEER GARRISON: In 2013, Assembly Bill 8 reauthorized key incentive program funding through 2023, including the Carl Moyer and AB 923 programs.

AB 8 was supported by a broad and diverse group of stakeholders, who recognized that ensuring the continuation of these programs was critical. However,
there was also a recognition that the program should be reevaluated to ensure that it was up to date with current and future needs. Thus, AB 8 included a requirement for ARB in consultation with the air districts, to convene working groups by July 2014 to evaluate the policies and goals contained in the Moyer program.

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AIR RESOURCES ENGINEER GARRISON: To carry out that requirement, ARB staff and CAPCOA joined together to evaluate not only the Carl Moyer Program, but also other current incentive programs, from a joint air agency perspective. To accomplish this, the air agencies agreed to identify the various state and locally-funded programs that make up the current incentive portfolio to establish common guiding principles for evaluating the incentive programs, to identify areas of improvement needed in the Carl Moyer and AB 923 programs, and then to work with stakeholders to develop recommendations to improve the programs.

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AIR RESOURCES ENGINEER GARRISON: Here, we see a representation of various air quality incentive programs that are available both at the State and local levels. As can be seen, the incentive portfolio is diverse. Each program varies in the type of equipment that it can fund,
with some equipment having more funding sources than others.

Often this is driven by the statutory goals and requirements of each program. It is also important to consider how potential applicants view the programs and ensure that the various incentive options are easy to understand. We recognize that these factors must be considered when looking at how the Moyer and AB 923 programs should best fit within the incentive portfolio.

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AIR RESOURCES ENGINEER GARRISON: To help accomplish this evaluation, the air agencies initiated a memorandum of agreement on the principles that should guide potential program changes. This framework included the need for each program to have a clearly defined and complimentary role and provide streamlined progress towards improving air quality.

In addition, having a diverse incentive portfolio provides flexibility for agencies to evolve and add programs to meet new changes quickly. There was also agreement that each incentive program should have metrics to gauge success, and that there should be the ability to develop new incentive models in addition to the predominant grant model.

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AIR RESOURCES ENGINEER GARRISON: Using these guiding principles, the air agencies jointly determined the key elements that needed to be taken into account when evaluating the Moyer and AB 923 programs and identifying potential changes. These elements included retaining the ability for air districts to set different priorities to meet their specific air goals, in addition to supporting statewide priorities, and improving the ability of the programs to support not just near-term goals, but longer-term goals as well.

With these elements in mind, ARB and the air district staff worked together to identify improvements that could be made to the programs consistent with the guiding principles. A number of near-term improvements that can be accomplished under current statute have already been identified and are being implemented. Some others related to the on-road heavy-duty trucks comprise part of the proposal you will consider in the next item.

In general, these near-term changes reduce administrative burden, streamline program implementation, and expand potential project pool for many project categories, while retaining checks and balances needed to preserve the integrity of the program.

However, program improvements to enable the Moyer program to better support longer-term goals to drive
various equipment to zero emission technologies and to
reduce carbon emissions will likely require legislative
changes.

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AIR RESOURCES ENGINEER GARRISON: Since 2008, the
incentive programs advisory group led by Board Member Berg
has provided a forum for stakeholders from all areas to
provide input regarding the current suite of incentive
programs.

Last month, in close coordination with CAPCOA, we
convened a meeting of the advisory group that specifically
focused on the Carl Moyer Program and the requirements of
AB 8. Over 80 people attended representing environmental
groups, industry associations, equipment manufacturers,
dealers, and project grant recipients. Another 30
individuals followed the discussion by phone.

At the meeting, the air agencies shared our joint
perspective on the incentive portfolio and the principles
we would be using to guide the Moyer evaluation. And we
solicited discussions and input from the group on several
key issues. These included how the program could address
climate change pollutants, how the program should interact
with other funding programs, whether the existing
categories should be expanded, what factors define a
successful implementation program, and the consideration
of funding just in time projects immediately prior to a compliance deadline.

Although the meetings with the districts and the advisory group satisfies the AB 8 requirement, the level of interest and amount of suggestions offered at the advisory group meeting make it clear that this is the only the beginning of the work ahead.

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AIR RESOURCES ENGINEER GARRISON: The participants shared a variety of perspectives and generated an extensive number of suggestions. From these, several key areas of broad interest were identified.

First, there was widespread agreement that the Carl Moyer Program should be expanded to take into account greenhouse gas reductions.

Second, there was recognition that leveraging of incentive funds from several sources should be encouraged, particularly for those projects that advance technology and provide longer-term benefits.

Finally, stakeholders suggested that the addition of new project categories would enhance the program's ability to deliver additional surplus emission reductions.

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AIR RESOURCES ENGINEER GARRISON: Pursuing these ideas will, indeed, require legislative changes and much
needs to be done to prepare for that.

Our immediate next steps is for the air agencies to review and evaluate the suggestions received at the advisory group meeting. That work is underway, and we will continue to engage with stakeholders as part of that process. In addition, we are already planning a follow-up meeting of the advisory group for this fall where we intend to update all stakeholders on our progress and begin to develop the recommendations that could inform potential legislation.

In conclusion, while we have made significant progress through the working group meetings required by AB 8, there is much work left to re-envision the Moyer program and prepare it for its continued success in the future.

That concludes my presentation. Thank you.

CHAIRPERSON NICHOLS: Okay. I think I'll turn it over now to Sandy. I'm sorry.

Jack, are you next in the cue here? I apologize.

MR. BROADBENT: I think so.

CHAIRPERSON NICHOLS: That seems perfectly appropriate, since you're sitting up there at the table. Apologies. Go right ahead.

MR. BROADBENT: So good morning, Madam Chair and members of the Board.
My name is Jack Broadbent, and I serve as the Executive Officer for the Bay Area Air Quality Management District. This year, I get a chance to serve as President of the California Air Pollution Control Officers' Association, or CAPCOA. So thank you for allowing us to be a part of this presentation for you here today.

On behalf of CAPCOA, I'd like to thank Mr. Corey and his staff for working with us on this joint evaluation process. This truly has been a very positive collaboration. I just want to explicitly recognize your staff for that effort.

We believe that the passage of AB 8 last year was due in part to the historical performance of these grant programs. As a reminder, as Ms. Garrison indicated, in 2013, air districts have provided over $900 million in Carl Moyer and AB 923 funds to retrofit and replace over 48,000 engines, reducing more than 146 tons of ozone precursors, and 6,000 tons of air toxics in California.

The Carl Moyer Program is not only an important incentive program statewide, but the program also funds a number of efforts that provide the ability for local districts to focus their funds on local priorities.

Now, as you have heard, CAPCOA and ARB have been working together to develop a number of administrative changes to the Carl Moyer Program and AB 923 to improve
the functioning of these programs in the short term. Additionally, with your staff, we have begun the process of creating the vision for Carl Moyer as we move forward. This process has included bringing together a wide ranging diverse group of stakeholders to assist us in this process. And just frankly based on the range of participation and the large attendance at the meetings, there remains a very strong interest and support for these programs.

We at CAPCOA have spent a lot of time thinking about how these programs can be changed to meet the challenges in the future. And we believe that now we have an opportunity to make some longer-term changes to these programs that will help us achieve our air quality and greenhouse gas reduction goals and set these programs up for continued success for the next decade.

Just to complement Ms. Garrison's point, some specific ideas that we have in mind at the districts include really including greenhouse gases for the first and formal time as part of Carl Moyer, the inclusion of infrastructure-based projects to support cleaner mobile equipment, also increasing the opportunities for leveraging funds. We think there are other funds that really ought to be leveraged as part of Carl Moyer as well. And we think these efforts really need to be
explored and they would form the basis of some legislation moving forward.

So in conclusion, Madam Chair, just we look forward to the continued collaboration. And thank you for this opportunity to address you.

CHAIRPERSON NICHOLS: Well, thank you. This is definitely a program that requires a very close partnership between the state and the districts, given the way the moneys flow and the way the projects actually get done. So I'm glad to hear that so far we seem to be on a good track.

Now, may I turn it over to you, Ms. Berg?

BOARD MEMBER BERG: Thank you, Madam Chair.

It's hard to believe it's been six years that we have had the Advisory Incentive Group running. And what really strikes me is the fact that we brought that group together to do an amendment for the Carl Moyer plan. And because this group gelled and really was looking at bigger issues than just these amendments, they wanted to stay together.

This is an outstanding example of what true teamwork can do. And by that I mean, struggling through differences, coming together, seeing always what the goal is in mind, and willing to stick it out so we came through it stronger and really with purpose.
So as I listened to the staff presentation today and watched on slide 16 I believe was all of the programs that these -- our staff and CAPCOA are administrating, plus the stakeholders, the involvement of the stakeholders, it is not only remarkable, it is very impressive the outcome of the emissions saved.

And then you follow that by what are these programs going to look like in their next generation. I want to thank all the stakeholders, but particularly CAPCOA and ARB staff who have shown true leadership in getting us to this point. And I think this group is so poised to lead the challenge on identifying the key areas and then guiding us to that new implementation. Not easy. No silver bullet. But great job. And I really appreciate each and every one of you. Thank you very much.

CHAIRPERSON NICHOLS: Okay. I think Board members have probably questions, comments now. Do you want to do this or hear from the two witnesses that have signed up to speak? Either way. Why don't we hear from our public.

We have two members of the public that signed up, Mike Watt from San Diego and Jerilyn Mendoza from the Southern California Gas Company.

This is not an action item, but I think it's a good idea to have input.
MR. WATT: Good morning, everyone. I'm Mike Watt, the Manager for Mobile Source Incentives for the San Diego County Air Pollution Control District. And I've also had the opportunity to serve as the Chair of the CAPCOA Mobile Source Incentives Committee for this year. So I've worked hand in hand with a lot of the ARB staff and some of my compadres from other air districts.

I want to echo some of the sentiments that Mr. Broadbent and Board Member Berg threw out there, particularly thanks to Mr. Corey, Eric White, Scott Rowland, and some of the other staff at ARB that we've worked with. As you've heard, we've accomplished a lot already mainly due in part to the collaborative effort that we've had. And I really appreciate a lot of the hard work that has been put forth by the ARB staff to not only accomplish some of the short-term goals that we had to help us clear some of -- I don't want to say hurdles, but some of the administrative issues that have prevented us from being as efficient as we can be. So we've gotten some of that stuff out of the way.

As we heard just from Board Member Berg, there's still a lot of work going forward, but I'm confident that the effort that we put forward and the collaborative group that we have together will be able to come out with a program that is even better than what we have now and will
continue to serve the needs going forward for the next ten years. Thank you very much for your time.

CHAIRPERSON NICHOLS: Thank you.

Ms. Mendoza.

MS. MENDOZA: Good morning. Jerilyn Lopez-Mendoza of the Southern California Gas company.

I wanted to thank staff, particularly Katherine Garrison, for the update on the Carl Moyer Program evaluation process as it moves forward after being reauthorized. We understand the current process meets the statutory requirements, and we would like to ask CARB to continue to have staff maintain the process so as not to lose the momentum that was so encouraging to witness at the Incentive Program Advisory Group meeting on June 11th.

I attended the meeting. This was the first time I attended this group's meeting and experienced collaboration and experienced discussion among a wide range of stakeholders during the afternoon small group discussions. In response to questions, each team reported their ideas after break out sessions, and many creative ideas were captured. Great minds think alike.

Specifically looking forward to changes in the program, SoCalGas supports a focus on criteria pollutant emission reductions that improve regional air quality and reduce localized pollution exposure. We would like to see
the Board propose that the Carl Moyer program be used to encourage engine manufacturers to introduce advanced technologies to reduce NOx emissions below the current on-road heavy-duty engine standards for model years 2010 and later.

SoCalGas supports a multi-technology approach, building on available clean natural gas vehicles that make sense both in terms of emission reductions and cost effectiveness, natural gas engines from the starting point on the pathway to near zero or power plant equivalent transportation options.

To ensure maximum effectiveness of the state's incentive funding, we support use of metrics as proposed by staff and development of new incentive models that will encourage voluntary transition to advanced technologies and accelerate statewide deployment of near-zero heavy-duty vehicles.

SoCalGas appreciates the support -- your support of an open dialogue and stakeholder participation in discussing the long-term policies and goals of the Carl Moyer Program and the opportunity to provide these comments today. Thank you very much.

CHAIRPERSON NICHOLS: Thank you. Okay. Now let's bring it back to the Board.

I'm still not sure I understand what the time
line is that you're expecting to have these recommendations developed by.

INCENTIVES AND TECHNOLOGY ADVANCEMENT BRANCH

CHIEF ROWLAND: Scott Rowland, Chief of the Incentives and Technology Advancement Branch.

The process is ongoing. As Katherine mentioned, we received many, many ideas and suggestions from stakeholders at the IPAG, Incentive Program Advisory Group. The time frame moving forward is the air agencies, which is our collective term for us and CAPCOA, are going to jointly review all those suggestions, prioritize them, et cetera, and work with stakeholders who have suggested them over the summer essentially.

In the fall, we intend to have a follow-up IPAG meeting, at which we time we basically relay our assessments of these ideas and solicit further input and then hopefully begin work on what could be potential legislative concepts that could be offered in the future if legislation is to happen.

CHAIRPERSON NICHOLS: Is it your intent to have a written report at the end of this calendar year then that summarizes the work that the air agencies have been doing?

INCENTIVES AND TECHNOLOGY ADVANCEMENT BRANCH

CHIEF ROWLAND: That was not our intention. If that is what is desired, we can certainly prepare that. I think
that our end goal is basically to encapsulate the concepts in draft language for potential legislation as opposed to an actual report.

CHAIRPERSON NICHOLS: I'm not trying to give you direction on this. I really was just asking the question because it seems to me that there could be almost infinite number of good ideas, more than the number of stakeholders perhaps out there. And I'm just searching for a process that could help move towards greater cohesion and something specific that would come out of it. I think I'm going to ask for some help here.

BOARD MEMBER GIOIA: I think it would be a good idea to present this in a formal way here so we can have some discussion and possibly some input into this and clearly much better if it's in a written form and not just oral.

And just to understand how it's implemented. It sounds like there may be some recommendations that would lead to statutory changes. But other recommendations that could get implemented by what would we change the principles in the MOU with the air districts? How would that work? In other words, I sort of see a set of changes that may need statutory change, other changes in which we don't need new legislation but could just change the principles of the grant principles.
CHIEF ROWLAND: Yeah. There's a couple of different mechanisms we can use to modify the program. For those items for which the Board has essentially already established a clear policy direction, we have a relatively informal process that requires a 45-day notice of the changes and a public meeting. Those are not necessarily brought to the Board, again because there's clearly -- we believe there's clear policy direction.

BOARD MEMBER GIOIA: But I think it's important to have the whole thing presented in the context rather than bit and pieces.

I think getting back to Board Member Berg's very good point. This is a portfolio of a lot of different funding sources. And it seems that what would be useful is also how we how this can help -- how do we look at leveraging. How do the principles encourage the leveraging among these different funding sources and help those who are seeking funding for various projects to be able to leverage all of these funds. Is that principle sort of been talked about how we can best leverage all these different funds?

CHIEF ROWLAND: There have been discussions certainly. No conclusions yet. I'm certainly in agreement that it is a
very complex question, and we would want to I think bring that back to the Board to make sure that they are comfortable with the recommendations that we and CAPCOA would have before we pursue them.

BOARD MEMBER GIOIA: How are we accounting for where there may be differences and regional priorities? So the types of principles and projects to be funded, there may be different parties in different regions and within different air districts. How does that get played out? Can you explain, is it one MOU or multiple MOUs with different air districts? I don't understand that process. Is it one MOU?

INCENTIVES AND TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: The way the process works, we have one MOU with CAPCOA.

BOARD MEMBER GIOIA: How does that reflect different regional priorities?

INCENTIVES AND TECHNOLOGY ADVANCEMENT BRANCH CHIEF ROWLAND: It basically acknowledges that there are different regional priorities. That is a feature of the current Moyer program. ARB sets the guidelines, establishes the source categories. But the local districts have the ability to select which of those categories and which actual projects they pursue. The MOA essentially establishes that we would like to retain that
because that flexibility I think is necessary. We don't want to force marine projects on an area that has no water.

So essentially, how that plays out is the districts are granted their money based on number of factors, including population, air quality needs. And then essentially they determine exactly what they want to fund, if they want to fund on-road trucks, if they want to fund locomotives, et cetera. But it is basically their call as to exactly what projects happen.

BOARD MEMBER GIOIA: So when do you think you would come back here, just following up on the Chair's question? What do you think you would come back here with the presentation of the recommendations?

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: It's a great suggestion. And I think many of the ideas we're talking about really do warrant Board's perspective on especially when you talking about bringing in greenhouse gases or other types of activities.

What I would suggest is that we'll sit back down with our air district partners and lay out a time line to do that.

I would suggest before the end of the year certainly we would want to come back and share some of the ideas that we've received and some of the recommendations
that seem to be gelling. We were all gelling around and
seem to have -- are taking on some of validity due to
that. So before the end of the year.

CHAIRPERSON NICHOLS: Great.

Yes, Judy first and then Dan.

BOARD MEMBER MITCHELL: First of all, I want to
thank Sandy for her leadership. Thank you so much for
taking this on and doing all the extra work that you're
doing with this.

Second, I want to comment that the reason that we
were doing this was because AB 8 called for an evaluation
of the program. And so I do agree with the comments made
here by Board Member Gioia and our Chair that I think it's
important that the end product here be a written document.
Then that can serve as a guideline for us as well as we
move into working with the Legislature on any legislative
changes.

And the other thing that I think is really
important is that we -- as you mentioned, Mr. Rowland,
that we leave flexibility in the districts because each
district is quite different and their needs are quite
different. So that is an important part of the whole
program.

So I look forward to having you come back here
perhaps in a few months so we can see what the end product
is and an evaluation and written form of how the program is working and where those changes are needed. But thank all of you for what you've already done a great job in looking at what the program is and where it needs to be. So thank you very much for your work.

CHAIRPERSON NICHOLS: Dr. Sperling and Dr. Balmes.

BOARD MEMBER SPERLING: I'd like to follow up on that discussion about evaluation. So I see one of the principles is to create metrics and I think cost is the most important metric. And we've done -- this agency has done a great job in terms of traditional pollutant -- the conventional pollutants, doing the economic analysis.

But I don't see here -- so I see that there is a cost effectiveness limit written into the law. I believe that comes from the AB 8, 17,700 per ton. But I didn't see any follow up on that. There was a statement about how many emission reductions have been accumulated over time through the program, but no cost effectiveness. So I think it would be useful for us to see at some level of disaggregation, you know, what the cost effectiveness has been for the different sectors, different programs.

And I note it says per ton. Is that for PM also or just ozone precursors? So there's -- and then when we get into greenhouse gases, it gets really complicated.
But I think it is important still to use that as a discipline for the program.

So I just make a suggestion that there be more of a reporting of an analyses of cost effectiveness.

CHAIRPERSON NICHOLS: Dr. Balmes.

BOARD MEMBER BALMES: Again, I'd like to congratulate staff and CAPCOA for working together to try to make this program more effective.

But I'll return to slide 15 that Ms. Berg already mentioned, which is this matrix of the complexity of our incentive programs. And I realize there have been different sources of funding, different legislative mandates. But as somebody who has been on the Board since January 2008, I've struggled to remember all these different incentive programs.

I wish there was a way that users/applicants for the programs could have an easier time in terms of grasping all these various programs, more one-stop shopping, if you will. And what I was briefed, staff indicated that they'd like to move towards something like this, too. But I just want to say publicly that I think we need a simpler way to get the program marketed, the programs marketed.

CHAIRPERSON NICHOLS: Well, in terms of criteria for evaluating proposals or changes, maybe transparency
could be one of them.

    BOARD MEMBER BALMES: Yes.
    CHAIRPERSON NICHOLS: Might be a useful idea.
    BOARD MEMBER BALMES: But transparency isn't enough. I think it's important. But we need to integrate information in a way that is easier to digest.
    CHAIRPERSON NICHOLS: It's a different concept.
    Yes?
    BOARD MEMBER SHERRIFFS: Thank you. And thanks to all working on this.

    I would just add in terms of metrics not to spend too much time on it. But in fact, if there is a way to translate those dollars to the health effects, to the health outcomes to those impacts. Because I think it's such an important measure for the public and such an important measure as we think about moving forward legislatively with some of this. Thank you.

    CHAIRPERSON NICHOLS: Okay. Well, I guess the message here is carry on and report back. Thank you very much. This is a very helpful report. And it does segue nicely into the next item on the agenda. So maybe we should turn to that, which is also related to the Carl Moyer Program.

    We now get to hear some proposed amendments to the guidelines that are now dealing with on-road vehicles
subject to the truck and bus regulation. As we heard in
the previous, item the Carl Moyer Program has had an
impressive track record in cleaning up California vehicles
and equipment and achieving emissions reductions above and
beyond what was required in the State Implementation Plan.
And now we need to look at the program to address some
concerns that have come up most recently in April
concerning incentive funding availability for some that
are subject to the truck and bus regulation.

One of the key drivers in approving that
regulation was the need to ensure that incentive funding
would continue to be available to smaller fleets and
fleets based in rural areas. And so the purpose of the
staff proposal today is to help achieve that goal.

Mr. Corey, would you introduce this item?

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

Consistent with the recent amendments to the
truck and bus regulation approved by the Board on April
25th of 2014, staff's proposing changes to the Carl Moyer
Program guidelines that could complement the amendments to
the truck and bus regulation, particularly with regard to
focusing funding and expanding eligibility towards small
fleets.

Additionally, we're proposing a variety of minor
revisions to help our air district partners with implementing the program.

With that, Danielle Robinson of the Mobile Source Control Division will give the presentation.

(Thereupon an overhead presentation was presented as follows.)

AIR RESOURCES ENGINEER ROBINSON: Thank you, Mr. Corey.

Good morning, Chairman Nichols and members of the Board.

You just heard an update on ARB and CAPCOA's efforts to evaluate future program and policy needs in the Carl Moyer Program.

Today, I will present proposed near-term changes to the Carl Moyer Program guidelines specifically for on-road heavy-duty vehicles subject to the truck and bus regulation.

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AIR RESOURCES ENGINEER ROBINSON: As discussed in the previous presentation, the Carl Moyer Program has provided funding to encourage the voluntary purchase of cleaner than required engines, equipment, and emission reduction technologies since 1998.

The Carl Moyer Program is implemented through a partnership between ARB and local air districts. Per the
Health and Safety Code, ARB oversees the program by managing program funds, developing and revising guidelines, protocols, and criteria for covered vehicle projects, and determining methodologies used for evaluating project cost effectiveness.

The air districts are responsible for direct implementation of the program. They select the actual projects to be funded in their areas, as well as carry out the administrative and monitoring elements for those projects, including contracts, inspections, and reporting. This affords air districts considerable flexibility in program implementation while ensuring the proper and responsible use of public funds.

Eligible project types reduce emissions from engines and equipment in the on-road, off-road, marine, locomotive, and lawn and garden categories.

The Health and Safety Code authorizes ARB to revise the guidelines when it is necessary to improve the ability of the program to achieve its goals and the guidelines are continually updated to meet air district needs and enhance implementation.

While the Board has delegated to the Executive Officer the ability to update the guidelines as needed, that administrative process is reserved for those changes that are consistent with prior Board policy and direction.
Such a process was used recently to update the guidelines for source categories other than on-road heavy-duty trucks. However, with the recent amendments to the truck and bus regulation, we have determined that it is most appropriate to bring the proposed changes that would affect on-road heavy-duty trucks to the Board.

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AIR RESOURCES ENGINEER ROBINSON: The Health and Safety Code exempts the Carl Moyer Program guidelines from the rulemaking provisions of the Administrative Procedures Act and prescribes a similar but not identical process. That process requires that staff make the language available for comment for at least 45 days and that we hold a public meeting to consider comments.

In this case, staff issued a public notice summarizing the proposal 45 days prior to today's Board hearing. However, because the actual draft language was not released until July 8th, the comment period will remain open until August 22nd.

As mentioned, the Board has delegated to the Executive Officer the ability to update the guidelines as needed. And we believe that the most appropriate course of action regarding comments received after this hearing will be for staff to review and consider the comments and modify the proposed language as needed consistent with the
direction the Board gives today.

This process actually provides a greater time period for stakeholders to comment on the proposal since the concepts were provided with the public notice 45 days before this meeting and additional time is extended beyond today's hearing for comment on the actual language.

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AIR RESOURCES ENGINEER ROBINSON: Since 2008, fleet owners subject to the truck and bus regulation have been a funding priority for the Carl Moyer Program through the Voucher Incentive Program and Fleet Modernization Program.

Although the funding amounts for both are governed by cost effectiveness, vehicle usage, and project life, there are differences in how they function. The voucher incentive program is a first come, first serve program that provides vouchers for both retrofits and replacement vehicles. VIP is designed to be a streamlined process primarily for fleets using the most common compliance options. VIP has pre-determined funding amounts based on minimum surplus periods, usage, and engine standards and allows applicants to receive speedy approvals.

Fleets funded through VIP are checked for compliance with the truck and bus regulation. And
depending on weight class, usage, and engine standards, applicants can qualify for up to $45,000 for replacements and $10,000 for retrofits. It should be noted that to date very few retrofits have been funded through VIP.

In contrast, the fleet modernization program is a replacement-only program. It provides districts the flexibility to tailor contracts to the specific needs of each fleet, which have unique vocations in various compliance paths. In addition to the truck and bus regulation compliance check, fleets also undergo an in-depth check to ensure there are no outstanding violations to other ARB regulations. This is generally a more extensive process, but affords a higher maximum funding amount of $60,000 per vehicle.

The program requirements are coordinated with other funding programs, such as Prop. 1B to maintain alignment wherever possible. Staff recognizes that consistent eligibility criteria between funding programs helps districts and applicants in the application and review process.

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AIR RESOURCES ENGINEER ROBINSON: Moyer funding eligibility is limited by a number of factors to ensure that the funds go to worthwhile projects that achieve emissions reductions that would not otherwise occur.
Those factors include fleet size, gross vehicle weight rating, model year and usage, in addition to how many years of reduced emissions a vehicle could provide prior to regulatory deadlines. However, these criteria are not completely consistent with Board direction in the recent truck and bus amendments, which among other things were intended to create new opportunities for funding.

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AIR RESOURCES ENGINEER ROBINSON: In April when the Board approved amendments to the truck and bus regulation, you indicated an intent to extend funding opportunities for small fleets, not only through modifying the regulation, but also through refocusing incentive funding programs. Staff has developed the following proposed amendments to reflect the Board's direction and to complement the adopted amendments by further expanding funding opportunities for small fleet owners.

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AIR RESOURCES ENGINEER ROBINSON: To prioritize small fleets and to maintain a streamlined, first come, first serve process, staff proposes to limit eligibility to fleets of one to three, consistent with the small fleet definition under the truck and bus regulation. This proposal would not apply to non-VIP projects involving school buses, logging trucks, and transit buses, each of
which has its own distinct compliance requirements under
the truck and bus and other fleet rules.

Several air districts have expressed concern that
not enough small fleets will seek program funding and that
this proposal would reduce the on-road project pool and
prevent them from achieving cost effective emissions
reductions from fleets of ten or less.

Staff recognizes that it is difficult to predict
future demand. So we are also proposing to work with the
districts to monitor participation rates and determine if
fleet size adjustments are needed.

Staff proposes that the Board direct the
Executive Officer to use the administrative process to
adjust the maximum fleet size to as high as ten if it is
determined that such a change is necessary.

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AIR RESOURCES ENGINEER ROBINSON: Staff is also
proposing several other modifications that are intended to
increase the number of fleets eligible for funding.

The first is to reduce the surplus period or how
many years of reduced emissions a fleet must provide prior
to regulatory deadlines. Currently, for small fleet to be
eligible for a Carl Moyer grant, it must replace or
retrofit a truck at least two years before the deadline.
For small fleets, this front loads compliance costs and
hampers their ability to take advantage of the Moyer program. Therefore, staff proposes to allow a surplus period as low as one year. This will extend the eligibility period in general and provide more time for heavier vehicles to qualify for funding of the lower cost retrofit compliance option.

It would also provide funding opportunities for fleets that otherwise have none. For example, a heavier truck with a 2017 compliance date would no longer be eligible for retrofit funding starting in January 2015. But with staff’s proposed amendments, it would continue to be eligible for funding throughout 2015 and still provide emission reductions one year earlier than required. This proposed change would not effect the need for all projects to meet the Moyer program’s cost effectiveness limit, which is currently set at $17,720 per weighted ton of reduced emissions. That is reduced particulate matter, oxides of nitrogen, and reactive organic gas emissions.

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AIR RESOURCES ENGINEER ROBINSON: The second modification is to allow funding of light and heavy-duty trucks with gross vehicle weight ratings over 14,000 pounds. Currently, vehicles must be over 19,500 pounds. The proposal would align eligibility for all vehicles covered by the truck and bus regulation, creating new
opportunities for significantly more vehicles with impending deadlines.

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AIR RESOURCES ENGINEER ROBINSON: The third modification would reduce the required minimum California usage to 51 percent from the current 75 percent. The California international registration plan data indicate that 15 percent of small fleets travel 75 percent or more of their miles in California.

If the threshold of California usage is lowered to 51 percent, that rises to nearly 30 percent of the small fleets. Although the fleet data does not reflect the usage of each individual truck, it does point to the likelihood that the reduction in a required California travel would open up opportunity for additional trucks.

Staff proposes that this change only apply to fleet modernization projects since its very nature gives districts the flexibility to tailor contracts to the specific usage of each fleet. However, for VIP, this would increase complexity and thereby reduce its effectiveness as a streamlined process.

It should be noted that this proposal would not alter the fact that only emission reductions based on operation in California would be eligible for funding.

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AIR RESOURCES ENGINEER ROBINSON: Finally, staff proposes several other modifications to clarify program implementation.

Staff proposes to clarify that the gross vehicle weight rating of a replacement vehicle must be within ten percent of the engine's certified service class to ensure that engines certified for certain classes continue to equip appropriate vehicles.

Staff also proposes that replacement funding be capped at no more than 80 percent of the vehicle cost for all vehicle weight classes. Staff believes that this will prevent funds from covering the full purchase price or value of replacement vehicles, especially lighter and used vehicles.

Staff also proposes that TRUCRS certificates qualify as sufficient documentation to show compliance. Staff believes that will make it easier for fleet owners and air districts to determine program eligibility. Fleet owners that are not required to report in TRUCRS but still have to take action would still have the option to supply other compliance documentation.

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AIR RESOURCES ENGINEER ROBINSON: In conclusion, staff recommends that the Board approve the proposed amendments to the Carl Moyer Program guidelines. The
proposed amendments will help small fleets subject to the truck and bus regulation get access to Moyer funding. In addition, the proposal will expand funding opportunities, while still providing emission reductions that are early and/or in excess of the regulatory requirements.

That concludes my presentation.

CHAIRPERSON NICHOLS: Thank you. Before we turn to the list of people who have signed up to testify here, I just have one question really about this, and that has to do with the small fleet identification and limiting it to the one to three vehicle fleets and the concern about difficulties in reaching those fleets.

It seems to me based on my personal experience with this program that there has never been an ARB program that is better known to the public than the truck and bus regulation. I personally have gotten more mail on it than any other topic combined, some of it pretty emotional. I find it hard to believe that the districts can't find a way to get to these small fleet owners and get them to apply for the funding if it's available.

BOARD MEMBER BERG: They sure show up here.

CHAIRPERSON NICHOLS: They find their way to the Board meetings as well.

I don't want to prematurely cut off the discussion on this item. But regardless of where you come
out in terms of the size issue, it seems to me maybe we need a better outreach program here and shouldn't make a commitment as part of whatever final action we take on the package to insist that both the state and the local districts take on a new activity here to make sure that people who are eligible know they're eligible and they need to come in and apply.

Okay. Let's turn to first people -- the list is posted on the wall there so you can see where you are. We will start with Anthony Fournier. Good morning.

MR. FOURNIER: Good morning, Madam Chair and member of the Board.

My name is Anthony Fournier. I'm the Director of Incentives for the Bay Area Air District. I'd like to start off by thanking staff for their hard work in developing these recommendations and for working with the local districts throughout this process.

We are in support of many of the changes proposed today and believe they will overall help strengthen the program. We appreciate the adjustments staff made to the originally proposed fleet size limitations and support the flexibility to give the Executive Officer the authority to adjust the fleet size requirement as needed.

This program has been successful in helping small fleets upgrade their equipment and reduce emissions. And
we feel this change would have unnecessarily limited participation.

Through the Voucher Incentive Program in the Bay Area, we have awarded 200 vouchers for over seven million dollars over the past five years. Approximately 70 percent of these funds have been awarded to fleets of one to three trucks. And we have allocated additional local funds to ensure we do not turn away any eligible small fleets from participation. We look forward to our continued partnership with ARB in implementing this program in the Bay Area.

Thank you for your time.

CHAIRPERSON NICHOLS: Could I just ask you a question? What does it mean if there are fleets that are eligible for this program and they're not applying, despite all these efforts? Does this mean they're just planning on not staying around and being in business long enough to justify the grant? I'm seriously asking the question. You seem to -- you're in touch with these folks.

MR. FOURNIER: In some cases, sometimes the grant is not enough for them to participate. They have to take on a significant amount of expense to cover the balance of a new truck. So that's probably the primary reason we've heard from the trucking community.
CHAIRPERSON NICHOLS: So they wouldn't consider a retrofit?

MR. FOURNIER: Like was mentioned in the presentation, we funded very few retrofit projects through the VIP program.

CHAIRPERSON NICHOLS: Okay. Thanks.

Mr. Wallerstein. Dr. Wallerstein.

DR. WALLERSTEIN: Good morning, Chairman Nichols, members of the Board.

I'm Barry Wallerstein, the Executive Officer of the South Coast Air Quality Management District. And as we talk about ten versus three as a cutoff or another issue I'm going to bring up, I just want to echo what was said in the last agenda item. This is one of the very most popular and successful programs that our agencies jointly administer. And we do it as partners and are doing it better as partners than we've ever done before. So that has to be the overall context here.

The two issues for CAPCOA as you're hearing is reducing from ten to three and there is a second issue which is under the current regulation the operators of the one to three vehicle fleets were supposed to retrofit their first vehicle by July 1, 2014, this year. And there is a concern that many of the operators, in fact, didn't comply with your reg and so therefore wouldn't be eligible
for the funding.

So let me talk about that second issue first, because that is the one that's most critical to us. I had a conversation with Erik before the hearing today, and he told me that the plan was that those operators should come in and settle up with CARB. And once they settle up with you and settle their violation, they would then be eligible for funding. So we would ask simply ask that we get something in writing both in the upcoming Prop. 1B grant agreement and something from Richard that allows us to know that that's the process. Otherwise, we're going to have to turn these folks away because they would be non-compliant.

CHAIRPERSON NICHOLS: But a letter would be sufficient.

DR. WALLERSTEIN: A letter would be sufficient.

On the ten to three, I have the tell you my staff was pushing me to say please go encourage the Board to leave it at ten.

I understand the Board's direction previously to the staff and the reasons behind it. The fact that the staff presentation recommended to you that you specifically as part of this item give Richard the ability to adjust that as is needed, given what transpires, is adequate to satisfy at least the South Coast District
I would simply also ask because this is such a critical issue to the CAPCOA members that we keep in mind as was mentioned earlier one size does not fit all. Some of our rural members may have more difficulty coming up with adequate numbers than someone like South Coast. But Richard's commitment is certainly good enough for me and happy to proceed on that basis. Thank you.

CHAIRPERSON NICHOLS: Thank you very much. Really helpful.

Mr. Watt and then Dr. Brezny.

MR. WATT: Hello, again. Mike Watt, Director of Incentives for the San Diego County Air Pollution Control District.

You know, my comments will probably be similar to Mr. Fornier's and Mr. Wallerstein. We certainly do support the majority of the proposals particularly, the reduction in the surplus life down to one year, the addition of the lighter duty vehicles I think is going to be a big improvement and the reduction in the California operation requirement from 75 down to 51 percent I think is going to help.

As you heard, we do have some concerns about the proposal to restrict the fleet size from ten down to three. But we do appreciate staff's modified proposal to
keep an eye on that and allow us to make adjustments going forward if we see that for whatever reason there is not enough participation from the fleets.

The last thing we want to do is have money left on the table we're not able to spend because we don't have enough eligible applicants. As long as we can keep an eye on that.

And to dovetail off what Anthony said, what we do hear a lot from the smaller fleets is that whether the grant amount -- I think it ranges from 10,000 to $45,000, with the VIP program, I think in San Diego we've done about 250 of these vouchers. I want to say the average is somewhere in the $30,000 range. While that is a lot of money, it oftentimes is not enough for these folks to bridge the gap between what they're getting and what they need to complete the purchase of the truck. That is a major reason why some of these smaller fleets aren't able to take advantage of it. Certainly not because they're not interested or they don't want to. It's not enough to get them there in some cases.

CHAIRPERSON NICHOLS: I understand. Appreciate that further clarification.

Dr. Brezny

DR. BREZNY: Good morning, Chairman Nichols, members of the Board.
I'm Rasto Brezny with the Manufacturers of Emissions Controls Association. Our members provide the emission controls that go on OEM first fit, as well as diesel retrofit applications.

And today, I want to thank your staff for bringing forward these revised guidelines. I think the message was clear at the April 24th Board hearing that small fleets are struggling. And I think that some of the state funded programs and requirements limited their ability to qualify for these loans and this incentive funding. And so I think this is a really good step forward. So we enthusiastically support this proposal, and I want to just make a couple recommendations for your consideration.

One is that I guess our recommendations are aimed at reducing the risk toward for both the end users as well as air districts when public funds are used towards the purchase of a used truck. When you buy a new truck, you get -- or VDECS, for example, you get a manufacturer's warrantee that ensures that the system is going to be operating properly. If not, the manufacturer is on the hook for making it right.

In the case of a used truck, you don't have that assurance. And in many cases, the new owner may soon realize that there may be a problem with the engines, the
emission controls have been tampered. So they may be saddled with some maintenance costs they weren't planning on. And if they don't take care of that maintenance, operating a poorly maintained truck is not going to deliver the emission reductions.

So we have a couple simple recommendations which will be provide more details in our written comments. But basically some simple things that could be done is a minimum dealer warranty on a used truck. In the case when public funds are used towards the purchase of these trucks, such as Moyer or an engine out opacity to ensure the engine is not burning oil, tailpipe opacity measurement to make sure the emission control system has not been tampered or compromised, and a simple back pressure across the filter would tell you whether it's been cleaned recently or it's been plugged or so forth.

So I'd like to thank you for your consideration of our comments. And I'll be happy to answer any questions you might have.

CHAIRPERSON NICHOLS: Thank you.

Mr. Barrett and then Mr. Fisher.

MR. BARRETT: Good morning. Will Barrett with the American Lung Association California.

First of all, I want to say we appreciate the work staff has done to develop the Moyer updates. We
support moving forward to continue this important work of
cleaning up the air to protect the public from toxic
diesel emissions.

The Lung Association has been a long and strong
supporter in the state's highly effective suite of
incentive funding programs to move us more quickly down
the path to clean air.

We support the proposal and the focus on
maintaining a streamlined process. We appreciate the
proposal to include lighter trucks in the program and
think this can help us speed up emission reductions across
the broader fleet.

We definitely appreciate staff's new proposal for
careful monitoring of small fleet participation and the
exploration of the need to move forward with that as we
get more information about the program and uptake in the
small fleets.

We want to ensure the funds remain available to
those in the greatest need of assistance and to ensure
these funds do get out the door to them quickly.

As you all discussed earlier, we look forward to
working with you on the discussion of moving forward on
how the incentive funds can best coordinate and be aligned
to make long-term impacts to protect California's health
and our climate. We need to ensure all incentive programs
are providing both local air quality benefits of in
pursuant of our criteria air pollution goals, but also
begin transforming the heavy-duty fleet to meet our 2050
climate goals.

We appreciate all the work that went into these
programs in updating the Moyer guidelines and look forward
to working with you and our partners in the air district
as we go forward.

We were co-sponsors of AB8 last year, and we are
really appreciative of all the work that's gone into
implementation of that. So thank you very much.

CHAIRPERSON NICHOLS: Thank you. We have two
speakers up here.

MR. MAGAVERN: With your permission, we'll switch
the order within our organization.

CHAIRPERSON NICHOLS: That's fine.

MR. MAGAVERN: Bill Magavern with Coalition for
Clean Air. And we also are long-time supporters of the
Carl Moyer Program. It's essential. Has done so much to
clean up the air in California, and we want to a salute
the leadership of this Board, particularly Board Member
Berg, as well as the staff and the Air Pollution Control
Officers in continuing to refine the program.

I also participated in the June 11th meeting of
the Incentives Advisory Group. Thought it was a very
valuable discussion. And look forward to the next one.

And we support the proposal before you today.

Some of these changes I think we might have been skeptical of in the past, like the reduction from two years to one year. And also the reduction of the California in-use requirement. But we support these today because the fact it's in the context of the truck and bus rule that we know is challenging for these small fleets to comply with. And therefore, since it is limited to the fleets of three or fewer, we support this package.

And having been here in April and in October when we heard so much about the hardships faced by these smaller fleets, we think it does make sense to make the changes at this time. And we do support the staff proposal to limit it to three and think that one of the benefits of this program is it does help air districts whether they're small or large, urban or rural. And so it's great to see that this funding will be available to help the smaller fleets comply.

And now our physicist, Tony Fisher, will specifically address the weight limit issue.

CHAIRPERSON NICHOLS: Thank you.

MR. FISHER: Thank you, Bill.

Good morning, Madam Chair and Board members.

I'm Tony Fisher representing the Coalition for
Clean Air.

The Coalition for Clean Air supports staff proposal to lower the gross vehicle weight ratings, or GVWR, from 19,500 pounds to 14,000 pounds. However, the Coalition for Clean Air recommends that the Board look into the further lowering of the GVWR level down to 8500 pounds in order to qualify most of the diesel medium duty trucks in the Moyer program.

This segment of the truck diesel fleet in the GVWR range of 8500 pounds and 14,000 pounds represents a noticeable portion of diesel trucks that adversely impact passengers in following vehicles, especially since their diesel emissions are mainly at ground level. In comparison, larger trucks usually have higher exit points due to vertical exhaust which help in disbursing harmful diesel emissions before they impact passengers in following vehicles.

I have been talking with ARB staff in El Monte to determine the feasibility of cost effective technology for the 8500 to 14,000 pound GVWR diesel trucks.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Mr. Schrap and then we've had two more people sign up. Mr. Broadbent and Mr. Edgar.

MR. SCHRAP: Thank you, Madam Chair Board
members. My name is Matt Schrap. I'm Vice President of Government Programs at Crossroads Equipment Lease and Finance and President of California Fleet Solutions.

Just want to thank you for this opportunity to comment on this Board Item. I, like the air districts and many folks in this room, have been around these rules going on for the better part of ten years now. I have to say that our organization, Crossroads, we are the number one largest CalCap lender in the California Capital Access Program, with close to 1700 loans that have been enrolled since inception. Close to 70 percent of those loans are by a single truck owner-operators.

And I want to address specifically knowing that we've already discussed the fleet size reduction and appreciating the flexibility that the Executive Officer has to make changes to increase the fleet size from three up to ten, you made a comment earlier, Madam Chair, about why folks aren't using this program. And having been involved in this again since the outset and having been working for the largest commercial dealership network on the west coast, we see these folks come through our door on a daily basis. And there's some concerns I guess, for lack of a better term, about lack of acknowledgement for some of those folks who have already spent a lot of money to get into compliance.
One reason why folks aren't taking advantage of the VIP program on the one hand is might be not having knowledge about their eligibility. But on the other hand, used truck prices have gone through the roof lately. You're looking at close to $100,000 for a used truck that would meet the .2 gram criteria for 2010 engines in this program.

Meanwhile, the rates aren't there to support some of these smaller guys. We noticed a lot of folks falling off. We've noticed some defaults that have started to come in for this, lack of a better term, subprime category. We encourage the Board to take a hard look at I guess acknowledging the challenges these folks are under.

One thing that is of major concern to myself and a lot of the end users that we deal with is this provision where if you get cited, you can then come back to the Board and then get a grant after the fact. That seems a little, I guess, disingenuous for what we're trying to accomplish here. You have folks who have spent hundreds of thousands of dollars to get into compliance ahead of the deadlines.

Now there is a message just came across, come and get cited if you're a single truck operator. Come to us, and we're going to give you money in order to upgrade your vehicle. There is a lot of other fleets out there on the
four to ten category that are utilizing credits that go out to 2018. There are a lot of different things here that's not just let's help the small fleets out. Please acknowledge some of the folks that have made investments and take a hard look at increasing that fleet size when the time comes around, because it is necessary.

And as I mentioned, we deal with these owner-operators on a daily basis. We work very closely with the districts. And being at the point of the sphere of outreach, we would want to have the best information possible for these owner-operators.

CHAIRPERSON NICHOLS: I just want to clarify your comment about what you referred to as the mixed message, if you will, of just being disingenuous about getting cited. Are you referring to the people that did not submit the paperwork by July 1 that they were supposed to have submitted?

MR. SCHRAP: I was referring to the comment that Dr. Wallerstein had made in regards to his conversation with Mr. White in that if you get cited, if you're a single truck owner-operator, you didn't reach your July 1 deadline or perhaps you just haven't reported at all at this time in point, some serious clarification would be needed. Because if I'm a single truck guy, I hear the Air Board say it's okay if you haven't complied yet, if you
get a citation, bring it back to us. We'll allow you to pursue grant programs. That in and of itself, that message is disheartening, to say the least. So granted, it's not an official policy at this point in time, but hearing that type of stuff and knowing these owner-operators.

One other reason is that the second truck for some of these two and three truck guys isn't until 2017. I know these single truck guys personally. They will wait until the very last minute before they have to do anything. So trying to encourage them to get in line if they've already been in compliance when they're competing with folks who still are not in compliance and then receive a citation in order to get grant funding, it puts them at a disadvantage.

CHAIRPERSON NICHOLS: I'd just like to clarify something here, Mr. White.

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: Let me provide some more context in terms of how we look at fleets that are not complying. This has been a longstanding policy within the incentive program and the Carl Moyer Program, as well as the Prop. 1B program is for fleets that are compliant with the regulation, they're eligible for funding. And so what often happens is fleets would like to be funded, but are not in compliance. So
they cannot be eligible for funding until they come into compliance. And typically, there is a penalty certainly involved with their noncompliance they have to pay and so become fully compliant with the regulation.

What we are proposing and suggesting in this particular case is we would continue that policy moving forward. So if a small fleet was noncompliant for some reason, they would come in and meet with our enforcement staff, settle any potential settlements and violations they, which would include penalties. Once all of that was cleared and they were compliant with the regulation, they would be eligible for funding moving forward. We would do this with small fleets and large fleets. It's not unique to staff's proposal today, has been our longstanding policy and our incentive programs.

CHAIRPERSON NICHOLS: Maybe it's the way it's being communicated. But it doesn't sound like what you really intend is a kind of a two-step process where, first of all, you turn yourself in and pay your fine and then you contemplate getting in line for a grant. It's more like the way we would hear from you or the district would hear from you, because you were interested in a grant, and as part of getting that grant, you have to come into compliance -- I'm looking at making this simpler and less apparently ping-pongish.
MOBILE SOURCE CONTROL DIVISION CHIEF WHITE:
Well, I think we have to be careful. They're not necessarily connected. You don't get an offer of a grant contingent on going back and clearing your violation. If you want to be eligible to apply for it -- so you go into the district. "I would like to get a voucher for a truck," and they run your compliance through our system and say you're not compliant. Come back when you're compliant. They have to go back, meet with us, become whole again and become compliant with the regulation. And then they can work with the district on getting the grant for the remaining vehicles that have future compliance dates.

MR. SCHRAP: I don't mean to interrupt, but it seemed it was couched in the single truck owner-operator perspective. If I'm noncompliant now, the only way for me to get into compliance is to control the vehicle with the VDECS or go purchase an '07 or newer engine.

CHAIRPERSON NICHOLS: It's a catch-22.

MR. SCHRAP: Clarification would be helpful because again the lunch truck chatter out there, we've witnessed it, especially with the economic hardship that's happening right now. It's very difficult to convince people that the ARB is serious about implementing these regulations. And we're publicly webcast now. I can just
hear it. Oh, all you have to do is go get a citation, or
all you have to do is come to the district and clear it
and you'll get a grant.

The reality is -- which is with how the incentive
programs are. You need to be in compliance first before
you can access. We appreciate the shrinking of the
surplus, everybody who we speak to out there. But this I
guess misinformation, it's just rumor rears its ugly head
in this situation. And us being really boots on the
ground one step in front of the district in recruiting
these people and bringing them in to utilize these
programs, it's difficult to dispel the myths and rumors.

CHAIRPERSON NICHOLS: I understand. You're the
ones out there actually dealing with the trucks in the
real world. So I'm just trying to get a better sense of
how our program can deal with this.

MR. SCHRAP: I appreciate the clarification,
Erik. Thank you very much. It was just -- there was a
lot of concern. The bells started going off. My phone
started blowing up.

CHAIRPERSON NICHOLS: Thank you.

We will now hear from Jack Broadbent.

MR. BROADBENT: Yes, Madam Chair. Jack Broadbent
on behalf of CAPCOA.

A lot has already been said. But I just wanted
to clarify and on behalf and set the record that CAPCOA is indeed in favor of this proposal that you have now today. We have a letter in to you about this, about this size of the fleet to be targeted. We have felt and have been discussing with your stuff for some time that really we ought to be targeting those fleets from one to ten. But we understand the desire to really focus on those one to three fleets and are in support as long as we can work with your staff, monitor very closely, and have your staff administratively have the ability to go back out to a larger set of fleets, if indeed, funding is available. I would say hopefully by the end of the year.

So we stand ready to work very closely with your staff, Madam Chair.

CHAIRPERSON NICHOLS: Thank you.

Last, Sean Edgar.

MR. EDGAR: Chair Nichols and Board members, Sean Edgar, the Director of Cleanfleets.net.

I had a few targeted suggestion relative to the outreach component the Chair mentioned earlier. Under contract of the Board, Clean Fleets went out into multiple states, probably eight or ten states around the country and educated over 5,000 fleet owners now that we've made significant changes to the rule.

I know that your staff is looking at doing some
additional messaging. But in light of these changes, I know the call center for the truck stop when I looked on it the other day, it had a great message, due to high call volumes, be patient. We may get back to you. In our office and I'm sure everybody else who deals in fleet compliance, phones were ringing off the hook. So a targeted new messaging is I think in order.

There are four things or tips I'll borrow from our experience.

Number one within your purview as you can under existing law, leverage your relationship with DMV, go multi-media, go big when it comes to the number of organizations that you deal with. And go multi-lingual. So I know the Board staff is making some progress in all of those areas.

But specific to leveraging your DMV relationship, as a licensed driver here for a little bit over 30 years in California, I'm used the seeing that little DUI thing about how many drink on my body weight I can take. That's a nice little insert for everybody who gets a driver's license.

However, my suggestion -- this came up at a TRAC meeting and may be time to reinitiate TRAC and also reinitiate what we can do with an existing authority working with DMV, because everybody who has a commercial
driver's license, everybody who registers a commercial
tuck in California should be getting some formal
notification.

I know some of us as stakeholders will talk to
the Legislature next year about doing some other things
relative to DMV authority. However, under your existing
relationship with DMV, an insert for commercial drivers
and diesel vehicles and highlighting these changes may be
something very positive that you can do.

Going multi-media, I know you have a media
outreach campaign. Some of those have clips that are
posted on the Board's website. Beyond multi-media, I know
that print ads and radio and other things in multiple
languages, our experience, we sent out thousands of
postcards to DMV registered truck owners in order to
promote attendance at our workshops that we did both under
contract to the Board and we continue to do those
workshops, including one at 4:30 today at McClellan Air
Force Base. So anybody who is available, come at the end
of the Board meeting today. It's on the Cleanfleets
website if you want to come see it.

The last item would be integrated messaging. In
light of the changes, I would make an appeal to you it
might be time to reinvent TRAC in order for the
associations that do pay attention be able to carry that
to the their members. So reach non-members to the DMV and
reach members of associations by reinvigorating TRAC.
That would be my targeted suggestions for you.

    Thank you.

CHAIRPERSON NICHOLS: Okay. Very good. Thank you.

That concludes the list of witnesses that we have on this item.

Supervisor Roberts.

I'll close the record first. It's closed.

BOARD MEMBER ROBERTS: It sounds like we've got pretty much an agreement here. I need to have somebody explain how this works because the fuzzy part of one to three versus one to ten is going to be variable based on some criteria or something. I'm not sure what. So I'm wondering how that -- how you foresee that operating and maybe I misinterpreting --

BOARD MEMBER SHERIFFS: Richard Cory's middle name is Solomon.

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: That was our answer.

What we will do, if the Board approves staff's proposal today, is modify the guidelines that they will apply to fleets of three or less. We'll work with CAPCOA to identify a process in which we can establish the
metrics. How are we going to monitor the uptake of these funds over the next several months as they make the funding available. And then understand whether or not fleets are taking money that's on the table or not.

We intend to work with the districts using the information that we have, similar to what Mr. Edgar just suggested, in terms of targeted outreach for individual districts that have VIP or other Moyer funds for trucks on the table where we can send notifications to them via the mail or other means so they know that funding is available within the air districts and they should look into getting that. We can look at that specifically for small fleets.

The process we have, as Ms. Robinson laid out, administratively is if we along with CAPCOA recognize that small fleets for whatever reason -- we heard several reasons why they may not -- but are not coming and getting them funding, we can within a 45-day process very quickly raise that threshold up from three to maybe five, seven, as high as ten under what we proposed today, which would set it backward is right now and open that funding up to larger fleets.

For a little perspective though what we're talking about, I asked staff to run some numbers for me last night. How many trucks are we talking about in this grouping of two to three truck size fleets. Those are the
ones that have some future compliance dates. There is about 10,000 trucks in California that fall within that two to three fleet size that still need to be upgraded. So there's significant demand for trucks in that size range that we think are prime targets and are really what the Board was looking for us to go at.

If you start to go up to fleets of ten, that number doubles. So you can see that the money will fly very quickly the larger the fleet size that you open it up to. That was why we thought it was prudent to start with fleets of three, do everything we can to get them in the door. If it's not working, then take the approach to open it back up.

BOARD MEMBER ROBERTS: Based on the experience the district is having, it might gradually start to increase that so you reach a bigger market.

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: That's correct. That would be our suggestion.

EXECUTIVE OFFICER COREY: Supervisor Roberts, the only thing I want to add to that to amplify a little bit on what Erik said, Erik talked about based on the insufficient demand for the fleets of three or less. So there's money on the table. The point, you want to make sure those dollars are used and used effectively.

And bottom line was that to the extent after the
outreach and I thought there was some excellent ideas and
district targeted outreach at small fleets is going to be
a critical aspect to this. To the extent there are
dollars on the table, what Erik was referring to is
proposed adjustments that would expand the eligibility of
larger fleets up to ten. We thought we would go out for
public comment. We would have a workshop. People would
have the opportunity to weigh in on it. Before it was
exercise, it would have full vetting.

BOARD MEMBER ROBERTS: Okay. Seems like what
you're doing is you're giving them priority at least in
the start. To the extent that works, we stick with it.
To the extent it doesn't, we'll have --

CHAIRPERSON NICHOLS: We'll have to bring it back
to the Board.

BOARD MEMBER ROBERTS: You can make that happen
hopefully in a timely way so that the funds that are
available and put into use.

I'd move approval of the Resolution 14-27.

BOARD MEMBER BALMES: Second.

BOARD MEMBER BERG: Second.

CHAIRPERSON NICHOLS: Any further discussion?

BOARD MEMBER MITCHELL: I'd like to have a couple
of comments here.

As we mentioned, I think it's really important
that with the initial roll-out of the program that there is extensive public outreach to the small fleets. And that I do think it should come back here to the Board after that to see how successful that has been. There's some question whether there will be money left on the table. And I know we don't want to be in that position.

The other thing that should be included here in our approval of the resolution is the suggestion that the Prop. 1B grant program include this provision that we discussed with Mr. White that if an owner of a small fleet is not compliant, that he has to come into compliance and pay the penalty and whatever ARB has worked out with that owner before he becomes eligible for the funding, for the incentive funding, and that the forum that ARB puts out for the Grant 1B application should include that proviso.

Secondly, that the ARB should send a letter to the districts which lays out that distinction. The districts are concerned, of course, that they want to be compliant with the ARB program. So they don't want to run into a situation later where they've granted incentive funding and we find out that we couldn't do it. I think that kind of a letter is important as well.

So I also wanted to highlight how important this program is. And I'll say in southern California and South Coast Air District, it has just been an incredibly
important part of our program to clean up the air. So we want to see it be successful. And we think that targeting the small fleets first is a good way to try to bring in those people. We know that is the category that has the most trouble being compliant. But that expanding that up to the ten fleets, if there is money on the table, is also essential. So I would ask that those comments be noted in our approval of the Board Resolution.

CHAIRPERSON NICHOLS: I don't think we need to amend the Resolution. But I think they will be in the record. I hear the -- I see the staff nodding. And I believe they heard you.

Without further ado, yes, Mr. Serna and then Mr. Eisenhut.

BOARD MEMBER SERNA: Thank you, Chairman Nichols. I wanted to respond and certainly underscore what Chairman Nichols said at the outset before we took public testimony about how best to reach the small fleets. I wanted to offer a suggestion if we are not already doing it. And I'm in particularly looking at La Ronda.

One of things we might think about is working not only with local air districts to promote and provide the information about the incentives and the grants, but also individual counties, economic development departments. And in our case here in Sacramento County, we actually
have an organization, separate agency called the Business Environmental Resource Center. And I believe LaRonda is familiar with that agency. And the mission of that agency is really to help small business and growing business navigate through various regulatory processes and permitting and all that comes with that.

And I think this is -- that's a great example of a platform that we might want to take advantage of in addition to like I mentioned earlier the economic development department of various counties, assuming they have them. Just to kind of cast a wider net instead of just working with local air districts.

CHAIRPERSON NICHOLS: Thank you. It looks like a good suggestion. I'm sure that the Ombudsman is prepared to act on it.

OMBUDSMAN BOWEN: That's my suggestion. We will work with Erik's staff and make sure we cover -- there is quite a bit of growth in the economic arena throughout the state. I'll make sure we touch base with them.

CHAIRPERSON NICHOLS: Thank you.

Mr. Eisenhut.

BOARD MEMBER EISENHUT: Thank you, Chairman Nichols.

I appreciated the conversation clarifying the compliance prior to application. I think that was a good
conversation.

The question I have with regard to the three and ten, as I understand it, will for some period of time essentially the districts would have two lines and rather -- which leads to a certain amount of uncertainty prior to that point. If there were a single line with, for wont of a better word, priority rights for smaller fleets up to a limited -- up to a fixed date, is it your opinion that would help clarify the situation or add unnecessary complexity to it?

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: I think that might add some complexity to it. I think there is a lot of things we can look at to gauge how small fleets are utilizing available funds, looking at historical rates of how money goes out the door and compare that with the rate at which money under these new restrictions would go out the door and such like that.

I don't think it will take us too very long once these moneys are available and local air districts to understand whether or not the demand that I think we all collectively hope shows up, that small fleets taking advantage of the public incentive dollars that are available to help them get cleaner trucks.

If that doesn't happen, our plan would be to move fairly quickly. I don't think we want to have different
sets of criteria out there. And we're going to put you in this one or put you in that one up to a limit. Because I think that gets confusing for those who want to participate. And it becomes a lot more difficult to administer for the local air districts. So one of the beautiful things about the VIP program is its simplicity. You apply. You get your voucher. You can go to the dealer. You can get your vehicle. We want to preserve that as best we can.

BOARD MEMBER EISENHUT: Thank you.

CHAIRPERSON NICHOLS: Yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Thank you. Just wanted to clarify -- well, I would agree our ability to refine the program -- I would agree our ability to refine the program is indeed one of its strengths and one of the strengths of the organization in relationship with the stakeholders and is very important. We learn from what we do.

The minimum surplus reductions in the past we're looking at two years for one to three fleets and three years for four to ten. And we're now talking about one year. Is that only for the one to three or would it also cover the fleets up to ten?

INCENTIVES AND TECHNOLOGY ASSESSMENT BRANCH CHIEF ROWLAND: In the immediate future, it would only to apply
to fleets of one to three. If there is the decision to open up eligibility to these larger fleets based on our assessment of the performance, I think that is a question we would need to examine to determine if it was appropriate.

The proposal essentially provides, you know, one last chance of funding for folks at that final year of surplus. And we have heard some concerns that the larger fleets -- that allowing that single year would be providing more benefit -- not more benefit than they need. Access that is perhaps more warranted for the smaller fleets than the larger fleets. So if we extend the fleet size, I think what we would probably do is go to the status quo for the fleets of four to ten and retain the three year surplus period.

BOARD MEMBER SHERIFFS: Good. I appreciate your caution, because thinking back to the graph that we saw when we revisited this a couple months ago, we shifted the curve in terms of the number of lives, the health effects. Now our sense was we hadn't shifted the curve so far that it was really beyond what our best calculations were. But our action today, indeed, shifts that a little bit more. And if we extend that to fleets of four to ten, that becomes a significant multiplier in terms of the loss of the surplus. So we do need to be very cautious. Good
luck.

One other thing I wanted to ask about. It was brought up by the last speaker that really addressed the equity issue and compliance. What progress or where are we making progress in terms of tying in to DMV? That seemed like a very important area to assure people who had complied in the past that as we move forward we really do have a handle on this.

MOBILE SOURCE CONTROL DIVISION CHIEF WHITE: As you may recall from the April hearing, we were seeing currently very high levels of compliance, which was certainly very encouraging to us that fleets are aware of the regulation and they've taken the actions they need to through some of many ways -- in the flexibilities that we offered in the program. So today's action will allow those that have utilized that flexibility and extended their compliance dates a mechanism to get some funding.

I do not expect that the compliance rates we saw in April have changed must since then. Staff had been very busy over the last several months finalizing the amendments that the Board approved in April, moving fleets into those newly created compliance flexibility options that they had so that we could move them from if you recall the good faith advisory program that many fleets had participated in into the actual regulatory amendments
that the Board had approved. So some of the work that you
suggest, Dr. Sherriffs, in terms of looking at what we
have and comparing that with the DMV is work we will be
doing in the near future to certainly continue to check on
what the compliance rate is within the program in
conjunction with their field activities. So that work
will continue.

CHAIRPERSON NICHOLS: Are we ready to vote? We
have a motion and a second on the table. All right.

All in favor, please say aye.

(Unanimous aye votes)

CHAIRPERSON NICHOLS: Any opposed?

Any abstentions? All right.

Thank you, staff. Good work. Good discussion.

Our next item is the information update on air
toxics prompted by a proposed update to the science
California uses to assess the risk of airborne toxic
contaminants.

Over the past ten years, advances in science have
shown that early life exposures to air toxics contribute
to increased lifetime risk of developing cancer or other
adverse health effects compared to exposures that occur in
adulthood. This focus on children actually has been going
on for quite some time. But this is the first time we've
seen it reflected in the regulatory arena.
The Office of Environmental Health Hazard Assessment, OEHHA, is nearing completion of an extensive public process to revise its guidance on evaluating the health risk from toxics to incorporate the new science. ARB, the air districts, our consultants, and sources of air toxics all rely on this guidance to implement risk reduction programs established by state law.

The net effect of the proposed changes would be to increase the estimated health risk associated with a fixed level of emissions from a given source or sector. In some cases, the new estimated risk would be only slightly higher than the estimate using the existing methodology.

But in other cases, the new estimated risk could be up to three times higher. As policy makers, it's essential that we understand the context for these changes and what they mean. We have successfully reduced the inhalation cancer risk from air toxics by 80 percent in California since 1990. But now we have developed a better way to assess how the remaining toxics in the air effect us all. And we need to evaluate how we're going to continue the progress that we've made.

Today, ARB staff and OEHHA staff together with a representative of the California Air Pollution Control Officers Association are going to highlight the scientific
advances and discuss the work plan for incorporating the proposed new guidance in state and local risk reduction programs.

Mr. Corey, would you please introduce this item?

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

In June, OEHHA released for public comment an updated version of its draft guidance manual for performing health risk assessments. It will go to the scientific review panel late this year, then be finalized for use across California thereafter.

In anticipation, ARB and the air districts are working together to develop a comprehensive multi-year plan for incorporating the new guidance into the numerous state and local air toxic programs. The higher estimates of health risk with proposed new guidance will heighten the need for the ARB and our district partners to evaluate the existing permitting and control requirements as well as develop additional protections for impacted communities.

The new methodology does not change the fact that diesel particulate matter remains the primary driver for health risk from air toxic in California, underscoring the need to continue to push for zero and near-zero emission technologies.
The Board's actions last month to approve $80 million in incentive funding to catalyze this technology in the freight sector was an important milestone. The presentation today will describe our current air toxic program, the progress we've made, the policy questions that we'll face, and the schedule for addressing them.

I'll now ask Greg Harris of the Transportation and Toxics Division to begin the staff presentation.

Greg.

(Thereupon an overhead presentation was presented as follows.)

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

Good morning, Chairman Nichols, and members of the Board.

Today, you will be receiving a joint presentation from Air Resources Board, Office of Environmental Health Hazard Assessment, and the California Air Pollution Control Officers Association, CAPCOA, which is the association of local air districts.

The purpose for this presentation is three-fold. First, to inform Board members about the OEHHA risk assessment guidelines which provides the risk assessment, science, and direction for preparing risk assessments for air toxics in California, the changes to these guidelines
since they were last updated in 2003, and the implications of those changes to our air toxic programs.

Second, to discuss the air district and ARB actions to address the changes.

And third, to let the interested public and stakeholders know that we recognize the issues before us and allow the Board meeting to serve as a kickoff for some, or a continuation for others in regard to outreach and communications on this topic.

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AIR POLLUTION SPECIALIST HARRIS: The OEHHA guidelines have been updated to reflect new science on childhood exposure to air toxic and new data on exposures for people of all ages. Reasonable refinements to critical exposure factors have improved the methodology for estimating potential health impacts. The impacts of these changes mean that cancer risk estimates will be increasing. In some cases, inhalation risk estimates may not change much. However, in many cases, the inhalation cancer risk estimates using new guidelines will increase by a factor of approximately 1.5 to three. These changes will result in more facilities being subject to public notification and risk reduction requirements. As a result of the new science, the air districts and ARB need to reevaluate their air toxic programs and policies to
address these changes.

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AIR POLLUTION SPECIALIST HARRIS: This presentation will cover the background of the air toxics program, the challenges that we face, and the actions ARB staff and districts plan to take in response.

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AIR POLLUTION SPECIALIST HARRIS: California's air toxics program has two major elements that cover many activities and tasks within the program. The first element is risk characterization and communication, which covers the evaluation and assessment of potential health impacts and the communication of that information. This slide outlines the risk characterization and communication activities within the program.

In parentheses, we identify who is involved or performs those activities. Examples of risk characterization activities include the identification of toxic air contaminants and the conduction of risk assessments under the AB 2588 Air Toxics Hot Spots Program and district permit programs for CEQA analysis and for use in special studies, such as environmental justice or goods movement evaluations.

Examples of communication activities include the public notification or the right to know requirements of
the Hot Spots Program and the presentation of air toxics monitoring trends.

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AIR POLLUTION SPECIALIST HARRIS: The second major element of California's air toxics program falls under risk reduction. We address risk reduction through risk management activities.

This slide shows examples of the risk management activities, and again in parentheses identifies who is involved. Examples of risk management activities include district permitting programs, the implementation of risk reduction requirements under the Hot Spots Program, the development of airborne toxic control measures, which use the best technology in consideration of costs and potential health risk, and the effective enforcement of existing regulations while using incentives to accelerate emissions reductions.

In both major elements of the air toxics program, the ARB and air districts work together to evaluate emissions and health impacts while implementing programs that cut emissions of air toxics and associated health risk.

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AIR POLLUTION SPECIALIST HARRIS: The California's air toxic program has been very successful in
reducing public exposures to air toxics. Since 1990, we
have achieved an 80 percent reduction in risk from air
toxic despite eight million more residents and eight
million more vehicles. While these are statewide average
statistics for health, the health effects are also reduced
and in some cases eliminated near facilities due to
changes in equipment and processes in response to ARB and
district control measures since many California sources
have invested in the highest levels of controls to reduce
emissions.

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AIR POLLUTION SPECIALIST HARRIS: The OEHHA
guidance manual supports numerous risk characterization
and risk reduction aspects of California's air toxics
program, including hot spots and port or rail yard risk
assessments, district permit actions, and regulation
development at both the State and local levels.

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AIR POLLUTION SPECIALIST HARRIS: While the
changes in the science are necessary and appropriate, they
create considerable challenges that must be addressed.
This slide illustrates some of the issues risk managers
will face.

In this example, we use a typical gasoline
service station, but the same situation will apply to
other types of facilities.

First, some background. Under the Hot Spots Program, individual districts set the risk levels for facilities that trigger the requirements for public notification and risk reduction. The two columns on the left show the typical levels that districts use. For notification, most districts use the ten chances per million. This means if the results of the risk assessment for a facility are above the notification level, then the facility must notify its neighbors of the results of the risk assessment.

If the risk assessment results are above the level for risk reduction, typically between ten and 100 chance per million, then the facility must prepare a plan for the district on how it will get below the risk reduction level, then implement the risk reduction plan within a specified time frame up to ten years.

Here's the programmatic challenge. Any source, but in this example a typical gas station, could be below the level of notification of the OEHHA risk reduction guidance at, for example, eight chances per million. However, the new guidance, they are above the notification level for most districts and may be above the risk reduction level with the risk of approximately 22 chances per million. Some source categories like stations,
already have state-of-the-art controls technology. In the case of gas stations, the fuels have been reformulated. There are vapor controls on the station and in this most of the vehicles.

This raises an important policy issue: How do we address a category of sources providing an essential public service that do not currently have additional technology options? The air districts and ARB staff are discussing the possible responses to this difficult issue.

Next, Dr. Melanie Marty of OEHHA will discuss the science and changes to the OEHHA guidelines. Dr. Marty.

DR. MARTY: Thanks, Greg.

Good morning, Chair and members of the Board.

I'm Melanie Marty, Assistant Deputy Director of the Science Division at OEHHA.

Before I discuss the next few slides, I just want to remind people of the origins of the risk assessment guidance manual, which is now out for public review.

OEHHA is required by law to develop and to update risk assessment guidelines for the Air Toxics Hot Spots Program. Some of you who have been around awhile know that as the AB 2588 program. These guidelines are used to estimate both cancer risk and non-cancer hazard to the public from chemicals emitted by stationary sources subject to the program.
State law also requires that OEHHA consider the specific susceptibility of infants and children as well as other sensitive, such as the elderly, when assessing risk from air pollutants, including the air toxics.

Over the last decade or so, OEHHA has revised our previous risk assessment guidelines using new data and new analyses about both exposure and sensitivity of infants and children. We produced three technical documents, all of which have undergone mandated public review, peer review by the State Scientific Review Panel, and adoption by the OEHHA director for use under the Air Toxics Hot Spots Program.

The risk assessment guidance manual, which is a user manual for conducting risk assessment, essentially integrates information from the three technical documents. We've pulled the key information to implement the changes to the risk assessment methods.

The changes that the Board is being briefed about today relate primarily to estimating cancer risks from facility emissions. The slide presents a schematic overview of the factors that go into estimating cancer risk.

On the left, we have cancer potency factor. Cancer risk is proportional of the potency of the chemical as a carcinogen. That's one of the factor that goes into
estimating cancer risk. The individual chemical cancer
potency factors are based primarily on studies in adult
animals or sometimes adult humans. And these we're not
changing for this guideline.

However, the cancer risk also has to consider
other factors, including the age at which you are exposed
and the dose of the carcinogen, factors related to the
extent of exposure, including the amount of time in a day
that a person is being exposed, in this case, time at home
because the cancer risks are estimated for nearby
residences. And also the length of time that you're
actually living at a specific address or the exposure
duration.

The components in the red in this slide are
either newly incorporated or revised in the new risk
assessment methods.

Next slide, please.

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DR. MARTY: In evaluating newer data, it becomes
pretty clear that exposure per pound of body weight from
inhalation or from eating or drinking contaminated food or
water are higher the younger you are. So infants have the
highest exposure per pound of body weight in the same
setting as an adult.

Thus, the guidelines include revised age-specific
breathing rates, as well as other intake rates such as exposure from food or drinking water. These revised intake rates result in more accurate estimates of dose to infants and children and to adults.

OEHHA also evaluated data relating the age at which one is exposed to the cancer risk. Our analyses indicate that in general the cancer risk is higher the younger a person is when exposed to the carcinogen. That is on a dose basis. That's on the amount of carcinogen exposure per body weight.

We have, therefore, incorporated age sensitivity factors to weight risk from exposures that occur early in life, infancy and childhood.

We also evaluated data relating to the amount of time one spends at home by age. This was actually done by ARB staff. We are able to account for reduced exposure when you're away from the location, at which the cancer risk is estimated.

Previously, we recommended estimating cancer risks from a specific facility's emission for a 70-year lifetime at a given residence. We have changed this recommendation to 30 years based on using Census data that indicate most people live 30 years or less at a specific address. In the new guidelines, cancer risk at a specific location from a facility's emission is estimated based on
30 years exposure.

As I noted earlier, these changes have undergone public review and peer review by the Scientific Review Panel, including review of our responses to public comment. The guidance manual integrates this information to allow implementation of the risk assessment method changes.

I'd like to note also that U.S. EPA uses similar information in its risk assessments, including age-specific intake rates and weighting factors for early life exposure.

Next slide, please.

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DR. MARTY: The bar graph you're looking at provides an indication of both the direction and magnitude of the change in cancer risk estimate presented by the factors I just discussed.

One can see that weighting risk from early in life exposure drives the cancer risk estimates upwards. So that's the age sensitivity factor bar. Likewise, accounting for higher exposures per pound in younger people also increases the cancer risk estimate because it increases the dose estimate. So that's the daily breathing rate in this particular figure.

Accounting for less than 24 hours per day at home
where the cancer risk is being assessed and for a shorter
duration of residency at a single address drives the
cancer risk estimates downwards. So that's the next two
bars.

And finally, I want to mention that the ARB
modelers developed a spacial averaging method to more
accurately estimate the concentrations of a facility's
emissions in the air, particularly from small sources.
Applying this would drive the estimated cancer risk
downwards.

I will now turn the presentation over to Barbara
Lee, representing CAPCOA.

MS. LEE: Thank you, Melanie.

And good morning, Madam Chairman and members of
the Board.

I'm Barbara Lee, the Air Pollution Control
Officer for the Northern Sonoma County Air Pollution
Control District. I'm here on behalf of the California
Air Pollution Control Officers Association. Thank you so
much for the opportunity to speak with you.

Next slide.

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MS. LEE: California Health and Safety Code and
the Federal Clean Air Act give authority and
responsibility to local air districts to evaluate and
address exposure to toxic air emissions in a number of ways. Some of these rely on assessments of health risk due to exposure to toxic pollutants, while others are technology-based or consider other feasible mitigation strategies.

Broadly, local air districts are charged with addressing toxic emissions as part of the permitting actions for stationary sources. Districts implement and enforce an array of federal and State air toxic control measures and also have authority to develop and implement their own measures to reduce emissions or associated risks from new, modified, and existing sources.

Air district governing boards have discretion to establish risk-based thresholds under key programs, including thresholds used in permit review and to implement the notification and risk reduction requirements of the Air Toxics Hot Spots Program. Many districts also advise local land use agencies on risk assessment and mitigation under the California Environmental Quality Act.

The air districts are preparing for the update to OEHHA's risk assessment guidelines in a number of ways. Districts are individually reviewing their rules, programs, and policies that evaluate or address health risks from air toxics in order to identify changes that may be needed and to understand the potential effects of
revisions to current risk assessments that have already
been done. This includes notification and reduction of
risks under the Hot Spots Program, the permitting
thresholds I mentioned, and other rules or programs that
address health risks from air toxics.

In addition, collectively through CAPCOA, the
district have gathered information about anticipated
program and workload implications. CAPCOA is also
reviewing its Hot Spots prioritization guidelines, which
are referenced in statute, to identify any changes that
may be needed to ensure those guidelines remain consistent
with OEHHA's revisions to the risk assessment guidelines.

CAPCOA's preliminary survey of its members
indicates that potentially tens of thousands of facilities
will need to be evaluated and prioritized for further
review following these changes, and several thousand will
likely need revised risk assessments. The majority of the
facilities effected will be smaller operations, such as
gas stations, metal refinishing, and stationary diesel
engines. These may be addressed on a category basis
through the industry-wide provisions of the Hot Spots
Program by the air districts working with ARB staff.

Among the facilities that will be evaluated individually,
our survey suggests that as many as 1200 facilities could
be required to provide public notification of associated
health risks as a result of the change, and about 350 or so facilities may be required now to reduce their risks.

These are rough numbers, and they will likely be revised as more in depth reviews are completed by the air districts and by ARB. CAPCOA will also be working with ARB staff to develop tools to expedite the reviews. We anticipate completing our revisions to the prioritization guidelines by the end of the year. And districts expect to have a more comprehensive assessment of what changes may be needed in their individual programs within a few months after OEHHA finalizes their risk assessment guidelines.

For the individual facility reviews, districts plan to begin with the highest risk facilities that are most likely to have to reduce their risks, followed by those that are more likely to trigger public notification. And then after the highest risk facilities are completed, the districts will rely on the existing quadrennial update process to review the remaining facilities.

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MS. LEE: The districts and ARB have been collaborating closely and productively over the last several months as we have evaluated the potential effects of OEHHA's proposed changes. And your Board can feel confident we have a solid work plan going forward. We
expect to continue our collaboration as we identify source
categories for possible industry wide assessments, develop
the assessment tools, conduct the assessments, and address
the results. We will also be coordinating on the
reevaluation of toxic control measures.

This is a substantial undertaking on par with
initial reviews that were done when the Hot Spots Program
began. It will likely take several years to complete.
Throughout this process, we expect to interact with
businesses, environmental, and community groups, and
others who are interested in the effort to provide ample
opportunity for everyone to understand and have input into
the process.

CAPCOA prepared a brief overview of the effect of
the proposed changes and anticipated next steps to provide
to our members for their use as they brief their boards
and local stakeholders. We plan to develop additional
outreach materials to support the process going forward,
and we look forward to working with ARB staff in the days
and months ahead.

We understand that the revisions to OEHHA's risk
assessment guidelines have not been approved by their
Scientific Review Panel, but the districts feel strongly
that early and active engagement with our stakeholders is
very important.
Districts have begun briefing their governing boards and local stakeholders, and in coordination with ARB staff, have met with statewide business and environmental groups. We plan to meet regularly with industry and environmental groups through the CAPCOA, ARB, industry, and environmental task forces and have offered other opportunities to meet as well.

Coordination and collaboration will continue to be critical as we implement the revised risk assessment guidelines and adapt our programs to these changes. The agency partnerships in this effort are strong, and they will support an integrated and effective transition in this important program. Thank you very much.

And I will now pass the presentation back to Greg Harris of ARB. Greg.

AIR POLLUTION SPECIALIST HARRIS: Thank you, Barbara.

The ARB, air districts, and industry have taken a wide variety of actions to control and reduce air toxics, including the truck and bus regulation, port programs, restrictions, on school bus idling, and stationary source controls, like prohibiting the use of hexavalent chromium in cooling towers.

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AIR POLLUTION SPECIALIST HARRIS: As OEHHA was
working to update its guidance, the ARB and the district recognize the implications of the on-risk management. Throughout 2014, the Secretary of Environmental Protection, Matt Rodriguez, led discussions with air districts, CAPCOA, OEHHA, and ARB to develop a coordinated effort for implementing the new science. We developed a common message to accommodate release of the draft guidance manual and reached out to industry and environmental representatives with advanced briefings.

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AIR POLLUTION SPECIALIST HARRIS: ARB will be working to provide guidance on risk management related topics. We are committed to working with our district partners, industry, and environmental representatives as we move forward to develop ARB's risk management guidance in a public process.

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AIR POLLUTION SPECIALIST HARRIS: Our first task involves potential updates to existing toxic programs. Route now, we're in the process of updating the hot spots analysis and reporting program, HARP, software so it will be ready for use with OEHHA guidance manual. The HARP software hardwires the OEHHA guidance. Air districts, ARB, facilities, and CEQA consultants rely on the HARP software to perform consistent risk assessments across
California.

ARB will also amend the hot spots emission inventory and criteria guidelines under AB 2588. The ARB is working with air districts to identify source categories, like gas stations, where it makes sense for us to perform industry-wide assessments for hundreds of very similar sources, rather than ask each individual facility to hire its own consultant to perform individual analysis.

ARB will begin to update risk management policies and evaluate how we may assist districts with guidance on permitting.

We will also be prioritizing adopted ARB control measures that need to be re-evaluated to consider the new risk estimates and any significant advances in technology. This effort will likely first focus on older regulations.

ARB staff will also update the land use handbook to incorporate new information. Now let us focus on the control side of ARB program to reduce the health risk from air toxics.

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AIR POLLUTION SPECIALIST HARRIS: This time line illustrates the evolution of our air toxics program. In the mid-80, the focus of the fledgling air toxic program was individual sources like hexavalent chrome from cooling towers and plating operations. In the 1990s, we
considered smaller commercial sources like dry cleaners, added focus on reformulated fuels and gas stations, with fuel specifications and vapor recovery controls to address Benzene emissions.

In the early 2000s, our emphasis turned to diesel particulate matter with the Board adoption of the Diesel Risk Reduction Plan. This plan has driven some of our greatest challenges and public health successes.

2010 and beyond continues to focus on heavy diesel engines and passenger transportation with trucks, buses, and advanced clean cars leading the way. ARB had adopted and implemented nearly 30 statewide control measures for air toxics, more than a dozen target diesel PM. The rest address a diversity of sources and industries that span the entire state from composite wood products and medical waste incinerators to outdoor burn barrels and brake cleaners.

Now let us look how the Board's effective program to address diesel PM is delivering results.

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AIR POLLUTION SPECIALIST HARRIS: The diesel program relies on a combination of regulations and incentives to achieve emission reductions. We expect this substantial private and public investment to upgrade the fleet of diesel vehicles and equipment will cut the cancer
risk by nearly 85 percent between 2000 and 2020. Beginning with early adopters like transit bus and waste collection operators, to construction and port equipment, to the extensive effort to upgrade all trucks on California roads, this transition is providing significant public health benefits for our most vulnerable communities.

This slide focuses on the statewide risk from diesel PM and ambient air. We know the areas with greater concentrations of diesel sources like South Coast, Bay Area, and San Joaquin Valley will continue to experience relatively higher ambient cancer risk.

We also recognize that near-source cancer risk for residents living close to rail yards, freeways, or other freight facilities around the state can be considerably higher than the statewide average as well.

As we move forward in reducing the health risk from air toxics, we need to consider the sources of the remaining diesel PM emissions in 2020. Freight transport accounts for a majority of the emissions in 2020. Our sustainable freight strategy will determine the next steps to further reduce emissions from that sector.

In addition, ARB is continuing to work with the agricultural industry to develop a long-term strategy to increase the use of the cleanest technologies as they
become available for mobile agricultural equipment in the
San Joaquin Valley to support ozone attainment.

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AIR POLLUTION SPECIALIST HARRIS: Moving forward,
we will focus on protecting public health through a
balanced approach that considers the sources that pose the
highest risk, while supporting the availability of
critical goods and services for Californians. State law
highlights the need for this balance. It directs ARB to
require the best available control technology in
consideration of cost and health risk.

Our work will continue to support transparency to
the public for both our policy development and access to
data about air toxics. We will continue to work closely
with the air districts through the leadership of CAPCOA
and coordinate with the broader group of stakeholders in
development of our policies and programs.

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AIR POLLUTION SPECIALIST HARRIS: To conclude,
this slide shows the time frames and milestones for ARB
action. In addition to our extensive efforts to implement
and enforce existing regulations for diesel PM and other
air toxics, we are undertaking new activities. Through
the end of the year, we will be working on risk management
policies and identifying source categories for an
industry-wide approach, followed by a planned update to the Board. Staff will also present the draft sustainable freight strategy to the Board in December.

Early next year, we anticipate that OEHHA will finalize the guidance manual and ARB will have the HARP software ready to go. ARB will begin prioritizing existing control measures for subsequent review. Then we will focus on reevaluating the appropriate existing measures and begin developing any new measures.

Thank you for your attention. This conclude my presentation.

CHAIRPERSON NICHOLS: I have some questions, and I suspect other Board members do, too. But before we get into that, I think we should hear from the people who have signed up to speak to us.

I would like to say I think this is a very carefully prepared presentation. Obviously, it's a balance between saying something important is going on here and saying but don't worry because we have a process in mind for managing it carefully. And I think that's a good message. Certainly, that's the right sort of tone that we would like to set.

But I also want to make sure that we've really got the structures in place to make good on that. And that on both sides that we're neither sort of glossing
over something that's important or raising alarm unnecessarily. So it's a balance in terms of how we both communicate and how we actually proceed. It sounds as though we're doing well.

But I'd like to hear from other stakeholders here. So we'll start once again with Jack.

Jack, you're getting your money's worth this morning.

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

So I just wanted to be able to provide a perspective from the Bay Area. And Madam Chair, I would agree that I think we do have a process in place to manage these changes moving forward. I do believe that.

But that being said, there is going to be a considerable workload, as Ms. Lee indicated, I think on all the districts. But certainly at the Bay Area, we expect these changes will result in about another 150 facilities per year having to make additional changes to keep below notification or our risk management numbers as they go through the new source review processes.

But I just wanted to take a step back. These changes are occurring at a time in which there is a considerable amount of dialog discussion around toxic air containment exposure down at the community level. What's
driving that in the Bay Area is frankly a number of energy projects. Our five refineries all seem to be able to at one make changes in their facilities. That's heightening a lot of concern in the communities, understandably. That comes when we've done a really good job working with your staff through our community air risk evaluation program where we have quantified the risks in various communities. We have identified to the public frankly West Oakland, Richmond, portions of San Jose are all disproportionately impacted. These changes are coming along on top of all of that.

So I think frankly from the Bay Area's perspective, what's going to be key is communication. Is being able to explain to the public you're not being exposed to more emissions. We just have better science and understanding what you are exposed to, that this is more potent, this is, indeed, something that we're going to have to deal with.

So what we're going to be doing is not only managing -- help to manage the process moving forward. We are also in the Bay Area contemplating lowering our overall risk management threshold. We think that makes a logical sense as well. And how we lay these things out so that we can fully brief the communities and the public and let them understand what's going on is something that's
going to take a lot of effort. I know your staff will be there to work with us to make that happen.

So I just wanted to make those remarks on behalf of the Bay Area. Thank you, Madam Chair.

BOARD MEMBER GIOIA: Can I amplify something since he's from the Bay Area?

Jack, I really appreciate how Jack framed this because I sort of see the analogy here is that it's like when the surgeon general came out with new science that cigarette smoking was more harmful to people's health than they thought, that was conveyed in a very clear manner. And so while rates of smoking didn't go up from one day to the next, the new science concluded that there was a greater risk than we all thought. So that sort of the analogy that I think here. Because I've seen even in one of the letters we have from the business community is we're concerned there is a changed public perception about these facilities, even though they're not increasing emissions. That's true. They may not be increasing emissions.

But what's happened is we need to clarify that this new science tells us something different that we didn't know yesterday and that the public is entitled to know that. Everyone is entitled to know that. And it's an important factor in making decisions about permits and
projects. So I think it's about education. And I think
the reality of the health issue is more important than the
perception issue.

CHAIRPERSON NICHOLS: Understood. That's a
useful clarification. Thank you.

Dr. Wallerstein.

DR. WALLERSTEIN: Well, from your initial Board
comments, I see that the purpose of my trip to Sacramento
today is really being understood clearly by the Board
already. This is why I'm here today, not the previous
item. And I was fearful that there wouldn't be a lot of
people here and this just might kind of slide by. And
this is one of the more significant changes that we've
seen in our air programs in a very long time.

CARB and the districts pride ourselves on being
science based and following the science and that's exactly
what OEHHA is doing here. OEHHA has been very, very good
about giving us adequate time and sitting with us and
explaining their part of the science.

And we make the distinction as you've been
hearing this morning between risk assessment, the OEHHA
portion, and risk management, what our governing boards
and what you have to decide in the way of appropriate
public policies, regulations, and pollution controls. And
I think the supervisor's analogy with cigarettes was right
But the difference here is that we've got thousands of permits that come through our agency each year now that go through different air toxic screening. And the question is: Will they still be able to pass even with the use of best available control technology. And that is what we are going to have to work to analyze.

And as Jack was mentioning, the issue of communication here is key. The environmental justice community, when we first started doing environmental justice work in the late 1990s, expressed great skepticism about our ability to assess risk and quantify it properly. We're now in a position, as you heard, of coming back in many instances and saying we underestimated it by three fold.

And so in our case, where we produce our multiple air toxic exposure studies every three to our years, our MATES study, we're about to release a new MATES study. This hasn't been finally approved. But yet, I know it's coming because we're going to follow the science on the quantification side.

So what we will be doing when we release the study in the next month or so is providing analysis according to the existing approved method and also providing some analysis that reflects the change that I
believe will occur over the next few months. And what that does is instead of having an average risk maybe in our air basin that's on the order of 500 million, we'll be back up at 1200 in a million or so.

And some communities will see risk when they look at the maps that will exceed 2,000 in a million. That doesn't negate the fact that we have had 80 percent reduction in toxic risks. But it points to the fact that we have a lot further to go. And there is a synergy between what you're doing on climate change, criteria pollutants, and now toxics is right up there with it. And it's the same sorts of solutions. Thank you for giving me the time this morning on this.

CHAIRPERSON NICHOLS: Thank you very much.

Mr. Quinn, good morning.

MR. QUINN: Good morning, Chairman Nichols and members of the Board.

My name is Bill Quinn. I'm the vice president of CCEEB, the California Council for Environmental and Economic Balance. Our membership draws from labor, entertainment, power producers, utilities, aerospace, rail roads, and refineries.

This morning, I just want to make a few brief comments on the issue at hand. This is an important issue for CCEEB and our members. We recognize the scientific
understanding of risk due to air toxics is changing. At the same time, we need to be mindful of significant progress made by sources under 2588 and subsequent programs and policies to reduce emissions of air toxics and exposure to California communities.

As your staff and you have pointed out, it's important to recognize that we have reduced exposure or toxics by 80 percent since 1990. Nothing in OEHHA's new guidelines changes this success story.

We believe ARB needs to make it clear that the risk associated with air toxics has not increased. Air toxics emissions continues to be reduced and better controlled every year.

What has changed is the method of calculating that risk. The new method results in a significant increase in the risk estimate, but this is not the result of any increase in emissions or exposure. Under existing and future rules, sources will continue the significant downward trend, reducing its emissions and exposure. This needs to be a key point in the public discussions of the guidelines.

CCEEB is reviewing the draft guidelines and working on comments. Once the guidelines are finalized and as ARB and CAPCOA move forward in implementing them, there will be a great need for the air agencies to work
closely together in order to ensure a clear and transparent process that continues to improve public health while supporting a sound economy.

CCEEB would appreciate opportunities for productive engagement and collaboration with the air agencies and other stakeholders on both risk communication as well as a consideration of potential adjustments to risk management programs.

Finally, risk communication poses both challenges as well as opportunities to make risk estimates more understandable and meaningful to the public and to communities near sources of emissions. We look forward to working with you and your staff as this issue moves forward. Thank you very much.

CHAIRPERSON NICHOLS: Thank you.

Mr. Wang.

MR. WANG: Good morning. Mike Wang with the Western States Petroleum Association.

As the presentation by CARB, OEHHA, and CAPCOA clearly demonstrated, we collectively are going to be charged with an important responsibility. And so whatever ultimately gets implemented or adopted by OEHHA, the agency, whether it be ARB, Cal/EPA or CAPCOA will need to recognize the important roles that we all have individual and collectively to ensure that risk is communicated.
accurately and appropriate risk management programs are implemented.

This is especially important given that the past 20 years has been a tremendous reduction in air pollutions of all sorts, including toxic air contaminants and that was amply demonstrated in the presentation.

Hence, it's important that we work together to ensure that the regulated community is not unfairly impacted, despite the work they've done in the past.

As you may have heard, many have asked for a deferral in the comment period that's currently set for completion on August 4. We made this request to allow time to understand the implications of the HRA process and the implications of the risk management options.

We are not debating the need to provide updates to the health risk assessment methodology. We agreed that risk assessments must be updated and must protect public health. That issue notwithstanding for at least as long as we've been involved in this issue, we've stressed a need for showing a range in risk assessments from the most health protective to the medium to the average to the 80 percentile.

We make this request for two reasons. First, to identify the range of risk management options that may be available given the differing risk assessment estimates.
And two, to show policy makers the range of policy decisions and costs involved in the management of those risks. Understanding this range of risk is important to consider when sources are already at the maximum control level possible and have installed all state-of-the-art emission control devices.

Finally, as we note, as noted by the staff, the ultimate goal is to have implementing sources and agencies partner to control emissions and accurately and clearly convey the rest of the public. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Mr. Samson.

MR. SAMSON: Good morning, Madam Chair and members.

Anthony Samson with the California Chamber of Commerce. Thank you for the opportunity to speak here today. As the staff's presentation illustrated, this proposal is extraordinarily technical and rooted in complicated scientific data that's by no means easy to extrapolate. And because of this, it's difficult to know with great degree of certainty at this time how this proposal will impact the regulated community.

But what we do know is that according to the presentation today, the proposed changes will result in health risk estimates of 1.5 to three times current
estimates. So with this mind, we believe more time is needed to fully analyze the impact of these complicated revisions to the guidance document and how it will impact the regulated community.

This analysis, in turn, we believe will prompt a much-needed dialog with state and local regulatory agencies and the regulated community and will also help inform recommendations for further changes, not only in the draft guidance document, but also with regard to how air districts will ensure facilities will continue to receive permits and operate responsibly in California.

And as you've just heard for this reason, the California Chamber of Commerce and a diverse coalition has submitted a request to extend the comment period to Secretary Rodriguez. And we believe that will allow us to provide substantive commentary in the coming weeks that will help this dialogue move forward in a productive manner. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Mr. Rogge. And then Mr. Magavern.

MR. ROGGE: Okay. I'm Mike Rogge with California Manufacturers and Technology Association. And really based upon the Chair's preface comments can cut my testimony down considerably.

Understanding that OEHHA is proposing risk
calculation changes to the AB 2588 HRA guidance document, we are very concerned about the potential impacts the revisions may have on our members. Because of that importance, CMTA supports the business community's request to allow additional time to review, digest, and provide comments to OEHHA.

It is critical as we moved forward that ARB, CAPCOA, and the air districts work closely with the regulated industry in risk communications and also the need for risk management program adjustments. We need to be mindful that we have worked hard to reduce emissions in the AB 2588 program over the past 20 years. We look forward to working with ARB, CAPCOA, and the air districts on this important issue. Thank you.

CHAIRPERSON NICHOLS: Thank you very much.

MR. MAGAVERN: Bill Magavern, Coalition for Clean Air.

We appreciate the excellent scientific work being done by OEHHA. I believe that in recent years the threats posed by air toxics from stationary sources have slipped somewhat below the radar at the state level, while remaining in many communities very prominent at the community level, as we heard from both Mr. Broadbent and Dr. Wallerstein.

I know, for example, that I hear a lot from
community residents near the Chevron facility in Richmond, which had a horrendous fire two years ago and is seeking to expand. And also some people living near the Exide Battery Recycling Facility in Vernon, which has continued over the years to spew lead and arsenic into the air and the soil around there.

So these are really important issues. And it's crucial that we update regulatory standards along with the best science that's available. And that's really what we're talking about here. And particularly important when we're talking as we are here about children's health. So looking as we go forward and looking at the presentations from ARB staff and CAPCOA, I want to say first of all that we strongly support the emphasis on emissions from freight and the fact that this sustainable freight strategy is moving forward. And we continue to work with the staff on that. So really looking forward to the results of that.

But also that we continue to look at the facility permits. As we've heard from the air districts, there's going to be a lot of work going into potentially revising those. And therefore, we encourage both ARB and the districts to devote the resources and the attention necessary to get those right and also to be alert to the ways in which risk assessments can be gamed and manipulated. And I mean, Dr. Wallerstein referred to the
concern at the community level about risk assessments. And that is often what it comes down to. So it's very important that we be on guard against that gaming and manipulation and make sure that we get the most honest risk assessments possible, because again, we are talking about the health of our children. Thank you.

CHAIRPERSON NICHOLS: Thank you.

I think that concludes the list of people who indicated they wanted to comment. I suspect the Board members are going to have a number of different comments and questions. But just a reminder before we move onto greater conversation up here that we're talking about sort of two separate things, even though we've got -- maybe three actually, that are linked together in one presentation. But the risk assessment, the risk guidelines are a product of OEHHA, which is a sister agency. And they're on track to get this done by the 4th of August, unless for some reason they change their mind. But they are the agency that's charged with reviewing the science and doing the guidelines.

The Air Board and CAPCOA are both in the position of being implementers, but we implement different facets of it. And we also have had input I believe into the risk guidelines in the sense that our scientists have also commented from their perspective on this as well. But
it's somewhat similar to the process that we go through in setting air quality standards, except that the decision makers on the standards, which is going to be the districts and the Board, are not looking at another office within our own agency, but to an external agency to give that advise.

So with that, turn it over to you, Dr. Balmes.

BOARD MEMBER BALMES: Well, first of all, I want to complement OEHHA and their partners CAPCOA and our staff on this effort.

First of all, I want to say this is -- this exercise is mandated by SB 25, the Escutia bill, aimed at providing greater protection for children's health. So it's not like this is coming out of clear blue. And it's been a long process, as the Chair indicated in her opening comments.

I would agree with Mr. Magavern and Dr. Wallerstein that as we have made major progress with regard to improving air quality in California with regard to criteria pollutants that exposure to air toxics have become more of an important issue. They were always important, but they're now looming larger on our radar screen because we have cleaned up the air with regard to criteria pollutants. And that's taken a major effort. And I think we need to embark over the long haul with
increased efforts to reduce health risk from air toxics.

And I also agree that our friends in the environment justice community representing communities with hot spots in terms of air toxics are rightly concerned about the exposures of the individuals living in those communities, adult as well as children.

So while I realize and don't take lightly that this is going to create a lot more work for the air districts and it's going to impose increased efforts and costs on regulated industries, I think it's necessary to move forward. We need to move forward in a way that's practical as much as possible. So that really means good communication, because I agree with several people who have been concerned about this that if we communicate that suddenly people are incredibly increased risk of cancer and other health outcomes, it's going to create maybe undue alarm. So how we role this out in terms of risk communication is important.

That said, I do think that the science has moved on since the last time OEHHA looked at risk assessment guidance. And so it's appropriate to be transparent and communicate to the public how science has shown increased risk for a number of toxic materials.

And part of that risk communication process, I think it's important to let the public know that we've
made great strides. One of the slides in the presentation talked about 80 percent reductions in ambient cancer risk statewide since 190. That needs to be communicated to the public that we have made progress, but we need to continue on that pathway to further progress with regard to reducing risk health.

So I want to end up by saying that -- and staff knows this that I've been championing the use of our adaptive management plan, the component of our AB 32 Scoping Plan, and implication efforts to try to maximize co-benefits when -- co-benefits of health when we're trying to control greenhouse gas emissions.

So I would end by asking staff in the spirit of what Dr. Wallerstein's talked about in terms of synergy with climate change efforts, are we going to incorporate these new OEHHA risk assessment guidance guidelines with regard to our adaptive management plan? This was a question. I ended up with a question for staff.

CHAIRPERSON NICHOLS: You may answer.

EXECUTIVE OFFICER COREY: I will take a stab at this.

This was touched on. The guidelines touch on multiple programs, the toxic program and coordination/interaction with the districts. So to me, one of the things we're going to look at as these
guidelines or updates is we're going to rely on and
integrate them in every area where toxic touches our
related programs. That's the right response. And then
it's how to effectively do it.

And the comment staff talked about and I think
it's a really important one from a prioritization
standpoint can't get to all of this -- what is the process
for prioritizing go after those areas where this is the
greatest opportunity for follow-up action. But the short
response is yes.

BOARD MEMBER BALMES: I like that response.
CHAIRPERSON NICHOLS: Supervisor Roberts.
BOARD MEMBER ROBERTS: I just have a quick
question. I'm having trouble when I look at our next
steps, I'm comparing that to the letter we received that
public comment that we closed on August 4th. It would
seem that's not the case.
CHAIRPERSON NICHOLS: Public comment on the OEHHA
guidelines versus what ARB would do. Two separate. OEHHA
just has to finalize a document, which has been out for
quite a long time now and gotten a huge of amount of input
and review as I understand it. But the next step is to
figure out what it means and what to do with it. That's
beyond --

BOARD MEMBER ROBERTS: That's their decision.
CHAIRPERSON NICHOLS: But the science part of it is OEHHA's decision.

BOARD MEMBER ROBERTS: Okay.

BOARD MEMBER BALMES: If I could insert one piece there.

So to address the concern of I guess the Chamber and California Manufacturers and Technology Association, the 60-day period that's going to be up August 4th is just for the -- as you said, for the scientific document from OEHHA. The implementation is going to take much more discussion.

CHAIRPERSON NICHOLS: Yes. Absolutely.

Yes, Ms. Mitchell.

BOARD MEMBER MITCHELL: I think -- and we've heard this from many of our stakeholders, there are really two primary issues here. One is how we communicate this in our public outreach. And I think we need to be careful on how we do that. As we said, we don't want to alarm people unnecessarily, but at the same time there is new science on this. We need to recognize that.

And secondly, the second large issue is the implementation of it and how we manage the risk. In many of our districts, we already think we've reached the maximum best available control technology. So that's going to be a very important process. We may need new
technology when we have to start investing in more
research so that we can reach higher levels of control.
We need to recognize also that one of the primary reasons
for these risk assessments has changed because of the
impact on infants and children. And that's measured over
their lifetime from birth to 70 years or whatever we
chose. But I know they've reduced that risk to 30 years
in this assessment.

But that should be also a focus of what we do.
How do we manage the higher risk that is now posed that we
recognize is now imposed on infants and children? Thank
you.

CHAIRPERSON NICHOLS: Yes, Mr. Gioia.

BOARD MEMBER GIOIA: Just to add without really
repeating what people have said because I think there has
been a number of good comments.

I do think it comes down to communicating maybe
three things.

One, yes, the science has changed and the health
risks are greater than we originally believed. That's
truly accurate.

Second, there's been a reduction in many areas,
not all, in toxic air containments. But there's still
more work to do. So acknowledging there has been
improvement. And I say this to someone who lives and
works in a community with a lot of toxic air contaminants. So science has changed. We've made improvements. There's still more work to do.

And third, I think it's maybe useful as part of this putting the context and comparing this to other risks. I don't think that we all do the best job to put in context what a risk factor means and compare it to things that people understand. You know, siting all sorts of numbers, you know, doesn't really -- it's important but doesn't put it in the context of what the other risks are. So I think we should find a way to sort of communicate that point. These are the risks of other kinds of activities or things. And this is what the risk is for this. And that way people can put it in a context.

CHAIRPERSON NICHOLS: Yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: And along with that, you know, we don't want to go down the path that we are all familiar with. How many signs are there about cancer risk in the state of California that we ignore every day? This is not good communication.

We should always bear this in mind as we're thinking about how are we going to communicate this that we want to do it in a much more effective way so people can do some sort of assessment and actually change their risk. So bearing that in mind.
And the other important part of this, one and a half, three times of a small risk, but this is in a context of cumulative risk. That was alluded to in terms of numbers changing from 400 to 800 or 1200 or 2,000. That is very important. This is a piece of the iceberg if you will. So it seems like a small number, but it's a very important number. It's part of the cumulative risk.

CHAIRPERSON NICHOLS: I think both of these changes, the focus on children and the cumulative risk, are issues that have been raised for years by the environmental justice community and the experts that work with them. And so this is a major step towards addressing those concerns.

I had a question related to that. Not even sure if I know how to formulate it exactly. But I'm curious to know whether there is an overlay or an ability to overlay this information on top of what already exists with the risk tool that's being used to address the disadvantaged communities, the geographically based tool that we're using to identify those communities that are considered to have the greatest burden from all forms of pollution. If you were to look at it in addition the information about numbers of children in those communities, would that change the possibly -- could that change the identification of communities?
MS. MARTY: I'll take a stab at that. We can already look at the number of kids in impacted communities and have done so. And for some of the higher impacted communities, they do have a larger percentage of children as a total population, fraction of population.

CHAIRPERSON NICHOLS: Okay. So that's another thing to be considered.

And then another question that I had, I'm assuming that in addition to the ARB other environmental regulatory agencies are also going to be using this tool in their own programs. And one of the ones that came to mind when one of our fellow Board members was speaking was the Green Chemistry Program at DTSC and whether they will be looking at this information when they start looking at targeting or identifying chemicals where we should be looking for safer substitutes. Because that's a whole different approach to dealing with this problem, which also seems to have a lot of potential in addition to possible new technologies or new regulations.

MS. MARTY: I can't speak for the Department of Toxic Substances Control, but I have been working with them on some of their implementation. And they already have a number of factors in their statute and in their regulations now that they need to look at when they prioritize chemical product combinations. And they are
looking at impacts on children from the perspective of both toxicity and products where they're either aimed at kids, for kids, or exposure to children is very likely from use of the products.

CHAIRPERSON NICHOLS: Thank you. I think it's always helpful to know we're not the only people who are wrestling with these issues and there are other tools to be brought to bear as well. I think that's it as far as my concerned are concerned. If my fellow Board members are ready, we can just thank you all for a really informative presentation and look forward to continuing to work on this process.

It appears to be a good time to think about taking a lunch break. We have a couple of more items on our agenda today. So shall we try to get back at 1:00? Okay. Very good. Thanks, everybody. We will be in recess then until 1:00. We will not be having an executive session today during lunch period.

(Whereupon a recess was taken at 12:07 Pm)
CHAIRPERSON NICHOLS: Welcome back from our break. The next discussion item on the agenda is an informational presentation on ARB's greenhouse gas measurement program and how it relates to other greenhouse gas monitoring efforts in California, including the Megacities Carbon Project. Is that right or am I on the wrong item here? I'm on the right item. Good. Excellent.

So this is actually very interesting. I thought I saw Mr. Benjamin and I thought monitoring. But this issue about the Megacities Carbon Project is one that I think people are going to find fascinating. So thank you very much. And we'll turn this over to staff for the presentation.

Mr. Corey.

EXECUTIVE OFFICER COREY: Yes, thank you Chairman.

Staff's presentation is going to provide an overview of ambient greenhouse gas measurement programs in California. And when Assembly Bill AB 32 was adopted in '06, it tasked the Air Resources Board with monitoring and reducing greenhouse gas emissions.

In today's presentation, staff will present
findings from the current measurement program and how it relates to other greenhouse gas monitoring efforts underway in the state. And staff will also discuss proposed enhancements to the ARB's greenhouse gas monitoring network and research efforts to assist in meeting AB 32 program priorities for short-lived climate pollutants and other greenhouse gases.

And following staff's presentation, Riley Duren of NASA's Jet Propulsion Laboratory will present an overview of the Megacities Carbon Project in Los Angeles, which is being coordinated with ARB's measurement program. With that, I'm asking going to ask Dr. Abhilash Vijayan of the Research Division to give the staff presentation.

(Thereupon an overhead presentation was presented as follows.)

MANAGER VIJAYAN: Thank you, Mr. Corey. Good afternoon, Chairman Nichols and members of the Board.

In our informational briefing today, we will provide an overview of ARB's greenhouse gas measurement program, describe the various tools and partnerships that contribute to the effort, present the major findings of the program, and discuss short-term and long-term goals.

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MANAGER VIJAYAN: California is working to reduce
greenhouse gas emissions across all sectors of the economy under the framework of Assembly Bill 32, the Global Warming Solution Acts.

As California has implemented AB 32, we have worked to develop greenhouse gas monitoring capabilities to support our short- and long-term climate goals. An ambient measurement program for greenhouse gases helps support AB 32 implementation in several ways. Greenhouse gas measurements can help identify sources, evaluate the emissions from these sources, help identify new emission reduction strategies, and help track progress in reducing emissions. An important goal of this research effort is to link ambient measurements to emission sources in California.

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MANAGER VIJAYAN: California's ambient measurement program has primarily focused on short-lived climate pollutants, namely black carbon, hydrofluorocarbons, or HFCs and methane, along with nitrous oxide or N2O. It is more challenging to determine and track emissions from these pollutants than carbon dioxide emissions from combustion sources.

For example, methane emissions from livestock operations, oil wells, and landfills throughout the state are variable and difficult to measure. Also, developing
information to support these new strategies to reduce short-lived climate pollutants provides immediate climate benefits.

To date, the measurement program has provided important information related to emissions of HFCs and methane and reductions in black carbon. This information is improving our understanding of the sources of these pollutants and their associated emissions.

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MANAGER VIJAYAN: The foundation of ARB's measurement program is a statewide greenhouse gas monitoring network. The network was initiated in 2010 with a permanent station at Mount Wilson Observatory in the Los Angeles basin. Since then, we have expanded the network to six ARB-operated stations shown here in blue and two run by Lawrence Berkeley National Laboratory for ARB shown here in green.

In addition, we also collaborate with research partners on several other monitoring locations represented by red dots. We have equipped these stations with state-of-the-art monitors for carbon dioxide, methane, nitrous oxide, and black carbon. We are also deploying analyzers capable of measuring methane isotopes to get a better understanding of the emissions sources. Together, this network is a first of its kind greenhouse gas
monitoring effort.

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MANAGER VIJAYAN: The greenhouse gas network consists of tower station. Based on the direction of prevailing winds, each tower has a measurement footprint for which it represents upwind emissions. As evidence from the graphic, a taller tower will have a larger footprint. Therefore, through proper planning, we can effectively monitor statewide emissions using a limited number of very tall towers.

Ambient measurements made by these stations are analyzed by our staff and academic partners. Data generated from the monitoring network can be compared to the information on emissions for various sectors to see if sources or emissions of greenhouse gases are being missed.

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MANAGER VIJAYAN: We also employ other in-house measurement tools like mobile platforms, flux chambers, and tracer release studies to gain a better understanding of individual emission sources. ARB has also funded aircraft measurements through the CalNEXT project and other remote-sensing campaigns.

I would also like to highlight that ARB staff are presenting a greenhouse gas measurement showcase in the lobby today and will be available to discuss the
applications and operations of the greenhouse gas
monitoring network and other measurement and research
tools in more detail.

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MANAGER VIJAYAN: In addition to the various
in-house research efforts, we also collaborate with others
on a variety of measurements, including satellite
measurements, aerial measurements, and ground level
measurements like monitoring towers, mobile measurements,
field studies, remote sensing studies, as well as lab
studies.

Our program is also greatly assisted by the
California Energy Commission which funds complimentary
projects in the state. Collectively, all these tools have
helped us gain a better understanding of greenhouse gas
sources and emissions in California. The next few slides
will briefly discuss the key findings of the measurement
program.

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MANAGER VIJAYAN: Because of its role in health
effects and visibility degradation, ARB started to measure
black carbon not long after the agency was first
established in 1967. These measurements have demonstrated
that over the last 45 years there has been over 90 percent
decrease in black carbon levels in California, even though
diesel fuel consumption went up by a factor of five. This reduction is due to California's effective regulatory and enforcement efforts for diesel engines, agricultural burning, and other black carbon sources.

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MANAGER VIJAYAN: More recent efforts have focused on methane, a powerful greenhouse gas. Three separate studies using aircraft measurements and greenhouse gas monitoring network data, suggest that statewide methane emissions are greater than previously known.

As shown on the map, the majority of emissions are located in the Central Valley and ongoing research in collaboration with our partners is expected to provide new information to better understand sources of methane and their emissions.

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MANAGER VIJAYAN: Los Angeles is another important source region. As shown in the graphic, greenhouse gases in the region are emitted and then diluted by atmospheric mixing. The daytime sea breeze pushes the well mixed up from into the San Gabriel mountains, carrying the disbursed emissions from the entire Los Angeles basin. We installed equipment at the Mount Wilson Observatory to take advantage of this
opportunity to study greenhouse gas emissions from the entire Los Angeles County using a single location.

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MANAGER VIJAYAN: The very first pilot study at Mount Wilson started in 2007 and focused on methane emissions. Looking at the first bar chart, our ambient measurements shown here in red suggested that the Los Angeles County methane emissions were significantly underestimated as shown here in blue. These observations were further validated by studies from CalTech and other groups and suggested that oil and gas sector emissions were underestimated. As shown in the second bar chart, the methane emissions inventory has been updated and now correlates well with ambient monitoring data.

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MANAGER VIJAYAN: A similar study measuring hydrofluorocarbons and other fluoridated gasses at Mount Wilson was instrumental in improving our understanding of these emissions in California.

The previous emission estimate using a national U.S. EPA based method shown here in dark blue is significantly different than the ambient-based emission estimates using Mount Wilson data, which is shown in red. A review of the Mount Wilson data triggered a revision of the emission inventory method. The new
California-specific emission inventory shown in light blue as the last in each series is consistent with the Mount Wilson measurements.

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MANAGER VIJAYAN: More recently, a 2014 study at the Mount Wilson station suggested that nitrous oxide emissions in the Los Angeles region may be significantly underestimated. However, we are still in the early stages of research to identify the nitrous oxide emissions sources. In addition, nitrous oxide measurements have been recently added to our entire statewide network.

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MANAGER VIJAYAN: As we continue to develop and implement the greenhouse gas measurement program, we have a number of near- and long-term goals.

In the short term, ARB has funded a statewide analysis of nitrous oxide emissions, which is expected to be completed in 2015. In addition, we plan to add and expand hydrofluorocarbon and volatile organic compound measurements statewide.

We are also planning to transition to taller towers throughout the state. Currently, we have been utilizing existing monitoring stations which are closer to ground level because they are designed to characterize human exposure to air pollution. However, to effectively
characterize greenhouse gas emissions over a large region, taller measurement towers are needed. We also want to add boundary layer measurements to improve accuracy.

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MANAGER VIJAYAN: In addition to our short-term priorities, we also have longer term goals. We want to expand measurement capabilities to quantify source-specific emissions and also continues our research collaborations to further improve our understanding of greenhouse gas sources and emissions in California.

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MANAGER VIJAYAN: In summary, greenhouse gas measurements support multiple AB 32 programs. ARB's monitoring network helps improve emission inventories and source attribution for important greenhouse gases. In addition, research collaborations will continue to provide new information to help California meet long-term climate goals.

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MANAGER VIJAYAN: This concludes staff's presentation. This will be followed by a presentation by Mr. Riley Duren from NASA's Jet Propulsion Lab who will provide an overview of the Megacities Carbon Project and other federal efforts.

Riley.
MR. DUREN: Thank you. Appreciate the
opportunity to speak today.

JPL, if you're not aware of it, is in Pasadena, California. We are a federally-funded research and
development center operated for NASA by CalTech. We are a
division of CalTech. We're most known for landing robots
on Mars, but half of our work is to studying planet Earth
and space and from aircraft. I'm going to talk about
that.

I'm the Chief Systems Engineer for the Earth
Sciences Technology Directorate there, but I'm lucky my
boss lets me do exciting research focused on decisions
support for climate, in particular carbon and greenhouse
gas monitoring.

So I'm going to talk a bit about the Megacities
Carbon Project and then also two related efforts,
including methane detection and a broader project focused
on carbon decision support in response to a Congressional
mandate.

I want to point out the Megacities project really
is an inter-agency project funded by NIST, NASA, NOAA,
with support from the Air Resources Board, and other
sponsors. And as a result, there are a number of
co-principal investigators. I'm one of the principal
investigators. But you can see we have quite a collection
of very highly renowned scientists across California and
the US that are involved in this project and also talk
about some international collaborators.

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MR. DUREN: Why focus on cities? This animation
you see is actually a computer model using real data that
shows CO2 emissions. And we've highlighted the emissions.
What you're seeing are concentrations higher than the
current atmospheric average greater than 400 parts per
million. The takeaway from the animation is that most of
the emissions are coming from a small fraction of the
Earth. It turns out about 80 percent of the fossil fuel
carbon dioxide emissions come from less than five percent
of the land. Those hot spots are mainly cities and their
power plants. That shouldn't be a surprise to us because
that's where most of the people live and where most of the
energy demand is.

And there's similar concentrations of methane,
although in the case of methane, you see this is more
rural areas associated with production. We'll talk more
about that. So they're important because they're the
biggest emitters.

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MR. DUREN: The second reason we focus on cities
is that frankly cities and states and selected provinces
around the world are turning out to be the first
responders for climate change. They're taking action in
areas that we are not seeing nation states do yet. So for
the city's example, there is a group called the Climate 40
that was spearheaded by former Mayor Bloomburg of New York
City and Mayor Villaraigosa of Los Angeles and others and
they link together and are making significant reductions.
These are commitments that have been placed since 2007 and
we're seeing emission come down in some of the big cities.
And so that's important because these cities that I've got
on this map, the Megacities, collectively are the third
largest emitter in the world after the US and China.

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MR. DUREN: Another motivation is emerging
climate policy actions. You're well aware of this in
California. California is out in front with cap and
trade. And even in the absence of national level cap and
trade programs, we're seeing the emergence of sub-national
trading programs in the Americas and Europe and in Asia.
China, you're probably aware has a significant pilot
project involving five Megacities and two provinces. I
know that California is working with them. And there's
significant potential as a policy mechanism if there's
sufficient trust to link and trade between these markets.
To the extent with better carbon data we can improve
confidence and trust to incentivize others to participate in this, then that's perhaps a good thing.

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MR. DUREN: So all of that motivated us a couple years ago -- almost three years ago now -- to pose a concept for a global carbon monitoring system focused on where most of the emissions are, where the cities are. This is a conceptual view showing -- the red colors show you where most of the CO2 is coming from. The black dots show you the locations of Megacities that exist today. And the blue ones are Megacities that are projected to cross that threshold more than ten million people by 2035.

You see all those blue dots in Asia, they're popping up all over the map as urbanization continues. The idea is somewhat like the weather service. The idea is combine measurements of greenhouse gases in the air from surface stations, just like meteorological services and then satellites which see everywhere and combine those two things to produce carbon data. Instead of precipitation and tornados, we're talking about CO2 and methane in the atmosphere and where is it going and where is it coming from.

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MR. DUREN: To test that approach and dry run it, we established a pilot project called the Megacities
Carbon Project. Most of the focus I'll talk about today is on Los Angeles, the US component, but our partners in Paris have been at it in parallel with us for the last few years. They're up and running with a similar effort.

We're having active discussions with colleagues in San Pablo, Brazil. We are going down in August to try to kick start an effort there. They're also exploratory discussions with various cities in Asia.

So what are we trying to do with this? I just put some general questions on this chart. Questions are:

- What are the carbon emission of cities and how are they changing? Why are emissions changing, specific to sectors, policies, and behaviors. Are mitigation efforts and policies having the intended effect? If not, why?
- How reliable is the carbon data people are reporting, including from these sub-national markets? And can we establish mechanisms for transparently sharing data between cities? This has been a real barrier at the national level on trust and sharing data. We're trying to do a research effort to establish a transparent data portal where cities share data across boundaries.

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MR. DUREN: So how does this work? There is kind of five steps involved. And I'm going to walk you through them for the Los Angeles projects. So we start with
coming up with our best prior estimate or initial estimate of CO2 emissions in Los Angeles.

And this applies somewhat to other gases, but I'll speak to fossil fuel CO2 here. This is a product called Hestia. It's named after I believe a Roman goddess. The concept is to take publicly available data and grid it up in space and time so that we have information at the level of individual buildings, individual roads so we can see how it evolves in time so we can link policies with what we're seeing in the atmosphere. This is a bottom-up estimate.

What you see here is a map of the five counties in southern California that comprise the LA Megacity. What I'm going to do is zoom into a small area in Los Angeles County where building level data is available. So what happens here is Kevin Gurney and his team at Arizona State lead this effort of taking publicly available data that classifies buildings by type. So they're key building types, residential, commercial, industrial. And within them, there are different building classes and age types. So for example a given type of building commercial might have 22 classes. That's how much resolution we have.

What they then do is then predict what the emissions should be based on data such as surveys of
natural gas use. So we know that buildings don't generate their own power, but they do use natural gas. The electricity generation is based on other module, which looks at all the power plants. We have that data. What you see here is that it's color coded by the redder buildings are emitting more, and there's actually some initial findings here that this is probably not a surprise. But large offices, apartment building with more than five units, and large industrial building tend to emit significantly more than other building types. The point is that data is there and we can track it over time, including hour and hour and day to day with models about activities and behavior.

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MR. DUREN: The other dimension of this is looking at road traffic. This is a similar approach looking at the annual emissions of CO2 from roadways on-road traffic across the five counties. And again, if we zoom into kind of the Palos Verdes peninsula in Los Angeles County, you see red indicates larger emissions than green. And notice these emissions are quite larger in some areas by segments. This is based on a combination of traffic data from the Southern California Association of Governments, together with modeled emissions from EPA's emissions models, and vehicles miles travel data.
The idea is this model comes on line, as this is
data set comes online, we'll have a space-time resolved
estimate of where the emissions are going in Los Angeles
so we can link to the next step.

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MR. DUREN: The next step is to model the
atmosphere. Because if we're trying to relate emissions
of greenhouse gases from specific sources and how they
change the atmospheric composition that we're measuring --
we talked a minute ago about the measurement network
across California -- we need to translate that because the
atmosphere is moving. Winds move the air around. The
boundary layer moves up and down day to day. What this is
on the left shows you what the prior emissions look like.
If I take the Hestia model and predict how much CO2 is
going into the atmosphere and grams of carbon per square
meter per unit of time. And the right is showing us what
the concentration would be at a certain level. This is 50
meters above ground level over time.

This works both ways. You can measure the
concentrations on the right with our greenhouse gas
analyzers and then use the computer model to run it
backwards in time and say where do the emissions come
from. And then given your database I talked about before,
you can start to relate what we're seeing in the
atmosphere to activity at the level of buildings, parcels, roadways, and specific policies.

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MR. DUREN: To make those measurements, we need a measurement network. So my third step here echoes what the ARB is doing at the state level. This is a network we're standing up in Los Angeles 16 measurement sites in and outside of basin. The reason why we put them outside the basin, if you look at this little color map, this is a heat map of where we see the emissions are. The urban areas are going to be dirtier than the remote sites. We do have four sites that are outside the basin that serve as background so we have something to compare against.

I'm going to zoom in quickly and talk about three of these sites: Victorville, Granada Hills, and USC where we've been collecting data just to illustrate there is a wide variation in concentrations that we measure in the atmosphere at different places.

These curves -- I won't get into detail -- on the left is CO2. This is methane over a period of about a month. The green line is what we measure at Victorville. The red and blue lines is what we measure at USC and Granada Hills. And you notice the urban sites are much more polluted as you would expect. But the point is that there is method behind the layout of this network and why
we have the number of sites that we have.

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MR. DUREN: The fourth step here is going beyond individual cities. This is where satellite capabilities are emerging. You probably heard in the news NASA launched its orbiting carbon observatory a few weeks ago. It was a huge step forward for the community. And that satellite and other satellites that are coming in the future will have the capability to directly detect the emissions of cities and over time monitor their trends.

It's by combining these sorts of measurements from space with the surface networks we hope to have a closed loop system for accounting.

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MR. DUREN: I'm now going to start this animation. Can you run it for about two seconds more? What we're going to show is a video that shows how we put all these things together to give us information relevant to decision making. This is an animation of Los Angeles. The little yellow towers you see represent measurements from individual measurement sites. The ray of sunlight that's coming in, it looks like a laser beam coming in from the left is supposed to represent sunlight bouncing off the surface of the basin.

And you can go ahead and let it go.
It goes up to a censor on Mount Wilson I'll talk about in a minute. And that instrument actually is like a satellite. It's monitoring gases from across Mount Wilson. We have airplanes that fly through the basin and sample the air. And then here comes the orbiting carbon observatory. It's not really that low. But we had to make it fit the animation.

But this is the test bed. And the idea is to test these things over the next couple years. But in the future as the satellite technology emerges, I mentioned the weather service. This is the concept of the carbon weather satellite parked over the U.S. The reds that you see are puffs of carbon monoxides coming from cities. This is a simulation. You would expect CO2 to do about the same.

The white things are the night lights. You can see the gases are correlated with where all the people are. And then you see us zoom in here. The idea is that persistent observations everywhere watching all these molecules of greenhouse gas and where they came from is where we hope to go over the coming decade or so.

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MR. DUREN: Finally, connecting it back to what matters in terms of making decisions. Because we make decisions based at what happens at the block level, the
street level, the counties, cities, different policies, in sectors, it's important to relate this back to emission sector specific data. So that initial data set that I talk talked about at the street level, this ultimately gets pulled back into a model and we have to relate it.

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MR. DUREN: That's okay. I was basically just going to show the maps I showed earlier. But they're moving in space and time.

In my remaining time, I want to mention a few related projects that intersect with the Megacities projects, but they're distinct. They're not under the same sources. They're mainly NASA projects. They have a lot of overlap with the state of California's greenhouse gas program. So I'll just take us to the next slide.

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MR. DUREN: So one national challenge that we're confronting right now is the potential of methane leaks from the oil and gas supply chain from well head to user. I think the state-of-the-art and in surveys that have been done -- you probably read about this in the paper and scientific literature -- where people have gone out and done surveys and made measurement of methane, for the most part the supply chain is pretty solid. But there is what we call a long tail problem where we believe a small
fraction of the infrastructure is releasing a large amount of emissions. We call them super emitters.

The challenge is it's hard to predict where they are and when they're happening. They can last fairly short time. They can last for a few weeks and release a lot of methane. This is important when you consider the map. This is an energy information agency map of all known oil and gas wells in the US. Those are the brown and blue dots. There are several million of those.

The idea of building a system that can track all those things, including the pipelines and distribution systems and potential sources of methane is daunting.

The concept we've been working on is a national monitoring system that includes a satellite like the one we talked about a minute ago that monitors all these sites all day long every day, that looks for a hot spot to flare up and we can pinpoint it to that little grid on the left is -- each of those little squares is about 500 yards on the side. Once we find something, we then flag it for follow up with the aircraft. The aircraft can come in and provide images of these invisible plumes of methane. I'll show you an example of that in a minute.

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MR. DUREN: So the idea is if you want to quantify methane from space, how you get there. Air
Resources Board is one of the agencies that have supported the development of this beautiful facility you see on the left, the California Laboratory for Atmospheric Remote Sensing on Mount Wilson. It acts like a satellite because it looks over the whole L.A. basin. It can monitor all day long, at least during sunlight hours.

This is a preliminary result from that measuring system. What you see here is a map of methane to CO2 ratios in the atmosphere over the L.A. basin. And the red means there's more methane than in other places.

What we see from this initial product is that for many years we've known the methane budget was higher in LA than we had predicted. But here, we're starting to zero in on why. So we haven't correlated this to specific point sources yet. But that's the direction we're heading. This is my first tier of that observing when I talked about the national system.

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MR. DUREN: If you want to zoom in and pinpoint methane emissions remotely, there is another technique. In this case, we're involving basically thermal imaging that's tuned to a methane band. What I'm showing here in the upper left is a control release experiment that was conducted last summer at the Department of Energy's facility. What the team did is replace methane at
different control rates. This airplane flew overhead and they imaged it. The plumes are invisible. The airplanes can see them. The idea here is to project this to other areas.

You can probably see this on your computer screens, but what I'm showing now is a test we ran a few weeks ago at La Brea tar pits. The road isn't that curved. But that is Wilshire running up and down on the left. Where you see the circled green spots, those green spots are where the airplane detected hot spots of methane flying overhead.

On the right is where I got out in my Prius and drove around with my piccaro and gas analyzer and measured high concentration of methane at those spots. Pretty good agreement.

I'll say on the bottom right-hand corner, we even see what appears to be methane coming from individual sewer vents on top of a building. And we haven't confirmed this yet, but those would be — imagine you've seen a building and they have vents on top for the methane from sewer vents. Fairly small.

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MR. DUREN: So I'm going to close with a word about NASA's broader carbon monitoring system. NASA has a Congressional mandate to leverage its significant
portfolio in satellite observations and aircraft observations of the atmosphere land and oceans to support decision making for greenhouse gases.

So currently, the program has 37 pilot projects that range from global scale to the U.S. national scale to state level. There are projects in California, county level and urban scale. They range from ocean, land, and atmosphere. And in addition to delivering data sets, they including funding for myself. One of my other projects -- and Bart Croes here is a member of my team -- called the Understanding User Needs Project. And our job is to go out and work with stakeholders to understand what data is needed, what questions could help to benefit from better data, and how can we help inform and direct the research program. So that's our job is to provide that bridge to the user community. Just to close --

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MR. DUREN: -- on a few examples. What I'm showing on the left is a map of forest biomass for the United States at fairly high resolution. They're driving us down to one hectare. This is from Sesan Saatchi at JPL who leads a group of people, including collaborators at Forest Service.

On the right now zooming in the county level, this is data at very high resolution, 30 meter resolution
again above ground forest biomass for several counties in Maryland led by Ralph Dubayah. He also has a project for Sonoma County in California which is geared towards supporting RED and carbon offset trading.

Finally, an example of using methane observation from satellites, which are still in their infancy, but to use them to help test inventories, including different sectorial estimates. This is work that Daniel Jacob and his team at Harvard are doing using Japanese and European satellites at the moment.

So with that, that's my survey. And I'd be happy to entertain questions. Thank you.

CHAIRPERSON NICHOLS: Thank you. Your inclusion of the map that was attributed to Sesan reminds me he was a colleague at UCLA at the Institute of the Environment. He was also collaborating with people at UCLA on some work that related to looking at the effects of global warming on a regional scale basis. I don't know if that's work that's also going on in your shop now as well. But we did get a briefing on that at one point a number of months ago I think, the ability now to sort of look at an area the size of the L.A. basin and talks about what's likely to actually happen in terms of things like drought and fires and so forth. Is that part of the work that you're doing as well as?
MR. DUREN: Yes. Sesan is prolific. And I will say there are a number of other researchers.

Generally speaking, our efforts on the applied science front include not just mitigation, but climate adaptation. They're efforts that focus on water resources. There are activities underway now looking at the bay delta and also the Sierra Nevadas using a number of airborne platforms. We're trying to make connections between hydrology and water availability and shortages with ecosystems. There's work going on in the Central Valley looking at groundwater, using satellite data to look at subsidence as a proxy for groundwater discharge and recharge.

There's also work involving crop stress, using remote sensing to assess crop stress and health at different scales.

CHAIRPERSON NICHOLS: To what extent can we compare the information that you're getting about the sources in the Southern California region with other parts of the United States? Do you have similar efforts going on in this through the Megacities project? Is that coming up?

MR. DUREN: It's not specifically the Megacities project, but I can say that NIST, which is one of the major sponsors for the L.A. effort, also funds the project
called Influx in Indianapolis and starting to fund work in
the northeast corridor between DC and Boston.

They're also involved in doing this
internationally. I mentioned San Pablo, Paris, cities in
Asia. NIST is actually working internationally. So there
is -- I can give you a figure of merit. When we have a
session at the American Geophysical Union every year in
December in San Francisco and with we started this effort
three or four years ago, we had groups from three cities
that would show up and give talks. Last year, we had 13
cities. And abstracts are due in a couple weeks. I'm
hoping we'll see 20 or more. It's proliferating.

CHAIRPERSON NICHOLS: Thank you.

BOARD MEMBER SPERLING: In the first presentation
that ARB one, there was a graph presented and a statement
made that the emission inventories now are well correlated
with these ambient measurements. That's -- I mean, I'm
kind of surprised, even stunned, to hear that because
everything I hear is that we have no idea how much methane
leakage -- I'm speaking nationally now. We have no idea
what it is that was a study that came out last year that I
said that -- I think using numbers like 1.5 percent of the
methane is leaking overall.

But, you know, as one of you said, there's really
high leak super emitting -- even like city of Boston has
been documented to have tremendous leakage because they have old pipes that were made out of iron and that they corroded and don't even exist as pipes anymore. So there's tremendous leakage in some distribution systems. There's flaring at the Shell Oil facilities. There's flaring.

So anyway, the story I understood -- and this is really important -- is that we don't know how much leakage there is. But now you're telling me at least for California -- or I guess this was L.A. County, we do know. And if that's true, I mean, that's hugely important. Just for the LCFS, for instance, the new Greek model that came out that we used for measuring emissions of natural gas associated with natural gas vehicles, they came out and said the leakage -- because of the leakage that hasn't been measured, the numbers are probably 20 percent worse than they had been -- that we had been using in the past.

So if what you said is really true or if we're really close to that, that has tremendous implications back to a lot of our policies here. As Chairman Nichols also said, you know, it varies greatly across -- she was suggesting it varies greatly. And that means that the numbers that we use here in California probably are different -- for methane leakage are probably very different numbers that might be used somewhere else. And
that has tremendous implications as well.

So can you kind of -- what's really going on here? Have you made this tremendous break through where science has prevailed?

DEPUTY EXECUTIVE OFFICER TERRY: Well, I'll be happy to kick it off because I think this really is very significant in terms of the point that we're very close in Los Angeles County. And I think that in a way is not surprising, given the effort that we've always put into inventories. But that's the good news story.

The bad news story is the slide in the Central Valley says we're way off. That's where most of the methane emissions are from a statewide perspective. You're right from the standpoint of the vehicle side and the distribution side in the urban area.

BOARD MEMBER SPERLING: If we figured it out for L.A. County is this just amount of spending a little more money to get your numbers elsewhere?

DEPUTY EXECUTIVE OFFICER TERRY: Well, I'm going to ask technical staff. But that seems it's been our history with inventories that you spend the money and the effort and it gets a lot better.

RESEARCH DIVISION CHIEF CROES: Part of it is I think there's been more effort to controlling our oil and gas sector than in other parts of the country, which is
reflected in lower emissions per throughput than we see elsewhere.

BOARD MEMBER SPERLING: What you just said is important if that's -- if California methane emissions are lower than elsewhere, then we shouldn't be using in this case the Greek results, for example.

RESEARCH DIVISION CHIEF CROES: Well, that said, we're starting now to focus on measurements in the San Joaquin Valley. And just preliminarily, there does seem to be areas where higher than anticipated leakage. So we're still -- we've identified potential emission sources. But we're still not at the stage where we've quantified those emissions and made the comparison to the inventory for that specific sector.

What we managed to do with the statewide network is compare the overall measurements of methane in the air to what we think the inventory is. And there the discrepancy is pretty high, on the order of 30 to 70 percent. And so we think there's still a lot of work to do.

But oil and gas, it's just one sector we're investigating. There's also potential emissions from landfills and from livestock and from manure application.

BOARD MEMBER SPERLING: Let me ask one more question then. If we understand now from this ambient
monitoring how accurate the ambient monitoring is, shouldn't we be able to say pretty accurately what the emissions are in the valley or somewhere else?

DIVISION CHIEF CROES: Well, the ambient measurements have their own uncertainties as well. There is an interpretation of the data that has to happen, whether we correlate it with other pollutants or whether we do this inverse modeling that Riley was describing. Those depend on our understanding of the meteorology or other inventories that we correlate with methane. So they have their own uncertainties.

So we're going through really a process now that we're actually in the middle of trying to reconcile the ambient measurements and their uncertainties with the emission inventories and its uncertainties.

BOARD MEMBER SPERLING: I'm starting to sound like the inpatient regulator instead of the scientist here. But it does seem like we're getting -- should be getting very close to having some pretty good numbers on methane leakage.

RESEARCH DIVISION CHIEF CROES: For the pollutants that have been working on longer, the hydrofluorocarbons, we get good agreement now.

I think that's been a real success story and something that took about four or five years to have
happen. With methane, we've only been working on these
emission inventory improvements and trying to reconcile
them with the ambient data just for the last few years. I
think we're -- I think Riley would agree with this. We
are on the verge of some real break-throughs over the next
year in our understanding.

And then the N2O, which is also a problem, I
think we're really just beginning our efforts and it's
going to take several years to figure that out.

MR. DUREN: It would add one comment. If you
zoom out and look at it from the US level and take the
natural gas sector as an example, there's been a lot of
studies, a lot in the news and lot of papers published.
Different groups have been doing studies for some years
now. But in some cases, these are large areas that have
to be surveyed and less an absence of a dedicated network
that's dense enough to collect the data. People do things
like fly airplanes or they do -- primarily fly airplanes
that do mobile studies. Those are still sparse -- often
sparse data sets. They represent a few days of flights.
So they can say something about we see higher levels in
this area than we had predicted, but pinning it down to
the actual sources and then saying how it changes over
time because some of these sectors are changing the
landscape literally dramatically over weeks and months.
So the answer that you had a few months ago might change. So the one advantage in California is there is a lot of infrastructure relatively speaking, but it's not complete. I would never say we're oversampled on any of the stuff, even in California. We still have a sparse data problem.

MONITORING AND LABORATORY DIVISION CHIEF
BENJAMIN: This is Michael Benjamin with the Monitoring and Laboratory Division.

The other point I'd like to make is the sources and our state of knowledge between the L.A. basin and the San Joaquin Valley are very different. So the L.A. basin, we really have a good handle on sources in general. We've been inventorying those sources for many, many years. Most of those sources are human sources that are permitted. So there is a lot of information that we can tap into to understand those emissions.

Whereas, in the valley, a lot of those are rural sort of natural sources. And they're not as well understood. So, for example, in general, we don't understand emissions from dairies as well as we do emissions from vehicles.

And so I think that's part of the reason why we have better agreement between the inventory and the ambient in the L.A. basin versus the San Joaquin Valley.
I think it's dangerous to extrapolate and assume because we have good correlation in L.A. area we should have that same level of certainty in the San Joaquin Valley.

CHAIRPERSON NICHOLS: I want to ask a question that goes back to the black carbon and the dramatic reductions. I'm not aware of the fact that we were always measuring black carbon. I'd like to understand what that's based on and what we know about how this actually happened.

RESEARCH DIVISION CHIEF CROES: This is Bart Croes.

There was a statewide network established back in the late '60s for coefficient of haze because of concerns about the impact of pollution on visibility. So we had a recent contract completed with Ramanathan and other investigators at Scripps Institute of Oceanography and they interpret that data and were able to relate it back to black carbon. So this network, which is pretty extensive throughout California, we were able to get a fairly good characterization of what happened to black carbon statewide.

CHAIRPERSON NICHOLS: So they looked at the haze data and then made some sort of algorithm to translate into black carbon number. Can they then correlate that with the sources of black carbon?
RESEARCH DIVISION CHIEF CROES: Yes. So did a pretty extensive analysis looking at other pollutants. And they were able to determine that it seemed like most of the black carbon reduction was correlated with diesel controls. And we were controlling diesel as early as the '70s. So it seems to relate well with what we would have expected from the diesel control program.

CHAIRPERSON NICHOLS: Okay. Thank you. Other questions? Comments? All right. Thank you very much. This is interesting work.

We have one more item on our agenda. It seems like a short day. But we have a big item tomorrow. So the staff made a decision because they knew we were going to have to spend a number of hours on the items we have for tomorrow. So people can look forward to the opportunity of an early day today, which is great. They can take in the sites of downtown Sacramento.

So our final item on the agenda for today is an informational update from the staff on the status of our compliance offset bank, if you will. Not a bank but the work we've been doing to create a supply of offsets that are usable under the California Cap and Trade Program.

But before we dive into this item, I need to take a few minutes to acknowledge one of the people who's sitting at the table behind Edie Chang, who has played a
critical role in this climate program over the last seven years.

Seven years is not a long time in ARB time, although in the rest of the world, it might seem a bit of time. But as it happens, it just about coincides with my time at the Air Resources Board in this most recent incarnation. So Steve Cliff has been a very important part of my time at ARB, as well as his important work on behalf of the whole climate program.

Steve has recently been announced as an appointee as the Assistant Director of Sustainability at Caltrans, a job which didn't exist until previously.

(Applause)

CHAIRPERSON NICHOLS: So he is now a Governor's appointee. And we are extremely excited about the opportunity of working with Steve in his new role. But we're not exactly happy to see him leave, to put it mildly.

Steve has had a major impact at ARB, a long string of accomplishments from the very first Scoping Plan to work on the cap and trade regulation. He has been literally the face of ARB to many of our stakeholders who think he is the ARB actually. So sometimes we've had to straighten them out on that. But in fact, he has been an absolute stalwart, creative and fun to work with and just
a really terrific contributor to the program. So Steve, we all want to just take this minute to embarrass you if we can and to wish you absolutely the best.

During the time that we have been working on this effort, the Board has approved five compliance offset programs to be used under the Cap and Trade Program. So the purpose of this briefing today is just to make sure that we are updated on the status of that program, which as people will recall is one of the more controversial elements of the Cap and Trade Program. And also what's happening in terms of a continued evaluation of looking at sector-based offset crediting programs.

We included the offset credits in the Cap and Trade Program as a way of providing cost containment and to leverage reductions in sectors outside of the cap. Continued evaluation of our compliance offset program has shown that California's leadership in climate change -- it shows we have a role as leaders, I should say. First update to the AB 32 climate change Scoping Plan, which was adopted in May of this year details some of the ongoing evaluation that has been underway from the very beginning. If we're going to truly address global climate change and its impacts on California, we also have to consider the role that offsets can play in addressing emissions.

Part of this consideration to date has included
evaluating the potential for new sources of offsets, including from sector-based crediting programs such as those designed to reduce emissions from the deforestation and degradation of tropical forests. This is an issue that's received a lot of attention because tropical deforestation and degradation is responsible for roughly 15 percent of all global greenhouse gas emissions. In other words, it's literally impossible to address the problem without doing something about that issue. And it impacts the entire world, including the snow pack in the sierra and water supply here in California. So while it may not be under our direct control or in our jurisdiction, it is having an impact on us.

The staff has developed an informational update on the various types of work and concerns that they feel we should be following here. And so we just wanted to make sure that we had an opportunity when we had a relatively quiet time for the Board members to focus on what's going on in this area.

So Mr. Corey, would you please introduce this item?

EXECUTIVE OFFICER COREY: Yes, thank you, Chairman. The Cap and Trade Program includes the limited use of approved offset credits as a cost containment feature of the program. We allow covered entities to use
offset credits from approved sources for up to eight percent of their compliance obligation. The Board has already approved the use of offset credits generated from ARB adopted compliance offset protocols. And this informational update is intended to provide the Board with the status of ARB's compliance offset program.

And given the rigorous criteria set forth in AB 32 for offsets included your requirement that offsets can only come from sources which are not covered by the cap, which we'll be discussing. There are challenges to identifying in-state offset protocols, which we'll also discuss as part of the presentation. But ARB is committed to continuing to pursue in-state offsets with the most recent example being a proposed rice cultivation project protocol scheduled to be considered by the Board later this year. And we're continuing to evaluate the potential offset protocols for inclusion in the program.

With that, I'd like to have Brieanné Aguila of our Program Data Section present the staff's presentation. Brieanné.

(Thereupon an overhead presentation was presented as follows.)

PROGRAM DATA SECTION MANAGER AGUILA: Thank you, Mr. Corey.

Good morning, Chairman Nichols and members of the
Today, I will be presenting an update on the compliance offset program, which is part of the Cap and Trade Program. This presentation will focus on two main elements of the compliance offset program. First, I will provide an overview of the design of the compliance offset program and an update on staff's progress in implementing the program. Second, my colleague, Jason Gray, will explain staff's continued work on offsets, including our participation in international efforts to voluntarily reduce global greenhouse gas emissions.

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PROGRAM DATA SECTION MANAGER AGUILA: For this presentation, I will begin by providing background on AB 32 and the goals of the Cap and Trade Program. I will also discuss the roll of offsets in the Cap and Trade Program, as well as the regulatory development process. I will provide an overview of the design of the compliance offset program and rigorous criteria that offsets must meet to be credited in the program. I will also provide an update on the implementation of the compliance offset program, including the offset verification program and offset credit issuance. While staff is not proposing a schedule for development of international offsets, the cap and trade
regulation signals that ARB will look to international
sector-based offsets as a means to provide offset supply
and additional cost containment to the program.

Jason will present an overview of the staff's
participation in several ongoing international efforts to
evaluate international sector-based offsets.

The final portion of the presentation will
present staff's next steps for implementing the offset
program, including protocol development.

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PROGRAM DATA SECTION MANAGER AGUILA: AB 32, the
Global Warming Solutions Acts of 2006, put the 2020
statewide greenhouse gas emission goal into law. AB 32
mandated that ARB develop a Scoping Plan to lay out the
path for achieving the reductions needed to meet the
state's 2020 mandate. This slide shows the measures and
policies contained in the Scoping Plan. The Cap and Trade
Program is a key measure being implemented to achieve our
statewide goals. The compliance offset program is a key
component of the Cap and Trade Program.

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PROGRAM DATA SECTION MANAGER AGUILA: The cap and
trade regulation was developed over a three-year period
through an extensive consultation process. The Board
initially considered the proposed regulation in December
2010 and officially adopted the regulation order in
October of 2011.

In 2012, staff proposed two sets of amendments
that were formally adopted by the Board, one set related
to implementation and the other related to linkage with
the Canadian Province of Quebec.

In 2013, staff proposed additional amendments
related to program implementation, which were formally
adopted by the Board earlier this year. As part of this
action, the Board also adopted the mine methane capture
projects compliance offset protocol.

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PROGRAM DATA SECTION MANAGER AGUILA: The cap and
trade regulation includes elements designed to minimize
compliance costs without compromising environmental
integrity. Offset credits that are generated in
accordance with an ARB-approved protocol and meet strict
monitoring and verification requirements may be used to
meet up to 8 percent of an entity's compliance obligation
for each compliance period. Allowing offsets increases
the supply of compliance instruments in the market, which
reduces the overall costs of the program, making the
offset program an integral cost containment mechanism
under the Cap and Trade Program.

Including offsets in the program also supports
the development of innovative voluntary projects and
technologies from sources outside capped sectors.

Since offset projects can be developed within the
United States, the offset program provides an important
incentive mechanism to encourage the spread of clean, low
carbon technologies inside and outside California. The
reductions achieved by offsets projects provide important
environmental, social, and economic benefits by reducing
greenhouse gas emissions and supplying green jobs inside
and outside of California.

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PROGRAM DATA SECTION MANAGER AGUILA: The
compliance offset program showcases California's continued
leadership in developing rigorous and innovative
environmental programs. The California compliance offset
program is considered the leading standard for offset
programs and has withstood legal challenge to the program
design, specifically it's additionality provisions.

It is important to note that while the court
ruled in ARB's favor, the case is currently on appeal.
The compliance offset program includes criteria and design
features intended to maintain the environmental integrity
of the Cap and Trade Program. The AB 32 criteria for
emission reductions, as described on the next slide,
ensure that offsets issued under the program are real and
additional.

Offset projects as well as their implementation are required to meet all statutory and regulatory requirements. Under the regulation, offsets that are issued and subsequently found to not meet the requirements of the regulation can be invalidated and no longer used for compliance in the program.

Staff designed the invalidation provisions to safeguard the program against potential environmental, social, and economic harm. Currently, staff is investigating whether some ozone depleting substances projects that were credited in the program were in conformance with federal regulations at the time the offset projects were implemented.

Staff intends to resolve this matter as quickly as possible to ensure the environmental integrity of the program and provide market certainty.

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PROGRAM DATA SECTION MANAGER AGUILA: Emission reductions achieved by offset projects must meet rigorous criteria to be approved as a valid compliance instrument. Offsets must be real, additional, permanent, verifiable, enforceable, and quantifiable. Offsets must also result from the use of ARB-approved protocols, which we will discuss in more detail on the next slide.
In the Cap and Trade Program, all compliance instruments are completely fungible, including any allowances or offset credits issued by linked jurisdictions. In January of this year, the program's linkage to Quebec became effective, which means that we also accept offsets issued by the Province of Quebec.

The regulation also includes a placeholder to allow sector-based offsets credits to be used in the program. These offset credits would be issued by another jurisdiction approved by ARB. Contrary to offsets issued directly by ARB, the reductions would not be based on emissions from individual projects, but rather reductions that are achieved by a sector as a whole at the jurisdiction level. Sector-based offsets will be discussed more in the second half of this presentation.

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PROGRAM DATA SECTION MANAGER AGUILA: To ensure reductions credited as offsets are real and additional, offset credits cannot be issued for any reductions achieved in capped sectors. This could cause double counting of those reductions within the system.

In addition, only ARB can issue compliance offset credits under the approved offset protocols. All California issued offset credits in the program are created and tracked by ARB in its market tracking system.
called the compliance instrument tracking system service, or CITSS. ARB is able to track all trades and retirement in CITSS. Full ARB oversight of the tracking system and trading behavior allows ARB to monitor the market effectively and ensure that there is no market manipulation.

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PROGRAM DATA SECTION MANAGER AGUILA: The cap and trade regulation currently includes five compliance offset protocols that project developers may use to generate credits in the program. These include the US Forest Projects Protocol, the livestock manure digester projects protocol, the urban forest projects protocol, the US ozone depleting substances projects protocol. These four protocols were initially developed by the Climate Action Reserve, or CAR, and the protocols included in the regulations are virtually identical to those developed by CAR for use in the voluntary offset market.

In April of this year, the Board also approved the adoption of the mine methane capture projects protocol. This protocol was developed by ARB staff in consultation with stakeholders. Staff is working to develop a protocol for rice cultivation projects.

Staff has already conducted extensive outreach and stakeholder process to develop this protocol. Staff
is also working to finalize and review the data needed to
allow offset projects in Alaska to be developed under the
US forest project protocol.

We continue to coordinate with our Western
Climate Initiative partners on all of our protocol
development efforts. The cap and trade regulations
specifies a Board approval process for offset protocols.
All new protocols must be approved by the Board after a
stakeholder process.

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PROGRAM DATA SECTION MANAGER AGUILA: This slide
shows a flow chart which explains how staff
operationalizes the offset program to credit reductions
achieved by offset projects with offset credits. Once an
offset protocol has been approved by the Board and become
effective in regulation, a project developer can submit
project information showing its intent to seek offset
credits. This information is known as listing
information. Once a developer submits all of the
information required by the regulation, the offset project
can be listed.

After an offset project is listed, a project
developer must submit annual monitoring and reporting
information. This information contains information
related to project activities over the course of the year
and also includes the amount of emission reductions that a project developer claims to have been achieved by the project during the year.

This report is submitted by the project operator to an ARB accredited third party verification body. The verification bodies have been trained by ARB to verify the report and determine whether the offset project developers emission reduction assertion is accurate.

Once the verification body has completed its review, the findings are submitted to ARB. If the findings are positive, the project developer can apply for issuance of offset credits. Once ARB receives an application for issuance of offset credits, ARB staff does an in-depth review of all project documentation and the verification findings. Based on this review, staff will determine whether offset credits should be issued. If offset credits are issued, they will be created in ARB's market tracking system and placed in the accounts of the appropriate parties.

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PROGRAM DATA SECTION MANAGER AGUILA: As I just discussed, the compliance offset program includes a rigorous third party offset verification program in which all verifiers are accredited directly by ARB. The regulation includes education and experience requirements
that verifiers must meet to become accredited. ARB administers extensive training to all verifiers accredited in its program, and all verifiers must pass exit exams. Verifies can be accredited as general verifiers, lead verifiers, and project-specific verifiers, which means they have education and experience related to a specific protocol.

To date, ARB has accredited 18 verification bodies and almost 100 individual offset verifiers. There are almost 80 verifiers accredited as lead verifiers and over 30 verifiers accredited under each protocol, except the mine methane capture project protocol. In June, staff completed its eighth week-long training session for verifiers since mid 2012 at which it offered training under the mine methane capture protocol for the first time. Staff expects to accredits verifiers under that protocol very soon.

The regulation includes strict conflict of interest requirements between ARB accredited verifiers and project developers. ARB accredited verifiers are responsible for assessing any potential conflicts and must disclose them to ARB.

The regulation oversight of the offset verification program and conflict of interest is extremely important to the program's integrity. Verification bodies
are required to notify ARB prior to beginning any verification services so ARB staff can plan its audit and oversight activities. Staff has audited many of the onsite verification activities to date and conducts a desk review of every verification that is performed under the program.

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PROGRAM DATA SECTION MANAGER AGUILA: A supply of compliance offsets is important to achieving the program's overall cost containment goals. To ensure that a sufficient supply of high quality offsets is available, ARB has approved offset project registries to help ARB administer the compliance offset program.

Leveraging offset project registry expertise and infrastructure has allowed us to access the existing capabilities of the third party registries so that the offsets program can be deployed quickly.

In addition to ARB's audit and oversight activities of verification bodies, offset project registries also conduct additional audits of verification activities. While offset project registries are instrumental in administering the program, these programs cannot issue compliance offset credits or adopt compliance offset protocols and are subject the ARB audit and oversight authority.
PROGRAM DATA SECTION MANAGER AGUILA: This slide provides a status update on the implementation of the compliance offset program. So far, ARB has listed over 90 early action projects for transitioning voluntary credits into compliance offsets and over 75 compliance offset projects that were developed directly under ARB compliance offset protocols.

ARB has issued offset credits to a total of 59 early action and compliance offset projects. ARB has also issued over eleven million compliance offsets to date. Information related to the issuance of compliance offsets can be found on ARB's website.

This concludes the portion of the presentation related to the domestic offset program. I will now turn it over to Jason Gray, who will present an update on sector-based crediting activities.

MARKET MONITORING SECTION MANAGER GRAY: Thank you, Brieanne.

In this portion of the presentation, I will present an update on the activities staff has been engaged in related to evaluating international sector-based offset crediting programs. I will first describe what sector-based crediting is, how it fits into the current
structure of the cap and trade regulations compliance offset program, the types of activities staff has been observing, and the importance of this type of offset credit.

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MARKET MONITORING SECTION MANAGER GRAY: As Brieanne mentioned earlier offsets under the cap and trade regulation may come from three types of source: ARB-approved compliance offset protocols where ARB issues the offsets directly; offsets issued by a linked jurisdiction, such as Quebec; and offsets issued by a jurisdiction with an approved sector-based crediting program.

A sector-based crediting offset program as defined by the cap and trade regulation is a greenhouse gas emissions reduction crediting mechanism established by a country, region, or subnational jurisdiction in a developing country and covering a particular economic sector within that jurisdiction. This type of sector-based program differs from the offset protocols adopted by ARB because reductions are measured across an entire economic sector within the issuing jurisdiction rather than on a project-by-project basis.

As I will explain later, an example of an economic sector that could be part of a sector-based
crediting program would be tropical forestry. The regulation makes clear that before considering any sector-based offset crediting program for compliance, the program would have to meet the rigorous AB 32 criteria mentioned earlier. The credits would need to be real, additional, permanent, verifiable, quantifiable and enforceable.

Similar to ARB issued credits under our compliance offset protocols and to ensure that any sector-based offset credits meet the AB 32 criteria, the involvement of the jurisdiction as the credit issuing body is crucial.

Before I go any further, I would like to stress that there are no approved sector-based offset crediting programs at this time.

MARKET MONITORING SECTION MANAGER GRAY: You may wonder why we would pursue a sector-based crediting program approach for international offsets when we use a project-based approach for ARB's approved compliance offset protocols.

One reason is that compliance offset protocols set performance standards for projects that they must meet within the United States. This means that the projects occur in jurisdictions that California has assurance the
protocol requirements can be enforced. The projects subject themselves to California's jurisdiction and ARB can evaluate publicly available state and federal data for the project's sector.

For instance, ARB's US forest protocol relies on rigorous federal data that spans the forest sector within states and across the country. When we start thinking about international credits, achieving the same levels of assurance requires a different approach since the credits would come from another country. In this context there are important benefits from a jurisdiction-wide, sector-based crediting approach. For instance, accounting for reduction credits in an entire sector within a jurisdiction ensures the jurisdiction is conducting low emission planning across that entire jurisdiction.

Setting a jurisdiction-wide performance standard which must be met before crediting can occur ensures that reductions are beyond what is otherwise required, ensuring the additionality of credits.

A broad jurisdiction-wide approach may help leverage the effects of reduced emissions to other economic sectors. Since sector-based crediting programs necessitate jurisdiction involvement in the design, implementation, and issuance of credits, there is more certainty that the jurisdiction's enforcement authority
functions properly.

Brocading the accounting of reductions beyond the project-level to cover an entire jurisdiction helps protect against the emissions leakage by ensuring that a project developer cannot simply protect one project while removing its emission-causing activities to another project, including sector-based offset credits from an approved program would also expand the existing sources of offsets to support cost containment in the California Cap and Trade Program.

Under the current design of the cap and trade regulation, sector-based offset credits would still fit within the existing eight percent quantitative usage limit. Sector-based offset credits could only be used for up to two percent of the entity's total compliance obligation in the first two compliance periods and up to four percent in the third.

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MARKET MONITORING SECTION MANAGER GRAY: The first sector identified in the regulation to evaluate for sector-based crediting is the tropical forest sector. Specifically, the regulation calls out programs which reuse emissions from deforestation and forest degradation of tropical forests, which is often summarized with the acronym REDD. Tropical forests were highlighted as a
critical sector for evaluation because deforestation and forest degradation of tropical forests accounts for between 11 and 14 percent of the global greenhouse gas emissions. This is roughly equivalent to the entire emissions from the global transportation sector.

Tropical forests are also the most studied sector internationally because of their relationship to climate change and due to the importance placed on them by United Nation's framework convention on climate change.

In addition, addressing emissions from deforestation and forest degradation results in multiple co-benefits globally. These include improved habitat for protecting biodiversity, ensuring forest dependent community livelihoods, water management, soil conservation, and protecting against decreased precipitation from forest loss.

Recent research has actually pointed to the important role tropical forests in the Amazon play in California's snow pack and the atmospheric rivers which impact California precipitation, which is especially critical now given our current drought situation.

Finally, addressing emissions from the deforestation of tropical forests can leverage additional transformations in the rural development model for tropical jurisdictions. For example, policy makers and
ranchers in the state of Acre, Brazil are working to
decrease the amount of forests cleared for cattle ranching
by simultaneously working to increase cattle yield on
already degraded land. This integrated planning approach
to rural development considers forest conservation, local
livelihoods, climate impacts, and economics, much in the
same way California is doing through our updated Scoping
Plan.

I'd like to play a short video for you from
NASA's Jet Propulsion Laboratory, which depicts the role
tropical forests play in the atmospheric rivers which
impact California's rain fall.
(Whereupon a video presentation was made.)

MARKET MONITORING SECTION MANAGER GRAY: This
video clip shows how water enters the atmosphere in the
tropical forest region, is transported northwest over the
Pacific, and then returns to California as rain and snow.

MARKET MONITORING SECTION MANAGER GRAY: With
this slide, I'll cover some of the history of ARB's
engagement on tropical forests, evaluating the role
California can play to help reduce emissions from the
deforestation and degradation of tropical forests has
actually been part of California's climate strategy since
the original 2008 Scoping Plan, which recognized the
important role tropical forests play in climate.

Based in part on this recognition, California
came together with the group of subnational governments
from Brazil to Indonesia to create an information sharing
group called the Governor's Climate and Forest Task Force,
which I'll describe further in a moment.

ARB also included a placeholder provision in the
cap and trade regulation to signal our intent to continue
evaluating whether and how sector-based crediting programs
related to tropical forests could fit within the
regulatory structure for future compliance credits.

In 2010, California partnered with two other GCF
members, the Governor's Climate Forest Task Force, and
Acre, Brazil, and Chiapas, Mexico, to encourage the
development of an expert technical working group to
develop recommendations on how such credits could be
included in our program.

The 2014 update to the scoping plan highlights
these efforts and keeps us on course to continue our
engagement in the GCF and on evaluating potential for
sector-based crediting programs designed to reduce
deforestation and forest degradation to come into
California's compliance program.

I would also note that as described in the
updated Scoping Plan, continued evaluation of programs
designed to reduce deforestation and degradation of
tropical forests and other sector-based offset programs
further demonstrates California's ongoing climate
leadership and could be result in partnering on other
mutually beneficial climate and low emissions development
initiatives, including those in Mexico.

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MARKET MONITORING SECTION MANAGER GRAY: As I
mentioned previously, California helped to create the
Governor's Climate and Forest Task Force in 2008. As a
forum for information and the best practice exchanges, the
GCF is currently comprised of 22 subnational jurisdictions
from countries comprised of Brazil, Indonesia, Mexico,
Nigeria, Peru, Spain, and the United States.

The tropical forest jurisdiction within the GCF
cover more than 20 percent of the world's tropical
forests. Each jurisdiction within the GCF is enacting
legal and policy structures to improve their forest
management. Some jurisdictions are including or plan to
include, structures that allow the jurisdiction to issue
robust sector-based offset credits.

Much of the discussion within the GCF revolves
around evaluating standards for reporting, verification,
community involvement, inventory development, and
enforcement to ensure rigorous credits that meet the same
criteria required by AB 32.

The GCF meets annually to share experiences
between members who are developing these jurisdiction
level offset programs. ARB continues to monitor the
activities of the GCF and to engage in discussions with
other GCF members to understand the status of their
programs and answer questions about how our program
functions. This engagement gives ARB an excellent
opportunity to demonstrate California's climate leadership
while also learning from other emerging programs.

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MARKET MONITORING SECTION MANAGER GRAY: The REDD
Offset Working Group, mentioned previously, including
technical experts from multiple backgrounds and
jurisdictions who developed a set of recommendations that
were submitted to ARB and the governments of Chiapas and
Acre in 2013. These recommendations, which are referenced
in the Scoping Plan update, looked at policy
considerations and technical considerations aimed at
assisting sector-based crediting programs to meet
California's stringent requirements so they could
potentially be considered for inclusion in Cap and Trade
Program in the future.

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MARKET MONITORING SECTION MANAGER GRAY: Staff is not proposing any specific action for the Board today on sector-based crediting, but we did want to explain our ongoing work. This includes a continued evaluation of the recommendations from the REDD offset working group, ongoing engagement with the Governor’s Climate Forest Task Force as called out in the Scoping Plan, and coordination with the US Department of State on common issues between California’s climate programs and the negotiations underway at the United Nation’s Framework Convention on climate change.

While staff is not currently proposing a timeline for specific action, next steps would include further evaluation, public workshops, a linkage assessment, and findings under Senate Bill 1018 similar to what was done for a linkage with Quebec and future rulemaking should the Board ultimately decide to consider the inclusion of a sector-based crediting program within the Cap and Trade Program.

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MARKET MONITORING SECTION MANAGER GRAY: I’ll now move away from our discussion on sector-based crediting programs to provide a brief update on our linked partner jurisdiction, Quebec.

As the Board will recall, California and Quebec
officially linked their Cap and Trade Programs beginning on January 1, 2014. We are scheduled to hold a joint auction of emissions allowances in November 2014 with a joint practice auction taking place on August 7th, 2014.

The Board directed staff to provide you with updates to changes in linked programs at least six months prior to changes taking effect.

To that end, Quebec will be proposing regulatory amendments to harmonize their requirements with California’s recently adopted amendments. This harmonization is expected to occur later this year.

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MARKET MONITORING SECTION MANAGER GRAY: Finally, I will review a few next steps for California’s overall compliance offset program.

As Bri mentioned, staff will be proposing new protocols for Board consideration in late 2014. These include a rice cultivation protocol and an updated US forest protocol to include Alaska. As outlined in the Scoping Plan, we continue to work to identify additional compliance offset protocols and are committed to focusing this work on in-state offsets, while recognizing the challenges of identifying possible in-state sources of offsets.

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MARKET MONITORING SECTION MANAGER GRAY: For members of the public who are interested in additional information, this slide provides links to ARB's Cap and Trade Program and the compliance offset program web pages. Thank you for your attention to this informational update. We would be happy to answer any questions you may have.

CHAIRPERSON NICHOLS: While people are considering their questions, we can hear from these who have taken the time to come and address the Board on this issue. So we have a list of seven speakers up on the wall. And we'll just take them in order starting with Christina McCain.

MS. McCAIN: Good afternoon. I'm Dr. Christina McCain with the Environmental Defense Fund. Thank you for today's important update on offsets in California. We see offsets as a critical component of the Cap and Trade Program because they provide economic and environmental benefits, both to California as a whole and particularly when it comes to land-based offsets to benefits to the lands owners, the farmers, and the foresters who participate in the offsets market.

Offsets also have tremendous potential to inspire innovation in sectors outside of the cap where direct regulation is challenging. There is still important work
ahead on offsets though. And we look forward to seeing
the release of the final version of the rice protocol and
a statement of ARB's dedication to the development of
future agricultural offset protocols for California.

We appreciate the ARB's considering international
sector-based forest offsets such as reducing emissions of
deforestation and degradation, or REDD, among key
potential options for continuing the development of a
robust offset program and increasing the global impact of
California's program.

As staff has described here today, there are
ample reasons to consider a pathway for REDD in
California, and I want to emphasize just a few. Recent
analysis suggests that addressing emissions from tropical
deforestation, which as the Chairwomen pointed out are a
really large proportion of global emissions, and in fact,
exceed the emissions from the entire world's
transportation sector will be critical the keeping global
warming below catastrophic levels. Leadership on REDD in
California would catalyze international action to reduce
greenhouse gas emissions, proving that California's
actions can have very high global returns.

Here in California, the additional offsets apply
from REDD can contribute to keeping the cost of achieving
greenhouse gas reductions low for 2020 and as we plan for
beyond 2020.

Reminded by the Governor's upcoming mission to Mexico, California is the forefront of international leadership on preventing the most devastating effects of climate change. California must continue to lead by partnering with other states, provinces, and countries that are taking action on climate change. Building a pathway for high quality REDD programs to participate in California's market will provide a multiple, environmental, as well as social benefits for California citizens and the world.

We look forward to continuing to work with this Board and the staff on these important issues going forward. Thank you very much.

CHAIRPERSON NICHOLS: Thank you.

Mr. Harris.

MR. HARRIS: Hello, everyone.

My name is Frank Harris. I'm here representing Southern California Edison.

I was going to talk about the general benefit of offsets. I believe that the representative from EDF and the staff presentation did that. Suffice it to say Edison has consistently supported a broad based Cap and Trade Program. And in terms of a well designed program, we look at offsets as being a critical mechanism for that.
A fair amount has been stated about the economic benefits to cost efficiencies, cost control benefits of offsets. As EDF mentioned, in addition to that, Edison sees a key benefit in terms of promoting additional emission reductions outside of the boundary of the cap and trade, once again where regulation can be somewhat difficult. And we see that as a critical benefit to the offset program. Unfortunately, the current offset market is really stagnant. And it's critical that ARB support its current protocols and really push to develop further protocols.

I believe the state, as was represented by EDF, also the state needs to look to how it can expand the role of agriculture in the offset market. I think this is critical. In terms of the rice protocol, we've got some very small individual reduction opportunities. It's not -- it's largely not an economic option for some of the small farmers and aggregation option is really critical here. So I want to push and compel staff to look at this.

In terms of REDD and sector-based offsets, I think we've all looked at all the modeling. If we really are trying to achieve controls on global emissions in long-term climate change, we can't do this without REDD. We can't do this without international offset opportunities. So I'm happy that the Board and staff is
looking into this.

Now, in addition to this, we're getting towards the end of the first compliance period. It's very likely that the full quantity of offsets authorized won't be available. I, once again, would ask the staff and the Board to look for opportunities where we might be able to carry over that authorization or bank that authorization after the end of the compliance period. I wouldn't want the ability to bring those emission reductions to the market for regulatory compliance. I wouldn't want that opportunity to go away simply because the compliance period ends.

Now, Madam Chair, if I might ask for a slight indulgence.

CHAIRPERSON NICHOLS: Okay.

MR. HARRIS: Southern California Edison would like to go on record thanking Steve Cliff for his years of service. Okay. I've worked with ARB since AB 32 was passed. I worked on climate change with the PUC before that. Steve's hire has proven critical to the ARB to bring in and expand its strength in this area. He's been a solid colleague. I call him a colleague. Very solid colleague in the research and regulatory development process. I say this as a representative of a regulated utility, okay. And it's not as if Steve has given away
the store here.

CHAIRPERSON NICHOLS: I was about to ask.

MR. HARRIS: I would have liked that, believe me. He hasn't. But he's been a very reasoned person to deal with. When we bring good ideas -- and as Steve will tell you, I only bring good ideas -- I feel very clear and confident that he will listen carefully and give it his full consideration. In other words, I really hold Richard personally responsible for letting him go.

Congratulations on your new job, Steve. It's well deserved. Edison will miss you. Thank you very much.

CHAIRPERSON NICHOLS: I'm sure he's grateful for those comments. We don't view this as losing Steve. We view this as gaining an ally at Caltrans.

Welcome.

MS. BURNS: My name is Karin Burns, and I'm Executive Director of Code REDD.

CHAIRPERSON NICHOLS: We need you closer to the mike.

MS. BURNS: First, thank you for providing the important update regarding the compliance offset program.

First, I'd like to state my support for the compliance offset program within California's Cap and Trade Program.
Second, I'd like to further state my support for efforts currently underway to consider sector-based offsets and in particular REDD. Hence, the name of our company. Substantial supports already exists for the inclusion of REDD in California's compliance market. Within industry, our leading industry here in California. Within our most credible longstanding NGOs here and across the country and globally. And when explaining to them the general public.

California has a unique and game-changing legacy opportunity to catalyze the adoption of REDD in emerging global compliance markets leading by example. Those of us working in the REDD industry know firsthand the benefits that REDD provides to biodiversity preservation, community empowerment, and greenhouse gas reduction and forest protection.

Deforestation, as you know, is our second largest source of global emissions. And any serious attempt to reduce our emissions must consider and account for tropical forestry. We can do this through REDD. REDD is our most cost-effective opportunity for industry. It's a prudent use of our resources and implementable at scale today. So for these reasons and many others, we strongly encourage and support the adoption of REDD in California's compliance work. Thank you.
CHAIRPERSON NICHOLS: Thank you.

Mr. Tutt.

MR. TUTT: Good afternoon. Tim Tutt from Sacramento Municipal Utility District.

With only three people preceding me, it's hard to believe I could feel like I'm going to be duplicating comments already. But I think that I will.

SMUD has always supported offsets as part of the Cap and Trade Program. We believe they're a critical cost containment measure. We particularly supported the use of sector-based offsets and particularly REDD because we do feel it's important to have the message of reducing greenhouse gases translated out to these critical sectors. And there's a need for a funding mechanism to do this work in developing countries. And you guys can help provide that. And you have put a placeholder for that into your regulation since 2011 when they were initially adopted. Really appreciate the work there and the ongoing work on this issue.

I would point out like Frank did that it's coming up to the end of the first compliance period. So at the end of this year, there's no guarantee that the full offset limit will have been taken advantage of by all the parties to which it's applied. In particular, the 25 percent of that offset limit that can be under the
regulations supplied by REDD offsets, there's no way to do that because there's no REDD offset protocols that are in place.

Perhaps the only way to preserve that 25 percent is to do -- make some change like allowing some kind of banking of the REDD or the offset structure so that parties can continue to access that and provide that benefit to the world after the end of this year. So I would encourage your consideration of that.

And also consider moving forward with as much speed as possible staff has available on including REDD into the process. So we don't get to the end of the second compliance period and still face the idea of are we going to lose the ability to procure these REDD offsets.

And then I would also say ditto to everything that Frank said about Steve Cliff. He's been wonderful to work with. I mentioned in the hallway outside I'm going to switch my job position to transportation related work so that I can continue working with Steve at Caltrans. This might be the last time you see me here. Thank you.

CHAIRPERSON NICHOLS: Thank you very much. He'll take his fan club with him.

Ms. Passero.

MS. PASSERO: Hi. Michelle Passero with the Nature Conservancy. Thank you for the opportunity to
I do want to express our continued support for the use of offsets among whole portfolio policies and measures that ARB and the state is implementing to reduce emissions. It's an important way to leverage greenhouse gas reductions in sectors that are uncapped, like forests. As mentioned by a number of folks earlier, it really is a significant source of greenhouse gas emissions globally and also locally. Our forests here are also a source of emissions.

And as many of you may know, when our forests are conserved and as they grow, they absorb carbon dioxide out of the atmosphere and store it in their branches, leaves, and trunks. When they're disturbed through fire or conversion to other uses, they can become a source. They release the carbon into the atmosphere.

This is a global challenge. But there are also opportunities. We've certainly shown a lot of leadership here elemental locally on this issue by including forests in our Scoping Plan to help conserve our forests.

Also action happening in other jurisdictions. And you have the whole presentation on REDD efforts in Brazil and in Mexico are ongoing to develop robust programs to address this issue as forest loss and degradation is a tremendous source of emissions in those
countries.

So we appreciate the leadership that ARB has shown to date on this issue. And we do strongly encourage partnerships with these other jurisdiction as they are other opportunities to leverage action and additional greenhouse gas reductions in these other areas so we can reduce emissions here and globally and also protect all the other great public benefits that come along with protecting our forests. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Matthew Plummer.

MR. PLUMMER: Good to see you again. Matthew Plummer on behalf of Pacific Gas and Electric Company. I'm noticing some common themes with the other speakers, especially EDF and Edison. So I'll shorten my remarks down.

PG&E appreciates and supports the Board staff's continued work on offset protocols which as mentioned are critical to both cost containment and emission reductions. As staff's presentation showed, an unprecedented amount of work has taken place in a relatively short time. But without additional protocols or sector-based programs, a number of market observers have noticed the demands for offset credits may be greater than applying complying compliance periods two and three. Given this need, PG&E
encourages ARB to strengthen its efforts and develop additional protocols.

Finally, PG&E reiterates its support for development of a jurisdictional REDD program. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Mik Skvaria.

MR. SKVARIA: Hi. My name is Mik Skvaria. Here on behalf of the California Council for Environmental and Economic Balance.

We've got several speakers and we are all reiterating the same points. CCEEB does believe that offsets, both REDD and sector-based in the currently adopted ones are critical to the Cap and Trade Program and greenhouse gas program here in California.

We believe that it's an economically efficient way of providing lower cost options for capped sources, in addition to providing geographically broad coverage which is essential for global progress on the issue of climate change.

We think that adopting more offsets and offset protocols would build capacity and expertise inside and outside of California across the state and broader set of activities. And facilitate earlier emission reductions by reducing the risks associated with the initial compliance periods.
And I don't need to go on further with what everyone else has said. We just urge staff to continue their hard work on this issue and hope the Board will consider it when it's time to adopt these protocols. Thank you.

CHAIRPERSON NICHOLS: Thank you.

You know, it may seem as though there's sort of a consensus around these issues. But obviously there still remain major critics of the whole idea of offsets, continues to be a source of articles, and underlies a lot of concern about the whole Cap and Trade Program.

I suppose the good news is we don't have very many offsets. The bad news is we don't have very many offsets, so depending on where you're looking at it. But we do have a very credible number of them as it turns out, and real projects that have made it through the very rigorous screening, which indicates it is possible.

The next real horizon is in the sector-based program. And this isn't just something that ARB has invented. Actually, we're legally required to have an agreement with any country that we might accept offsets from that's outside of the United States anyway as a result of legislation passed by the California Legislature and signed by the Governor. So we have a lot of work to do. And we have not been able to make this a huge area
for investment of staff time because we have other things
to do.

But despite that, we've got very high quality
staff working on these issues and doing a lot of thought
and giving it great deal of consideration.

I have had an opportunity to brief the Governor's
office about the status of work on REDD. And they are
interested and wanting to see us continue to pursue it,
although raising the same concerns anyone else would about
this can potentially be seen as somehow underlining the
local benefits of the program. So it just continues to be
a bit of a dichotomy I think in our thinking about climate
programs. We are here in California wanting to do things
that lead the world and demonstrate what can be done.
We're also here in California wanting to do things that
benefit the state of California. We have to really try to
do both of those things at the same time, achieve both of
those sets of objectives.

But I think it's clear from the presentation that
having at least an adequate supply of offsets, even if
it's not as exciting a market as some might have hoped it
would be a few years ago really is a critical element of
making our Cap and Trade Program a success. So we
continue to move along in a very kind of measured careful
way.
And I had the opportunity recently to go to a meeting of the Board of the Department of Food and Agriculture, State Board of Food and Ag, and listen to the presentation on the rice protocol and how it's been going. And it was a really inspiring and interesting presentation on some very good work. A lot of science. A lot of community work. A lot of work by growers. And you know, this protocol, when it gets adopted, is going to be a real milestone I think in the history of land-based or environmentally-based offset protocols. And yet at the same time, we're hearing it probably won't be very useful because it's so rigorous and so hard to do that many people won't be able to take advantage of it, unless some new structure comes along.

But I think that's the continued strain that there's going to be on this program. And we're just going to have to keep it moving forward, in spite of those kinds of questions because clearly we making intellectual progress at least, if not necessarily yet generating a lot of additional offsets. I see nods coming from my colleague over here, our agricultural representatives. I don't know if anybody has any comments, questions they would like to raise at this point about offsets or other -- Sandy.

BOARD MEMBER BERG: My only comment is I do have
to close with thanking Steve since he's been my personal tutor through cap and trade and following. So needless to say, he's not off the hook. He has to send me his further information to keep that tutoring arrangement.

Thank you very much for all of your efforts, Steve, the times we've sat in your office and you were at the white board drawing boxes. This is the utility. It truly helped me tremendously, and you've been a great colleague. We wish you well. And we do look forward to working with you in your new position. Congratulations.

CHAIRPERSON NICHOLS: Absolutely.

John.

BOARD MEMBER BALMES: Again, I also want to say a few words of appreciation for Steve because while I haven't seen a white board demonstration, I have had many phone calls where he's been very useful and educated me to the intricacies of things like that mine methane gas protocol.

I wanted to ask a last question though. We heard a lot about REDD today, and I just wanted you to give me a hint about how close do you think we are to actually having a REDD protocol. I know it's a loaded question.

BOARD MEMBER SPERLING: But he's leaving.

BOARD MEMBER BALMES: Exactly. Are we talking a long time?
CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF

CLIFF: I'm probably not the best to answer this. I think I should leave this to others.

I will say I think it's an important thing for us to follow. Jason laid out several pieces of it, not only regarding the amount of emissions that are associated with deforestation, but its potential impact on climate directly in California due to this relationship with the atmospheric cycling of our water cycles.

So maybe I'll leave it to others to kind of talk a little bit about the timing and how far things have come in the process.

MARKET MONITORING SECTOR MANAGER GRAY: Thank you for the question.

I want to thank Steve for all the work he does. We're going to make him blush eventually.

I'm a little hesitant to give a time line because I think folks are looking for various signals. But there are jurisdictions that are very advanced to they can track whatever crediting system they're doing, setting up legal structure and financing mechanisms to make sure their communities and their population benefit from whatever investments go into that jurisdiction.

The Governor's Climate Force Task Force members, the sub-national jurisdictions, I mentioned they're really
sharing the information. They're learning from particularly the Brazilians and a lot of working on in Mexico. You know, I think the jurisdictions are making really good progress. I think even at the larger level at the national scale in the UN system, there's been a lot of progress as well that some of the sub-nationals can draw from.

So I'm hesitant to give a time line. I don't think it's after the post-2020 that kind of time line. I think it would be much sooner than that. There's been some tremendous progress from some of our partners in the GCF. It's been I think at the staff level very interesting to continue to watch what they're doing and interact and see what of our programs works and what stringency we would look for in our -- any offset that we would take into the program.

CHAIRPERSON NICHOLS: Jason, you might just address a little bit the issue of why other jurisdictions would be willing to spend a great deal of time and take significant action, given how small the California market is and how slow other jurisdictions have been to adopt serious Cap and Trade Programs.

MARKET MONITORING SECTION MANAGER GRAY: I really think it's because of the stringency of the program. If California shows the leadership on that level for looking
at sector-based programming, there is an expectation that others will follow suit.

I think the level of work, the rigor of our domestic offset program is looked to as a very strong rigorous program that's credible. And I think that has trickled into the discussions on sector-based crediting with other jurisdictions watching what we do. So I think that's one of the reasons that they're really interested in engaging with us.

CHAIRPERSON NICHOLS: Dr. Sperling.

BOARD MEMBER SPERLING: So let me just follow up with some questions here, just really trying to understand better.

So the forest protocol we now have, is that considered treated as a sector-based program?

MARKET MONITORING SECTION MANAGER GRAY: It's not. The difference between the domestic programs we have here is there is a performance standard for that sector that individual projects must meet. So the accounting is actually at the project scale.

The reason there is a difference here is because we have really good data that we can rely on from our federal counterparts and our other state agencies throughout the United States that we're able to really ensure we know what's going on in the overall sector.
When we start looking at another country and another jurisdiction in a country, we don't necessarily have either the same level of access to the data or the same authority to look at what's going on. So working directly with that jurisdiction, accounting across the jurisdictions sector really provides us the same levels of assurance that we currently have for our project-based protocol here in California.

BOARD MEMBER SPERLING: Do we have in mind any sector-based programs for the US or California?

MARKET MONITORING SECTION MANAGER GRAY: I may look to Rajinder.

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF SAHOTA: We do not. Like Jason said, it's a little bit of a question of the data access and being able to accurately define, quantify, and then credit issued offsets.

When you look at a jurisdiction in another country, the data may not exist there. The same levels of environmental protections may not exist there. So having that jurisdiction commit to an overall performance level across that sector and only crediting at a project level when the project reductions occur beyond that sector ensures that net in that sector and that jurisdiction you're getting real benefits and real reductions to the atmosphere.
When you look at the US and you look at California and you look at forestry in particular here, we have protections. We have programs. We have rigorous data. We have lots of quantification assurances that if you're saying this overall you're getting atmospheric benefits in a project in northern California, all net across the US, you're getting benefits to the atmosphere.

When you look at other project types, it's the same case here. We have better access to data. We have better access to information from other regulatory agencies to better understand what the requirements are in terms of the sector for other environmental protections or for greenhouse gas protections. So it's not as needed here in the US as it would be in developing countries.

BOARD MEMBER SPERLING: So what about being broad-mined? What about Europe? What about a program in Europe? Would we consider that as -- I mean there could be -- certainly in agriculture I can imagine that there would be some sector-based offset programs that might be compelling that wouldn't be part of their ETF.

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF SAHOTA: So beyond forestry, I think we've looked at considering sectors that are potentially capped in California but not capped -- but would not be capped or under some kind of greenhouse gas accounting reduction
program elsewhere.

So let's say that there's agricultural sectors in Europe that are also not capped in California. Could you potentially go ahead and set up performance sector based standard and give them credits. Theoretically, you could do that. But in Europe you also have the countries there now looking internally into terms of offsets. In the EU ETS, they're used the taking the EDM offsets from the Kyoto protocol. But now there's a direction in some countries to do what California has done, which is to see what co-benefits can be provided locally by looking at offsets locally. So as time goes on, we might see the EU ETS countries starting to look inward in terms of offsets, which would mean they want those reductions for themselves.

BOARD MEMBER SPERLING: Last, someone wanted to add something in on that.

So last is on -- so I looked up on the website to see exactly what the offsets are. And so I see that there have been none on urban forests, only a tiny amount for the livestock digesters, and quite a few for ozone destroying substances and US forests. I don't know if you want to comment on that generally. But even specifically, can you give us a sense of -- so each credit is a ton; right? So that seems like a fair number of tons. I mean,
when we're -- I don't know. What's the cap? 300 million tons? Is that what it is for California? Something like that?

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF SAHOTA: For the offset program at the eight percent offset usage limit, it's about 218 million metric tons through 2020.

BOARD MEMBER SPERLING: So this is significant? Would this be considered significant, how many offsets we've gotten so far?

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF SAHOTA: So if you look at the first compliance period, you're looking at a full potential demand at 8 percent of about 26, 27 million metric tons?

BOARD MEMBER SPERLING: That's the maximum.

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF SAHOTA: For the first compliance period. Considering how many early action projects are listed and how many compliance projects are listed and the addition of the mine methane protocol from last April, I think we're safe in saying we're going to meet that demand if every entity wanted to use offsets for the first compliance period. There is no requirement that you have to use offsets. You can bank them for future use, et cetera.

When you start to look at the second and third
compliance periods when the scope of the program expands to include transportation and natural gas fuels, you're looking at a shortage of offsets under the current amount of protocols that we have adopted. So there is a lag time from once you adopt a protocol to when projects are actually undertaken and brought to ARB for issuance. In the context of the second and third compliance periods, we need to keep looking in earnest at new opportunities now.

CHAIRPERSON NICHOLS: I would say with respect to one of those protocols that I've been particularly interested in, the urban forestry protocol, there is a real lack of understanding on the part of potential offset developers about the opportunity and the lack of marketing by the jurisdictions that would benefit the most from having those kinds of projects.

The topic has come up on the new forest Climate Action Team as one of the issues that a variety of agencies, Natural Resources Agency, like Parks are going to be involved in, as well as in some of our conversations with local governments that are very interested in playing a part in the climate program. And I think eventually we're going to see some uptake on that.

But it just wasn't -- the fact that we adopted a protocol did not mean that instantaneously there were going to be projects brought to us. But I don't know of
any intrinsic reason why it can't happen, other than just
the fact that people don't get it yet that's something
they can do.

BOARD MEMBER SPERLING: What have the credits
been selling at, do you know?

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF
SAHOTA: We watch the markets on the secondary market.
They're selling at about 85, 90 percent below what the
current allowance values are. And offsets in general are
always about 80 to 90 percent of what the allowance values
are by their very nature.

BOARD MEMBER SPERLING: Okay. Thank you.

CHAIRPERSON NICHOLS: Any other?

Yes, Dr. Sherriffs.

BOARD MEMBER SHERRIFFS: Couple of comments,
questions.

One, it sounds like we have a communication
problem with potential entrepreneurs, just as we have a
communication problem with those small trucking firms and
need to get the word out to -- I don't know -- business
schools or people have mentioned local business
development within Chambers of Commerce and so on and we
really need to reach out to that and make them aware of
these opportunities and help them develop some of these.

Selling this to people in the far off San Joaquin
Valley, precipitation gets people's attention. Can we quantify the effects of deforestation over five years at the current levels? Are we talking about a quarter inch of precipitation? Are we talking about ten percent effect on precipitation? Do we have any kind of numbers we can assign to that, as hard as the weather is to predict?

CLIMATE CHANGE PROGRAM EVALUATION BRANCH CHIEF
SAHOTA: I was just going to say, I think that would be a difficult exercise to do thinking of how the weather patterns that are impacted by short-term events like El Nino, Nina, and also trying to tease out the signal related directly to deforestation.

I think there is a trend that is in the data that suggests that deforestation has a direct impact on rain levels in California. And so in that context, you can talk about a net overall the last 10, 20 years, this is the pattern that's emerging.

I think it's -- how do you convince somebody that's -- when they say last year it was flooding and there was mud slides in this region and now you're telling me what's going on, people tend to latch onto the most recent events as an indicator that's the real story.

So I think we can do our best to try and talk about the impacts and get as much data and information as we can. There is a lot of research going out there
independent of anything ARB would be doing, like the experts at JPL, some of the climate centers. There is a lot information we can draw for this.

But I think understanding that there is a direct relationship from deforestation to California snow pack to California rain levels is important to the story.

BOARD MEMBER SHERIFFS: Thank you. I thought there was a clause in Steve's contract he couldn't leave until the first REDD credit had been sold.

CHAIRPERSON NICHOLS: He sited the 13th amendment to the US Constitution. That was an obstacle, unfortunately.

All right. Yes, Hectar.

BOARD MEMBER DE LA TORRE: I just wanted to emphasize one of the comments you made about the desire to have more state-based credits. I know that there are challenges in doing this. But there are people in the building a few blocks away from us. There are people in this state who want to see some of that happen. So I think whatever is promising in that space, we need to really prioritize because folks want to see that. And they have every right to have it happen here in California. So that's my little plug. Thank you.

CHAIRPERSON NICHOLS: Okay. It's a topic that continues to come up. I know it's going come up next week
when I'm in Mexico with the Governor talking about climate change and other projects we're going to be working on together. Some of the same legislators that have been very concerned about offsets in California are also interested in projects in Mexico, too. So this is just an evolving story, but it certainly is one that we have been managing well I think.

I do want to just close, since there isn't any action required here. We'll close out this item by saying that we have some of the best people in this business working in California on these projects, both for us directly and indirectly as a result of the projects that we have helped to incentivize. So it's going to continue to be a very interesting area to watch. And even if we don't generate as many tons of offsets as some people might want, we'll generate a lot of papers. Lots of studies and reports.

Thanks, everybody. I think that probably is enough on this.

Do we have a public comment? Anybody signed up for just general public comment today? If not, I think we should entertain a motion to adjourn.

BOARD MEMBER BERG: So moved.

CHAIRPERSON NICHOLS: Second? Any opposition?

So moved. See you tomorrow.
(Whereupon the Air Resources Board recessed at 3:15 p.m.)
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 6th day of August, 2014.

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