BOARD MEETING

STATE OF CALIFORNIA

AIR RESOURCES BOARD

JOE SERNA, JR. BUILDING

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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THURSDAY, JULY 24, 2008

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APPEARANCES

BOARD MEMBERS

Ms. Mary D. Nichols, Chairperson

Dr. John R. Balmes

Ms. Sandra Berg

Ms. Lydia Kennard

Mr. Jerry Hill

Mrs. Barbara Riordan

Mr. Daniel Sperling

Mr. John Telles

STAFF

Mr. James Goldstene, Executive Officer

Mr. Tom Cackette, Chief Deputy Executive Officer

Ms. Ellen Peter, Chief Counsel

Mr. Michael Scheible, Deputy Executive Officer

Ms. Lynn Terry, Deputy Executive Officer

Ms. Kathleen Quetin, Ombudsman

Ms. Susan Fischer, Ph.D., Research Planning and Climate Change Outreach Section, Research Division, RD

Ms. Susan Gilbreath, Ph.D., Health and Exposure Assessment Branch, Research Division

Mr. Margret Kim, Senior Advisor for International Climate Change, Chair's Office

Mr. Iain Morrow, on loan from UK government, RD

Mr. Chuck Shulock, Assistant Executive Officer, OCC

Ms. Linda Smith, Ph.D., Chief, Health and Exposure Assessment Branch, RD

Ms. Bonnie Soriano, Staff Air Pollution Specialist, Technical Analysis Section, Stationary Source Division

Ms. Monica Vejar, Board Clerk

Mr. Sam Wade, Air Pollution Specialist, Program Evaluation Branch, Office of Climate Change

ALSO PRESENT

Mr. Joe Angelo, Intertanko

Ms. Diane Bailey, NRDC

Mr. Rasto Brazney, MECA

Mr. Tim Carmichael, Coalition for Clean Air

Mr. Randal Friedman, US Navy

Mr. T.L. Garrett, Pacific Merchant Shipping Association

Mr. Henry Hogo, South Coast AQMD

Mr. John Kaltenstein, Friends of the Earth

Ms. Candice Kim, Coalition for Clean Air

Mr. John McKnight, National Marine Manufacturings Association

Ms. Patrick Moran, Aaron Read & Associates, LLC

Mr. Dan Ostrosky, Yamaha

Mr. Don Owen, DTSC

Mr. Christopher Patton, Port of Los Angeles

Mr. Paul Ray, Ilmor Marine Engineering, Inc.

Mr. Mark Riechers, Mercury Marine

Ms. Heather Tomley, Port of Long Beach

Mr. Sean Whelan, Attwood

Ms. Debra Whitman, Environmental Voices

INDEX

	PAGE
Item 08-7-1	
Chairperson Nichols	4
Executive Officer Goldstene	5
Staff Presentation	6
Q&A	12
Item 08-7-3	
Chairperson Nichols	21
Executive Officer Goldstene	22
Staff Presentation	23
Q&A	35
Motion	36
Vote	36
Item 08-7-4	
Chairperson Nichols	37
Executive Officer Goldstene	37
Staff Presentation	40
Q&A	63
Ombudsman Quetin	65
Q&A	66
Ms. Tomley	73
Mr. Garrett	76
Mr. Kaltenstein	78
Ms. Kim	82
Ms. Bailey	84
Mr. Patton	86
Mr. Angelo	88
Mr. Friedman	91
Mr. Hogo	98
Motion	101
Ex Partes	105
Vote	107
Item 08-7-5	
Chairperson Nichols	107
Executive Officer Goldstene	107
Staff Presentation	110
Ombudsman Quetin	124
Mr. Moran	126
Mr. Brezny	127
Mr. McKnight	129
Mr. Ray	132

INDEX CONTINUED

	PAGE
Mr. Whelan	134
Mr. Riechers	135
Mr. Ostrosky	137
Mr. Carmichael	139
Motion	141
Vote	141
Item 08-7-8	
Executive Officer Goldstene	141
Staff Presentation	143
Q&A	153
Ms. Kim	158
Chairperson Nichols	166
Item 8-7-9	
Chairperson Nichols	167
Executive Officer Goldstene	168
Staff Presentation	169
Q&A	181
Item 8-7-10	
Chairperson Nichols	188
Executive Officer Goldstene	189
Staff Presentation	190
Q&A	201
Public Comment	205
Adjournment	208
Reporter's Certificate	209

PROCEEDINGS

CHAIRPERSON NICHOLS: Good morning, ladies and gentlemen. Welcome to the July 24th public meeting of the air resources Board. The meeting will come to order.

We begin the meeting with the Pledge of Allegiance. I'll ask you all to please rise.

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

CHAIRPERSON NICHOLS: Thank you.

The Clerk will please call the roll.

SECRETARY VEJAR: Dr. Balmes?

BOARD MEMBER BALMES: Here.

SECRETARY VEJAR: Ms. D'Adamo?

BOARD MEMBER D'ADAMO: Here.

SECRETARY VEJAR: Supervisor Hill?

Ms. Kennard?

BOARD MEMBER KENNARD: Here.

SECRETARY VEJAR: Mayor Loveridge?

BOARD MEMBER LOVERIDGE: Here.

SECRETARY VEJAR: Ms. Riordan?

BOARD MEMBER RIORDAN: Here.

SECRETARY VEJAR: Supervisor Roberts?

BOARD MEMBER ROBERTS: Here.

SECRETARY VEJAR: Professor Sperling?

BOARD MEMBER SPERLING: Here.

SECRETARY VEJAR: Dr. Telles?

BOARD MEMBER TELLES: Here.

SECRETARY VEJAR: Chairman Nichols?

CHAIRPERSON NICHOLS: Here.

I believe Supervisor Hill is on his way, but is a little bit delayed this morning.

We have on the agenda, if there's anybody who's planning their day, a time set aside for a standing meeting, a closed session, to receive reports on the cases in which we're litigants. We are not having a closed session today. That has been canceled.

We will take a lunch break. And the Board is going to be hosting a visiting delegation of Europeans who are here studying climate change who are all active in this field in Europe. So that should be interesting.

We will be imposing a three-minute time limit on all speakers on all items, unless we have so many speakers on any item that we have to shorten it. But I hope that won't happen.

And I'm also supposed to advise you that there are emergency exists at the rear of the room. And that in the event that an alarm goes off, we have to evacuate the room, go downstairs and go outside the building until we get the all-clear signal. I think that's it for logistical comments.

There's one other thing I would like to do at the outset of the meeting. It's my privilege to open this meeting in honor of a long time and very important staff member of the Air Resources Board, Harmon Wong-Wo. Although we don't have a custom here of passing official resolutions, I am sending a letter on behalf of the Board. So I thought I should read it to you all so you know what I'm saying. The letter is addressed to his widow, Pearl.

"Dear Pearl, it's with great sadness that I learned that Harmon passed away. On behalf of Harman's many friends and colleagues here at the Air Resources Board, I want to express my sincere and heartfelt sympathy to you and your families.

"Harman's pioneering work on air pollution remains a stellar legacy. Harmon had great influence on establishing pollution control programs that ultimately became the standard not only for California but for the nation and world. His wisdom and wise counsel contributed greatly to establishing and maintaining the world class reputation of the Board.

"We remain to this day appreciative of his outstanding contributions and public service. Our air is much cleaner today because of his efforts and leadership.

"We all have Harman's stories. His liberal and effective use of red pencils is simply legendary. His

chinese banquets and after hours team building at the Cloud Motel are remembered fondly. Harmon was revered as an inspirational and highly respected leader. He also had an uncanny sense of timing and an ability to say just a few well placed words to make his point. A simple passing comment was sufficient to deter one long time staffer from ever wearing jeans in the office again.

"More commonly, he was able to use his sense of timing and panache to effect policies necessary to improve air quality at a time that demanded strong leadership.

"As a past and present Chairman, I've seen the Board grow and change over the years. From this perspective, I can tell you that Harman's efforts provided a sound foundation for the air quality efforts of today.

"I can also tell you Harmon was greatly respected for his humor, warmth, and compassion for his friends and families as well as his dedication and commitment to the Board's mission. He will be missed by all."

And I just want to say that having had the unfortunate task of writing a few letters like in my time, there are very few that I felt as strongly about as I do about this one. Harmon was amazing, for all of you who ever had a chance to work with him. His influence is everywhere around the Board.

So with that, I think it's time to turn to the

health update.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman Nichols. Good morning, members.

The association between exposure to particulate matter pollution and adverse health effects is well established. However, specific populations, such as those who exercise outdoors, may have greater risk for these effects than the general public.

With all the recent wildfires in California, it's important to understand that anyone exercising outdoors in high levels of smoke would receive a substantially greater exposure to particulate matter than those remaining indoors.

ARB worked with the Office of Emergency Services and many local air quality districts to monitor the levels of particulate matter from the fires, issued a number of health advisories, and has worked with the media to get information out to the public on the dangers of exercising and the high levels of smoke that we've experienced recently.

The study presented today highlights the potential for health effects from exercising near a different source of air pollution, traffic. Although we all understand the importance of regular exercise and the improvement that exercise can bring to our health, this

health update illustrates the concerns of health scientists regarding the potential for increased health impacts from air pollution exposure during exercise, but also provides some recommendations for planning exercise routines.

Dr. Susan Gilbreath from our Health and Exposure Assessment Branch will make the staff presentation.

Dr. Gilbreath.

(Thereupon an overhead presentation was presented as follows.)

DR. GILBREATH: Thank you, Mr. Goldstene. Good morning, Chairman Nichols and members of the Board.

In this health update, I'm going to discuss a study that investigated the association between air pollution and short-term health effects among people who were exposed while exercising. This presentation will focus on health effects found in adults, particularly those with asthma.

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DR. GILBREATH: Children, the elderly, and immuno-compromised individuals are particularly susceptible to the effects of air pollution.

One vulnerable group that is often overlooked are those who work or exercise outdoors. During exercise, people breathe faster. A greater proportion of air is

inhaled through the mouth, bypassing nasal filtration, and pollutants are carried more deeply into the lungs.

Greater volumes of air are exchanged during exercise, up to 10 or 20 times more air compared to when at rest. Likewise, the quantity of pollutants inhaled increases. Anyone exercising outdoors during times of high pollution, such as during the recent wild fires in California, should remember they will receive a greater dose of pollutants.

People who exercise near roadways, such as joggers, cyclists, and pedestrians, experience increased risk, because not only are they exposed to ambient air pollution, but traffic-related pollution as well.

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DR. GILBREATH: In the study I'm focusing on today, Dr. McCreanor and colleagues of Imperial College in London examined the impact of diesel traffic on 60 asthmatic adults while exercising. Each participant walked for two hours along a London street that contained exclusively diesel traffic, and on a separate occasion, through a nearby park.

During both walking sessions, detailed real time information was gathered on pollution exposure and psychological measurements such as lung function and markers of inflammation. The results of these

measurements are shown on the next slide.

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DR. GILBREATH: The researchers found that when participants walked next to busy streets, they had significantly higher exposures to fine and ultra fine particles, elemental carbon, and nitrogen dioxide than when they walked in the park.

The lung function results of the study are shown in this graph.

The yellow bar represents the percentage decrease in lung function after walking near diesel traffic while the orange bar shows the decrease after walking in the park. The lung function decrease following exposure to high diesel traffic was more than three times the decrease observe after exercising in the park.

Traffic-exposed participants also experienced large increases in markers of inflammation, which were mostly absent after walking in the park. These changes were mostly consistently associated with exposures to ultrafine particles and elemental carbon, which are the pollutants most associated with diesel vehicles.

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DR. GILBREATH: There are a number of other studies that have also found adverse health effects linked to exercise and air pollution exposure.

For example, a Danish study found that after bicycling in traffic, the level of DNA-based damage was increased four-fold compared with the level measured after bicycling indoors.

A few studies have found ozone-associated lung function decreases immediately following exertion among cyclists. One of these studies followed a cycling team throughout the summer and found that with increasing ozone levels short-term lung function deceased up to 5 percent.

In a laboratory study of heart attack survivors, researchers found that the ability to deliver oxygen to the heart following moderate exercise was reduced three-fold while exposed to dilute diesel exhaust compared to clean air.

The Children's Health Study, originally funded by the ARB, found that children who participated in several outdoor sports and lived in communities with high ozone levels were three times more likely to develop asthma than children with the same activity level living in areas with less ozone pollution.

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DR. GILBREATH: ARB has two in-house projects related to exercise and exposure to air pollution. We recently completed data collection in a study that is examining changes in short-term lung function with respect

to ultra fine partical exposures among long distance bicycle commuters. Results should be released early next year.

In the autumn, we plan to compare particulate exposure among four different commuting modes: Car, bicycle, train, and bus.

ARB also has a bicycle awareness program which contains useful information about the air quality benefits of cycling as well as suggestions on how to overcome barriers to cycling in our communities.

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DR. GILBREATH: It is well established that exercise promotes health and fitness. Regular exercise can help counteract the negative health effects of air pollution.

For example, regular activity has been shown to increase respiratory clearance which should improve removal of inhaled particles from the lungs.

Immuno function and the body's antioxidant activity strengthens with exercise.

Also people who exercise use fewer sick days, have better cardiac and respiratory health, and live longer. There is evidence the longevity effect is more pronounced specifically in athletes who are bicycle commuters.

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DR. GILBREATH: Individuals who exercise on days of poor air quality or near traffic are likely to experience increased exposures to air pollution. But it is possible to minimize these exposures. They can heed advisories such as those issued by ARB that provide information on steps the public can take to reduce their exposure to air pollution during high pollution episodes such as the recent wild fires.

Local air pollution control districts use the air quality index to advise both the general public and sensitive groups on activities they should avoid. Also bicycle commuters, joggers, and pedestrians can consider alternate less heavily traveled routes.

Communities should ensure that air quality alerts are reaching their intended audience via their outreach programs. For example, the South Coast Air Quality Management District supports a program where special flags are displayed at local schools indicating the current air quality.

An increased physical separation between motor vehicles and pedestrians and cyclists would be another means of minimizing partical exposure to these individuals. Making our communities more bicycle and pedestrian friendly will not only help counter obesity and

its accompanying health problems, but also help reduce air pollution and greenhouse gas emissions.

This concludes my presentation. We will be happy to answer any questions you may have.

CHAIRPERSON NICHOLS: Thank you.

Questions or comments from Board members?

Dr. Balmes.

BOARD MEMBER BALMES: Well, I just think it's important to highlight this effective exercise with regard to air pollution. Health effects given as you point out exercise increases the effective dose of whatever pollutant is out there.

And I got asked multiple times by media sources during the recent wildfire episode about whether kids who were supposed to be scheduled to play soccer games or baseball tournaments, including my own son's team, should be allowed to do so with the conditions as they were. And it's a tough call, because you don't want to stop kids from exercising, which is a good thing, especially given the obesity epidemic in our state and our county. So finding the balance between promoting exercise and protecting the public from unnecessary excessive exposure to air pollutants is tricky.

And just a month ago, at the last Board meeting, I got called by my wife who has asthma. And it was a

particularly bad day in terms of wild land fires in the bay area, and she had an exacerbation not related to exercise. She knew not to do that. But she was stuck outside for two hours due to involvement of a friend in an auto accident. And she got an exacerbation of asthma she's just getting better from now. And she stayed indoors much as possible in the subsequent days.

It's really important that we get the messaging right. That's the current problem.

And then longer term, I highly agree with the point about we have to design communities so that walking and biking is encouraged. And that means safety for bikers and pedestrians, but also keep those routes away from diesel emissions and other high traffic areas as much as possible. So it's tricky.

But I applaud staff for bringing this issue up for the rest of the Board to consider.

CHAIRPERSON NICHOLS: Thank you for that.

Dr. Telles.

BOARD MEMBER TELLES: I think I was talking last night about some of these things or two days ago. And after I finished talking to you, I realized that one of the important points of the paper that you talked about from the exposure of the particulate matter mostly air pollution in London is the levels of the particulate

matter. If you look at the paper, the levels of PM2.5, the medium levels were only 28 micrograms, which is supposedly a healthy level.

And what I'm pointing out is that the levels that we use as our federal health standards that currently -- the new one us going to be 35. And if there is a relationship with PM 2.5, our current standard is maybe not good enough.

And the other thing I wanted to point out too is that we're not currently measuring for health standard reasons the ultra fine particles, which is probably even more important to keep track of those.

What also I wanted to point out was that even in the plan that was approved a few months ago, the San Joaquin Valley plan, the entire valley met the 24-hour PM2.5 health standard of 55.

But I think there's a lot of regions in the valley, even though they're meeting the health standard, that people are still exposed to that level of pollution that is not being measured. In our area -- I've had this argument with the local districts. In our area, a lot of the monitors are away from the freeways. And this primary PM2.5 which comes off the freeways is not accurately being measured, at least to my feelings and our local air pollution control districts.

And I would ask this to the staff here, is there any movement to move monitors closer to primary sources for PM2.5 primarily to kind of see what's happening to the populations who live along those freeway corridors?

DEPUTY EXECUTIVE OFFICER TERRY: From the standpoint of State Implementation Plans and air quality standards, federal law actually defines how the monitors need to be placed. And there are guidelines for doing that.

Nonetheless, the Board has been doing a lot of health risk assessments, looking at goods movement facilities, for example. And when we look at whether it's ports or rail yards, we include an assessment of the impacts on the major freeways that are contributing to a risk in those communities.

So we have done a lot of work to document the levels of pollution near roadways.

We also adopted some guidelines for local governments in terms of siting new homes and schools and other sensitive types of land uses and recommended buffer zones essentially away from high exposure freeways.

CHAIRPERSON NICHOLS: Maybe I might jump in at this point, because I just want to hopefully clarify that a little bit and also add my own thoughts.

There are two different kinds of monitoring we

do. One is the regional ambient monitoring which is based on a EPA protocol and is designed to represent an average of what people breathe everywhere within an air quality control region.

And the other is the localized monitoring that Lynn Terry was describing here that we do for a lot of different purposes. And we have amassed a lot of data about it, but we don't do it in really a systematic or long-term way in terms of particular roadways.

We do specialize over -- the studies that were just done recently on air quality around rail yards which are going to I think be very important tools in working on ways to reduce the risk to the community while around those facilities.

But in some ways, the holy grail would be a, you know, personalized monitoring that individuals can use for themselves. And I get a lot of questions from people who would really like to know what's going on in my backyard. Is it okay for me to buy a particular house at a particular location. Or will my kid be safe playing in this particular park. And we never have the answers to those questions. And it's always kind of frustrating, because that really is what most of us would like to know.

There's been breakthrough technology in terms of small scale monitors. You still have to find a way to use

the data and evaluate the data. But at least there's been progress that's been used in some pretty interesting studies.

But I would really like to see us pushing further in that direction, because I think it would be the most empowering kind of tool that we could have.

And I guess the other thing I would say -- and I know Board Member D'Adamo had mentioned this several times. But the more that our work draws us into communicating with people about land uses following on that guide book that we did, but now with AB 32, we're also getting asked to start, you know, setting regional levels for emissions of CO2 and other greenhouse gases. We really do need to find a way to balance and hone the message about what land uses are appropriate and whether there are other protective measures in terms of design that will work. Because, you know, we want to bring levels of pollution down everywhere and for everybody. But in the mean time, we know some places are going to be worse than others. And if we could have some helpful advise in terms of separations, as you were suggesting, Dr. Balmes, between the bicyclists and trucks and that sort of thing and really pinpoint that I think it would make a big difference. For all you local government representatives on our Board, this ought to be right up

your alley.

Supervisor Roberts.

BOARD MEMBER ROBERTS: I would just caution you, you probably ought to do a little study to find out what's being done, because I think there's a lot more being done than you're aware of in that area, in developing both pedestrian and bicycle and other types of facilities in almost every general plan in the state I know of --

CHAIRPERSON NICHOLS: I think the facilities are being developed. I guess my question was, do we know what really works for air pollution and what doesn't? And maybe there's more out there we haven't been aware of.

Okay. And if there are no additional comments --

RESEARCH DIVISION CHIEF CROES: Actually, Chairman Nichols, I just wanted to respond to some of the issues you raised.

A few years ago, Mike Scheible asked us to look into low cost monitoring technologies to get exposure in your backyard. And we just completed a year-long study in the Wilmington area that we'll report to the Board in September. So that included monitors located along freeways and near rail yard facilities and so forth. And we'll be able to tell you how much different exposures near the freeway versus what it is for the community in general. And whether these tools are something that can

be used by communities in the future.

BOARD MEMBER D'ADAMO: Madam Chairman, just a comment. I think as we move forward -- and this is really useful information. And I think it's important to provide tools to individuals so they can have more information about what's going on in their communities, more importantly, in their backyard.

But I think it needs to be balanced against some of the goals that we have with AB 32. Because oftentimes the response is to close the window, turn on the air conditioning. Or instead of bicycling or exercising, you know, jogging in your neighborhood, getting in your car and drive to a workout center where they have the air conditioning on full blast and you get on a treadmill that's also using additional energy.

So some way to balance the message so that -- and I know it makes for more complex equation. But so that individuals really understand if it is a significant risk. And is this a situation where they really do need to go indoors.

CHAIRPERSON NICHOLS: Yes.

BOARD MEMBER TELLES: One final comment. Not to put the staff on the spot. But this question is really of interest to me. And maybe I wasn't too articulate in bringing it out.

But the fact that that London study, the PM2.5 is 28, which is below the standard which is going to be the new standard, is it safe to extrapolate -- and this is a major effect on reduced lung function that the new standard is maybe not protecting some of our population, especially asthmatics as demonstrated in the news article?

I don't want to put you on a spot. But as a physician --

HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF SMITH: The averaging time in the paper is a little bit shorter.

BOARD MEMBER TELLES: It's a one-day average which is comparable to the one-day average used at the federal level, 35 micrograms.

HEALTH AND EXPOSURE ASSESSMENT BRANCH CHIEF SMITH: That would suggest that we would need to go back and look at our standard and make sure it really is protective of the state of California.

BOARD MEMBER BALMES: If I could just add the US EPA is in the process of evaluating the PM air quality standard. The 35 microgram per meter cubed 24-hour standard is the standard for PM 2.5. And they're considering whether there should be a stricter one.

CHAIRPERSON NICHOLS: And I participated in a symposium -- I was listening to the symposium where the

gist of the discussion among various health researchers was that there really isn't any such thing as a safe threshold for fine particles. And that very likely it's one of those pollutants where just the more there is, the worse it is. So how you fit that fact into the need to set an air quality standard is a very difficult problem, because there are people who will -- I think it's fair to say there are people who will experience adverse effects at levels lower than the current standard. I don't think there's even any dispute about that.

The question is how do you define the standard that's safe that protects most everybody from most effects.

And if there is nothing further, I think we will close this item. There is no action taken. But we appreciate the information. And the next item --

EXECUTIVE OFFICER GOLDSTENE: We would be happy to work with Dr. Telles more to get more of your thoughts on this and see where we can move and see what other studies are being done in this area.

The next item is the consideration of the planned air pollution research for fiscal year 2008-2009. This is a very appropriate time to be moving in that direction.

The report was developed through a collaborative public, academic, and state effort and is comprised of

projects that support the Board's regulatory and policy decisions.

Mr. Goldstene.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman Nichols.

Each year, ARB staff publicly solicit research ideas and publish an annual research plan that supports the Board's mission.

The research ideas are evaluated by ARB staff as well as staff from other funding agencies and the Board's Research Screening Committee. This year's plan supports ARB's regulatory priorities associated with health effects and air quality standards, climate change, diesel and goods movement, state implementation plans support, and toxic air contaminants.

Key research questions effecting the content of this year's plan include clarifying health impacts of air pollution, developing technologies and behavioral change strategies to reduce emissions of greenhouse gases, improving emission inventory efforts, characterizing and assessing the behavior of pollutants in the atmosphere, and reducing emissions of conventional air pollutants and their precursors.

Nineteen new research projects are being recommended for funding and an additional eleven projects

are offered for consideration should resources become available.

If approved by the Board, the projects described in the plan will be developed into full proposals for your approval over the next several months.

Dr. Susan Fischer of the Research Division will present the proposed 2008-2009 research plan.

Dr. Fischer.

(Thereupon an overhead presentation was presented as follows.)

DR. FISCHER: Thank you, Mr. Goldstene. Good morning, Chairman Nichols and members of the Board.

The air pollution research plan for fiscal year 2008-09 comprises 19 projects that address gaps to support the Board's decision making. If approved today, these projects will be developed into full proposals and brought to the Board for approval in the coming months.

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DR. FISCHER: Established by the State Legislature in 1971, ARB's program of research probes causes, effects, and solutions to California's air pollution problems. This research provides a scientific basis for defining air quality standards that are protective of public health.

The annual plan focuses on ongoing regulatory and

policy priorities, including the Diesel Risk Reduction Plan, and implementation of AB 32 early action items.

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DR. FISCHER: Before presenting our proposed projects, I'd like to offer a high level overview of our research planning process.

The process begins with a broad solicitation to researchers and stakeholders. Then ARB conducts three levels of review to ensure that our research portfolio is non-duplicative, connects with co-funding and opportunities for collaboration, and addresses issues crucial to the Board's decision making and long-term planning.

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DR. FISCHER: The first level of review involves technical experts from ARB staff, as well as State, federal, and private institutions.

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DR. FISCHER: Technical review teams identified research gaps that are critical to ARB's mission. Identification of critical gaps early in the planning process helps ARB target its funds to niche areas that are of particular importance to California and that ARB is especially well suited to address. Technical review teams scored the full set of 241 submissions for responsiveness

to these gaps and technical merit.

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DR. FISCHER: The technical review teams include members from air districts, State agencies, federal agencies, and research funding organizations such as the Coordinating Research Counsel and the Health Effects Institute. Their involvement helps ARB avoid duplicative research and identity opportunities to leverage funds.

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DR. FISCHER: High scoring proposals from the technical reviews teams went to the second stage of the review process. The executive officer selected a subset of concepts based on policy priorities and available funding.

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DR. FISCHER: Finally, the Research Screening Committee approved the full package of concepts, which includes 19 concepts recommended for funding.

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DR. FISCHER: Approval by the Research Screening Committee is legislatively required before any projects can be taken to the Board. The Committee consists of national experts from a broad range of academic disciplines.

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DR. FISCHER: In response to requests from the Board as well as legislative developments, ARB initiated two efforts last fall to foster interagency coordination of climate change research and demonstration in California.

ARB invited State agencies with crucial climate responsibilities to identity R&D gaps that California must address to meet near and long-term climate goals. This road mapping effort has led to ongoing discussion of a statewide strategic plan for climate related research.

ARB also initiated a catalogue of climate-related research and development efforts in the State's public and private universities, national laboratories, and State agencies, as well as federally funded efforts in California. A searchable database of California's climate change R&D is expected by the end of the summer.

In June, a Climate Action Team research subgroup was formed to expand interagency coordination on climate change research. This subgroup is headed by Energy Commissioner Jim Boyd and will offer an overview of the State's climate change research portfolio as part of the 2008 CAT report to the Governor.

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DR. FISCHER: ARB's initial road mapping efforts involved State agencies with substantial responsibility

under AB 32. The establishment of a CAT research subgroup has expanded climate research coordination to a broad portfolio of agencies with climate-related responsibilities and concerns.

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DR. FISCHER: We have already secured more than 13 million in co-funding and leveraging for the fiscal year 2008-2009 planned research. This unusually high co-funding reflects the opportunity to collaborate with the National Oceanic and Atmospheric Administration for a set of studies that would otherwise not be possible.

ARB has negotiated extremely low overhead rates for California's universities to ensure that our funds are used for actual research rather than administration.

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DR. FISCHER: The annual plan supports Board priorities related to health, diesel, atmospheric science, SIP support, and climate change. Several projects address issues related to agriculture and environmental justice.

After presenting a breakdown of funding allocations for each primary research category, I'll describe the objectives and portfolio of projects recommended for funding.

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DR. FISCHER: We expect the fiscal year 2008-2009

budget to cover slightly more than six and a half million of research. In addition to 19 projects recommended for funding, the research plan identifies eleven projects to support if more funding becomes available.

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DR. FISCHER: Research in the area of health effects and air quality standards addresses the Children's Environmental Health Protection Act, SB 25. Our responsibility to set ambient air quality standards that are protective of public health and the Board-approved statement of environmental justice policies and actions.

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DR. FISCHER: Three projects are recommended for funding in the area of health effects and air quality standards. Children are particularly vulnerable to some environmental contaminants, but their exposures in day care centers are largely unknown. The first study helps ARB fill this gap in children's exposures to air pollution.

The second study provides support for setting ambient air quality standards by clarifying the risk of a vulnerable population to cardiovascular impacts from air pollution exposure.

The third study also supports setting ambient air quality standards.

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DR. FISCHER: This study responds to preliminary data suggesting particulate matter may be neurotoxic, in addition to harming the heart and lungs. The proposed research involves multi city investigation of neurotoxic outcomes in mice and will add significantly to previous work on the mechanisms of neurotoxicity.

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DR. FISCHER: Both projects recommended in the area of diesel emissions, goods movement, and toxic air contaminants support ARB's Diesel Risk Reduction Plan and supporting measurements.

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DR. FISCHER: As tailpipe diesel emissions standards from particles become more stringent, ARB may need to use number-based measurement methods to characterize and control partical emissions.

The first project will investigate Europe's number-based measurement protocol, addressing measurement issues identified in previous collaborative research.

A second project will improve ARB's off-road diesel emissions inventory.

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DR. FISCHER: Off-road diesel emissions now account for a significant fraction of all diesel PM. But

the off-road diesel emissions inventory model has lagged behind the model for on-road emissions.

This study will investigate diesel engine deterioration. Clarifying the rates and causes of diesel engine deterioration will help ARB in planning as well as assessing effectiveness of regulatory efforts.

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DR. FISCHER: In the 1950s, Dr. Arie Haagen-Smit of CalTech solved the mystery of what chemical mechanisms and emissions sources are responsible for photochemical smog in the L.A. basin.

Today, with the CalNEX 2010 study, California's cutting edge field research continues to offer a basis for effective control of air pollution.

ARB will work with the National Oceanic and Atmospheric Administration to improve the emissions inventory for greenhouse gases as well as particles and ozone precursors.

The study will also improve our understanding of chemical processes, transport, and meteorology which will facilitate better air quality modeling, control strategies, and planning.

With NOAA's costs estimated at 12.7 million, ARB's two million contribution to this study will leverage State funds by more than six to one. Additionally, this

study will coordinate with efforts funded by the California Energy Commission to study winter and springtime impacts of climate change on water resources.

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DR. FISCHER: Projects planned under the CalNEX efforts include: A study to improve urban air quality models with more accurate portrayal of nighttime chemistry;

A study to clarify whether different chemical processes may account for different response to regulatory strategies in the South Coast and San Joaquin Valley Air Basins;

Research to characterize organic aerosols which impact human health, visibility, and climate;

Research to characterize emission sources of sulfur in southern California which will improve the inventory and help State and local regulators control sulfates.

The balance of CalNEX funding will support field measurements of trace gases that play a role in ozone chemistry, aerosol formation, and climate forcing.

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DR. FISCHER: Research to support the State Implementation Plans falls into three main categories: Monitoring, ozone, and PM.

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DR. FISCHER: In the area of monitoring, we recommend two projects for funding.

The first will support development of accurate, inexpensive monitors for NOx and other chemicals involved with ozone formation.

The second project will develop and evaluate portable, easy to use, and inexpensive devices to monitor local sources of air pollution.

These devices will aid routine monitoring and enforcement as well as the efforts of environmental justice groups to measure community exposures.

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DR. FISCHER: To support control of ozone, we recommend two projects for funding.

The first project would update the ambient VOC mixture that serves as a basis for many reactivity-based regulations. The currently used ambient VOC mixture represents conditions of the 1980s.

The second project would support the development of stain-blocking primers with near zero VOC emissions. Such primers could reduce VOC emissions in California by approximately 2.6 tons per day.

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DR. FISCHER: With the South Coast and San

Joaquin Valley air basins currently non-attainment for PM2.5, a large contingent of California's population is exposed to unhealthy concentrations of PM.

To aid our PM control efforts, we propose two research projects.

The first project will help us predict, plan for, and control secondary aerosol formation across a range of VOC, NOx ratios, which is critical because these ambient ratios are changing as controls are tightened.

The second study will help us understand emissions measurements.

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DR. FISCHER: Specifically, this study will clarify relationships between on-road and laboratory diesel emissions measurements. Results will also help ARB understand the effect of diesel particulate filters on properties that determine the climate impacts of particle emissions.

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DR. FISCHER: Proposed projects in the area of climate change were chosen to support near-term efforts to meet AB 32 goals as well as the State's longer term commitment to reduce greenhouse gas emissions by 80 percent in 2050. The knowledge gaps are an initial list that will be expanded as the Climate Action Team and

outside experts work on a statewide strategic plan.

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DR. FISCHER: The first project will resolve climate impacts of particles from combustion emissions. This research will provide a basis for linking particle controls to climate impacts as well as human health effects.

The second project will investigate behavioral and demographic determinants of residential energy consumption. Understanding residential behavior is crucial to outreach that successfully promotes home energy and water savings.

The third study addresses an early action item, emissions of N20 from applications of fertilizers to agricultural soils. Beyond early action support, understanding N2O emissions associated with land use is critical to effective, climate-friendly implementation of California's biofuels effort.

The fourth study also supports our early actions.

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DR. FISCHER: A voluntary cool communities program is an early action measure for reducing greenhouse gas emissions. Cool community technologies, such as reflective roofs, shade trees, and cool pavements are effective, available, and ready for deployment.

This project will support delivery of information and technical assistance to developers, builders, building code authorities, and municipal operations who voluntarily opt to reduce greenhouse gas emissions through strategies that reduce energy use while improving the livability of urban environments.

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DR. FISCHER: Research sponsored by the Board is crucial to our mission. The projects in this plan strongly support ARB's responsibilities.

We recommend that you approve the planned air pollution research for fiscal year 2008-2009.

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DR. FISCHER: Thank you for your attention. We'd be happy to answer any questions.

CHAIRPERSON NICHOLS: Thank you very much.

Board members, questions about the overall plan? We've been waiting for this, and we appreciate the overview.

I would ask to staff in general -- well, maybe I'll start with Mr. Scheible.

Do you feel that this research agenda gives you as much support as it could for the tasks that you're facing right now with respect to doing life cycle analyses about different fuels, which is one of the more

fundamental problems that we and everybody else are facing? Have you participated in these discussions and do you think we're on the right track here?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: We're pursuing that work with funds that aren't covered in the research but are available by contracts and support that we got. There's part of a global warming problem or fuels program.

We have quicker turn around times, so they're not as well suited for the research effort, which usually has about a three-year time frame from the time we conceive the projects to the time we get the results.

CHAIRPERSON NICHOLS: So the research screening process we're dealing with here is aimed more at what we would describe as basic research?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: It's applied, but it's a two year and further out period.

CHAIRPERSON NICHOLS: Okay. Thank you.

BOARD MEMBER D'ADAMO: Prepared to make a motion. I move we adopt the 2008-2009 annual research plan.

BOARD MEMBER BALMES: I'll second that.

CHAIRPERSON NICHOLS: Further discussion?

If not, I'll call for the vote.

All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Opposed?

Very good. Thank you.

Let's move on.

Next item for our consideration is a proposed consideration for oceangoing vessels that will require the use of cleaner burning fuels by vessels that come to California. The proposal is part of our continuing effort to reduce emissions associated with the movement of goods through California ports.

And Mr. Goldstene.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman Nichols.

Air pollution from the movement of goods in California ports is a significant and growing concern to California. The emissions from oceangoing vessels are of particular concern because they have significant impacts both regionally and in port-side communities. Furthermore, these emissions are expect to grow significantly with projected increases in trade unless substantial control measures are implemented.

Today, we are proposing for your consideration a regulation that will require the use of cleaner fuels in the main propulsion engines, the auxiliary engines, and the auxiliary boilers of oceangoing vessels while they are operating within a 24 nautical mile zone of the California

coast line and while in port.

As you know, the use of cleaner fuels has long been the bedrock of our control programs for land based engines and for smaller harbor craft. The proposal before you today would extend the emission control strategy to the larger oceangoing vessels that come to California ports. And beginning in 2009, significantly reduce emissions of PM, diesel PM, NOx, and SOX.

Before I turn it over to staff, I'd like to provide some important context for this proposal which relates to the oceangoing vessel auxiliary engine regulation that was adopted in 2005 and also provide information on efforts underway at the international level to address ship emissions.

As you know, in 2005, the ARB approved an oceangoing vessel auxiliary engine regulation that began implementation in January 2007. That regulation resulted in ship operators using cleaner burning marine distillate fuels in the auxiliary engines within a 24 nautical mine zone off the California coast line and while in port.

Unfortunately, after many months of successful implementation, in May of this year, enforcement of the regulation was suspended as a result of the successful legal challenge. The court ruled we would need authorization from U.S. EPA before we could enforce the

regulation.

Because of this, the proposal before you today has been carefully crafted to re-establish auxiliary engine requirements and address the issues in the lawsuit to control emissions from the main engines and auxiliary boilers and to provide consistent in use fuel requirements for all three engine types on the vessels.

The second issue pertains to uniformity. Many in the shipping community would like to have a uniform international standard for oceangoing vessels. We agree that internationally consistent regulations are preferable provided that the international standards are effective, timely, and achieve the emission reductions necessary to protect public health in California.

While progress at the international level has historically been very slow, there is a promising proposal under consideration at the international maritime organization that, if approved, could achieve similar benefits as our proposal in the 2015 time frame.

We believe it would not be prudent to forgo emission reductions prior to 2015. And considering our unique air quality problems, it's important for California to take action now.

However, consistent with our support of international controls, we have constructed our proposed

regulation to be a bridge to future national or international controls by including a provision that would allow the rule to sunset if requirements are put in place that achieve equivalent results.

With that said, I'd like now to have Bonnie Soriano of our Stationary Source Division present our proposal. Bonnie.

(Thereupon an overhead presentation was presented as follows.)

STAFF AIR POLLUTION SPECIALIST SORIANO: Thank you, Mr. Goldstene. Good morning, Madam Chairman and members of the Board.

Today, I will be presenting staff's proposed regulation for using cleaner fuels in oceangoing vessels.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Shown here are the items I'll be discussing today. I'll begin with the background information, go over our proposal, its impacts, and highlight some comments we have received.

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STAFF AIR POLLUTION SPECIALIST SORIANO: First, the background.

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STAFF AIR POLLUTION SPECIALIST SORIANO: As you know, many studies have demonstrated that air pollution is

harmful to health. The health effects associated with exposure to particulate matter and ozone include premature death, reduced lung function in children, and increased respiratory disease, cardiovascular disease, and cancer.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Oceangoing vessels or ships contribute to air pollution here in California. This is no surprise, as California is an important maritime hub on the Pacific Rim having 16 ports involved in waterborne commerce.

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STAFF AIR POLLUTION SPECIALIST SORIANO: It is very important that we take steps to reduce emissions from oceangoing vessels, which I also call OGVs, because they are a large source of emissions, and these emissions are expected to grow significantly along with increases in trade over the next decade.

These pie charts give you some perspective on just how significant the emissions of OGVs are. As you can see in the dark purple area, in 2006, OGV emissions accounted for about 18 percent of the overall statewide diesel PM emissions, about 50 percent of the SOX emissions, and about 7 percent of the NOx emissions.

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STAFF AIR POLLUTION SPECIALIST SORIANO: OGV

emissions are a significant contributor to diesel PM exposure and cancer risk throughout California. Results from our modeling show regions of risk, also called isopleths, due to exposures to diesel PM from ships.

We estimate about 80 percent of California's population, or about 27 million people, are living in areas with risk levels from OGVs that are at or above ten in a million. In areas near ports, the risk levels are even higher, up to 500 potential cancer cases in a million people.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Oceangoing vessel emissions also result in significant non-cancer health risks in California.

In 2005, OGV emissions contributed to an estimated 1,100 premature deaths per year and high instances of other non-cancer health impacts as listed here in this slide.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Over the past several years, California has undertaken several key initiatives that outline the steps needed to improve air quality in the state. Significant reductions in ship emissions are key to meeting the goals of these incentives.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Before I move on to the proposed regulation, I would like to reiterate information that Mr. Goldstene provided earlier.

As he mentioned, the auxiliary engine rule was approved by the Board and implementation began on January 1st, 2007. It was implemented successfully by the shipping industry for over 14 months. However, a legal challenge resulted in suspension of the rule in May 2008.

The court ruled that ARB must seek a waiver. This is because the regulation was determined to be an emission limit, as opposed to an in-use fuel requirement which does not require a waiver.

As we developed our proposal that you will consider today, we were very cognizant of this legal challenge and have strived to bring to you a proposal that is crafted such that we will not need to get a waiver from U.S. EPA.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The other effort currently underway that has influenced our proposal is the pending consideration of amendments to IMO's Annex VI, which currently limits fuel sulfur levels in oceangoing vessels to 4.5 percent.

In October of this year, IMO will consider

amendments which allow for a nation to petition to create an emission control area. In the proposed emission control area provision, the initial sulfur limits are 1 percent and then would be reduced to .1 percent in 2015. This 2015 limit mirrors the level that we are proposing for 2012.

While we support the IMO proposal, establishing a west coast emission control area will take a number of years. It is very important for California to act now to meet air quality goals. Never the less, we recognize the benefits of ultimately having international rules for ships and have constructed our proposal to act as a bridge to these international controls.

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STAFF AIR POLLUTION SPECIALIST SORIANO: With that in mind, we had several goals for our proposal.

First, we wanted a regulation that will provide significant reductions and the resulting health benefits as quickly as we can by requiring clean fuels. Currently, most vessels burn high-sulfur heavy fuel oil, also called residual, which averages 2.5 percent sulfur or equivalently 25,000 parts per million sulfur. A sample of the fuel I believe is on the table behind you.

Heavy fuel oil results in higher emissions because it contains about five times more sulfur than the

distillate fuels. And this sulfur is converted to SOX and sulfate PM. It also contains higher levels of metals that result in ash and nitrogen compounds that result in higher NOx emissions. Significant reductions can be realized by having ships use cleaner marine distillate fuels, either marine gas oil or marine diesel oil called MDO.

With regard to the fuel requirements, our goals were to establish an in-use fuel requirement that will re-instate the suspended requirements for auxiliary engines and at the same time establish uniform fuel requirements for main engines, auxiliary engines, and auxiliary boilers, address the legal challenges we say face, and provide a bridge to possible future international action.

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STAFF AIR POLLUTION SPECIALIST SORIANO: With these goals in mind, I will now discuss our proposal.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The proposed regulation was developed with extensive outreach activities including public workshops, a survey, vessel visits, and emission testing.

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STAFF AIR POLLUTION SPECIALIST SORIANO: As mentioned earlier, our proposal requires the use of

cleaner fuels in OGVs. Using cleaner fuels is an effective strategy for reducing emissions from ships and results in large and immediate emissions reductions.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The proposal we are bringing you today applies to large oceangoing vessels, both US and foreign flagged. These vessels include container ships as well as tankers, cruise ships, and other types of vessels shown here in the slide.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The proposal requires the use of cleaner fuels in the main propulsion engines, the auxiliary engines, and auxiliary boilers, which I have included pictures here of all three.

The main propulsion engines are very large. This is the engine on the left, and it is approximately three stories high.

Most vessels have one main engine, which is used for propulsion, and these engines range from about 10,000 to 100,000 horsepower.

Vessel also typically have multiple auxiliary engines in the range of 500 to 4,000 horsepower that are used to provide electrical power on board the vessel for lighting, refrigeration of cargo, and operation of equipment.

Diesel-electric vessels, such as cruise ships, are unique in that they use several large engines to provide electrical power for both propulsion and ship board power. Diesel electric engines and auxiliary engines were subject to now suspended auxiliary engine regulation.

Auxiliary boilers produce steam for heating residual fuel and water. In the case of tankers, the auxiliary boilers are larger and also used to provide power to pump liquid cargo.

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STAFF AIR POLLUTION SPECIALIST SORIANO: If we had to condense the proposed regulation into one slide, this would be the most important one. The requirements for OGVs to use cleaner fuels will be implemented in a two-step phase in.

The first phase begins July 1st, 2009, for the main engines and auxiliary boilers and upon the effective date of the regulation for auxiliary engines. This phase will require the use of marine gas oil, which averages about .3 percent sulfur, or marine diesel oil, which is capped at .5 percent sulfur. The second phase requires the use of .1 percent sulfur distillate fuels either MDO or MGO beginning January 1st, 2012.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The proposed regulation would apply to the dark gray region in the map, which is approximately 24 nautical miles off the California coastline. This is consistent with the boundary selected for the auxiliary engine regulation. We believe control of emissions within the boundary achieves a significant portion of the health and environmental benefits that can be realized from a fuel sulfur control program.

However, if the current IMO amendments that I mentioned earlier are approved, we are committed to evaluate whether boundaries further off-shore are appropriate. We will do this in conjunction with U.S. EPA as part of the application process for an emission control area.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Changing from heavy fuel oil to distillate is feasible for ocean-going vessels. Vessels are designed to be able to switch to distillate and operate on distillate prior to dry docking or major repairs. While this proposal would require that vessels switch more often and operate on the distillate for longer than they do now, our technical analysis and recent implementation of regulatory and voluntary programs have shown that this type of fuel

switching is feasible.

For example, the auxiliary engines and diesel electric engines, the 14 months of successful implementation of the auxiliary engine rule demonstrated that fuel switching is feasible in auxiliary engines. Over the two last years, Maersk's pilot fuel switch program for main engines and more recently the fuel incentive program at the ports of L.A. and Long Beach have shown that fuel switching in the main engine is feasible.

There are, however, technical challenges associated with greater use of marine distillates. The vessels have been designed to operate on heavy fuel that is very viscus. The most significant challenge will be in operating on distillate fuels that have much lower viscosity and in limited cases lower lubricity.

Additionally, experience with switching and fuel switching procedures are very important and managing fuel systems and tankage to limit fuel contamination and maintain critical fuel temperature is essential.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The global availability of the required marine distillate is critical to the implementation of this rule to be implemented successfully. Shippers must be able to obtain the required fuel at ports where California-bound ships

typically fuel.

To determine the availability of the marine distillate fuels, we investigated the availability of the specified fuels at Pacific Rim ports where ships that come to California would likely obtain fuel.

We found that the fuels to meet the Phase I requirements are available for 2009. At this time though, Phase 2 fuels are not available at many of the ports where California-bound vessels re-fuel. However, Phase 2 fuels will become more readily available by 2012 as the global trend towards lower sulfur fuels continues to expand and ports and fuel suppliers put in place the necessary fuel infrastructure to accommodate cleaner fuels.

As I will discuss later, we have included provisions in the rule to help address situations where a vessel operator was not able obtain the required fuel prior to coming to California.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Phasing in the fuel requirements in two steps is important for a number of reasons. From an emissions standpoint, it allows us to realize emissions reductions quickly. Since the most significant reductions are gained from switching from a heavy fuel oil to the distillate, implementing a switch to distillate that is readily available at Pacific

Rim ports allows us to begin implementation more quickly, even though it may have a fuel sulfur level higher than where we ultimately want to be.

From a fuel availability standpoint, the two step provides the time for fuel providers to ensure 0.1 percent sulfur fuel will be available. From an operational standpoint, the two-step approach is also important. A number of stakeholders, including the US Coast Guard and many ship owners, have indicated that the two phase would provide a safer and more successful implementation. The first phase provides an opportunity to address operational challenges associated with using the distillate fuel.

And then in a second step, the additional challenges of using the .1 percent sulfur fuel can be addressed, such as possibly lower fuel viscosity or lubricity, fuel availability, and fuel contamination.

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STAFF AIR POLLUTION SPECIALIST SORIANO: We have included several provisions in our proposal to help with implementation. With a couple of exceptions, these provisions are essentially the same as those that were included in the auxiliary engine regulation. These include:

A safety exemption if the master of the vessel determines that there are overriding safety concerns;

A noncompliance fee in lieu of direct compliance for the very limited cases, such as having an unplanned redirection or inadvertent purchase of defective fuel;

Recordkeeping requirements and a provision that allows the ARB to sunset the rule if equivalent benefits are achieved by national or international requirements.

We have also added three new provisions to this proposal. We have included an exemption for vessels that require essential modifications to comply. While we believe most vessels will not need to make modifications, this was done to avoid having to request a waiver from U.S. EPA to implement the in-use fuel requirement.

Because there are so many fueling ports, we have included a provision for the Phase 2 fuel, the .1 percent sulfur fuel requirement, that allows the vessel operator to purchase the fuel at the first port in California if it was not available prior to coming to California.

And last, we included a provision to allow demonstration of experimental technologies for a limited time period to promote advancement of control technology.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Next I'll discuss the expected impacts.

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STAFF AIR POLLUTION SPECIALIST SORIANO: As I

have mentioned previously, using the cleaner fuels will result in substantial and immediate reductions in diesel PM, NOx, and SOX emissions and in secondarily formed PM.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The emission reduction benefits of the proposed regulation are shown here. As you can see, getting the marine distillate fuels in the engines in Phase I achieves most of the reductions quickly, and Phase 2 adds additional reductions by further lowering the sulfur.

In both phases, the overall reductions in diesel PM and SOX are dramatic. In addition, there is a smaller but still significant reduction in NOx emissions.

With respect to our SIP commitment, with this rule in place for PM and SOX, we either meet or exceed our SIP commitment for OGVs and we make progress toward the NOx emission reduction commitment.

The proposal also meets the oceangoing vessel goals for the Goods Movements Emission Reduction Plan and brings us closer to meeting the diesel risk reduction goal of an 85 percent reduction in risk from diesel PM.

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STAFF AIR POLLUTION SPECIALIST SORIANO: These charts graphically show how the proposal will result in significant reductions in diesel PM and SOX beginning in

2009. You can also see in future years how the reductions from this proposal continues to provide significant benefits.

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STAFF AIR POLLUTION SPECIALIST SORIANO: These emission reductions will result in a dramatic decrease in the potential cancer risks.

This slide shows the modeled statewide potential cancer risks in 2012 due to OGV diesel PM emissions with and without the regulation. On your left is without, and on your right is with the regulation. We estimate that the proposed regulation will result in an 80 percent reduction in statewide average cancer risk from OGV emissions.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The proposal also results in very large reductions for non-cancer impacts from both direct and secondary PM.

Between 2009 and 2015, the proposal will result in an estimated 3,600 premature deaths avoided and significant reductions in other non-cancer health impacts as well.

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STAFF AIR POLLUTION SPECIALIST SORIANO: We also evaluated the greenhouse gas impacts from this proposal

using a well-to-hull analysis. This analysis estimates the net CO2 changes that result from requiring OGVs to use distillate in place of heavy fuel oil in the 24 nautical mile regulated zone. For this analysis, only the volume of fuel required to meet the proposal was considered. It does not include the fuel used outside the regulated zone.

The well-to-hull analysis looks at the stages of the fuel life-cycle from production to consumption. For this study, evaluating the three primary stages showed:

No increase in CO2 emissions during the pre-refining stage;

A four percent increase in CO2 emissions in the refine stage due to added refining energy needed to produce the distillate;

And a 2 percent decrease in CO2 emissions in the vessel operation stage, due to the higher energy content of the distillate.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The net result is a 1 to 2 percent increase in CO2 emissions from each gallon of fuel switched. For context, this increase is very small, about 4/100ths of a percent for a typical voyage.

This analysis does not include any actions that could mitigate this small increase such as speed

reduction, vessel hull cleaning, engine efficiency improvement, improved propeller design, or controls and increased efficiency at refineries.

Overall, we believe that this proposal provides substantial health and environmental benefits that outweigh the possible small increases in CO2 emissions that could be mitigated.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Now for the cost impacts. The total annual cost results from the higher cost of the distillate compared to the heavy fuel oil.

For the industry overall, we estimate the added costs add about 140 to $360 million annually. For the typical cargo ship visit, we expect that the added cost is about $30,000 out of about 2 million dollars in total fuel costs for a transpacific voyage, or about a 1 to 2 percent increase in fuel costs.

We do not expect these costs to have an adverse impact on typical companies that operate marine vessels or on California's economy.

To provide some perspective, we estimate that the proposed regulation would result in added costs of about $6.00 extra per shipping container for a typical transpacific voyage. We estimate that this increase would

add about a one-tenth of a cent to a pair of tennis shoes that were shipped from Asia.

These costs to industry are far less than the cost savings due to the estimated number of premature deaths avoided because of reductions in direct and secondary PM. We estimate that the value of the premature deaths avoided due to the proposal is about $6 billion annually.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Overall, the proposal is very cost effective, about $32 per pound of diesel PM reduced. This is in line with the cost effectiveness for other regulations recently adopted by the Board.

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STAFF AIR POLLUTION SPECIALIST SORIANO: In the next few slides, I'd like to discuss comments that have been provided to us.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The first comment pertains to how we have incorporated requirements for auxiliary engines in this rule. Some stakeholders have asked that the Phase 2, the .1 percent sulfur limit that is starting in 2012, should be implemented sooner for auxiliary engines. This comment

stems from the requirements in the suspended auxiliary engine rule where Phase 2 began in 2010.

Overall, we believe our proposal maximizes the emission reductions that can be achieved from the fuel sulfur rule, taking into consideration fuel availability and the technical and operational challenges of switching from a heavy fuel to a marine distillate.

Having a 2010 Phase 2 schedule for auxiliary engines is not feasible for several reasons. The current proposal establishes a uniform fuel requirement. It is important to have the same requirements for the marine distillate used in the auxiliary engines, main engines, and auxiliary boilers. It assures the fuel will be available at key Pacific Rim fueling ports, and it gives operators the opportunities to address operational and technical challenges.

With respect to emission reductions, our proposal achieves three to four times more reductions than the auxiliary engine rule would have in the same time frame.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Some members of the shipping industry would prefer that ARB defer to international action by the international maritime organization. As I mentioned earlier, there has been a promising amendment proposed for MARPOL Annex VI

that would provide for emission control areas that have sulfur fuel limits of one percent in 2010 and .1 percent in 2015.

While ARB supports international and national action, we disagree with waiting for IMO action and it is important that we act now.

As I will show you on the next slide, the proposal before you today achieves significantly more emissions reductions in the 2009 and 2015 time frame.

Furthermore, establishing a west coast emission control area is not guaranteed and is dependent on many factors and will take a number of years to establish.

Never the less, we are optimistic that ultimately there will be international regulations that will meet our air quality needs. We are already working with U.S. EPA to develop the supporting documentation for an emission control area.

And we have included a provision to allow the Board to sunset the rule in the event national or international controls achieve equivalent benefits.

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STAFF AIR POLLUTION SPECIALIST SORIANO: This slide shows the diesel PM emission projections for oceangoing vessels. The top line is OGVs with no new requirements. The middle line, with the stars, are the

benefits from an emission control area. And the bottom line represents the emission reductions from our proposal.

As you can see, the proposal before you today achieves significantly greater reductions between 2009 and 2015.

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STAFF AIR POLLUTION SPECIALIST SORIANO: The last comment is the US Navy has raised concerns that the proposed regulation and some possible future vessel speed reduction regulations may cause some shippers to avoid using the existing shipping lanes along the Santa Barbara channel that are in the regulated zone.

If the ships move outside the 24 nautical mile zone, they potentially could travel through critical regions of the Point Mugu test range. The Navy is concerned that the ships may interrupt active military exercises in designated areas. They also claim there could be a potential increase in greenhouse gas emissions and adverse air quality impacts in southern California if this were to happen.

We have discussed this issue extensively with the US Navy representatives and are recommending to the Board an approach to work cooperatively with the Navy and other stakeholders to resolve their concerns. We also believe it is appropriate for us to do a supplemental

environmental analysis of the impacts they have identified and make that available for public review and comment in a 15-day package.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Next, the proposed 15-day changes. Since we published the ISOR in early June, there are two modification to the proposal that we would like to propose.

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STAFF AIR POLLUTION SPECIALIST SORIANO: Both changes address the essential modification provision which allows an exemption for ships that require modifications to comply. These changes include revisions to the definition of essential modifications to better define the types of modifications that would be considered essential.

We are also removing the sunset date for the essential modifications exemption. Since the exemption was added to support the proposal as an in-use requirement, a sunset date may have impacted legal issues.

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STAFF AIR POLLUTION SPECIALIST SORIANO: I would now like to discuss future activities and provide a summary and recommendation.

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STAFF AIR POLLUTION SPECIALIST SORIANO: If you

approve this proposal, there are several follow-up actions that the staff believes are needed. We will take steps to ensure vessel operators that visit California ports understand the fuel requirements and will actively enforce the regulation.

We intend to continue to monitor the availability of the fuels, and we will be conducting two studies to provide further knowledge on fuel switching.

In the first study, we will work with the main engine manufacturers to evaluate the impacts of using very low sulfur distillates on the high pressure fuel injection pumps for the main engines. This information will help with the implementation of Phase 2.

The second study investigates the long-term impacts of fuel switching on engine and fuel system components on the vessel.

We will continue to work with the US Navy and will continue to work with the U.S. EPA to establish an emission control area.

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STAFF AIR POLLUTION SPECIALIST SORIANO: In closing, the proposal before you establishes a uniform in-use fuel requirement. It achieves immediate and substantial reductions and reduces health impacts. And helps to fulfill our commitments from our air quality

plans. It is feasible and cost effective, designed to act as a bridge to possible international regulations, and addresses legal issues.

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STAFF AIR POLLUTION SPECIALIST SORIANO: With that said, we recommend the Board adopt the proposed regulation with the recommended 15-day changes.

This concludes my presentation. At this time, we would be happy to answer any questions.

CHAIRPERSON NICHOLS: Thank you.

Do Board members have questions before we hear from the representatives?

Yes, Mr. Loveridge.

BOARD MEMBER LOVERIDGE: Slides seven and eight are quite telling and powerful, both the contribution and impact.

Two questions. One, on slide eleven, you mentioned this was in effect. This is a portion of what you're proposing now was in effect before? I'm just trying to understand what the difference is from what was here before and what is here now.

STAFF AIR POLLUTION SPECIALIST SORIANO: The auxiliary engine rule, which is the suspended rule, just included the auxiliary engine portion. So we're including three different equipment types: The main engine,

auxiliary engines, and auxiliary boilers. The previous regulation just addressed the auxiliary engines.

BOARD MEMBER LOVERIDGE: The other is, as I understand the presentation, after this, we send this off to EPA; is that -- no? What happens next?

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: Are you asking if we would be requesting a waiver for this regulation?

BOARD MEMBER LOVERIDGE: I was trying to follow what was in the presentation.

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: We've structured this regulation so we will not need to request a waiver from U.S. EPA. We aren't planning on doing that with this regulation.

We do intend to work with EPA and we're already working with them on developing the supporting documentation for an emission control application in the event the recent proposal at IMO is approved in October.

BOARD MEMBER LOVERIDGE: The only reason I raise that, I think there is a timing issue with EPA but in terms of in change of regime that will be occurring. But this is not the direct request, I understand.

CHAIRPERSON NICHOLS: Mr. Roberts.

BOARD MEMBER ROBERTS: Just a quick question. We used to measure emissions in removing them in dollars per

ton and now we're doing it in the cost of dollars per tennis shoes. Is that our new standard now?

CHAIRPERSON NICHOLS: Sometimes we do slices of pizza or cups of coffee. It's probably useful just to put these things in perspective.

EXECUTIVE OFFICER GOLDSTENE: Madam Chair, it might be good to hear from the Ombudsman.

CHAIRPERSON NICHOLS: Sure. Ombudsman.

OMBUDSMAN QUETIN: Chairman Nichols and members of the Board, this proposed regulation has been developed with input from the individual shipping lines, the marine engine manufacturers, Pacific Merchant Shipping Association, California Port Authorities, fuel suppliers and producers, the US Coast Guard, US EPA, the US Maritime Administration, the California Department of Fish and Game's Office of Spill Prevention and Response, the California State Lands Commission, the San Francisco Harbor Safety Committee, and local air quality management districts.

Staff began their efforts to develop this rule in early 2007. Between March 20th of 2007 and May 13th of 2008, there were five public workshops. One workshop was held in Long Beach and the other four in Sacramento with an average of 40 attendees per meeting. Staff also held a maritime working group meeting on July 24th, 2007, in

Sacramento.

Along with the previous workshops, numerous meetings and phone conversations were held with the regulated community, governmental agencies, and environmental groups.

The staff report was released for public comment on June 6th, 2008, noticed via the ARB website and the over 1700 people on the list serve. One-hundred hard copies were also sent out the our mailing list.

Thank you.

CHAIRPERSON NICHOLS: Thank you for that description. It was a very extensive process that went into the making of the rule.

Yes, Ms. D'Adamo.

BOARD MEMBER D'ADAMO: Thank you.

My view of this regulation and the previous ones that we've adopted on shore power, the auxiliary engine rules, this is really an opportunity for building blocks to go further and drive international action.

The question that I have is related to the emission control area and what such an area would look like in terms of range and what other emission control areas would be targeted, assuming that the IMO takes action? In other words, how extensive would an IMO action be internationally?

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: I think that question is best directed to EPA. But since they're not here today, we'll attempt to answer that.

There are different regions that they're looking out all the way out to 200 nautical miles. There are modeling exercises underway right now to determine what makes the best sense. They are looking at areas throughout North America and also working with Canada. So potentially we can have a very large ECA along the west coast.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: Our preference is for a large area.

One, it provides environmental protection to all of those residents, regardless whether they live in Canada, the US, or Mexico.

And secondly, it takes away the competitiveness aspect of environmental regulations. If the ships have to use the cleaner fuel regardless of the port they call on in North America, then it's all an equal footing.

BOARD MEMBER D'ADAMO: So that seems to be the key then, the broad --

DEPUTY EXECUTIVE OFFICER SCHEIBLE: Right. And that is EPA's interest also and to include the gulf cost and east cost. And the types of impacts we're showing here are going to show up in other areas once they do the

analysis.

BOARD MEMBER D'ADAMO: Are there further steps that we can take with regard to my reference of building blocks that -- shore power, auxiliary engine, and now this rule? Is there something else on the horizon in terms of action that we can take to further drive things internationally?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: Well, we've also said the remaining element of control is to start to address the engines and retrofitting the existing engines to get 25 to 50 percent emission reduction and then establishing an engine standard for new ships that is much cleaner.

These are elements of the IMO process, and we will be working with U.S. EPA to support that. And I think the establishment of the plan that we did a couple of years ago and then the regulatory actions taken by the Board are largely pushing the stringency of those actions.

And then our clear policy statement that we will regulate to protect the health of Californians, but with an international standard in place that provides the benefits we're more than happy to say, fine, we don't need our own set of regulations.

So I think all of that is helping push the agenda forward. And we're just very hopeful that IMO will act in

November and then we'll have a known set of standards to work with.

CHAIRPERSON NICHOLS: Mr. Hill.

BOARD MEMBER HILL: Thank you, Madam Chair.

In the year-and-a-half that I've been sitting on this Board, this is probably the most significant rule in terms of the impact it has had -- that currently has on diesel PM, SOX, and NOx. It's phenomenal when you look at something that you would not think would have that type of impact.

But in terms of the weather conditions or metrological conditions on the west coast, does that effect the impacts that we're seeing to the residents and to the citizens of California? Does that effect us at all in terms of the wind blowing from the west? And does that effect also the distance, the 24 miles, as what happens at 25 to 30? Does the wind dissipate that in a greater --

EMISSIONS ASSESSMENT BRANCH CHIEF DONOHOUE: This is Dan Donohoue.

The first response is, yes, the general on-shore flow conditions off to the pacific coast here does have an impact on California. Maybe a little bit stronger than other areas like on the Atlantic seaboard where they don't have quite the same level of on-shore flow that we do here. So that does tend to both blow the emissions onto

shore and transport them over longer distance.

As we talked about in the presentation, we believe that in setting a zone out to 24 nautical miles will capture the bulk of the emissions. We're estimating for PM and sulfate we would be picking up about 80 percent of the emissions that are having on-shore impacts.

Outside of that zone, we're not as sure as far as the level of impacts those are having. There are smaller percentage, but they still may be significant.

We are continuing to do additional modeling analysis, looking at the breakdown of zero to 24, 24 to 50, and 50 out in support and working with the U.S. EPA to see if in fact is it from a public health standpoint, from a cost standpoint reasonable to move out further than that.

But at this point in time, the 24-mile limit will capture the bulk of the emissions and is an excellent starting point.

BOARD MEMBER HILL: Thank you.

CHAIRPERSON NICHOLS: Yes, Dr. Balmes.

BOARD MEMBER BALMES: I have a technical question about slides 9 and 30. These are the health impact estimates. And for the premature deaths per year, did staff use the concentration response function that we talked -- was presented in June? That's not -- okay. I

see the heads shaking.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: This reflects the methodology that's been in use for the last several years. And this number would grow by 40 percent or so if we adopted the revised methodology. That's still being reviewed, so we don't feel it was appropriate to apply.

EMISSIONS ASSESSMENT BRANCH CHIEF DONOHOUE: The numbers would grow by 70 percent.

BOARD MEMBER TELLES: I have one question on the exemptions. Would the previous plan when you just had the auxiliary motors, were there many cases of exemptions?

STAFF AIR POLLUTION SPECIALIST MILKEY: Paul Milkey, Air Resources Board.

We had one safety exemption. And that was for a field that was picked up, a distillate field that was found not to be compliant with the marine specifications. And we had about five to six cases where a noncompliance fee was paid. And this would be for things like not being able to get the correct fuel.

BOARD MEMBER TELLES: Is there any concern that a large shipping may send in each time a ship doesn't meet the -- that needs to be modified and send in another one and then send in another one. In other words, never modify their fleet?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: That would

probably not be economic, because the majority of the ships that are container ships or cruise ships are in routine service in California. So they come here quite often actually.

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: If I could just add. We don't think a large portion of the fleets need modifications based on analysis that we did to use the fuel. There will be some. Some that might need because of the frequency they come here or where they get the fuel, they may have to put in new tanks.

But for the vast majority of vessels, we do not believe they need to make modifications. So we are anticipating there will not be broad based use of that exemption that we provided in the reg.

EMISSIONS ASSESSMENT BRANCH CHIEF DONOHOUE: Just two things. You know, we're talking about five or six vessels out of -- vessel calls out of 11,000 vessel calls a year that occurred. Actually a bit more than that. It was a 14-month period rather than 12-month period.

And the other thing is, all of those have to go through Paul Milkey, and that's really a pain.

CHAIRPERSON NICHOLS: All right. We have ten witnesses who have signed up to testify. We are imposing a three-minute limit. If you did file written comments, we would very much appreciate it if you would not repeat

them, but you can certainly summarize them.

We'll start with Heather Tomley, followed by T.L. Garrett from the Pacific Merchant Shipping Association.

MS. TOMLEY: Thank you very much. And good morning. I'm Heather Tomley with the Port of Long Beach.

And we want to express our very strong support for the proposed regulation. This regulation, which will require all vessels calling at California ports to use cleaner burning low-sulfur distillate fuels when close to shore, is the single most significant action currently available to reduce emissions from vessels operating along our coast.

This regulation is critical for the port operators to reduce their fair share of emissions and to reduce potential health impacts to our local communities. Without this regulation, it could take 20 years or more for the ports to be able to phase in similar requirements on all vessels operating through our terminal leases.

The port of Long Beach has been working very aggressively to implement strategies that will reduce emissions from port operations.

With the adoption of our Clean Air Action Plan, or CAAP, in late 2006, which was developed jointly with port of Los Angeles in cooperation with our agency partners including ARB staff, like Cynthia Marvin and Mike

Schieble, the ports have made significant strides in establishing programs that will produce major air quality benefits into the future. The ports have moved forward with this these programs on an accelerated time line to address the immediate needs of our local communities in Southern California.

However, we have always stated that regulatory efforts at the state level are absolutely critical to help achieve the goals. And ultimately the local port requirement should be overtaken by statewide, national, or international regulations. Such as the case with this regulation which will supercede the port's requirement in 2012 when the .1 percent sulfur requirement is phased in.

In order to support adoption and implementation of the vessel fuel regulation, the ports of L.A. and Long Beach have developed a nearly $20 million vessel main engine fuel incentive fuel program which is running for the next year. This program encourages vessel operators to use low sulfur distillate MGO and MDO fuels when close to port. And the program officially launched at the beginning of this month and is currently underway.

As was recently stated by our Board President, this incentive program will give us significant improvements in air quality and provide a much needed bridge to the important state regulations on low sulfur

fuels. The goal of the program is to achieve early emission reductions from vessels prior to the statewide regulation requirement, but it's also developed to allow vessel operators to gain experience with using the cleaner burning fuels in their engines and hopefully overcome some of the technical concerns, and therefore ease the transition into the regulatory requirements.

Over the past year, the ports have been focusing on developing long-term air quality emission forecasts in order to better understand the potential state of our local air quality with implementation of the cap and existing regulations.

The preliminary results of this analysis have proven just how critical the proposed vessel fuel regulation will be for reducing air quality and public health impacts. This regulation has the potential to increase total health benefits by an additional one-half or greater above what can be achieved over the next 15 years through implementing all other existing regulations and implementing all cap measures to reduce emissions from port operations through our terminal leases. This is why we believe this regulation is critical and we encourage you to adopt it today.

CHAIRPERSON NICHOLS: Thank you, Ms. Tomley.

T.L. Garrett, followed by John Kaltenstein from

Friends of the Earth.

MR. GARRETT: Good morning, Madam Chairman and Board members. My name is T.L. Garrett. I represent the Pacific Merchant Shipping Association. We represent over 60 companies, ocean carriers and terminal operators, that move approximately 90 percent of the containerized cargo in the west coast. We have submitted written comments, so I'll try to be brief here.

We continue to have some issues on technical feasibility, on the availability of the fuels, and on the jurisdictional issues. But we do not question the dedication and the professionalism of the staff in preparing this regulation before you today.

I did submit an opposed card, but it should be viewed as oppose unless amended. PMSA has been a strong supporter of an international approach to these questions. We're all in agreement that the transition to distillate fuels is the way to go and is absolutely necessary to meet the environmental and public health goals we all desire.

We are very heartened by the recent activities of the IMO in April and the upcoming vote in October that will put the provisions in that will eventually sunset this regulation should it go forward, and we fully support those.

We are very heartened by the fact President Bush

signed on Monday of this week the implementing legislation and ratification package for the IMO package so the US is now a full participant in the international treaty.

Our recommendation is simply a contingency plan. Put in language into the existing regulation that if IMO were to fail to act in October, if the U.S. EPA were to fail to immaterial an environmental control area in a expeditious manner, and if the industry along with the partnership of CARB, EPA, local air districts and port authority should fail to come up with a strategy that plugs the differential between 2009 and 2015, go forward with your regulation.

If we can meet those criteria though, set this regulation aside, and let's do this in a proactive and cooperative way.

We think there are strategies out there. One that we just mentioned was the port incentive program that is in place. We think it could be expanded statewide. The extension of the ECA further off-shore or early implementation of an ECA or other strategies that could be looked at.

There's also the potential for new technologies coming on line. This is a fuel only requirement. New technologies are not allowed. They are not basically not allowed.

So we think there are a number of advantages to our proposed modifications to the language.

The first is it maintains the pressure on the IMO and on the EPA to act and act expeditiously.

It avoids competitive disadvantage for the State of California in the goods movement system of California.

It provides for early action and early emission benefits to the citizens of California.

And it provides motivation for ocean carriers to continue to investigate and develop innovative technologies that will further reduce emissions from vessels.

Finally, it avoids any disputes about the jurisdictional issues that remain.

In conclusion, on behalf of our members, we respectfully request that you consider these contingencies in the existing regulation. And thank you very much for your time.

CHAIRPERSON NICHOLS: Thanks, Mr. Garrett. We may have some questions for you at the end if you'll still be here. Thank you.

All right. Let's hear from John Kaltenstein and then Tim Carmichael.

MR. KALTENSTEIN: Good morning, Madam Chair, Board members, and staff. Thank you for the opportunity

to comment. My name is John Kaltenstein. I'm here representing Friends of the Earth and joined nine other environmental community groups throughout California in submitting comments in strong support of this regulation.

While the rule is not perfect, it's absolutely critical to protect public health impacts to oceangoing vessels. And those impacts are severe. Staff projects over 400 OGV-related death by 2015 along with thousands of respiratory illnesses and lost days of work.

Further, regulatory initiatives including the SIP count on emissions reductions from OGVs to reduce health risk and attain federal and state air quality goals.

OGV's proportion of statewide and port-wide emissions continues to grow. As international ship trade increases and land side pollution further decrease, specifically from trucks.

The main and auxiliary fuel rules have been a signature element of CARB's plan to reduce ship emissions. Rules such as the one for shore power often were graphically depicted in the context of a fully implemented auxiliary rule. The auxiliary engine rule has already once been pushed back from its original time line. Pushing back and foregoing the main and auxiliary rules entirely will severely jeopardize vessel emission reductions objectives.

Voluntary efforts such as those proposed by PMSA are commendable. But in this case, they are no substitute for mandatory requirements and certain reduction cuts.

Moreover, the South Coast incentive plan which has recently begun is intended as an interim measure before the CARB rules go into effect. They are not meant to be a long-term measure. Ports shouldn't have to subsidize the use of cleaner fuels for long periods before strong international standards and be applied in 2050.

Most of the technical and fuel availability issues are not of concern for the Phase I period and 2009. And enough lead time is given with 2012 time frame along with additional testing that these concerns will be properly addressed.

I disagree with shippers positions that all uncertainty has to be eliminated before this regulation is adopted. If that were the case, it would be many years before that unreasonably high threshold were achieved.

Moreover, it should be said that while passage of MARPOL Annex VI and even legislation recently is a positive step in the right direction, heavy lifting remains with respect to technical submissions and the parameters of the north American coastal and emission control area.

In addition, the glacial IMO process and actual

implementation lag times await. By way of example, the north sea ECO approved in July 2005 only went into full implementation nearly two-and-a-half years later. Therefore, for the reasons mentioned, we strongly support CARB's regulatory proposal instead of relying solely on voluntary measures to reduce OGV emissions.

I thank you for your time.

CHAIRPERSON NICHOLS: Thank you.

Tim Carmichael and than Candice Kim.

MR. CARMICHAEL: Good morning, Chair Nichols and members of the Board. Tim Carmichael with the Coalition for Clean Air.

Two quick comments, because I have a couple of colleagues behind me that are going to elaborate.

As Supervisor Hill touched on, I don't think you can overstate the value of this regulation. The emission reduction benefits in PM are striking, and I hope every Board member is appreciating that. Think about the fractions of pounds that we try to get through other regulations. This is really profound. And appreciate Supervisor Hill and the stuff bringing attention to that. I neglected to say we strongly support this measure.

The other point I'd like to make is in honor of high school summer reading, a lot of people are reading Samuel Beckett right now. And if he was writing today, I

believe that he would change the name of his main character to IMO. And I think Chair Nichols can appreciate this as much as anyone in the room from her time at EPA. The IMO has been talking about acting on issues like this for not one but at least two decades. And though there's promise in the action taken this spring and the prospect of action this fall, we as California and we as a country cannot bank on solid action from them based on their track record. So I encourage you not to wait for IMO, because they may never come.

Thank you.

CHAIRPERSON NICHOLS: Thank you.

Candice Kim and then Diane Bailey.

MS. KIM: Good morning, members of the Board, Madam Chair, and staff. My name is Candice Kim, and I'm here on behalf of the Coalition for Clean Air. I work in the ports program working primarily down near ports of L.A. and Long Beach.

I'm here to express our strong support of the ocean-going vessel fuel regulation. We'd like to commend the ARB for continuing to pursue critically needed emission reductions from this huge source of harmful air pollution.

California is the nation's loading dock with over 40 percent of the country's goods entering through the

ports of L.A. and Long Beach alone. With the volume of trade expected to triple in the next 15 years, it's critical we act now to address this harmful source of air pollution.

Oceangoing vessels have been largely unregulated to day, and we believe staff have done an excellent job of crafting a fair and cost effective regulation. Shippers can and should use cleaner fuels as they approach our coastline. The hundreds of lives lost to the source of pollution are too high of a cost to bear, especially when you take into consideration staff's estimate that the cost to shippers is less than one percent of the total cost of the typical transpacific trip.

The Coalition for Clean Air strongly supports this regulation. We oppose the shipper's recommendation for a voluntary approach to addressing the staggering impacts of this huge source of harmful pollution. As you prepare to make your decision today, I ask you to consider those whose lives are changed forever by the impacts to their health such as cancer, asthma, heart disease, which are all linked to exposure to diesel exhaust that can and should be regulated.

I ask you to consider those people who have to live daily with impacts which they did not volunteer for. A voluntary approach to regulating reduction of pollution

is adequate and appropriate. And we ask you to adopt the plan that's before you today. Thank you.

CHAIRPERSON NICHOLS: Thank you.

We'll next hear from Diane Bailey followed by Christopher Patton.

MS. BAILEY: Good morning, Chairman Nichols and Board and staff. My name is Diane Bailey. I'm with the Natural Resources Defense Council, and I'm here today in very strong support of this critical rule for public health in California. And I want to commend staff for their hard work on this important rule.

This rule is really critical to meeting a number of important CARB goals, including the Diesel Risk Reduction Plan, the Goods Movement Emission Reduction Plan, and also the SIP targets in order to meet attainment with federal air quality standards.

As you know, diesel-powered freight transport in California is responsible for 3700 premature deaths every year and many thousands of hospital admissions, respiratory illnesses like asthma, missed work days, missed school days, and that's each year. And our ports and the traffic coming through our ports is only growing.

There are substantial air quality and public health improvements offered by this rule, as staff have noted. This includes just to repeat a few important

facts:

An 80 percent reduction in cancer risk throughout the state from this source;

Cumulatively, 3600 premature deaths avoided and countless other health impacts.

And that amounts to a savings to the whole state of six billion dollars. That's billion with a "b".

We agree with staff that it's critical to act right away to curb pollution and clean up marine fuels, and particularly from international vessels. And I just want to note that the impacts of these vessels are really born on communities least prepared to deal with these impacts, communities that have the least access to health care and that are already disproportionately impacted by air pollution.

Further, we agree with staff on the importance of making this rule mandatory as opposed to voluntary. In fact, staff in a recent letter to the port of Oakland on the port of Oakland's air quality plan have noted that voluntary measures are simply inadequate to deal with sources like this, given the critical public health stakes that we're talking about.

Finally, I want to note we're on very strong legal ground with this regulation. This is technologically feasible. It's cost effective and

critical to protecting the health of Californians statewide.

I thank you very much for your support, and I urge you to adopt the mandatory measure today. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Christopher Patton followed by Jo Angelo from Intertanko.

MR. PATTON: Good morning, members of the Board. My name is Christopher Patton. I'm an environmental affairs officer with the port of Los Angeles.

And Ms. Tomley from the port of Long Beach and I coordinated our comments. So really what I want to do is come on the back side and underscore three or four key things that she mentioned.

The proposed regulation in front of you is indeed the single most significant action currently available to reduce emissions from oceangoing vessels operating near the coast of California and in our ports. Due to the nature of the action, it would produce immediate improvements in air quality and immediate reduction in health effects on the communities in the state of California.

Very importantly though, it sustains the benefits that the ports of Los Angeles and Long Beach have already put in place with our incentive program for main engine

fuel switch, and it accelerates the benefits that we can achieve under our lease-based Clean Air Action Plan.

But quite importantly, it goes beyond our Clean Air Action Plan by dropping down or ratcheting down the sulfur content to .1 percent in 2012 and also including boilers.

Just a little bit of promotion of our incentive program. I want to tell you it's been in effect since July 1st of this year. And at the moment, we have 14 shipping lines signed up and rolling almost 140 vessels, representing almost 300 calls per quarter. What this amounts to is a 20, 25 percent reduction in the impact from those vessel calls, on the communities surrounding the port and the workers within the port.

I think it's also important to note the port of Los Angeles is fully prepared to support a broader regulatory framework, be it national or international, when that can be put into place. But we need this proposed regulation now.

Lastly, I want to underscore that the ports of L.A. and Long Beach have over the last year spent an extensive amount of time developing emission forecasts and doing risk modeling for out years, forecasted out years, 2023. And we need to tell you when we take and look at the risk reduction benefits from the Clean Air Action Plan

and adopted regulations on the books today, and then we look at the benefit of this proposed regulation in front of you, as Ms. Tomley indicates, it adds about another half again the benefit in terms of risk reduction to communities surrounding the San Pedro Bay complex.

In short, port of Los Angeles urges you to move forward with this proposed regulation. Thank you.

CHAIRPERSON NICHOLS: Thank you very much, Mr. Patton. I want to commend the combined ports of Los Angeles and Long Beach for stepping out before there was a regulatory requirement and using some of your own funding to try to address this important concern.

Mr. Angelo followed by Randal Friedman.

MR. ANGELO: Good morning. My name is Joe Angelo. I'm the deputy managing director for Intertanko, which is the International Association of tanker owners. We have approximately 300 members with over 3,000 ships calling around the world, many of which come to the US and California.

As your staff knows, both Intertanko and CARB are trying to achieve the same objectives. That is to have all ships use distillate fuels. They're trying to do it for California. We're being a little more ambitious. We're trying to do it worldwide. Two years ago, it was Intertanko that proposed all shipping switch from residual

fuel to distillate fuel and IMO.

Now in April of this year, as staff has pointed out, IMO has approved amendments to the Annex VI. And let me give you the details of those. Those amendments will be up for formal adoption at the next meeting of the Marine Environmental Protection Committee the first week in October.

With that as background, I would like to make three comments. My first comment which you don't want to hear, but I need to go officially on the record, is that we would strongly recommend that you adopt the dates that are in the IMO position. That is we support the 0.1 percent sulfur content. We suggest, however, you go to 2015.

Having said that, I fully understand why you would not do that and respect that. But I need to go on the record for my comment.

More importantly, it brings me to my second comment. That is the timing of the whole issue. These amendments will be formally adopted in October. We're very confident about that, and we hope nothing is done to change that. And your staff has indicated they want that to occur.

We are concerned though that if this Board was to take action formally adopting these amendments now, it

could send the wrong signal to IMO and jeopardize those negotiations and could result in IMO not going forward.

Having been involved in IMO negotiations for the past 30 years -- and truth be told, I used to work for the Coast Guard. And I was the head of the US delegation that negotiated Annex VI back in 1997. Very pleased to see how the US is going to ratify the treaty.

On a positive note now, I see resolution 08-35. And in particular on page 9, the second paragraph states that the Board is initiating steps toward the adoption of these rules. And the last paragraph it reads, "And that final action to adopt the proposed regulation will be taken by the executive officer."

I would strongly encourage you to adopt the resolution with this working in it. This type of wording would in my opinion not jeopardize the work that's going on at IMO.

And finally my third comment which you're not going to like. We believe do you not have the authority to go out beyond three miles and go to 24 miles. And rather than tie up this regulation in litigation out to 24 miles and not get it enforced, we would suggest you hold the rule to three miles and work through the EPA and the ECA to extend it further out. Thank you very much.

CHAIRPERSON NICHOLS: Thank you for those

comments. And we may not like them, but we do need to hear them. And we will reflect on them. All right.

Mr. Friedman, why do you think we're going to be sending ships into your ships lines?

MR. FRIEDMAN: There's an issue paper we're handing out that we shared with staff that will discuss that.

Anyway, Madam Chair, Board members, Randal Friedman on behalf of the Navy Region Southwest.

While we don't have an issue with the proposed regulation itself, we are concerned with the potential impacts of the regulation on our sea test range. The proposal only applies to shipping within the Santa Barbara channel and adds a substantial cost to that transit.

We are concerned that ship operators may choose to avoid this regulation by transiting to the other side of the Channel Islands through our sea range which would have massive impacts on the major assets of Ventura County and its billion, with a "b," economic contribution to the state of California as well as our national offense and defense of our allies.

We are concerned the staff report did not consider other pending issues related to shipping in the Santa Barbara Channel, including speed reduction and marine mammal issues. And there is a recent Court of

Appeals on the east coast that raises the bar on whether or not speed limits on ships can be done in the name of endangered species protection, which is directly relevant to issues in the Santa Barbara Channel, yet they weren't considered in the staff report.

We believe the potential for the shipping industry to abandon the Santa Barbara Channel and go through the sea range is real. And probably the best evidence of that is we have been approached by one of the major shipping companies posing that very question. We prepared an issue paper we passed out. Would encourage you to consider that.

One thing that isn't covered in this issue paper is greenhouse gas concerns. What are our greenhouse gas concerns? It's very simple. Going through the sea range adds at least another 20 nautical miles to each leg of the transit in and out of L.A./Long Beach. That's a direct contribution to greenhouse gas.

I find it ironic that in your staff presentation that the mitigation they discussed potentially for the .4 percent increase in greenhouse gas is speed reduction alternative -- is a speed reduction alternative. Yet, that same staff report doesn't consider speed reduction as a potential cumulative impact in whether or not shippers will stay in the Santa Barbara Channel or move to a

different channel shipping route outside the Channel Islands.

We have worked with your staff on this matter and degree with their proposal in the draft regulation to conducted the supplemental environmental analysis during the 15-day review period.

Further, we support the resolution's call to work this issue with the California Ocean Protection Council and the establishment through that council of a stakeholder group to look at the overall issues of shipping in the Santa Barbara Channel, including our sea range, marine mammal issues, and air quality. And we believe this type of approach, getting all of the parties around the table in the next six months, shows great promise to finally achieving an overall solution to this issue.

In sum, this regulation really rests on one huge assumption, and that is the shipping industry will stay in the Santa Barbara Channel. We contest that, but we're supportive of the staff's approach to do a supplemental environmental analysis and look forward to working with your staff and the other stakeholders in that regard.

I'm available for any questions

CHAIRPERSON NICHOLS: Thank you Mr. Friedman. I see one right here.

BOARD MEMBER RIORDAN: I do have one question. Is this identified the sea range for all shipping so they know pretty clearly where that is that you --

MR. FRIEDMAN: Yes, it's on charts and we do notice the mariners.

The problem is we have no enforcement over it. It's international waters. We can do a notice to mariner, but it's still every individual ship captain has the ability to decide the route of their ship and whether or not to -- and if a ship comes through our range, we have to shut the range down. You can't do missile tests with a container ship going through the sea range.

BOARD MEMBER RIORDAN: That might be exciting.

BOARD MEMBER HILL: You answered the question that there's no enforcement of the range area, so the demarcation lines of that -- they're clear. Shippers know what those boundaries are. But there's no notices that go out during the time that you're testing stating you're not supposed to go into the area?

MR. FRIEDMAN: Yes, there's notices that go out. It's never been an issue, because there's no reason for the shipping industry to use that, because the shortest route is through the Santa Barbara Channel.

However, our concern is if you start adding regulation after regulation to the Santa Barbara Channel,

now it's fuel regulation. Later, it's speed reduction. Then the economics switch, and it becomes more advantageous for the shipping industry to go the extra 20 miles because then they can continue to burn the residual fuel and they can go full speed.

BOARD MEMBER HILL: What I don't understand is -- I used to fly. And there are notices to air men on certain days when there are areas of the sky you're not supposed to fly in over certain areas of the ground. It's obvious it's clearly notified and noticed and you don't do that.

So if you're having a test area that is active in some form, then you place that notice out and the shipping industry -- the ships identity and know that and they would stay out of it, I would suspect. I don't think they would do it more than once.

I mean, I guess I have a difficult time understanding that if there's a rule, if there's a notice that goes out and it's clearly defined that someone would ignore that and travel into an area that they're -- I mean, these are professional companies that operate these ships and the shipping lines. I guess that's the difficulty I have.

Have you had violations of that in the past?

MR. FRIEDMAN: We have more problems with

pleasure craft and fishing vessels. Again, it's not an issue with container traffic, because there's no economic reason for them to venture from the Santa Barbara Channel.

We do have an agreement with the tankers from Alaska that come out several times a week. It was after the Exxon Valdez there was an agreement worked out where they can stay further out to protect the coast. But they work around our schedules for that.

BOARD MEMBER HILL: So there is an assumption that if this rule were to pass today that then those shippers would decide to save money and violate the parameters and the demarcation lines of your weapons testing area.

MR. FRIEDMAN: It's not a violation, because it's international waters. They could choose to ignore a warning. But we have no legal right to deny access to that sea range. It's international waters. We can advise them of our intended activities, but we do not have a legal ability to stop a ship from crossing that range. And so there really isn't a violation at that point. It's an economic decision.

And again our concern would be that it wouldn't necessarily be a single vessel, but it would be essentially almost a lobbying campaign to say we need to do this. We need to -- there would be pressure on us to

start allowing ships through. And that type of encroachment would be very damaging.

We believe as discussed in the paper that that would have significant adverse air quality impacts in the South Coast given the meteorologic conditions as well as the lack of regulation thos vessels would have.

CHAIRPERSON NICHOLS: I think it's important to note you're not opposing the regulation. But you want to talk about implementation.

MR. FRIEDMAN: Exactly. We want to work with you to figure out ways to make that regulation neutral to the decision about which route to take.

CHAIRPERSON NICHOLS: Ms. D'Adamo.

BOARD MEMBER D'ADAMO: Well, I would just say not knowing anything about this until today, I agree with the comments that Supervisor Hill made. It just doesn't make much sense to avoid a warning.

But in the event that things play out as you think they may, we all have a problem. In other words, we have shippers that are ignoring our rule and they're trying to get around it.

In that case, you lose, we lose, the public loses. And as I read the staff recommendation, staff is going to be continuing to work with you on this. And I would just ask of staff in the event that this ends up

being a real problem, I would imagine you would bring it back to us.

EMISSIONS ASSESSMENT BRANCH CHIEF DONOHOUE: That's exactly right. We would.

CHAIRPERSON NICHOLS: Okay. Thank you. I would just note that it was alluded to earlier. But during my time at EPA, at the Air Office there, we did work on rules that might have moved ships around the islands and into the Navy's area of concern. And I had a visit from the assistant secretary of the Navy within moments of that happening. Navy has been extremely vigilant about protecting the ability to do testing in that area. I know it's been a long standing concern, and we respect that need and we want to work with you.

MR. FRIEDMAN: Thank you. We look forward to working with you as well.

CHAIRPERSON NICHOLS: Thank you.

Our last witness as far as I know is Henry Hogo from the South Coast.

MR. HOGO: Good morning, Chairman Nichols and members of the Board. I'm Henry Hogo, Assistant Deputy Executive Officer of the Mobile Source Division in the South Coast Air Quality Management District.

I'm here to urge the Board to adopt the regulation as proposed by staff today. And first I want

to thank staff for all their hard efforts in crafting a regulation that actually will meet the commitments of our 2007 State Implementation Plan.

And the adoption of this regulation will reduce sulfur emissions from oceangoing vessels from 47 tons per day down to two tons per day. And as you can see from the impacts that's shown from the staff report, these emissions actually impact all the way into the Inland Empire of our region. So it's a really critical component of the State Implementation Plan and attainment of our fine particulate standards by 2014.

Our analysis indicate that we need to have this rule in place and implemented as soon as possible. And to the extent that cleaner fuels can be used, they should be used as early as possible. And with the date of 2012 for the Phase 2 of .1 percent, that's only two short years from the attainment year of 2014. So any delay or weakening of this regulation would seriously jeopardize attainment in the South Coast region.

So in conclusion, I want to urge the Board to adopt the regulations proposed today and will continue to work with staff and with our ports to bring the cleaner fuels as early as possible. Thank you.

CHAIRPERSON NICHOLS: Thank you, Mr. Hogo.

I don't see any hands waving or cards, so I

believe that concludes the public testimony. And we can now move to the Board discussion on this item.

I have really only one concern I want to raise. And otherwise, I would be happy to entertain a motion and move on with this.

But I am concerned about the process by which the regulation could be suspended if in fact the IMO acts. I want to put the greatest possible pressure on the IMO and others to move.

And I agree with the previous comments that as important as this regulation is for us and for health of the people in California, its benefits worldwide to people who are exposed around the ports around the world could be enormous.

And I'm concerned that a process by which the industry or we would notice that something had happened and then begin to evaluate and than eventually bring something back to the Board to suspend the regulation could be a very lengthy process. I have no qualms about moving ahead to adopt the regulation in order to speed things up on the front end.

But I'm also wondering if there would be any advantage to having the Board specify now that we would delegate this decision to the Executive Officer. So it wouldn't have to go through the full rulemaking process if

the finding were made that the equivalent reductions were going to be there. I think that might add a little more signal to the industry that we're really serious about not wanting to be in the business of enforcing the regulation if it isn't needed.

Just looking -- I see some heads nodding. Is there a reason or a legal or other reason you can think of why we couldn't do that?

BOARD MEMBER KENNARD: I'm very comfortable that if staff and legal believe that's the case, as opposed to us not acting in anticipation of IMO acting. So I think that's a really good compromise.

EXECUTIVE OFFICER GOLDSTENE: We don't see any issues at this point.

I don't know if Ellen has any concerns.

CHAIRPERSON NICHOLS: That's fine. With that amendment, which I will ask someone else to draft for me --

BOARD MEMBER D'ADAMO: Move adoption of Resolution 08-35 with the proposed changes recommended by the Chair.

BOARD MEMBER LOVERIDGE: Second.

CHAIRPERSON NICHOLS: It's been seconded.

BOARD MEMBER RIORDAN: We have ex partes.

CHAIRPERSON NICHOLS: Before we vote, right you

are. Thank you.

Let's start down with Supervisor Roberts and then any ex partes communication.

BOARD MEMBER ROBERTS: I do. I have a question.

You know, based on your comments, the slide 38, you know, if I understand your comments and the comments they made, is the gap between those two -- is it anticipated that there might be a way that would be fully filled in so that the resulting profile would be the same as the regulation?

CHAIRPERSON NICHOLS: Good question.

BOARD MEMBER ROBERTS: I wanted to ask Mr. Garrett that or the staff and the staff could respond maybe. If that was the picture he was painting --

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: Sorry. Are you asking us if we think a voluntary --

BOARD MEMBER ROBERTS: Let him answer first and then I'll let you respond to his answer. If my question is clear.

MR. GARRETT: Your question is very clear, sir. We believe there is a very good potential that gap could be filled. We think there are models out there like the port incentive model that could be expanded through California.

We think that the ECA process will go far beyond

the 24 nautical miles as currently proposed. And we think there are other technologies that are coming on line that could help to fill that gap.

Having said that, we don't have the specifics at this time, and I fully acknowledge that. That's why we're putting these in as a contingency, saying if we fail to make these conditions, there's no delay to the regulation. You would simply go forward and implement it as it is currently drafted. But if we can find a way to fulfill these requirements working with the marine technical working group, then you would hold the implementation of this regulation in advance.

But I personally believe the gap can be filled.

BOARD MEMBER ROBERTS: And Madam Chair, your comments are if this could occur --

CHAIRPERSON NICHOLS: Yes. I'm flipping the burden if you will. I think we need to start the regulation and get moving on it. But if, in fact, the industry is able to come back to us as they --

BOARD MEMBER ROBERTS: I'm fully in support of that. Because I think we'd like to have them do what they're suggesting they do, because I think the applications would even be more positive. But I guess we need some certainty in the process. And I think you're allowing for that --

MR. GARRETT: And we acknowledge that need. And that's why we're suggesting the marine technical working group take the lead on developing these measures.

BOARD MEMBER BALMES: Could we hear the staff response?

BOARD MEMBER ROBERTS: I was asking for that next.

CHAIRPERSON NICHOLS: Sure.

DEPUTY EXECUTIVE OFFICER SCHEIBLE: We'd like to see the gap filled. One is the measures, and two is their legal enforceability and three is their accountability for SIP credit. We'd have to solve all those problems.

And looking at what the IMO has proposed, if they adopted by 2015, we should be there. And if we can get there earlier, we would like to do that. But there will be a lot of work in trying to figure out how to do that in a way that meets all the other criteria.

BOARD MEMBER ROBERTS: It's possible, but they need to show you; right?

DEPUTY EXECUTIVE OFFICER SCHEIBLE: That's correct.

BOARD MEMBER ROBERTS: You know, there's no dispute over the benefits of all of this. I mean, that's the interesting -- nobody is questioning the numbers or the enormity of the benefits that will result from these

things. So I think your suggestion is an excellent one.

CHAIRPERSON NICHOLS: Do you want to go ahead with your ex partes?

BOARD MEMBER ROBERTS: I had only one conversation with Mr. Garrett and Chuck Cole on -- they called on July 21st. And then conversation was in keeping with the presentation here today.

BOARD MEMBER LOVERIDGE: No ex parte. This is timely, important, and significant. I'm prepared to vote.

BOARD MEMBER TELLES: I just have one question. With the lives saved, the 3600, is that per year or per time frame of five years?

TECHNICAL ANALYSIS SECTION MANAGER TARICCO: That was over the 2009 through 2014. That was cumulative of premature deaths.

EMISSIONS ASSESSMENT BRANCH CHIEF DONOHOUE: For 5.5 years.

BOARD MEMBER TELLES: Okay.

CHAIRPERSON NICHOLS: No ex partes?

BOARD MEMBER TELLES: No.

BOARD MEMBER RIORDAN: I have one, Madam Chairman. On July 8th, I met in Ontario with Mike Jacob and T.L. Garrett with the Pacific Merchants Shipping Association. And our conversation mirrored what Mr. Garrett presented today in his testimony.

And I would say that your amendment is clearly I think not exactly what they wanted, but it goes to the point. And I'm very supportive of that. Thank you.

CHAIRPERSON NICHOLS: Thank you.

And I also met with Mr. Garrett and Mike Jacob and Chuck Cole. I did that in person on July 14th with staff present. And it was really that meeting that caused me to think about this amendment, because they made a very good case about some potential actions that they might be able to take.

And also, frankly, I think we are very persuasive about some of the things the industry has been doing to date on a voluntary basis. So I believe we need the regulation for all the reasons that others have stated. But I'd like to try to encourage the kind of cooperation that we have been seeing.

BOARD MEMBER KENNARD: I have no ex partes.

BOARD MEMBER HILL: On July 21st in Redwood City I met with Mike Jacob of Pacific Merchant Shipping Association. And T.L. Garrett and Chuck Cole joined via conference call. And the conversation was consistent with the testimony today.

I do appreciate also your amendments to the regulation. I think it's something that will get us halfway to solve that problem. Thank you.

BOARD MEMBER D'ADAMO: No ex partes.

BOARD MEMBER BALMES: None.

CHAIRPERSON NICHOLS: In that case, we have a motion and a second. All in favor please say aye.

(Ayes)

CHAIRPERSON NICHOLS: Any opposed?

Good. Thank you very much.

We have another major regulatory action on the agenda item. But I think it would be good to give ourselves a ten-minute break.

(Thereupon a recess was taken.)

CHAIRPERSON NICHOLS: Let's get started with the staff presentation. Those who aren't at the table are in the back room where there is audio from this room.

So let's begin then with Item 08-7-5, public hearing to consider proposed amendments to the current spark-ignition marine engines and boat regulations.

Mr. Goldstene.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman Nichols.

Today staff is proposing to amend California's existing spark-ignition marine regulations to provide an alternative path to compliance for small volume manufacturers of high performance engines with maximum power greater than 373 kilowatts, which approximately is

about 500 horsepower.

The existing regulations require all high performance engines to comply with the five grams per kilowatt hour tailpipe standard for combined hydrocarbons and oxides of nitrogen beginning in 2009. Compliance will require use of an automotive type catalytic converter. Unfortunately, these engines routinely operate at near full power and these conditions have prevented small volume engine manufacturers from finding a converter that would be effective and durable.

As a result, staff is proposing to relax the exhaust standard for small volume manufacturers of high performance engines to 16 grams per kilowatt hour, an emission level that can be met without a catalyst.

To partially offset the higher tailpipe emissions, small volume engine manufacturers would be required to incorporate canister-based evaporative control systems on all boats in which high performance engines are installed beginning in 2009.

Staff proposes that large volume manufacturers of high performance engines that also produce standard performance engines continue to be required to comply with the five grams per kilowatt hour tailpipe standard beginning in 2009.

Although compliance with the five gram standard

for higher performance engines remains out of reach, the larger manufacturers can average the higher emissions of the performance boats engines by slightly lowering emissions of some of the standard engines below the five gram level.

Like the small manufacturers, they would also be required to equip high performance engines with evaporative controls. These requirements will result in no lose of emission reductions of hydrocarbons and NOx compared to the existing regulation.

The proposal would also adapt carbon monoxide standards and not-to-exceed tailpipe requirements currently being considered for adoption by the United States Environmental Protection Agency. These requirements will help protect boaters from carbon monoxide poisoning and help ensure that engines continue to run clean throughout their useful lives.

In addition, staff is proposing to establish a voluntary standard with appropriate labeling that is 50 percent more stringent than the cleanest required standard currently available.

I'll now turn the presentation over to Jeff Lowry of the Off-Road Control Section who will provide you with the detailed description of the staff's proposal.

Mr. Lowry.

(Thereupon an overhead presentation was presented as follows.)

STAFF AIR POLLUTION SPECIALIST LOWRY: Thank you, Mr. Goldstene.

Good morning, Madam Chair and members of the Board.

Today's presentation will summarize the staff's proposal to amend California's existing regulations for new spark-ignition marine engines and boats. Although my presentation will concentrate heavily on the requirements for high performance sterndrive and in-board engines, as timing is most critical for these applications, there are components of the proposal that apply to outboard engines and personal watercraft as well. The rulemaking is specific to gasoline-fueled vessels, however, and does not apply to diesel-fueled commercial marine applications.

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STAFF AIR POLLUTION SPECIALIST LOWRY: This slide illustrates an historical perspective of the various components of the spark-ignition marine regulations that have been adopted and modified by the Board over the years.

Most noteworthy regarding staff's proposal is the 2009 commencement date for high performance engines to begin complying with the catalyst-based standard. Little

time remains before these engines go into production for the 2009 model year.

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STAFF AIR POLLUTION SPECIALIST LOWRY: The primary objective of staff's proposal is to provide relief to the small volume manufacturers of high performance engines in California by relaxing the existing exhaust standard for combined hydrocarbons and oxides of nitrogen from five grams per kilowatt hour to 16 grams per kilowatt hours on most engines.

Without relief, the small volume manufacturers will be unable to comply with the existing catalyst-based requirements scheduled to begin in 2009, because durable catalysts for these high performance engines have not been successfully developed. However, as I'll explain later, the proposal will include new requirements to ensure that the relief will not be adversely affected from the existing regulation.

Staff is also proposing to adopt carbon monoxide standard for outboard engines, personal watercraft, sterndrive engines, and inboard engines to reduce the risk of poisoning and death from direct exposure. While these standards are numerically identical to those proposed by the United States Environmental Protection Agency for adoption nationally, the proposed California standards do

not allow averaging outboard and personal watercraft emission levels in order to ensure that no individual boat poses a risk of carbon monoxide poisoning to its users. Neither California, nor US EPA currently regulates carbon monoxide emissions for gasoline-fueled marine engines.

Finally, staff is proposing to streamline the regulations by harmonizing requirements with U.S. EPA's proposed requirements whenever possible.

With this brief introduction, I'll now focus on the specific elements of the proposal. First up, high performance engines.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Boats with sterndrive or inboard engines are primarily used for recreational activities. And the engines that propel them are most commonly derived from V-8 or V-6 gasoline truck engines.

High performance engines are defined as sterndrive or inboard engines with a maximum power rating greater than 373 kilowatts. Whereas, standard performance engines are designed to operate for at least ten years, high performance engines typically require rebuilding or a major overhaul every one to three years.

The boat shown in this slide measures 41 feet in length and is powered by two 700 horsepower high

performance engines.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Staff estimates that approximately 150 to 250 high performance engines are sold in California each year and that small volume manufacturers comprise about 30 percent of the high performance market. Furthermore, it should be recognized that approximately 40 percent of these manufacturers are small California businesses.

While relatively few in number, high performance engines represent a significant source of emissions due to their large power capacities and high load operating characteristics.

The uncontrolled emissions inventory for these engines would be 4.22 tons per day of hydrocarbon and NOx in 2020. The combined hydrocarbon and oxides of nitrogen emissions from high performance engines are expected to be reduced by two tons per day in 2020 under the existing regulation, which would require these engines to comply with the catalyst-based five gram per kilowatt hour hydrocarbon plus NOx exhaust standard.

While this may seem like a small and insignificant amount of reduction, staff generally looks for measures that reduce emissions by as little as one ton per day to achieve attainment with ambient air quality

standards and California's goals for air quality.

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STAFF AIR POLLUTION SPECIALIST LOWRY: As noted, the use of catalytic converters on these engines was the expected means of reducing emissions. However, catalytic converters for high performance engines not have developed as had been expected in part due to the extremely low production volumes involved, but also in part due to the challenges resulting from the extreme operating characteristics of these engines.

By design, high performance engines operate at wide open or full throttle for extended periods. Catalyst technology as its exists today has been shown to be incompatible with this type of sustained operation. Because catalysts are not available for these engines, staff is proposing to relax the hydrocarbon plus NOx exhaust standards for small volume manufacturers from five grams per kilowatt hour to 16 grams per kilowatt hour on most engines, a level that would no longer require the use of catalytic converters.

Large volume manufacturers with a preponderance of standard performance engines for which catalysts are readily available would still be subject to the existing five grams per kilowatt hour standard, but could meet it through averaging higher emitting high performance engines

with standard performance engines that emit less than the standard.

There's currently only one manufacturer in the California market that produces both standard and high performance engines in sufficient quantities to average successfully. That manufacture is Mercury Marine.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Shown here are the revised exhaust standards proposed for manufacturers of high performance sterndive and inboard engines. 2009 will mark the first year that high performance engines must be certified.

Small volume manufacturers of high performance engines that produce a combined total of 75 or fewer high performance and standard performance engines would be required to comply with a relaxed exhaust standard of 16 grams per kilowatt hour or 25 grams per kilowatt hour, depending on engine size in 2009.

Although not catalyst forcing, compliance with this standard is expected to require manufacturers still using carburation to transition to electronic fuel injection. Any manufacturer that produces a combination of between 75 and 500 standard performance engines and high performance engines at a ratio of 12-to-1 or greater would be required to comply with the five grams per

kilowatt hour standard using averaging or through other alternative means.

The large volume manufacturers would still be required to certify their engines to the existing five grams per kilowatt hour standard also through averaging or other means.

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STAFF AIR POLLUTION SPECIALIST LOWRY: In order to fully offset the loss in emission reductions resulting from relaxing the exhaust standard for small volume, high performance engines, all high performance engine manufacturers, large, intermediate, and small would be required to equip their high performance engines with an advanced evaporative control system consisting of carbon canisters, low permeation hoses, and non-permeable fuel tanks.

Although this proposal means a large volume manufacturer would have the evaporative requirement in addition to the existing exhaust requirement, staff believes this is necessary to fully recover the emission benefits lost by relaxing the tailpipe standard for the small volume manufacturers.

The greater resources available to the large volume manufacturers and the relatively minor costs of complying with the evaporative control requirement on less

than 200 boats annually makes this a cost effective and emission neutral means of providing relief to small volume manufacturers that only produce high performance engines.

The carbon canister shown here is an actual prototype suitable for use in marine applications.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Shown here is how staff's proposal would achieve an emissions neutral solution. By not relaxing the five grams per kilowatt per hour exhaust standard for large volume manufacturers, the existing requirement would continue to reduce emissions by an incremental benefit of 1.42 tons per day.

The proposed relaxed exhaust standard for small volume manufacturers only still provides two-tenths of a ton per day reduction over uncontrolled levels.

Lastly, imposing evaporative controls or both small and large volume manufacturers high performance engines balances the remaining ledger by providing another .41 tons per day for a completely emissions neutral solution in 2020.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Staff's proposal also provides an alternative means for complying for large volume manufacturers that do not want to average. In lieu of certifying high performance engines

to the five grams per kilowatt hour standard, large volume manufacturers may instead comply with the same exhaust standards as small volume manufacturers, but must make up the emissions in other equivalent ways.

One way to achieve this would be by equipping some of their boats that use their standard performance engines with carbon canisters, low permeation hoses, and non-permeable fuel tanks.

The staff's proposal would also get manufacturers to use other manufactures specific alternatives not specifically outlined in the regulations. These would be evaluated by the Executive Officer to ensure emissions neutrality.

This wraps up my discussion of the high performance engines. I'll now turn to the issues surrounding staff's proposed carbon monoxide standards.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Carbon monoxide emissions are an issue of concern not only for sterndrive and inboard engines, but for outboard engines and personal watercraft as well.

In recent years, the dangers of carbon monoxide in the boating environment have become well known. The tragic deaths listed as statistics on this slide have mostly occurred as a result of direct exposure to exhaust

emissions from auxiliary power engines used on house boats.

However, deaths have also occurred on sterndrive and inboard ski boats primarily from activities known as teak surfing and wake boarding.

To a lesser extent but nonetheless just as deadly, deaths have also occurred on boats equipped with outboard engines.

California Assembly Bill 2222 requires that carbon monoxide warning stickers be placed on the transom and helm of all new and used motorized vessels sold in California to alert boaters of the dangers of carbon monoxide. However, neither California, nor U.S. EPA currently requires boat engines to meet carbon monoxide standards.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Staff is proposing to harmonize with U.S. EPA's proposal regarding the numeric values of the carbon monoxide standards for outboard engines, personal watercraft, sterndrive engines, and inboard engines as shown in the table. However, while U.S. EPA has proposed to allow averaging for the outboard and personal watercraft engines, staff is proposing that the carbon monoxide standards for all engine types be met without averaging. We do not believe that an average

carbon monoxide standard protects boaters from the risks of direct exposure. Some engines may be certified to emission levels higher than others which potentially puts boaters using those engines at greater risk.

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STAFF AIR POLLUTION SPECIALIST LOWRY: The final element of staff's proposal concerns jet boats. Jet boats such as the 23 foot model pictured here are medium-sized vessels typically equipped with one or more personal watercraft engines which have a combined power ranging from 220 to 380 horsepower.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Although the means of propulsion for jet boats is different from that of more traditional sterndrive propeller-driven engines, the activities for which both jet boats and vessels with sterndrive engines are similar.

Jet boats typically have transoms like sterndrive vessels and pose the same risks from carbon monoxide poisoning.

Currently, only two manufacturers are known to certify jet boats in California. And the numbers of engines sold are relatively few compared to sterndrive and inboard sales. Unlike sterndrive engines, however, jet boats engines are currently certified to the less

stringent exhaust standard for personal watercraft such as for jet skis.

U.S. EPA is in the process of finalizing a rulemaking re-defining sterndrive and inboard engines to include jet boat engines and to accordingly require jet boats to comply with more stringent catalyst-based standards.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Staff proposes to align with the proposed U.S. EPA definition for inboard sterndrive engines.

Under the revised definition, jet boats would be treated the same as sterndrive inboard boats in that their engines would need to comply with the catalyst-based five gram per kilowatt hour standard for combined hydrocarbons and oxides of nitrogen, instead of the current 16 gram per kilowatt hour standard. They would also be subject to the catalyst based 75 gram per kilowatt hour carbon monoxide standard.

Staff is proposing that the more stringent exhaust standard for jet boats go into effect with the 2012 models in order to provide time to develop and certify these engines.

Staff is also proposing to allow replacement engines to meet the personal watercraft standard prior to

2012. This lead time is consistent with U.S. EPA's proposed action and should help provide a smooth transition for industry.

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STAFF AIR POLLUTION SPECIALIST LOWRY: To incentivize the introduction of even cleaner engines in California, staff proposes the issuance of a new five star emissions rating to engine families that certify engines to emission levels even cleaner than the most stringent four star certification standard required by the regulations.

Compliance with the new five star level would entail meeting the levels shown here throughout the engine's useful life. These levels represent a reduction of 50 percent from current standards based on catalytic converters.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Staff is also proposing additional modifications to address comments from stakeholders, to align with U.S. EPA, and to improve the regulations overall. These remaining components of the proposal are explained in greater detail in our staff report.

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STAFF AIR POLLUTION SPECIALIST LOWRY: Recent

discussions with the marine industry have raised the need to clarify or modify several of staff's proposed amendments, so several aspects of today's presentation differ with the initial 45 day proposal. These proposed changes were incorporated in the applicable sections of the presentation, and the regulatory text is available outside.

If the Board approves staff's proposal, a detailed description of all changes and the rationale inspiring them will be made available for a 15-day comment period.

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STAFF AIR POLLUTION SPECIALIST LOWRY: In summary, the lack of the effective catalyst for high performance marine engines necessitates a relaxation of the five gram tailpipe standard for small volume manufacturers of high performance engines scheduled to go into effect in January.

To recoup the lost emission benefits, large volume manufacturers would still be required to comply with the existing tailpipe standard, most likely by averaging higher emissions of high performance engines with standard engines that emit at lower levels.

In addition, both large and small volume manufacturers will be required to equip their high

performance boats with evaporative controls. These new requirements will provide the two tons per day emission reduction that would otherwise be lost from relaxing the tailpipe standard for high performance engines.

Staff's proposal also reduces the risk of carbon monoxide poisoning by limiting the amount of carbon monoxide that can be emitted from outboard engines, personal watercraft, sterndrive, and inboard engines.

This concludes staff's presentation. Staff is ready to answer any questions the Board might have.

CHAIRPERSON NICHOLS: This is a complicated series of changes you're proposing to make here.

Are there questions you before we hear from the public? If not, let's hear from the public testimony.

EXECUTIVE OFFICER GOLDSTENE: Madam Chair, I think the Ombudsman has a quick report.

CHAIRPERSON NICHOLS: I'm sorry. I keep forgetting because we haven't always done this.

OMBUDSMAN QUETIN: Chairman Nichols and members of the Board, this proposed regulation has been developed for input from National Marine Manufacturers Association, the Manufactures of Emission Control Association, Southern California Marine Association, Delphi Powertrain systems, Attwood Marine, the California Department of Boating and Waterways, and U.S. EPA.

Staff began their efforts to develop this rule on November 15th, 2005. Between January 16th, 2007, and April 22nd, 2008, they met individually and collectively with representatives from the majority of the spark-ignition marine engine manufacturers in California.

On March 14th, 2007, December 17th and 18, 2007, and again on July 9th, 2008, staff met with the Marine Manufacturers Association and again several individual marine engine and boat manufacturers.

Staff also held a public/video workshop on March 18th, 2008, and a certification outreach meeting on April 22nd, 2008.

The staff report was released along with the proposed regulatory amendments on June 6th, 2008. The public notice was physically mailed to stakeholders which occurred on May 28th, 2008. The staff report was made available as a web document only, and the required number of hard copies were made available to both El Monte and Sacramento offices. It was also sent to the 2,900 people on the mobile source and recreational marine list serves. Thank you.

CHAIRPERSON NICHOLS: Thank you.

I see from the list we don't have any witnesses from the environmental community. Did they participate in the rulemaking at all? I didn't hear you say it.

OMBUDSMAN QUETIN: Staff would have to respond to that. This is the information I received from them.

CHAIRPERSON NICHOLS: I see.

EMISSION RESEARCH AND REGULATORY DEVELOPMENT BRANCH CHIEF CARTER: Madam Chair, no, there was no direct correspondence --

CHAIRPERSON NICHOLS: I assumes that means they are satisfied. But interesting. Okay.

Then we'll go to our public testimony. Beginning with Patrick Moran followed by Rasto Brezny.

MR. MORAN: Thank you, Madam Chair and members. My name is Patrick Moran with Aaron Read and Associates representing Southern California Marine Association. We're the largest regional marine trade association in the country with over 600 member companies.

First, we've submitted a written statement for your reflection, so I'll try to summarize and be brief. First, SCMA wanted to thank the staff for all the hard work they put in on this issue and trying to resolve the differences and concerns we had with the proposed regulations.

SCMA has been actively involved in the process of helping to create new standards of exhaust emissions for recreational marine engines. And to summarize our concerns, the consistent standard for all concept that was

discussed at the March 18th, 2008, meeting in El Monte now appears to have been abandoned for a more complicated multi-level approach segregating companies into different categories based on the number of engines produced and the horsepower mix of their product lines.

That's not the direction or the impression we had that we'd be going in, but that's where we are today. And those are our concerns with the proposed regulations. And we would just ask the Board members carefully consider and evaluate the impact of the new emissions standards and what they might have on the already very fragile economy in California. Thank you for your time.

CHAIRPERSON NICHOLS: Thank you. Appreciate your involvement in this.

Rasto Brezny and John McKnight.

MR. BREZNY: Thank you, Chairman Nichols and members of the Board. Thank you for giving me this opportunity to speak today in support of this proposal.

My name is Dr. Rasto Brezny. I'm the Deputy Director for the Manufacturers of Emission Controls Association. We're the nonprofit association made up of the world's leading manufactures of emission control technologies for motor vehicles. Our members have over 35 years of experience in developing and manufacturing emission control technology, both evaporative and catalyst

control technologies, for on-road and off-road vehicles of all shapes and sizes, including supplying three-way catalysts for some of the spark-ignited marine engines that are sold in California.

We agree with staff's assessment that the high performance category of engines poses specific challenges for the application of catalysts for emission control, primarily because of the way these engines are operated today.

We also agree with the approach of using evaporative controls as a means to make up some of the lose in exhaust controls.

Evaporative controls have been used on automobiles for over 30 years and they've been applied to a wide variety of on-road and off-road spark-ignite vehicles as well as.

I guess we've submitted written testimony, so I'd like to focus my oral comments on some additional measures that could be taken looking beyond today's proposed amendments. We believe that a number of important opportunities still remain in order to apply proven automotive emission control technologies to marine engines in order to achieve further reductions in the future.

The Passive purge evaporative control technologies that would be used on these vessels as

outlined in the proposal are a good first step to capture on the order of 50 to 60 percent of evaporative emissions that are coming from these types of engines. However, we would suggest that in the future, future amendments look at the possibility of applying active purge control technologies that are on the order of 90 percent effective in capturing evaporative emissions and have been successfully used on automobiles for over 25 years.

Furthermore, we encourage staff to continue to explore the possibility of applying evaporative as well as exhaust controls to the outboard and personal watercraft engines as well. These technologies have been successfully applied on both two stroke and four stroke engines in both on-road and off-road applications.

And finally, wish to thank ARB staff for its hard work in putting forth this proposal. And our industry is committed to work with all stakeholders in order to ensure that the technologies are available to achieve the emissions that are outlined in the proposal. Thank you

CHAIRPERSON NICHOLS: Thank you very much.

John McKnight and then Paul Ray.

MR. MC KNIGHT: Thank you. And that clock is right, good afternoon. My name is John McKnight, Director of Environmental Safety Compliance for National Marine Manufacturers Association.

First, to begin with, I really would like to thank the CARB staff for working with marine engine manufacturers to identity the amendments that are really necessary to improve the existing California rule and bring it into align with many of the changes that have happened and will be happening on a federal level.

NMA urges the Board to consider and approve the staff recommended amendments to the spark-ignition marine engine and boat regulations with the following exception or revisions I'd like to talk about.

But before I start talking about that, the Board is going to hear the testimony of Mark Riechers from Mercury Marine, Sean Whelan from Attwood Corporation, from Dan Ostrosky from Yamaha, and Paul Ray from Ilmor. We've all burnt a lot of jet fuel to get over here today. We appreciate the opportunity and appeal to the Board to consider these amendments which us and the staff have worked really hard on.

The staff has recommended that the Board approve a limit for carbon monoxide emissions from outboard and personal watercraft engine, rather than allow averaging these emissions as the EPA plans to finalize. I want to talk a little bit about that. Because we do support the plan to reduce CO emissions. There's no doubt about that it. When it comes to sterndrive inboards where we have

seen accidents and fatalities, we certainly approve that. When it comes to outboards and personal watercraft, we definitely support the 2010 implementation date. But we think for these engines, we need to see it harmonizes with the EPA plan which allows for the averaging of CO emissions.

And I'll tell you the reason why. And it is that the California -- only reason they need the regulate CO emissions is because they need to protect human health and safety. And there's been enormous amount of study in this area on the effects of CO poisoning from boats and NIOSH and the EPA and the US Coast Guard and industry have all worked together to review the accident fatality data from CO poisoning and recreational boats. And NIOSH has conducted numerous studies looking at emissions that come from different vessels and the way to resolve it with our existing fleet and with new marine engines.

Pretty much what we see is that the Coast Guard statistics when you look at them for fatalities and accidents, they do not support the need to have a limit for CO when it comes to outboards and PWCs. What the EPA is allowing is a numerical value with an average.

And when we talked to staff, what you're going to hear is we want to err on the side of safety. But from our perspective, we'd like to harmonize with the EPA

standard. There's been an enormous amount of study on this. And for us to have to meet a California-only regulation that we don't see has any real health and safety benefit to it is just going to incur an economic cost and economic burden on the citizens of California.

Be real quick with the second issue. And this is one we fully support. This has to do with the request that the Executive Officer have the discretion to make technical changes to the regulation. It just says this in my testimony. With the latest EPA rule, there will be virtually no difference between the ARB marine regulations and the EPA marine regulations. The EPA regulation has not been finalized yet. We're hoping it would be finalized by now. It looks like it might go into August. When that does get finalized, there may be some minor changes that need to be made to harmonize. All that will do is really allow to rule to be a lot less burdensome to the manufacturers.

So again NMA appreciates the opportunity to testify on this and appreciate the work that staff has done. And thank you.

CHAIRPERSON NICHOLS: I'm tempted to average your time with Mr. Ray, but I'm not going to do that.

MR. RAY: Good morning. My name is Paul Ray. And I promise I'll be brief to make up for John.

I'm the President of Ilmor Engineering and also the general manager of Ilmor Marine Engines. And Ilmor Engineering is fairly new to the marine business. We've been a leader in auto racing engine manufacturing over the years, the past 25 years, but only in the marine industry since 2002. Our product line consists purely of high performance engines.

Our reason for testifying today is to be fully in support of ARB staff's recommendations. Essentially the recommendations would allow a small businesses like ours, particularly one like ours that's brand-new to this market, to grow with some flexibility.

The challenge for us is actually growing to a reasonable size before we are burdened with severe emissions restrictions which are incredibly expensive to implement.

We didn't exist back -- as a marine company, we didn't exist back when the rules were first written in 2001. And although we're late comers to this program, we've been fast learners and have spent a great deal of time with staff to understand and work the rules into our systems so we can implement them efficiently. And we are an engineering company at heart and we're fully committed to providing durable emissions efficient engines into the California market or in fact nationwide.

Since entering this rulemaking process, we've attended many meetings with staff, and we've had a lot of opportunity -- myself personally, a lot of opportunity to discuss the regulatory rules and regulations that work for small business. And their willingness to work with us to allow our business to grow while still meeting our burden of responsibility when it comes to emissions we think has been very good.

Again I just want to thank everyone, particularly the staff here, for allowing us to work so closely with them and appreciate the time.

CHAIRPERSON NICHOLS: Thank you.

All right. Sean Whelan and then Mark Riechers.

MR. WHELAN: Good afternoon, Chairman Nichols and Air Resources Board and staff. My name is Sean Whelan. I'm representing Attwood Marine.

We are fully in support of the staff's proposal here and would like to say Attwood is a major marine parts and accessory supplier to the industry and have been for over 100 years.

Attwood and our manufacturing partner have developed, tested, and validated carbon canisters for the marine industry. We're fully committed to being ready for this low volume early introduction of canisters, including working with the builders through any technical

installation issues.

We look at this as an opportunity to further develop the guidelines and procedures such that the final roll out of the U.S. EPA carbon canister systems can be accomplished with greater reliability and emissions control performance.

Thank you for your time and opportunity to present our comments.

CHAIRPERSON NICHOLS: Thank you for your time and appreciate your support.

Mark Riechers and then Dan Ostrosky.

MR. RIECHERS: Hello. My name is Mark Riechers. I'm the Regulatory Development Manager for Mercury Marine. And I've been working with staff here for the last couple of years on these changes. And while you have a written copy of my comments, I'm going to skip a big part of this because it's already been explained and I don't we need to go over it again.

The one place that we got somewhat surprised on this was when the proposed rule changes came out, we were expecting to see a rule that applied the same to all the high performance engine manufacturers. And in fact, suddenly there was this completely different large volume dual category manufacturer of which there is one, us. And we are being required to meet a much more stringent

standard.

And in fact, what it really comes down to is that we are being asked to make up the lost emissions benefits for our competitors. And we find that to be just basically unfair.

However, we also do understand staff's requirements that they needed to make this whole change emissions neutral. And we've had subsequent meetings and discussions with staff, and they have put into the 15-day notice some additional offsets that we can use to reduce the effect of us having to average in.

And while I still fundamentally disagree with being treated different than everyone else, it's something we can work with. And therefore, as long as the Board approves both the original plan changes and the items in the 15-day notice, we will support the rule change.

As I said, I don't like it. But in the interest of preserving this segment of the market -- it's a very small segment. It's less than 200 engines a year in California. And we've run the numbers. We can make it work.

One thing that I would like to say is that this rule has -- the emission reductions that you are getting right now are considerably greater than this rule actually creates. And the reason for that is that boat sales in

California at the retail level are down 40 percent. Builders and dealers are struggling to stay in business. And in fact, the largest west coast dealership chain, which is Olympic Boat Centers, with 19 locations filed Chapter 11 bankruptcy last week. Sea Ray and Brunswick boat companies have laid off 1700 employees. Brunswick is in the process of going from 29 boat plants to 16 boat plants. So it's a really tough time for us, and we appreciate getting through this issue. And we look for you to support the changes in the rule plus what's in the 15-day notice.

CHAIRPERSON NICHOLS: Thanks, Mr. Riechers.

I think you know, but I'll say it anyway. We never like to reduce emissions by reducing the economy. We are hopeful that these rules will work with an up economy and you'll sell lots of boats.

I've also been reading about people not using boats that they already own because of the high price of fuel at the moment. So it is a tough time and hope we can all get through it.

Mr. Ostrosky followed by Tim Carmichael.

MR. OSTROSKY: I know you haven't heard this, but good afternoon, Madam Chairman and Board and staff. Thank you for giving me the opportunity to speak today.

First off, I have -- maybe it's a little out of

step. But in reading some of the amendments, we found possibly an oversight or an error. And I don't know how to proceed it until it's clarified.

On the table for CO start date, it has one start date and in the text it has another date. And we prefer to have obviously the date that's in the table. If we say we approve this or except it, what gets print or changed?

STAFF AIR POLLUTION SPECIALIST LOWRY: The date we're proposing is 2010.

MR. OSTROSKY: So there's two different dates. So it's probably just a typo. So I can go over with you and show you where it's at later.

Anyways, I work for Yamaha Motor Corporation. I work in Government Relations Division and Certification Department and also represent about 68 dealers and 2,000 employees at those dealerships that will be effected by the reclassification of jet boats as SDI in these amendments.

Going forward with that, Yamaha accepts and approves the amendments and hope the Board does the same.

But on a more personal note, this is my first go round doing this. And I want to thank the El Monte staff for my incessant phone calls and putting up with me. I greatly appreciate it. They were very professional and did return phone calls. I greatly appreciate it.

And we hope the Board accepts and approves the amendments presented here today. Thank you.

CHAIRPERSON NICHOLS: Thank you.

Tim Carmichael.

MR. CARMICHAEL: Tim Carmichael, Coalition for Clean Air.

First to the Chairman's comment about the lack of environmental participation, it's not a lack of interest. There's a lot of other things going on in the air world.

I want to touch on a couple things. We support the evap portion. We support the CO portion. They make a lot of sense.

The one thing that caught my eye in the staff presentation and struck me as unusual -- and maybe I misunderstood or it wasn't fully explained -- is the Air Board and several other examples I can think of has delayed implementation and relax the implementation of the standard on the front end. And that is understandable for all the reasons that have been sited today.

But in the table they showed about the longer term implementation, it says 2011 and beyond. And that is unusual I think for it appears to be no sunset to this relaxed version of the regulation. I grant that we're talking about a relatively small number of engines and we're talking about small or medium size businesses. But

I would encourage, you know, at a minimum there be some technical review not too far after 2010 to review whether that open ended relaxation is really warranted.

This also gives me an opportunity to raise the bigger picture for pleasure craft. A number of environmental clean air applicants met with your staff in June and flagged this issue among a short list of sources that are really surprisingly big contributors to pollution in the state of California and expected to still be big sources in 2020.

And if we are looking at strategies to eliminate the black box and the SIP and close the gap between where we are and clean air, this is a category that we need to -- let me clarify. The broader category, pleasure craft, is the category that we need to keep working on. And we raised with staff, and the conversation is going to continue, about the potential need for use limitations and restrictions depending on the emissions coming from some of the older craft and where we are with pollution levels in the future.

That's it. Thank you very much for your attention.

CHAIRPERSON NICHOLS: Thank you. I wasn't really being critical. I thought it was just interesting that I think the staff worked really hard to do something that

ends up making a rule more flexible than it was to begin with, and yet at the same time getting more emissions reductions out of it. I think it was a heroic effort, and I really appreciate the cooperation of the industry in getting us to that result.

Are there any questions that Board members have about this item?

If not, could I have a motion? Do we have any ex partes?

Do you have any closing comments, Mr. Goldstene?

EXECUTIVE OFFICER GOLDSTENE: No. Hope the Board approves the rule.

CHAIRPERSON NICHOLS: Okay.

BOARD MEMBER LOVERIDGE: So moved.

BOARD MEMBER RIORDAN: I'll second the motion. All

CHAIRPERSON NICHOLS: All in favor please say Aye.

(Ayes)

CHAIRPERSON NICHOLS: Thank you. We will adjourn for our lunch break and we'll try to return at 1:45 is realistic. Thanks.

(Thereupon a recess was taken.)

BOARD MEMBER RIORDAN: The Chair has asked us to start. We have the next item which is the update on the

Board AB 32 implementation, the Western Climate Initiative.

And Mr. Goldstene, I'm going to turn it over to you and staff.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Board Member Riordan.

Assembly Bill 32 requires California to review existing and proposed international greenhouse gas reporting program and to make reasonable efforts to promote consistency.

AB 32 also requires ARB to consider all relevant information pertaining to emission reduction programs in other nations, including the European Union. As such, we will provide you with periodic updates concerning developments on the international front.

Iain Morrow will begin with an overview of the European Union's cap and trade program. Iain is on loan to ARB for five months as part of an exchange program between California and the United Kingdom. He is a civil servant with the Department for Business Enterprise and Regulatory Reform and was lead on the European Union's cap and trade program within his department.

Iain was also project manager for the implementation of the UK's 2003 Energy White Paper which set out the UK's commitment to a 60 percent reduction in

emissions by 2050. Prior to that, he managed the Office of the UK Government's Chief Science Advisor.

Iain will be followed by Margret Kim, a Senior Advisor for International Climate Change in the Chair's Office. She'd provide an overview and update on ICAP, International Carbon Action Partnership. The partnership is made up of the national and subnational governments that are actively pursuing the development of mandatory cap and trade programs. She is lead staff in California in assisting the Governor's office in chairing the Steering Committee.

With that, I'll turn it over to Mr. Morrow.

(Thereupon an overhead presentation was presented as follows.)

MR. MORROW: Thank you, Mr. Goldstene. Good morning, members of the Board.

First, I'd like to thank you and the two guys in the picture for the opportunity to be here in California.

And I'd like to carry on by talking to the European Union's experience with cap and trade for reducing greenhouse gas emissions. I hope you find this talk useful, and I'd be happy to answer questions after Margret's talk.

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MR. MORROW: First a little bit of scale and

context. The European Union, which is the countries in blue and green on this map, is a collection of 27 sovereign countries with a population of a little under half a billion people. And total greenhouse gas emissions are approximately five billion tons. And the union -- I think the main message from this slide is that the Union is very buried. There are 27 countries, 20 official languages, three alphabets, 12,000 emitters, and many different stages of economic development. For example, the republic of Ireland in the top left has a GDP per head about the same as the US, whereas Romania and Bulgaria have a GDP somewhere below Mexico.

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MR. MORROW: So why did Europe choose cap and trade as part of the solution to the problem of greenhouse gas emissions? Well, Europe as a result of the Kioto treaty has a goal of 2008 to '12 to reduce emissions from eight to 12 percent from 1990 levels.

Europe wanted to achieve that target and wanted to achieve it as cost effectively, cheaply, as possible. Wanted to drive innovation. And it wanted to access all the available options for reducing emissions. This is a difficult problem. CO2 is emitted across the entire economy. How could Europe be sure it was going to accessing all the available options? Industry wasn't

telling, perhaps because it didn't want to, and perhaps it never really looked, so it wasn't aware of all the available options.

Europe decided the best way to do this would be to make the polluter pay, to make emitters in Europe pay for each ton of greenhouse gas is emitted.

In the late 90s, Europe tried to agree on a Europe wide tax for this, and it failed. The reason that it failed were political. Nation states guard their tax raising powers very carefully, and countries were unwilling to surrender those powers to a super national body. And this is not a collection of states which are covered by a federal government. This is a group of states who are themselves sovereign.

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MR. MORROW: So Europe settled on cap and trade. And this was chosen because it puts a price on emissions and it has the added benefit that it guarantees a specific level of emission reductions.

This was very attractive to environmental groups and was also sellable to industry who preferred it to a tax in the cap and trade. And this was also -- I should say, this was agreed in 2001-02 when the political climate, the climate for climate politics, if you like, was very different. And so there was quite a need to take

the dispute into account.

And it is I would say not an alternative to regulation. Europe is always very clear it was a type of regulation, which still regulates emitters and requires them to have a license to produce carbon dioxide and have a permit for each ton they produce.

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MR. MORROW: A little more context and comparing Europe to California. This graph shows where the emissions come from: California in blue, Europe in red by sector. And to make those figures comparable, they're shown per person, per year.

What's clear is that in most areas, the emissions are roughly comparable. But in transport, European emissions are much lower. Now that may give you some idea of why Europe made specific decisions, which I'll come onto in the next slide.

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MR. MORROW: The European emission trading system covers about 40 percent of Europe's total greenhouse gas emissions. It covers the electricity sector and heavy industry.

What it does not cover is non-CO2 gases and methane and so on. And it does not cover the transportation and heating fuel sectors either, although

it will shortly cover international aviation.

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MR. MORROW: So what about those other 60 percent? Europe put forward in January a suite of proposals of which cap and trade was one. And those proposals included a renewable portfolio standard, measures to increase energy efficiency, and a proposal on carbon capture and storage.

Europe already has car efficiency standards in place and is proposing new tougher ones to start in 2012.

It has measures in place on other emissions such as high global warming potential gases.

So what's clear here is that Europe is seeing cap and trade as one of the suite of measures which it's using to tackle the problem and certainly not the only tool.

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MR. MORROW: Now, having given you a bit of context, let's get into the details of the program.

Europe decided that because this was such a large program that it would do a pilot phase, soft launch if you'd like. And that pilot phase, while it included all sectors and countries, was designed to start slowly. They were relatively soft targets. There were lower penalties for failure to comply with the program. It did give Europe time to put the systems in place. This phase ran

from 2005 to 2007 before the hard targets of 2008 kicked in.

And the pilot did highlight some issues, which I listed there, with the solutions Europe is proposing. The first one was weak emissions data. It turned out we didn't actually know what Europe emitted, because nobody had ever monitored it in a very rigorous and verified way. So the solution for the future was to use the verified data for 2005 to '07 to set future targets.

The second problem was windfall profits. Power companies making profits out of the system because they were given. The solution for the future is to give fewer. And from 2013, none of the permits for free. Power countries in Europe will have to pay for every emission.

Targets are too short term, only set five years ahead. Europe has now set targets to decline at a constant rate forever. So there is no sunset clause in the program.

And industry was treated differently in neighboring countries. And industry complained this led to an unlevel playing field, if nothing else a free trade area in Europe. So now there was a much more harmonized approach where the allocation for say steel plants are the same or will be the same across all European countries.

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MR. MORROW: So here's where it gets real. Here's where Europe has to achieve its Kioto targets.

What happened was those targets, the targets for each country, the cap for each country, was set last year. And those targets are now in place. Those are set much more strictly, because we had better data. They were set in relation to an overall national targets, rather than being set on a path to those targets which has always been arguable. And the previous projections of high economic growth and high emissions grown is strongly questioned.

And what this did, as I'll show in the next slide, is it made a difference.

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MR. MORROW: Three lines in this graph which I'd like to explain separately. This graph shows how much European emitters are paying per metric ton of carbon dioxide to date.

The blue line shows the price for the pilot phase. And as you can see, that falls to zero and stops. The pilot phase is over. All the permits for that phase are now void and worthless. And there's no carry over into the second period.

The pink line is second phase, the 2008 to '12 phase. And what that shows is that European emitters are today paying about $40, 25 euros, per ton for each ton of

carbon dioxide. And that price has never really dipped below about 12 or 13.

What the green line in the top right shows is what European companies are willing to pay for the right to emit in 2013. Now that's after they have hard targets. So what that line is showing is that companies are willing to put money now on the fact that Europe will have emission reduction targets after 2012, and about $50 a ton.

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MR. MORROW: Much talk. What's the bottom line? This is a projection from the WWF which they're estimating that the EU ETS will reduce emissions in Europe by at least 200 million metric tons of carbon dioxide per year in 2008 to 2012. To give you a bit of context, that's like making transport in California carbon free. Taking all the cars, trains, and planes off the road, skies, and rail.

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MR. MORROW: Europe is moving on and thinking about what happens after 2012. And the main thrust of it is more harmonization, more centralization. There will be a single European cap which will reduce by 35 million metric tons each and every year from 2012. And be much more of the polluter pays principle. Car companies will

get no free allowance, free permits in 2013. And there will be no free allowances for any companies by 2020, unless there is a lack of action at the international level.

There will also be tighter limits on the use of offsets, which in the European context means the clean development mechanism, CDM, which I'd like to talk a bit about now.

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MR. MORROW: What is the CDM? The CDM stands for the clean development mechanism. That's part of the Kioto protocol which was put in at US insistence. What it does is allows you to generate offsets to pay for emissions reductions in developing countries and count those against a -- portion against your emissions in Europe.

And there's been a lot of criticism of the CDM. And I think much of it can be boiled down to the one word: Additionality. Essentially, what you're paying for if you do CDM is you're paying somebody to reduce emissions what would have happened anyway. And proving what would have happened anyway is a very, very difficult task.

What CDM developers are supposed to do is make very conservative assumptions about what would happen, but there has been criticism of that.

I would say that the CDM is under review.

There's been some tightening up of the additionality and the review of projects process. And I think the expectation is that there will be significant changes at the end of next year in Copenhagen.

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MR. MORROW: This is a lead in for Margret's talk. This map here, which you'll notice is a quite distorted projection, shows which countries are considering cap and trade around the world. Those countries are shown with their areas proportional to their 2000 greenhouse gas emissions.

So, for example, Africa is very small. Japan is much larger than a standard projection. And if you add up the countries in black, the emissions, you find it's about 50 percent of the globe.

Margret with talk more about bodies like the International Carbon Action partnership which is designed to help this cap and trade process along.

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MR. MORROW: So in summary, cap and trade certainly from a European perspective is very much designed to sit along side other forms of regulation. It is not an alternative or substitute for them.

Secondly, European polluters are now paying $40 a ton to emit, which is delivering real reductions.

Thirdly, windfall profits are not inevitable. There is no fundamental reason in the cap and trade program windfall profits have to be made.

And fourthly, good emissions data is very important. Make sure you know what the base line is before setting targets.

Thank you very much, members of the Board. And I hope that was useful.

CHAIRPERSON NICHOLS: Okay. Thank you.

Questions? Yes.

BOARD MEMBER SPERLING: We had a little presentation on this at lunchtime also. And you know, the question that keeps occurring to me about ETS is that it's a success in terms of functioning as a market. But is there any judgment about its effective -- and there is a cap, of course, and so there has to be a reduction. But is it effective at all in terms of changing behavior or inspiring innovation? Especially, I know there's some fuel switching going on in an operational sense. But what about some real -- having a real effect in terms of the kind of investments that are made and CCS and things like that?

MR. MORROW: Well, CCS is --

BOARD MEMBER SPERLING: That's just an example.

EXECUTIVE OFFICER GOLDSTENE: You should explain

what CCS is.

MR. MORROW: Carbon capture and storage. This is essentially taking carbon dioxide from power stations or industry and storing is it under the sea into oil wells.

Has it changed behavior? Well, I think this goes to one of the changes that Europe made in the program, which is setting targets further ahead. And Europe set targets out to 2012 because that's where it had a mandate to set targets to as part of the Kioto protocol. It couldn't set targets beyond that because there was no guarantee there would be international action beyond that date.

And what industry has repeatedly said to us is we won't change our behavior. We can't make long-term investments based on five-year targets. We can't change our investment fundamental. What Europe is now doing is setting targets into the indefinite future. They're not due to review until 2050. And when you talk to people in industry, they say, yes, we are looking to change our behavior. In the short term, it will be fuel switching. But in the long term, they will have to change.

CCS, I think the feeling is that it's too expensive at the moment. Even the most optimistic figures suggest it's well north of $50 a ton, which wouldn't be incentivized at the current price.

But Europe is funding some demonstration projects -- at least one demonstration project, and we are hopeful that in the long term the carbon price will provide a significant incentive for CCS.

And I think Europe's difficulty with those long term targets was how far it could go without international action.

CHAIRPERSON NICHOLS: Mr. Loveridge.

BOARD MEMBER LOVERIDGE: Just a personal question. What's your title and who do you report to?

MR. MORROW: Within the ARB or --

BOARD MEMBER LOVERIDGE: Yes. Within your role in this whole effort.

MR. MORROW: My role in the when I was in London was senior policy advisor on the EU emission trading system.

CHAIRPERSON NICHOLS: It covers a lot of things.

MR. MORROW: Yes.

Here, I'm in the Research Division within the Air Resources Board as part of the economic study section. And I report to Fereidun Feizollahi, although I've been working with other parts of the ARB, including the Office of Climate Change?

BOARD MEMBER LOVERIDGE: So you're a resident scholar?

MR. MORROW: I wouldn't go that far.

CHAIRPERSON NICHOLS: We're very lucky to have you. Yes, Dee Dee.

BOARD MEMBER D'ADAMO: I'm a little confused about what caused the price for the purchase of emissions to go up. And trying to figure out if it has something to do with this new phase, but the new phase just kicked in in 2008 and it looks like the price went up prior to that.

MR. MORROW: There's a lot of things driving the price. The main thing driving -- if you're referring to the pink line here. So you're talking about where the pink line goes up towards the right-hand side.

That probably reflects -- partly reflects the increasing cost of natural gas probably, because the price of carbon -- carbon is treated like any other commodity in European markets these days. And it's strongly linked to the price of gas and to German electricity prices. They've gone up and the carbon has too.

It probably also reflects an increasing certainty in Europe that there will be hard targets for the future. And the tougher the market believes the targets will be in the future, the higher the price is today, all things being equal.

BOARD MEMBER D'ADAMO: And then on the CDM, I guess we call these offsets, are they being used right

now? And if so, what percentage of reductions are attributed to CDMs as opposed to actual emission reductions?

MR. MORROW: Well, CDMs are actual emission reductions.

BOARD MEMBER D'ADAMO: By the industry. By the industry that's being regulated.

MR. MORROW: Under current European proposals, you'll be able to use offsets for up to about five percent of total reductions -- five percent of your total obligation, which translates to about a quarter of the necessary reductions to 2020.

BOARD MEMBER D'ADAMO: Okay. And then how do conservation efforts fit into the scheme in terms of actions taken by individuals obviously that are not regulated? Is there something structural about the program that encourages conservation by individual consumers?

MR. MORROW: Well, one of the things that has occurred is that the price of electricity in Europe has gone up to include the price of emissions in same way as it includes the price of natural gas. And that provides a significant incentive.

But Europe also has -- Europe as a European level or European countries has energy efficiency programs as

well.

So I think the main effect of the cap and trade program would be an increased electricity price, which would give people an additional incentive to reduce emissions. But it's not seen as a substitute for other efficiency programs.

BOARD MEMBER D'ADAMO: Thank you.

CHAIRPERSON NICHOLS: Okay. This segues nicely into the next item on the agenda I think.

Thank you for the presentation. We're all getting a crash course. So we'll move on then to --

EXECUTIVE OFFICER GOLDSTENE: We'll have Margret talk about ICAT first.

MS. KIM: Very briefly.

CHAIRPERSON NICHOLS: Yes, Margret, please fill us in on ICAT. I was out of the room for a few minutes. I thought that already happened.

MS. KIM: Good afternoon, Chairman Nichols and Board members.

First, I would like to say that our Governor has truly maximized his star power to not only help put California on the map as a global leader in the fight against climate change, but he has also influenced and inspired so many other states and countries around the world to join the fight.

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MS. KIM: ICAP is one of the Governor's key climate initiatives. Here is a quote from the Governor on the historic moment of establishing the ICAP partnership.

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MS. KIM: But before addressing ICAP, I would like to briefly give you some background on international developments.

The UN framework convention on climate change is the foundation for the international climate change regime. It set an overall framework for intergovernmental efforts to stabilize greenhouse gas emissions at 1990 levels. It was open for signature at the Rio summit and came into force in 1994.

The conference of the parties, also referred to as COP, is the decision-making body of the convention which meets annually. At COP 3, the delegates to the convention adopted what is called Kioto Protocol. Kioto Protocol sets binding emission limits on developed countries that have signed it, and we call them Annex I parties, to reduce their greenhouse gas emission at an average of five percent below 1990 levels over the period from 2008 to 2012.

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MS. KIM: Kioto Protocol introduced three

flexible mechanisms, which are called market-based instruments, to provide a pathway to meet the Kioto commitments. They are, as Iain talked about:

Clean development mechanisms where Annex I countries and companies can purchase emission reduction credits generated by the emission reduction projects in non-Annex I or developing countries.

Joint implementation is a form of emission trading among Annex I countries that revolves around emission reduction projects in developed countries.

International emission trading is a trading of Kioto units among developed countries.

The next slide is to give you a general idea as to where California is with regard to other countries with respect to CO2 emissions. These figures came from the UN DP human development report which was released last year. The California figure came from our research division. I put an asterisk next to China because China is now the biggest emitter of greenhouse gases.

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MS. KIM: The next slide is to show that while California's per capita emissions may be low compared to those of other states in the US, it is never the less more than UK, Germany, and Japan.

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MS. KIM: Now when we talk about carbon market, we are really talking about two separate markets: Compliance and voluntary.

The compliance market is comprised of allowance-based transactions through the emission trading systems and project-based compliance offsets such as CDM. All carbon credits purchased in the voluntary market are project based transactions, except for what's known as CCX, which is allowance based.

There are currently about 13 standards around the world. And what I mean by standards are accounting standards, monitoring, verification, and certification standards.

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MS. KIM: Now I would like to introduce ICAP, which stands for International Carbon Action Partnership. It is made up of national and subnational governments which are pursuing a mandatory cap and trade system.

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MS. KIM: California signed on to ICAP last October in Portugal and became a founding member.

I know Chairman Nichols was present.

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MS. KIM: The primary goal of ICAP is to establish a credible global carbon market through a

mandatory cap and trade system. Its short-term goal, however, is to provide a forum to share experiences and knowledge.

For states and like California and WCI, we need to recognize early on any design compatibility issues that may pose challenges for future linking, as well as to understand early on the implications of linkage so we can make an informed decision.

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MS. KIM: Currently, there are 26 members and one observer. We have from the EU European Commission, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, and UK. We have some WCI members, some RGGI members, and New Zealand, Australia, and Norway -- Norway is not part of EU, but linked to the EU ETS.

New Zealand's EU ETS is expected to be signed into law in September and will have a retroactive effect starting in January of this year. Forest sector is the first sector that will be covered under cap and trade.

And Australia is going to be finalizing their rules and regulations by the end of this year.

We are also considering developing a third category of advanced developing countries participation in ICAT, like China and India, because of the sheer amount and speed in which they're emitting and will be emitting

between now and 2050.

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MS. KIM: It's important to note the members of ICAP, however, realize that cap and trade is not the only strategy but one of many strategies to reduce greenhouse gas emissions.

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MS. KIM: Currently, we have eleven Steering Committee members: Five from North America, five from Europe, and one Oceania. And California is Chairing currently the Steering Committee.

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MS. KIM: So how does ICAP benefit ARB?

AB 32 may be the first state law forcing us to think globally as we design our local actions. It specifically requires ARB to review and consider programs of other nations. For example, it requires us to review international greenhouse gas reporting programs. ICAP has already set up such network of government experts on monitoring, reporting, and verifying greenhouse gas emissions. Staff from our ARB PTSD is part of the ICAP Subcommittee, and will benefit from learning what other reporting standards are being considered and implemented throughout the world.

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MS. KIM: In some respects, while California may be leading in the US, it is still behind Europe. As such, it is critical to learn from their experiences, both good and bad, as we design ours.

For example, in November, ICAP will be holding a conference on auctions. This will enable us to learn the technical aspects of designing auctions from RGGI and the EU and what policy consideration has been given in using auction revenues.

ICAP will also hold a closed session on allocation which will deal with industry competitiveness. Through ICAP, we will also learn the implications of a linked carbon market. For example, for ETS to serve as an effective instrument for low carbon investment, it will need to establish a credible market. And of course, the government has a key role in ensuring this credibility.

To the extent that California is not living in isolation and stop trading all together and continue to import and consume products from developing countries, we are directly or indirectly linked to carbon emissions from our supply chain.

ICAP will provide a forum for exchange of ideas on how to deal with leakage, border tax adjustments for imports, and at the same time explore ways to help build capacity in developing countries.

And finally, to the extent that emission trading system is being considered beyond California's borders, compliance and enforcement is key. And we need to collaborate with other government agencies to promote consistency and stringent market oversight.

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MS. KIM: These are some of the initial work streams that have been identified by ICAP members. Monitoring, reporting, and verification is highlighted, because this is the first work stream we have agreed to tackle.

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MS. KIM: The cap and trade system's environmental integrity depends on the effectiveness of monitoring, reporting, and verification. And so ICAP decided to tackle this issue by holding a public conference in Brussels. The objective of the conference was to learn about different experiences from U.S. EPA acid rain program, to EU ETS, as well as what others are considering, like RGGI, Australia, and WCI.

To summarize the key outcomes from the conference, the members acknowledge that emission trading system can serve as an effective instrument, but only if it is credible and stringent. In other words, we need to have a strong compliance mechanism to provide certainty to

market participants.

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MS. KIM: In closing, we have not just set up a subcommittee on monitoring, reporting, verification, we're also in the course of retaining all outside experts to review existing reporting protocols to identity best practices and to make recommendations. We hope to release this final report together at the forum in Poland.

The next topic is to tackle is an auctions and allocations as mentioned. The conference by the way is not going to be in New York but in Washington, D.C. this November a couple of weeks after the elections and will be held by the state of New York.

That's it.

CHAIRPERSON NICHOLS: Thank you, Margret. That's a really succinct summary of very busy and complicated interlocking set of activities that are going on.

It's kind of hard to overstate the sheer intellectual weight that's going into these activities going on around the world. As you probably already reported at lunch today, we met with a small group of European officials, all of whom looked incredibly young to me, although they have the title senior associated with their names. Al though they are people who are assistants to legislators or ministers in their countries and have

major responsibilities and who are working full time thinking through how to make some of these programs work.

And it really is engaging some of the very best minds in the public and private sectors. And a lot of what's going on is just exchange of information right now and building up the base of understanding of what we mean when we use some of these terms and how we can link our activities together.

You know, it's such a clique to say that global warming is a global problem. But the fact is it really is. And the fact that we've got so much globalization going on in terms of developing the solutions, where even in California we get to have all of these international experts come to work with us is a testament to I think the size and complexity of the problem if nothing else.

So it's just good to have these opportunities to touch base with some of the people who were actually doing the work and update ourselves on what they're coming up with. But no action is required of us immediately.

Thank you very much.

Now we will move to the next item which is more directly related to what we're developing in California under AB 32, and that's the Western Climate Initiative.

We touched it on briefly when we received the draft scoping plan. And right on schedule, the Western

Climate Initiative came out with their recommendations for a western regional market and how to begin to design that.

In addition to our staff who are here, we also have Michael Gibbs from Cal/EPA who has been the California lead representative to the Western Climate Initiative with his cohort, Chuck Shulock, the head of our Office of Climate Change. And I was with Michael yesterday when he did a bunch of briefings on this topic. So I think he can probably do this from memory at this point.

Welcome, Michael. Thank you for your leadership on this issue.

And I think at this point it would be a good idea to just mention that Western Climate Initiative has been in the news in addition to their announcements about the cap and trade system they're designing, because it's just been joined by Ontario, the largest province in Canada, which in turn makes the Western Climate Initiative now an entity that's covering about 75 percent of the Canadian economy, in addition to 20 percent of the US economy. We've now become the largest regional body working on these issues.

So I'll just ask Mr. Goldstene to introduce the item.

EXECUTIVE OFFICER GOLDSTENE: Thank you, Chairman

Nichols.

This item is part of an ongoing series of updates to the Board on the major issues impacting the Scoping Plan. We want to keep the Board fully briefed as we think through all of the elements of the plan.

Today, staff will update you on efforts to design a regional cap and trade system. By working as a region, western states and Canadian provinces will facilitate emission reduction opportunities, help meet the climate protection goals in a cost effective manner, and minimize leakage.

As one of the primary measures suggested by the draft Scoping Plan, a regional cap and trade mechanism will increase certainty that we'll hit the emission targets set by AB 32.

Mr. Sam Wade from the Office of Climate Change will provide the update. And the others behind me as well will be available for questions and may add. Mr. Wade.

(Thereupon an overhead presentation was presented as follows.)

AIR POLLUTION SPECIALIST WADE: Thank you, Mr. Goldstene. Good afternoon, Chairman Nichols and members of the Board.

Today's briefing is one in a series of status reports on the AB 32 Scoping Plan that we presented to

keep you abreast of staff's efforts.

My presentation will focus on the draft plan's recommendations to establish a California cap and trade program that links to a regional emissions trading market for greenhouse gases.

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AIR POLLUTION SPECIALIST WADE: I'd like to begin by discussing the current status of the Scoping Plan process.

Over the last eight months, ARB has worked with other agencies and a wide range of stakeholders. The suggestions and recommendations that we've received were vetted and evaluated by ARB staff. And on June 26, we released the draft plan for public review. In addition, we released the appendices for the draft plan earlier this week.

The release of this draft inaugurates a process of evaluation, analysis and refinement of the measures and regulations with full public involvement at every step. We are soliciting these comments on both the technical aspects of the draft plan and on the policy recommendation and requesting these comments on the draft plan be submitted by August 1st and that comments on the appendices be submitted by the 11th.

Furthermore, a supplement to the draft plan will

be released this summer. It will contain analyses of the economic and public health impacts of the draft plan, and its release will initiate another round of public comment, including an additional workshop.

All comments received on both the draft plan and this supplement will be considered and incorporated into the proposed Scoping Plan that we plan to release publicly on October 3rd and will bring to the Board for potential approval in November.

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AIR POLLUTION SPECIALIST WADE: Staff's preliminary recommendation as outlined in the draft plan is to pursue a mixed approach that incorporates market-based compliance mechanisms, regulations, voluntary reductions, and fees.

The key market-based aspect of this recommendation is to develop a broad based California cap and trade program. This program will meet all of the AB 32 requirements of market-based compliance mechanisms.

Furthermore, the California system would be linked with the efforts of our partners in the WCI, or Western Climate Initiative, to create a robust regional cap and trade system.

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AIR POLLUTION SPECIALIST WADE: The Western

Climate Initiative is a voluntary alliance of seven US states and four Canadian provinces that have agreed to collaborate in identifying, evaluating, and implementing ways to reduce greenhouse gas emissions.

The initiative began in 2007 when several western governors agreed to work jointly to promote clean and renewable energy in the region, increase energy efficiency, advocate for regional and national climate policies, and identity ways to adapt to climate change impacts.

At the outset of WCI, the partner jurisdictions agreed to three key deliverables. The first was to join the Climate Registry, which is a multi jurisdictional greenhouse gas emission reporting system.

The second was to agree to a regional greenhouse gas reduction goal consistent with the individual state and providential goals.

The original partners have accomplished both of these two deliverables, although the regional goal is currently being revised to include the new partners, as Chairman Nichols mentioned.

The remaining task for this collaboration is to consider the optimum design and implementation of a regional multi-sector cap and trade system to achieve reductions.

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AIR POLLUTION SPECIALIST WADE: This map shows the WCI partner jurisdictions in green and the observer jurisdictions in yellow.

As you can see, the ambitious scope and firm reduction targets envisioned by the original founding jurisdictions not only appealed to other western states and provinces, but also to Canadian provinces in the east. The names of both the partners and observers are listed on the next slide.

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AIR POLLUTION SPECIALIST WADE: Although it wasn't reflected on the map, as Chairman Nichols mentioned, last Friday, Ontario officially moved from observer to partner status. With Ontario as a member, the WCI now represents approximately -- 73 percent is the number I have, but 75 is good too. And 20 percent of America's economy. So 73 of Canada's economy and 20 percent of America's economy, making it by far the largest regional effort to address climate change in north America.

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AIR POLLUTION SPECIALIST WADE: The benefits of California's participation in this program are clear. Working with our WCI partners can lead to more than twice

the reductions that we can otherwise accomplish if we acted alone.

And in general, harmonizing our efforts with our neighbor creates a more level playing field for our own industry and reduces the incentives for businesses and the jobs they create to leave the state due to uneven regulatory practices.

Developing a regional approach through WCI is therefore one of our strongest tools to prevent emissions leakage as explicitly required by AB 32.

In the context of a cap and trade emission market, a broader market leads to greater opportunities to find low cost emission reductions. Therefore, creating a regional market will also make achieving our AB 32 goals more cost effective. Further, California's active participation in the design of this regional system will allow the state and the region as a whole to take a leadership role in the development of federal climate change policies.

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AIR POLLUTION SPECIALIST WADE: The governors and premiers of all partner jurisdictions have committed their states and provinces to individual emission reductions targets that are of similar stringency to our AB 32 targets.

At this time, three WCI partners in addition to California have these targets codified in law. The remaining partners will proceed to seek legislative authority once the WCI partners release their final recommendations in September of this year.

A draft of the program design recommendations was released yesterday for public comment, as Chairman Nichols mentioned as well.

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AIR POLLUTION SPECIALIST WADE: The next three slides are based on this recently released document.

The greenhouse gas emissions captured by the regional cap and trade system would include those from electricity, large industrial point sources, as well as upstream coverage of residential, commercial, and transportation fuels.

Electricity imports into the region would also be accounted for, and coverage of emissions from fuel use would be phased in beginning in 2015.

The proposed scope of this program matches the scope that staff recommended for the cap and trade system in the draft Scoping Plan and is very similar to the recommendation that was offered to ARB by the Market Advisory Committee.

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AIR POLLUTION SPECIALIST WADE: The WCI draft document recommends setting an overall emissions cap that achieves the 2020 regional emissions goal from capped and uncapped sources.

The cap and trade program cap would be set prior to the start of the program implementation, prior to 2012, and be set for all years out to 2020. Announcing this cap for all of the years of the program provides greater certainty to the capped sources of what will be required for this nine-year planning horizon.

Once this regional cap is set, each individual partner's jurisdiction will receive a specific share of this cap or allowance budget. The partners would mutually work out the exact distribution of this allowance budget through a process that we're referring to as apportionment.

Once the total regional cap is broken into smaller amounts for each jurisdiction, California will have a fairly wide discretion as to how to allocate its budget of allowances within the state. An allowance has value because it can be sold. And the existence of this value is independent of whether allowances are auctioned or given away for free.

So the process of allocation may be thought of as distributing the allowance value within the California

economy in an appropriate fashion.

AB 32 offers some advise. It directs us to distribute emission allowances in a manner that is equitable and seeks to maximize costs and maximize the total benefits to California and encourages early action to reduce greenhouse gas emissions.

The current WCI draft document contains some descriptions of how allowance value could potentially be used, but no firm commitments to specific uses by partners at this time.

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AIR POLLUTION SPECIALIST WADE: By releasing the draft Scoping Plan, ARB has initiated the first step toward reducing greenhouse gas emissions in the state as required by AB 32. And as a member of this larger regional effort, we are starting down the long path of achieving the widespread emissions reductions we need to address this global problem.

Although it is still too soon to predict all roadblocks that may lay ahead, ARB staff is trying to identify and address potential issues that could arise if we link a California cap and trade system with our regional partners.

First and foremost, it is critical that the ambitious time lines of both WCI and AB 32 implementation

remain coordinated. This will avoid one partner getting too far out in front of the others and creating instability or uncertainty in the approach.

Further, some individual program design elements must be harmonized among the partner jurisdictions. An example of an area which requires harmonization is the reporting of emissions from all jurisdictions, as Margret and Iain's presentations both touched on.

California is ahead of most of the WCI partners due to the fact we have established mandatory reporting requirements as of December of 2007. However, our requirements may need to be revised to allow for the inclusion of data from commercial, residential, and transportation fuel use.

Additionally, WCI partners are working to build consensus around the broad framework of an offset credit program similar to the CDM. Offsets are emission reductions projects that occur outside of the capped sources. Other greenhouse gas cap and trade programs, such as the EU ETS, do allow their use, usually in limited quantities to reduce the overall cost of the program.

An offset credit accepted in lieu of an allowance in one partner's jurisdiction will impact the price paid for allowances in all other partners' jurisdictions. Therefore, partners must work together on the offset

issue.

The final WCI program design will likely require joint decisions on geographic, quantitative, and project type limits for offsets and may involve the establishment of an independent, impartial organization to issue these credits.

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AIR POLLUTION SPECIALIST WADE: The following two slides emphasize the parallel stakeholder processes undertaken by CWI and ARB.

The WCI has held a series of public workshops in Portland, Vancouver, and Salt Lake City. And on July 29th, the WCI will hold a workshop in San Diego to solicit public comment on the draft document.

In addition to these workshops, the WCI has held stakeholder conference calls and received significant written comment. Many California entities have participated in this process and ARB staff have reviewed all of the comments submitted to the WCI.

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AIR POLLUTION SPECIALIST WADE: The AB 32 Scoping Plan stakeholder process continues as outlined on this slide. We recently had three large workshops on the draft plan and expect to hold numerous additional meetings with interested parties in the next few months.

We will also be holding workshops on the draft plan supplement once its released. And throughout this Scoping Plan process, we have considered related comments that we've received on the WCI through our process and have brought these issues to the table when representing California in the development of the WCI program design.

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AIR POLLUTION SPECIALIST WADE: In the remaining months of 2008, the WCI will publish its final program design document. ARB staff will consider these recommendations as it prepares the proposed Scoping Plan for the Board in November.

If the Board approves the staff's recommendation for a California cap and trade program that links with this regional system, we will work with the other WCI partners to develop a consistent set of rules that meet all the requirements of AB 32. The target date for market launch would be January 1st, 2012.

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AIR POLLUTION SPECIALIST WADE: In summary, let me just recap the points I've presented today. The draft Scoping Plan recommends that ARB develop a California cap and trade system and suggests that this system would be linked with our partners in the WCI.

This regional system would provide access to the

lower cost greenhouse gas reductions and incentivize significant reductions across most of the western United States and throughout Canada.

We remain on track with the AB 32 time line and remain engaged in the regional process.

That concludes my presentation. Thank you very much for your attention.

Mr. Goldstene.

EXECUTIVE OFFICER GOLDSTENE: Thank you very much, Mr. Wade.

Chairman Nichols.

CHAIRPERSON NICHOLS: Thank you very much.

BOARD MEMBER RIORDAN: I have a question. And you may or may not know the answer.

I look at the map, and it's very clear to me it would be so helpful to get Nevada, Idaho, and Wyoming into the process. You can make a case for all those that are listed as observers. But I think those three stand out.

What are we doing to try to encourage them to participate with us?

CHAIRPERSON NICHOLS: I think that's a Michael Gibbs question.

MR. GIBBS: Good afternoon and thank you for having me today. I'm happy to be here to talk about the Western Climate Initiative that we've been working so hard

on this past year.

This is an important question of how we expand the membership within the Western Climate Initiative. And that is something that the partners have been working on diligently. We have had new members join, most recently Ontario. Prior to that, Montana. With the addition of Montana, we're hopeful other resource based states in the west, such as Idaho and Colorado, would also be joining. We're fortunate that we have them as observers to the process so they're familiar with what we're doing.

And I think that one of the factors that will help us bring them in is as we move forward to our final program design, enabling them to take that with more certainty about what our products are into their own political process to try to bring them into the fold I think will be helpful.

So we are continuing to talk with them, and we do meet with them at meetings when they come as observers.

CHAIRPERSON NICHOLS: I could probably just add the Western Governors Association really is the venue for this whole process. And they are all members of WGA. And so differences in their political climates at any given moment may make it easier or harder for them to join. But I think as time goes on, the reasons to want to join grow.

BOARD MEMBER RIORDAN: And hopefully they will

see some benefits. And we obviously would see tremendous benefits to get those three states involved for a whole variety of reasons.

BOARD MEMBER LOVERIDGE: Just piggyback onto that question. Is there any emergence of an Eastern Climate Initiative? Are there any other governors, other sectors?

CHAIRPERSON NICHOLS: There's several.

MR. GIBBS: Just a couple to note. There's the Regional Greenhouse Gas Initiative in the northeast which covers the New England states primarily. And there is a forming group that has started work in the midwest. The Midwest Climate Accord, which covers the upper midwestern states. And they're really just getting started. They are developing their program and their process. And they have the opportunity as the Western Climate Initiative did to build on others work. The Midwestern Climate Accord group is building on the Western Climate Initiative work, and there's good communication and cross-fertilization there as they start their process.

CHAIRPERSON NICHOLS: Just breaking news that the governors of Florida and Virginia have announced they're trying to organize a southeast Governor's Climate Initiative as well, which is really -- that's probably the most amazing of all.

BOARD MEMBER SPERLING: I have a question. But

one comment and that is, gee, there's only one thing missing: A national program.

So the question I have is with all this discussion -- I mean, I think this is fabulous that all of this discussion, interaction. And one of the really important benefits of this is going to be standardizing rules and protocol and all that sort of thing, which is going to be absolutely essential.

But underlying this is this idea of collaboration, cooperation, and so on. And then there is this concept of offsets. And it's a vague concept. But politically what I see in Europe and here is that no one wants to allow too much flexibility in terms of buying your way out. That means buying your way out from other geographical or political entities. With Europe it's with the CDMs and Asia.

So the question I have -- and this is -- I'm really curious the thinking with the WCI is when you set up these partnerships and this trading -- proposed cap and trade, what is kind of the underlying philosophical, political thinking about how much we really would be willing to allow Californians to buy credits or allowances from other states in other countries as a way of meeting our target?

You know, in our Scoping Plan, I think we limit

it at ten percent. But if everyone really did ten percent, it kind of limits how much interaction there really would be.

So I guess part of the question is how strong philosophical commitment and political commitment is there to this and whether -- you know, how that's going to translate into like this ten percent rule, for instance, we're talking about.

OFFICE OF CLIMATE CHANGE CHIEF SHULOCK: I'll start with a response to that, and Michael may want to speak more.

Chuck Shulock from the Office of Climate Change.

Michael may want to add more. But just to be clear, it would not just be offsets that would be moving across the boundaries, but allowances. So an allowance issued in a partner state would be acceptable for achieving compliance within California.

BOARD MEMBER SPERLING: So we -- like in our Scoping Plan, I don't think we address that; right? But what you're saying is that you could buy those allowances from Ontario.

OFFICE OF CLIMATE CHANGE CHIEF SHULOCK: Correct. And I don't think we went into a lot of detail on this in the Scoping Plan document.

But the idea is that California would adopt a

California program. But as part of that, we would recognize currency, if you will, from other states that met these pre-conditions that have a rigorous program, enforceability, et cetera, et cetera. So if a facility in California found it cheaper to buy an allowance that was issued by Ontario, they could use that for compliance.

Then above and beyond that, there's a limited ability to use offsets, be they from within WCI or potentially broader, that's one of the issues that's under discussion in WCI is should there be geographic limits and how might that play out.

But anyway, the offsets are in addition to the basic trading of the allowances. So it's actually quite a bit of flexibility that's provided if you look at the whole system.

BOARD MEMBER SPERLING: So we're not talking at least here in California about limiting the purchases of allowances other states or provinces; is that right?

OFFICE OF CLIMATE CHANGE CHIEF SHULOCK: That is correct.

CHAIRPERSON NICHOLS: If they are linked.

OFFICE OF CLIMATE CHANGE CHIEF SHULOCK: Linked, yes. Provided that they are of acceptable quality, which is what the linking issue is all about and what the partners are mutually determining. But then it would be

fungible -- I don't want to use -- that currency would be accepted for compliance within the California program.

CHAIRPERSON NICHOLS: It's like starting a new country.

BOARD MEMBER BALMES: Can I ask a question?

CHAIRPERSON NICHOLS: Yes.

BOARD MEMBER BALMES: So Mr. Morrow made a point that in the EU experience getting good emissions data was key. And I think in the last presentation it was also mentioned that -- maybe it was the ICAP there was an effort to have a work stream on this.

Given how many jurisdictions are involved with the Western Climate Initiative, how close are we to being able to have good emissions data for all these jurisdictions?

MR. GIBBS: Sure. Thank you.

The WCI partners recognize that exact fact. And a good reporting -- mandatory reporting program really is a backbone of any regulatory program, including cap and trade in this case.

So one of the first orders of business among the partners is to establish the essential elements that must be common across all the partners in their reporting programs.

Now as we've already heard, California is a

little bit ahead and we already have a rule in place or being put in place. We may need to adjust that to ensure that we have the appropriate coverage and other elements that all the partners agree are essential. And then at the same time, the other partners will be adopting the same rules and adopting those reporting requirements.

So as a consequence, we want to use that data as a basis for setting limits, acknowledging compliance and the like, so we have that data necessary. So I think one of the opportunities we've had to learn from the other programs that came before us.

CHAIRPERSON NICHOLS: Okay. Onward and upward. Thank you very much. There's really a lot more to say about this, but it is a work in progress.

Our final presentation of the day, we're fortunate to hear about a new initiative that's underway at our of our sister entities within Cal/EPA, the Department of Toxic Substances Control.

Maureen Gorsen, who's the director of the Department, was originally scheduled to be here but unexpectedly was not able to join us. And so a member of her team, Don Owen, is going to be making the presentation instead to give us an overview of the Green Chemistry Initiative.

The issue here is in direct relevance to us of

course just an interesting topic. But in many ways we are parallel regulators of some of the same chemicals. We also have a connection at the personal level, because one of our Board members, Dr. Balmes, has been involved as an advisor to the Departments of Toxic Substances in the development of this approach as well.

I guess it's been a clique for many years that chemical by chemical regulation is not the best way to go. That everybody agrees that it would be much better if we can find ways to decide early on what kinds of things are dangerous and more dangerous and less dangerous and encourage society to move towards less dangerous and away from the more dangerous. But mechanisms have alluded us.

And so our department is boldly going into an area where few have dared to go before and has coming up with some really interesting ideas.

So with that build up, I'd like to ask James Goldstene to introduce Don Owen, and then we can take it from there.

EXECUTIVE OFFICER GOLDSTENE: I don't have much to add, other than we'd like to thank Director Gorsen and Don for their work in this area. Of course, we believe that the Green Chemistry Initiative is an important component of what we do, and we're fortunate that they've made the time today to give us an update.

Don.

(Thereupon an overhead presentation was presented as follows.)

MR. OWEN: Good afternoon, Chairperson Nichols and Board members.

Thank you again for this opportunity to share with you our experience and what we've learned in the Green Chemistry Initiative.

As Chairperson Nichols mentioned, this is an evolving area akin to some early days of climate change. Many of update reports your staff just presented have significant linkages to ideas we've heard in the Green Chemistry Initiative.

I'd like to begin today by thanking our colleagues on your staff for their contributions throughout Phase I and Phase 2 of the process, particularly Judy Ye and Bob Barham who have been instrumental in helping us and guiding us through this very interesting process.

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MR. OWEN: Our regulatory laws at the national and state level largely deal with the discharges and emissions and disposal of waste after something has occurred within a facility, in our case located in California. This is referred to in the nomenclature we

learned from Dr. Balmes and the science panelists, the cradle to grave approach. It's served us well and still necessary today.

As you know, we're experiencing diminishing returns with the technologies available to us now for the things each of us do in our daily lives, largely which relate to chemicals we find in products, what happens to those products during their use, and ultimately how they're disposed of.

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MR. OWEN: To give you an example from the context of our department, which is responsible for hazardous waste management and ultimately disposal, yesterday solutions are tomorrow's burdens.

This chart, while difficult to read, is intended to illustrate what the cost estimates in the future to the taxpayers -- this all would come from general fund resources -- will be for managing three Superfund sites. Those are Casmalia, Stringfellow, and BKK Landfills, all located in southern California.

Today, our long-term stewardship burden is estimated to exceed $1.4 billion probably for the next 300-plus years. So the activities of the past that drove our economy, while providing enormous benefits to each of us and society and jobs, have left us with a legacy that's

now very costly.

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MR. OWEN: To give you a little more context about the problems we face, there are a lot of plastic beverage bottles that are now not recycled but find their way into the waste stream and increasingly into our oceans and other waters.

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MR. OWEN: Plastic trash bags or bags used in commerce, very few are actually reused.

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MR. OWEN: And a modern convenience we all rely on, there are more than 426,000 cell phones retired every day.

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MR. OWEN: At the same time, global chemical production will increase nearly double over the next 25 years every year. So there is a significant opportunity and a significant challenge before us.

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MR. OWEN: California, like other jurisdictions within the United States, in some cases the federal government and our nation and other nations, typically respond episodically, as we read almost daily in our news media about hazards presented by a specific chemical and

the series of products or products otherwise unknown and perhaps inadvertently discovered.

A chemical by chemical, product by product approach has led to piecemeal set of new regulations and statutes. The department has over the last several years received authority and been charged with administering bans on lead and jewelry and lead in children's jewelry in particular, toxics in packaging mercury in certain devices, and the ROHS ban on electronic goods.

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MR. OWEN: In sum, we confront a large problem in toxic waste. However, it's also an enormous opportunity. The global chemicals and materials market, many of which will produce the tools and technologies that are necessary for increased energy efficiency, more efficient appliances, things that will be critical for your efforts in climate change, is estimated about $16 trillion.

To give you some context, the information technology and e-commerce businesses globally amount to about 800 billion currently. This is a very, very significant global market.

Like climate, we must begin to think globally. And as Margret Kim noted, we are linked to a very globalized supply chain. The products we purchase and use in California are those things that effect our public

health, our environment, both directly and indirectly.

So what is green chemistry in? The definition that --

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MR. OWEN: -- we've learned during this process and throughout the initiative is the consideration of the public health and environmental effects of chemicals during the design of products and processes.

So beginning at the front end, are there opportunities to substitute safer chemicals? To use different engineering practices? To have different manufacturing techniques that may produce a safer product, one which uses less energy, one which has less climate footprint and ultimately is reusable? Or if disposed, is disposable in a benign manner. It's a fundamentally new approach.

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MR. OWEN: And for the 21st century, it incorporates the concepts of multi media rather than a single purpose environmental media and life cycle.

The tools are still rudimentary. In your Scoping Plan, your staff has begun work on life cycle analysis related to low carbon fuel strategies. That's a tremendous undertaking. We've learned the tools have a long way toward maturation. The National Academy of

Sciences informs us in our process these tools will be necessary and part of how our environmental framework in a regulatory sense operates globally. But over the next 100 years, that transition will occur.

I congratulate you for being at the forefront. We're learning from that.

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MR. OWEN: Canada and Europe have begun efforts to consider attributes of this problem and to begin taking steps to address the significant gaps in both knowledge, data, safety, and technology. But they're just beginning. We've outlined a goal with our colleagues and the leadership counsel across State government and are participants in the process whereby California would become the leader in innovation use and manufacture of safer, ever-more environmentally benign chemicals and products. We think of this as continuous improvement regime. It will take a lot of time as these tools, technologies, and ideas and capacity emerges.

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MR. OWEN: A little bit about the process. Unlike the administrative procedures process all of us are very accustomed to when we write regulations to implement statutes which have given us authority, we began this at the direction of Secretary Adams, but took a very

different tact.

We engaged the world. We learned from them. We consulted with them. We shared information. Very much like all of the efforts you just heard on your climate partnerships and collaboration.

We served as observers for many of our experts in Europe, Asia, and others who might be ahead of us in certain areas. We used a wiki-like block approach to elicit ideas. So rather than proposing a policy framework and asking for reaction, we asked the world to tell us what they thought California could do.

It produced an interesting result. We got about 57,000 ideas on the blog. And that ended up being distilled into 808 discrete options which we reported to the secretary at the end of the 2007.

That report, by the way, could not have been accomplished without all of the efforts of your staff in assisting us in various teams in both distilling that wide amount of information and organizing it and evaluating it.

We've moved on to Phase 2.

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MR. OWEN: And we tried to continue the process that was conducted through Phase I which was open, collaborative, depended on new technology where people could use the web and other tools to participate

throughout the world. It became much more difficult. As we asked people not only what would you do, but how would you do it, when would it be done, who would pay for it. They found that a difficult challenge.

So it was refreshing and validating as regulators to understand that people, our colleagues in industry and environment and suffered the same challenges we do day in and day out as we asked them to stand in our shoes and help us formulate a new policy approach.

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MR. OWEN: We divided Phase 2 into three distinct tracks. Dr. Balmes, as Chairman Nichols' commented, was our co-chair of our Science Advisory Panel. Very successful and productive team of scientists and experts and doctors from across the nation with particular expertise in chemicals, chemical toxicity, and public health. And their report was instrumental in helping us reach the conclusion we're about to present to the secretary.

We also used key element teams. There were a number of options that were presented in Phase I which related to existing state authority. If we were to think of those assignments already given to us in statute in programs in a slightly different way, we could accomplish some of the objectives set forth in this initiative.

Those are the key element teams. They relate to matters like education in kindergarten through high school, the community college system, and higher education.

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MR. OWEN: To quickly summarize, the Science Panel gave us 38 detailed and thorough recommendations. They used a balanced approach. We did not ask consensus of them. They did not vote. And yet, they worked very well together with very different viewpoints. They divided their work interestingly into a demand side and supply side framework where they proposed options and told us how they could operate so that we could address the data, safety, and technology gaps.

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MR. OWEN: This slide presents a summary of what their options describe. As one example, they encourage us to as state government formulate a policy along with funding mechanisms to support expanding research and innovation in green chemistry and engineering through our research institutions, through academia, and through public/private partnerships.

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MR. OWEN: As I mentioned, the key element teams were those teams that related to existing government functions. For example, we heard that the State ought to

walk the talk and take initial steps to implement as many of the principles of green chemistry and green engineering. One way to do that is through the power of procurement. If we can account for chemical toxicity and health impacts associated with products we buy and begin to move to life cycle considerations, whether that's true cost or life cycle cost, and begin to apply some of those tools in a pilot or a programmatic way, we can demonstrate how they can be applied in industry and elsewhere.

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MR. OWEN: In summary, we're about ready to present to the secretary our conclusions. Please stay tuned.

And they will help us address the huge absence of information on chemical toxicity, on chemical ingredients in products, on the capacity problem, and how we will stay abreast of the globalization of products and the opportunity to participate more fully in that market.

The Milken Institute, for example, in the last week or so issued a report indicating that California has fallen from its preeminent position and its ability to translate innovation and idea, creation, and knowledge capital into economic development to the fourth ranked position. So while we spend a lot of money as State government, as research institutions, as industry, we're

not doing as good of a job. And green chemistry is one opportunity to re-focus that and hopefully help you deliver on some of the promises it needs for climate change, energy efficiency, and air pollution.

Thank you for your interest today. I welcome any questions you may have.

CHAIRPERSON NICHOLS: Thank you very much. Thank you for that presentation. I know there's a lot of interest in what policy recommendations are going to come forth.

You mentioned at the outset we really are mired in chemical by chemical scares and legislation. And the public I think is as frustrated as regulators or regulated communities by the difficulties in putting all this stuff in context and finding a way to actually empower ourselves to act in a more responsible way, even when people are motivated to do so. And the conflicts of information and the inability of databases to talk to each other are all almost seemingly intractable. And yet they can't be intractable. There have to be better ways to do things.

So I'm really enthusiastic about what's being attempted here and pleased that we are able to be contributors to the process. And hopefully we'll be able to collaborate further as we move on into the policy stages of this.

Further comments? Yes, Dr. Balmes.

BOARD MEMBER BALMES: Well, as a member of the Scientific Advisory Panel that advised DTSC on green chemistry, I'm very eager to see what final policy recommendations come out.

But one thing I hope to see that fits in with what we're trying to do on certainly climate change but other areas is try to incentivize technological innovation and green behavior. And I think that that can be a win-win for the California economy as well as for the environment.

I mean, we heard at lunch from the representative from Denmark how -- or maybe it was Germany, maybe both of them, about how much -- what percentage of the economy is now derived from technologic innovation with regard to --I think it was Denmark -- wind power and renewables. It was eight percent of the economy now.

So I think that trying to shift the California chemical production industry into using green techniques and to produce less toxic materials can -- I think that can be a driver for the economy. There will be some companies that will be hurt possibly, but I think overall it will be good for the economy. And I think it fits in with what we're trying to do with regard to a number of programs

CHAIRPERSON NICHOLS: Absolutely. This is a case where knowledge really is power. And we are all subjected to all the conflicting claims about what's green and what isn't green and having a better sense.

BOARD MEMBER BALMES: Just like verifying greenhouse gas emissions.

CHAIRPERSON NICHOLS: Well, greenhouse gas emissions are measurable though. The definition of what is CO2 is not all that controversial.

Anyway, any comments or questions at this point just --

BOARD MEMBER TELLES: I have just a question.

Is this program going to have some specific objectives? I mean, some specific projects.

MR. OWEN: It will likely be conceptual recommendations to the secretary and to the Governor for steps that California may take to begin to bridge that vast unknown of what chemicals are in products that are sold in California, whether they're toxic, what hazards think might present to public health and our environment. And in addition, how we can incentivize innovation and use our position in California that's unique in developing new ideas. Whether those are biotech, nanotechnology, clean technology that converged on new chemicals and compounds, but how that might displace older, less safe items in

commerce.

So, yes, it will have recommendations to take initial steps much like the very first Climate Action Team report.

BOARD MEMBER TELLES: The reason why I bring that up is one of the things that's being pushed by the climate initiative is florescent lights. And if you buy a florescent light and you read the little thing on there, it says it has mercury in it and dispose of it based on California law. What's the California law of disposing a florescent light?

And you know, I would wonder if those florescent lights could be designed in some way that the disposal would be much easier than trying to figure out what the California law is of disposing of florescent lights.

In an operating room, I think it's a regulation you couldn't use florescent lights, because if they break and spray mercury all over the place and you have to evacuate the operating room.

I think there's a lot of area for beginning the development of some of these products with the design. And I think it's a great idea.

MR. OWEN: You pointed out an excellent example. Europe is struggling with creation of a collection and recycling apparatus across its member states through an EU

directive like climate change in its trading scheme so they can prevent hazard to landfill and to people from disposal of that transitional technology.

Ideally, we will create a process by which manufacturers and everyone throughout the supply chain are better informed and can make better choices so we can do our best to avoid transitional technology that have some downside, although they have some promising attribute, and move ahead toward the safer alternative that offers a win-win across the attributes, whether they're energy efficiency, toxicity, end-of-life, water consumption, or resource use.

We found in our initiative a group of scientists have developed compact lighting bulb which is about 50 times more energy efficient and does not contain any hazardous substances that are currently regulated. So the question is, what is in it? And do we know the hazard information about those substances?

Most cases, we don't. There's about 87,000 chemicals in commerce in the United States. The majority of the complete data sets on toxicity and human health impacts relate to pharmaceuticals and pesticides, about three to 4,000 chemicals.

So there is a vast unknown here, and it's going to take a lot of effort to learn to become informed and

how to deal with the unknowns as we make those safer substitutions.

CHAIRPERSON NICHOLS: It will keep us all busy. Thank you very much.

Before we adjourn for the day, we have a public comment period on matters that are within the Board's general subject jurisdiction but not on any agendad item. We have one person who's requested time to comment. And we will give three minutes for that comment and receive any written comments that you have for us. I think we've all received copies of that. So those will be turned over to our staff. But we will hear from you for the next three minutes.

MS. WHITMAN: My name is Debra Whitman, and I'm president of Environmental Voices.

And I'm going to bring a subject to your attention and ask for you to take action on it.

And I've been here last year on April, May, and June bringing this issue towards the Board, and nobody has contacted me. And I'm not aware that anything is being done right now. So I'm going to go over this.

What I'm requesting -- first of all, I'm talking about our government's experimental weather modification program and the chemicals that appear to be involved with those programs. And I'm asking that the Board add this to

your research plan for 2008-2009.

I'm also asking that you include Environmental Voices as part of the research on this.

Also asking that you put Environmental Voices on the agenda for the next Board meeting. And I have guest speakers that will speak on different issues relating to this. Dana Wiggington has 2,000 acres up in Shasta County. His trees are dying. He believes it's because of the massive amounts of aluminum and barium that's in the soil and the water up there. He has also experience in solar so he can talk about how these experimental weather modification programs are handling with the solar industry.

And I also have Rosalyn Peterson from California Sky Watch that will talk -- she's been doing research on this for eight years. And she spoke in front of the United Nations regarding the agricultural effects of the chemicals in this program.

And I just wanted to mention a little bit that this activity is going on worldwide from what we understand. It's NATO countries that are being -- well, we call it aerosol sprayed with some of these chemicals. Some of the chemicals we are looking at that have been tested are aluminum, barium, sulfur hexafluoride which is a greenhouse gas and it also causes the oxygen to not go

to the heart. It's blocking oxygen to the heart, but primarily a greenhouse gas. So we are doing testing and research to try to determine that and how much of that is in the environment.

Up in Mount Shasta, I just got tests results today over the phone that they went up to the top of Mount Shasta and tested the snow. And it was 61 times over the contamination levels of drinking water in aluminum, I believe it was. And that shouldn't be in the snow from what I understand.

So we are doing research. Trees are dying with fungus.

I just took someone from the city of Davis where I live, and we went around and looked at trees. The redwoods are dying, and it appears to be a fungus that's killing the trees. And these trees are dying because of weakness we believe from air pollution. And these chemicals that are now in our air.

There is an issue with agriculture. There is -- also we're concerned with the fires that are going on. If they're in fact is large amounts of aluminum and barium in these persistent con trails, we feel that's what's causing the fires in California to be so severe and we can't get them out because they're very flammable chemicals.

CHAIRPERSON NICHOLS: I'm sorry. Your time is

up.

MS. WHITMAN: Anyways, there's diseases. People are being ill. We're doing studies on health effects of these chemicals.

So we are asking that the Board put this is a number one priority to look into it and research.

CHAIRPERSON NICHOLS: Okay. Thank you for appearing in front of us.

Do any Board members have any questions about this? All right.

Well, if not, I'm going to ask for staff to let me know which agencies at the State or federal level have jurisdiction over this activity you're discussing. And we will at a minimum respond to you and let you know that and whether there's anything that this Board either is doing or could reasonably be doing within the context of the work programs that we have available us.

EXECUTIVE OFFICER GOLDSTENE: We need Ms. Whitman's contact information.

MS. WHITMAN: I left my business card.

CHAIRPERSON NICHOLS: All right. Thank you.

All right. If there is no further business before us, we're adjourned.

(Thereupon the California Air Resources Board adjourned at 3:27 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 1st day of August, 2008.

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