CALIFORNIA ENERGY COMMISSION

INTEGRATED ENERGY POLICY REPORT

LEAD COMMISSIONER WORKSHOP

TRENDS IN SOURCES OF CRUDE OIL

BERKELEY CITY COLLEGE AUDITORIUM

2050 CENTER STREET

BERKELEY, CALIFORNIA

WEDNESDAY, JUNE 25, 2014

9:00 A.M.

Reported by: Kent Odell

APPEARANCES

Commissioners

Chair Robert B. Weisenmiller, Energy Commission

Commissioner Janea Scott, Lead Commissioner for IEPR and Transportation

Commissioner Karen Douglas, Energy Commission

Panel

Heather Raitt, IEPR Program Manager

Michael Peevey, President, California Public Utilities Commission

Cliff Rechtschaffen, Governor's Office Rail Taskforce

Ken Alex, Governor's Office

Presenters

Gordon Schremp, California Energy Commission

Michael Schaal, Energy Information Administration

Steven Bohlen, California Department of Conservation, Division of Oil, Gas and Geothermal Resources

William Finn, Tank Car Committee at Railway Supply Institute

Liisa Lawson Stark, Union Pacific

David Wickersham, Union Pacific

LaDonna DiCamillo, Burlington Northern Santa Fe Railway

Laura Kovary, California State Lands Commission

Bob Gorham, Office of the State Fire Marshal, Pipeline Safety Division

Nancy Skinner, California Assembly Member

Ernie Sirotek, U.S. DOT Federal Railroad Administration

Jack Whitley, U.S. DOT Pipeline and Hazardous Materials Safety Administration (PHMSA)

Cliff Rechtschaffen, Governor's Office Rail Taskforce

Gina Solomon, California Environmental Protection Agency

Paul W. King, California Public Utilities Commission

Tom Cullen, Office of Spill Prevention and Response

Tom Campbell, Office of Emergency Services

Alexander Crockett, Bay Area Air Quality Management District

Rick Martinez, City of West Sacramento Fire Department

Caren Ray, San Luis Obispo County

Greg Karras, Communities For a Better Environment

Diane Bailey, Natural Resources Defense Council

Tom Umenhofer, Western States Petroleum Association

Ryan McCarthy, California Air Resources Board

Alan Lloyd, The International Council on Clean Transportation

Public

Kriss Worthington, Berkeley City Council

Karen Hemphill, Berkeley School Board

Linda Maio, Berkeley City Council

Alana Floyd, Berkeley City Council

Jonathan Gaast, Congresswoman Barbara Lee's Office

Dr. Henry Clark, West Coast Toxics Coalition

Kathy Kerridge, Benicians for a Safe and Healthy Community

Nafiah Muhammad, Student, Mills College

Paul W. Rea

I N D E X

P R O C E E D I N G S

June 25, 2014 9:00 A.M.

MS. RAITT: Good morning. Okay. Good morning and welcome to today's workshop on Trends in Sources of Crude Oil. This workshop is part of the California Energy Commission's 2014 Integrated Energy Policy Report Update, or the 2014 IEPR for short. I'm Heather Raitt, I manage the IEPR.

The Energy Commission is developing the 2014 IEPR Update to address critical energy issues facing the state and to provide policy recommendations to the Governor and Legislature. The 2014 IEPR Update is focused on transportation, particularly the Energy Commission's effort to advance alternative and renewable transportation fuels and vehicles. It will also explore changing trends in the sources of crude oil as well as other topics. Today's workshop provides an important opportunity to share and gather information.

I'll begin by going over some housekeeping items.

Restrooms are in the atrium to the left as you exit the auditorium.

In the atrium there are posted boards with

various maps showing information about rail lines. There are two posters of each map to allow more room for viewing.

Please note that no food or drink are allowed in the auditorium.

Today's workshop is being broadcast through our WebEx conferencing system, and parties should be aware that you're being recorded. We'll post the audio recording to the Energy Commission's website in about a week and the written transcript in about four weeks.

Copies of the agenda and workshop notice are available at the entrance to the auditorium. For your convenience there's also a listing of several nearby restaurants.

In the interest of saving paper we have not made paper copies of the presentations, but they are available on the Energy Commission's website at www.energy.ca.gov.

In the event that seating in the auditorium is full, we have a second smaller room available for viewing the presentations via WebEx on the second floor in room 212. To access the overflow room, take the elevator in the center of the atrium to the second floor, turn right, and

then turn right again to go down the hallway and it's going to be the first door on your left.

We have a very full agenda this morning, or today, and so this morning we will have opening comments from commissioners and executives on the dais and a series of presentations before breaking for lunch at about 12:15. We'll return after a one-hour lunch break from our presentations. There will be an opportunity for public comments at the end of the day.

Since the agenda is very full, we request that the presenters please limit your comments to the time allotted to allow adequate time for all presentations. To help with this, we are going to have folks, two people in the audience to show cards, time reminders, so there will be a yellow card at the three minute mark and a red card to signal it's time to wrap up.

During the public comment period we are asking parties to limit their comments to three minutes to ensure that the maximum number of participants have an opportunity to speak. We will take comments first from people in the room, followed by participants on WebEx, and finally from those who are phone-in only.

For those attending in person who would like to make comments, please fill out a blue card and give it to Alana Matthews who is sitting outside in the atrium. She's the Energy Commission's public advisor. Blue cards are available with her. And then when you are called upon to speak, please come to the side microphone to make your comments. If you have a business card please give it to Alana.

For WebEx participants you can use the Q&A function to tell our WebEx coordinator that you want to ask a question or make a comment during the public comment period, and we'll either relay your question or open your line at the appropriate time.

For phone-in only participants, we'll open your lines after we've taken comments from the in-person and WebEx participants.

As I mentioned, materials for this meeting are available on the Energy Commission's website. Written comments on today's topics are due close of business July 10th. And the workshop notice which is available at the atrium and on our website explains the process for submitting written comments.

With that I'll turn it over to Commissioner Scott for opening remarks.

COMMISSIONER SCOTT: Great, thank you Heather, and good morning. Can you all hear me through here? Yes? Okay, great. So let me take it out and hold it closer, if I can.

Good morning. I'm Janea Scott from the California Energy Commission. I'm the Commission's public member and I also lead the 2014 Integrated Energy Policy Report Update as well as transportation issues. I would like to welcome everyone to our workshop today, which is focused on the changing trends in sources of crude oil coming into California.

We're holding this workshop as part of the Energy Commission's 2014 Integrated Energy Policy Report Update, which is focused this year primarily on transportation issues.

Over the last year we've seen increased shipments of crude oil being delivered into California and across the United States. There have also been a number of incidents that have raised concerns about potential threats to public safety associated with these deliveries.

There are multiple agencies, federal,

state and local, that have a role to play and today's workshop will help provide insight into which agencies oversee what pieces.

The goals of today's workshop are to provide an overview of the state, federal and local roles and responsibilities related to this issue; to gather information and increase transparency in facts and data about crude deliveries; and to better understand what is needed to provide for public safety and fully respond if an accident were to occur.

Over the course of the day we'll hear perspectives from federal, state and local agencies, rail operators, the oil industry, and environmental organizations. We'll conclude today's presentations by hearing about how these trends relate to our environmental and energy policies.

I am pleased to be joined today by, to my right, Bob Weisenmiller, the Chair of the California Energy Commission. Next to him California Public Utilities Commission President Michael Peevey. Right next to him is Cliff Rechtschaffen, the Senior Advisor from the office of Governor Edmund G. Brown, Jr. And then in the

row right behind me I have my fellow Commissioner Karen Douglas at the Energy Commission, and Ken Alex, the Director of the Governor's Office of Planning and Research and a Senior Advisor from the Office of Governor Edmund G. Brown, Jr.

And I will now turn it to Chair Weisenmiller for his opening remarks.

CHAIR WEISENMILLER: Thank you, Janea. Thank you all those here today. This is a good opportunity, I think, to step back, look at the overall picture of how the various agencies relate to this issue and what the coming trends are. It's sort of one of the things that I'd have to say the Independent Energy Policy Report is designed to do.

And I certainly want to thank Commissioner Scott and Commissioner Douglas for organizing today's event. Certainly would like to thank President Peevey for his participation. Also Cliff and Ken.

Again, I think this is going to be a very informative workshop and help us frame actions for the state in the area that goes anywhere from federal to state to local governments, and it's important we all work very well together on this

to respond and also we're prepared if anything does go wrong.

So with that, I do have to note that with my schedule I'm going to be leaving before this is over but near the end of the day around four-ish. I have commitments in Southern California.

MR. PEEVEY: Well, hi, my name's Mike Peevey, I'm the President of the State Public Utilities Commission. It's a pleasure to be with my colleagues from the Energy Commission and the Governor's Office today.

I would just say I'm here to learn, very frankly, and consume a bunch of information that I hope is -- you can't hear me? That's a first time. All right. Well, I'll pull the mic closer to me because my voice usually is pretty resounding.

In any case, I'm here to learn. We have various enforcement responsibilities at the PUC in this regard, but my really sole purpose in being here along with our Deputy Executive Director Brian Turner -- put up your hand, Brian -- from the Public Utilities Commission, is to learn more about this very, very important crucial and timely topic. So Thank you very much.

MR. RECHTSCHAFFEN: Thanks very much. Thanks to the Energy Commission for holding this timely and important hearing and to the PUC for participating. I want to thank you for holding it in such an auspicious location. Since I work in Sacramento but live in Oakland I could ride my bike here, which I very much appreciate.

There's a great deal of interest on the part of the Legislature, the public, local emergency responders, elected officials in this topic, so it's really important that we pull people together to talk about it. There haven't been very many forums where we've brought together all the stakeholders at federal, local, NGO, community, industry and so forth, so that's very valuable here.

We've also been working internally as a state among the agencies to fashion responses to deal with this issue. You'll hear about that more today. We haven't had too many opportunities to have a public dialog about this and have input from the community, so that's one of the valuable things we look forward today. Thanks again and look forward to today's program.

MR. ALEX: So it's nice to be here in the

back row. I feel like I'm in the House of Commons. So I'm Ken Alex, I'm the Director of the Office of Planning and Research, which actually deals with land use issues, so obviously part of our concern and set of issues revolves around how oil is brought to the state and what the implications are, so I very much want to thank the commissioners and the Commission for having the chance to have this workshop today.

The Governor is very fond of noting that the State of California we drive 332 billion vehicle miles a year, and that that actually takes until we come up with alternatives, it takes oil. And as an ongoing set of challenges in climate change we also need to leave two-thirds of the known oil reserves in the ground. So we're wrestling with those two potentially conflicting set of issues and part of it is how we obtain oil for our refineries in California and how we begin to wean ourselves off of it, so we will hit on those topics today and very much look forward to the panels.

COMMISSIONER DOUGLAS: All right. I'll be brief. I'm Karen Douglas, I'm the attorney Commissioner on the Energy Commission and I've

been looking forward to this workshop for some time. It's a real chance for us to learn a lot from a really great set of speakers from the public sector, private sector and some nonprofits.

We really need to make sure that, you know, I will especially be listening closely to agencies and others talk about information sharing, data needs. It's really important in this very complex area to be sure that policy makers have access to good information, the best information possible in the policy making role.

Obviously, we need to make sure that the emergency response role and function is as well informed and thought through in advance as possible. And we need to find ways to be very responsive to public interest in this topic and we're certainly aware that there's a lot of interest. It's a very important topic and it's being followed closely at really all levels of government and in the public.

So on that note, I want to thank Berkeley City College for agreeing to host this event. It was challenging to find a venue of sufficient size in the Bay Area within the timeframe we had to plan and the City College really stepped forward

and made it possible for this event to be held here, so we really appreciate that. And with that let's get into the presentations.

COMMISSIONER SCOTT: Thank you. Thank you very much for all of your opening remarks, and also for everyone for being here with us today.

As you can see from our agenda we have a robust and information-packed day. And so in order to do our best to keep on schedule, we will be strongly encouraging our panelists to keep to their time allotted. So I have a timekeeper who's sitting right back here and is going to wave the card for you. When he raises the yellow card you have about three minutes left and when he raises the red card that will be about time for you to please summarize. And then we'll go ahead and move on to our next panelist.

I want to remind folks from the public that if you would like to make comments during the public comment period there are blue cards for you to fill out. Just put your name on the card and they're right up front with our public advisor, if you saw her as you were walking in the room. So please, be sure to get your cards and leave your public comments, so when we get to that portion we

will be able to acknowledge you.

And now I will turn it over to Charles Smith, (sic) the Senior Fuel Specialist at the Energy Commission to get started.

MR. SCHREMP: Thank you. Good morning, welcome. I'll be taking you on a little sort of a background overview to sort of start the workshop off with a lot of information, a lot of contact siting, data, and that'll, I think, help set the stage for some subsequent speakers and their respective areas of expertise.

So first of all, the Energy Commission does collect an awful lot of information. The information I'll talk about today is specific to my arena in the Commission. It has to do with transportation fuels, crude oil and alternative fuels.

So we have a regulation, the Petroleum Industry Information Reporting Act, or PIIRA as we call it, it has confidentiality provisions that allow us to reach out to companies and get very sensitive, business sensitive information, and hold it in confidence. And then we actually do a lot of analysis and aggregated information is put back out into the public. So it's a very

important tool we use to understand what's going on and be able to monitor what's going on and it's very germane for this issue, crude oil, and especially crude by rail. So a lot of participants provide information, refiners, retailers, storage providers, transporters like pipeline companies and railroads. And it's all kinds of different frequencies.

So I think with regard to just crude by rail we actually collect from the two Class 1 railroads that bring the crude oil initially into California, so to reporting entities it makes it easier to make sure we get all the data. And then we circle back and get it from refineries as well, who are the ultimate recipients. So that information specifically has where it's coming from, maybe the loading terminal, and then the volume per rail car.

So that's sort of the basis of what we need, but there is lots of other information that people are interested in that we do not receive from the rail companies, and so that's where exactly do the rail cars go and what type of crude oil, whether it's from Bakken light crude oil or a heavy Canadian from oil sand development, so we

don't have that kind of information in the data that we do collect.

So we also do not receive information on when the cars will be coming through California in advance, so that's information that doesn't get sent to the Commission.

So I'll provide you an overview. We'll start off with, yes, I think somebody mentioned many billions of miles of vehicle miles traveled in California. So it's a lot of gasoline, a little over 14-1/2 billion gallons of gasoline, but it's all not just gasoline from petroleum. We actually do use ethanol, it's now 10 percent by volume. It's in every single gallon of gasoline and a little bit of E85 in there. But gasoline demand has been declining. A lot of that's due to the economic downturn, but as time goes by more fuel efficient vehicles being taken into the mix, and also high-sustained prices are sort of getting people to maybe drive their cars a little bit less. But ethanol has increased significantly, and like I said, it's 10 percent by volume.

Diesel fuel has been about flat from 2003 to 2013. It has gone up and it's gone down, but it's been recovering as the economy recovers post-

2008. And what's more interesting is lately we're seeing a significant increase in the amount of renewable fuel, biodiesel to some extent, but renewable diesel. And this is really driven by the low-carbon fuel standard. You would want to use something like renewable diesel, low carbon intensity, to displace diesel. So a big increase as of 2013 a little over 5 percent of diesel (inaudible) is renewable in nature.

So what is the infrastructure to get all this fuel out? Well, it's basically an interconnected infrastructure. Refineries are sort of the nerve center if you will, lots of pipeline, there's marine, there's storage tanks, and more recently we have rail is now an element.

So this graphic on the map shows where the fuel is coming into or whether it's feedstock like oil on the blue lines, marine elements. The black lines are product pipelines. Mainly Kinder Morgan, only the main common carrier pipeline in California for refined product movements. And as you see, we look at this system as a Southwest system, because it's interconnected. Most of the fuel in Nevada is provided by our refineries in California and about half of the fuel in Arizona

from refineries in Southern California.

So where are those refineries? Certainly in San Francisco Bay area and in Southern California and a smaller cluster in the Bakersfield region where most of the crude oil is produced. So refineries like to be near water. That way marine vessels can bring in large quantities very economically of crude oil feedstock and then export some products, so it's natural to find them in coastal areas or areas that have close proximity. And they do process, in 2012 I think, 1.6 million barrels a day. Their capacity is closer to 2 million barrels a day of crude oil, but they don't always operate at 100 percent capacity.

Now some of the data for 2013 shows where is that crude oil coming from, so as you should see, most of it is by marine vessel, foreign sources predominantly, and Alaska. It's all by marine vessel. And then there is a small amount more recently from rail, that's foreign and we're also getting certainly our own crude oil production in California is transported to refineries prominently via pipeline.

So once they create the fuels it goes

mainly into pipeline infrastructure to 60 distribution terminals. That's where the tanker truck loads before it goes to a retail station or truck stop. And it's a lot of trucks, because it's a lot of gasoline, 40 million gallons every day. And so that's a lot of truck trips, almost 5,000 gasoline truck deliveries a day. Diesel not as much fuel, so as a consequence fewer deliveries, about 1,200 tanker truck deliveries a day.

And I already mentioned the pipeline interconnection and how that goes to the neighboring states, and here's some of the information on the supply percentage. And this is a map of Northern California, the Kinder Morgan system. As you see, it goes from the Bay Area then all the way to Chico and then all the way up into Sparks, Nevada, all the way down to Fresno. So that is where all of the -- that's how petroleum products get to their destinations, their distribution terminals most efficiently and economically in the pipeline system.

One important point about the pipeline systems, no connection Northern and Southern California. There's a separation where Tehachapi

is, so you can't shift production and move it all on pipelines, so that's why there's a refinery problem in Southern California. You have to move more products either by tanker truck or by marine vessel. And that's where you have marine facilities an integral part of refinery operations and logistics, mainly for feedstock receipt and then getting out some refined products.

And more recently refineries are exporting more and more refined products to foreign countries. Why? Cheaper crude prices have made U.S. refineries much more competitive in the international arena. So in 2012 the U.S. set a record for exports or refined products to foreign countries. 2013 the record was broken. 2014 likely, maybe to break that record, but maybe EIA can talk about that in a little bit.

So rail, this is primarily why we're here today to take a little bit more focus on rail.

Rail activity is an integral part to bringing in ethanol. We're not self-sufficient in ethanol, so we bring a lot of it in from the Midwest. Two places in Southern California that receive unit trains, over 100 cars at a time, of ethanol. A very efficient means of bringing it,

but it's a lot of fuel and like tanker truck deliveries for gasoline, it's about a 500 tanker truck deliveries statewide every day. No, California does not have a train-receiving facility for ethanol. They used to, that would be Kinder Morgan Richmond, it's now transitioned over to a crude offloading facility. And why is there ethanol being used? Primarily because it's the federal requirement, oxalates to reform the gasoline.

So rail is also very important for propane and butane, refineries that produce this export butane to gasoline (inaudible) component. And also for other feedstocks or things like sulfuric acid to run some of their process units. And more importantly, more recently, excuse me, rail.

So where is the crude oil coming from? This is showing you a longer trend. Clearly we used to have a lot more California and Alaska and foreign resources filling in the balance. "Oh, how much more do you need? Okay. Let's get some foreign crude oil." Now, as you see it's over 50 percent is foreign, so this is coming because Alaska and California production continues to decline. Mainly Alaska recently. California sort

of looks like it might be rebounding a tiny bit, but we'll get into that in just a little bit. So where does it come from on a foreign basis? The Middle East, and closer to home, South America. Those are the primary places where we receive crude oil.

So just looking at production in California, as you see a very long-term trend of decline. California oil production has been doing so for well over a hundred years, so this is a significant 48.9 decline between the peak and 2013, but as you see almost it inched up a little bit in 2013.

Why it's been declining is just its older fields, they have natural declines over time, but not from any effort to drill new wells as you see from this chart. The dark line is the number of producing wells that's gone up rather significantly. And what's happened to the amount of crude oil per producing well? It's gone down the opposite direction.

So this is what happens. You've got old mature fields that you can keep drilling, but sort of diminishing returns. So right now it's about 10.4 barrels per day per producing well in

California. And compare and contrast North Dakota Bakken is about 8 times greater, almost 90 barrels per day per well in North Dakota. So clearly a newer field that's being developed up in Bakken and a different type of oil and a different type of oil extraction.

So how does it get to Northern California refineries? Well, you see these pipelines, three main trunk lines moving from Southern California up to the Bay Area, and there's the data from 2012. We're still in the process of completing our analysis for 2013. Crude oil balance, well, we're not done, I apologize for that. But as you see, it's really marine movements and you have some pipeline movements going to the Bay Area, so 40 percent of the crude oil Bay Area refineries. The balance, 60 percent, Bakersfield and Southern California.

So the U.S., not like California declining, a reversal, and this is because a much greater use of hydraulic fracturing in conjunction with horizontal drilling and improved understanding of what the formations are through much greater seismic analysis of these formations. And so the industry is becoming very smart and

smart means you can reduce your drilling costs. And the drilling is becoming much more effective, in some cases drilling up to six holes from the same drill rig and the same location, directly drilled from the same path. So efficiency of the drilling rates goes up and the EIA can also talk to that.

So crude oil production? Highest it's been since 1988, so a remarkable turnaround. As you see, Texas is a big one and North Dakota is higher than it's ever been, but Texas is as high as it's been since 1977. Will it get to the peak, the near-term peak I guess back in '86? Likely. Will it get to the all-time peak of 10 million barrels a day? Don't know about that, so you can talk to EIA.

So where has it been coming from? Texas, 1.8 million barrels a day more. And this is from January of 2010, not too long ago, so a remarkable resurgence. This is Eagle Ford and this is part of the Permian and then you have North Dakota is the Bakken, so those are the two places. California about the same, not much of a change. Down a little bit in Alaska, it's a bit more of a decline.

Where is the oil coming from? These tight oil, shale oils plays and this red line is basically a million barrels a day. And that's sort of a super-giant field that you hear about in Saudi Arabia or China. And these three fields are all in excess of that in the United States, so it's sort of a remarkable renaissance if you will.

So how do you get all that oil to the recipients, the refiners? Well, by pipeline. As you can see from this chart, we don't see a lot of pipelines going from Canada or North Dakota or Texas to California. That's right, there hasn't been a need. We've been self-sufficient in crude oil or bringing it in by marine vessel. No pipelines can get it to California that way.

And then you also can't export domestic production. You can to Canada and there are some other exceptions, but there are export restrictions. And so these are sort of preventing a company, a domestic producer, just bringing it to the coast and export it to China or some other country. You really can't do that, you have to apply to get a permit to do that.

So I've heard -- there's been some people said, oh well, they just want to bring crude by

rail into California, so they can get it exported. Well, you really can't do that. And so this is an issue that is getting a lot of attention recently, because of the quantity of crude oil produced and how full the inventories are getting in the United States.

So what happens? The producer says, well, gosh I want to get my oil to market and if the pipeline's full, how do I do it? Rail, next best option. Next best, i.e. more expensive and so they have to discount their prices. So they discount their price enough the rail tariff works. The farther you go, the higher the cost. But as you can see from Tesoro's presentation here, they expect a lot more rail to be moving or to be moving by rail and discounts to remain in place such as the tariff is workable.

So rail movements as a consequence have gone up. This quarterly data through the first quarter of 2014 shows that 11 percent of the U.S. production of crude oil is moved now by rail, so rather remarkable.

So how do they load that? Well, you need the rail cars, but then you could bring those rail cars to a place that's connected to pipeline and

storage tanks. Or tanker trucks loaded with crude oil from the field come in and they unload into storage tanks. And in some cases they load directly from the tanker truck to the rail car, it's called transloading, in the bottom photo here. So there's various means of doing that, and then when it goes to its customer it's either a refinery location that's the final destination or it's a hub. What does that mean? It's a place where the rail cars are unloaded and then the oil can now get into a system that gets to the refineries. Usually through existing trunk lines for crude oil distribution.

So California's not different than many other places. We've seen an uptick in crude by rail, a very small amount in 2012, 2013 about 1 percent of our crude oil needs were met by rail, almost a six-fold increase from the previous year. And this chart shows that most of that was going into Southern California. And the statistics, 9,600 rail cars for the year and an average of about 660 barrels per rail car.

So where is that happening now? And that's two places: Kinder Morgan in Richmond and SAV Patriot rail yard in McClellan airbase in the

Sacramento region. So rail cars come in and then they're transloaded to tanker trucks, so it's a small amount, a little over 3,000 barrels per day. And the two facilities combined are permitted to do about, you know, over six times that. But they're not due to economics limitations, they're just not working at maximum capacity.

Southern California including Bakersfield, it has crude oil refining. This is the picture you see there and three locations in Sothern California: Carson, Vernon and Long Beach are the three destinations. And we're trying to pin down exactly what all of those collective permits allow them to do on a maximum basis, but we don't have that answer yet, but should have that information soon.

So most recently crude oil movements are still up in California. Two million barrels in the first four months and if you compare that to the first four months of 2013 it's up 90 percent. So yes, it does continue, but I think in the seasonal perspective it's a little bit lower than it is say later in the year, because of refinery maintenance that usually occurs in the first quarter.

So we're tracking five projects for crude by rail that we think are active and moving forward and two in Northern California, two in Bakersfield and one San Luis Obispo County. So if all of them get their permits, customers lined up, financing approved by their boards, construct and operate at full capacity that's 23 percent much more clearly than 1 percent in 2013. Rather a significant increase in rail activity and in crude.

So just brief looks at these, and these have in most cases links to information on these projects: Valero Benicia in Northern California, it's about 70,000 barrels a day. They have an environmental impact report just out and so that's out for a 45-day comment and the lead agency is the city.

And the WesPac Energy Project, it's across the water if you will. And it's more than just crude by rail, that's an element. But it largely depends on the marine terminal to actually bring in vessels for crude oils and load vessels of crude oil. And so that project doesn't have a recirculated EIR out yet, and should have later this year. So there's no date set for a hearing

on that or a comment period set at this point. And this just shows why the project is there, because it has access to the pipelines that already exist in the area that feed four of the five Bay Area refineries, the only exception being Chevron Richmond.

Bakersfield, two projects. One is the Alon Refinery, it used to be Big West Refining, and the other is not at a refinery location, but a location that can get into the pipeline system by Plains All American. What's important to note, that's under construction and will be complete probably fourth quarter of this year, so that will become operational and doesn't need anything else. They have a permit for a 5.9 mile pipeline connection that will allow for, I think more efficient pipeline deliveries from that terminal once that pipeline permit is approved and constructed.

So Santa Maria Refinery, this is also crude by rail, a little over 40,000 barrels per day and that might be heard sometime later this year. And we have someone from the county who maybe can give us an update on where that project is.

And the final project we were tracking, Valero, has withdrawn their permit for South Coast Air Quality Management District.

Now, we are aware of other projects and likely (inaudible) looking at, so just two I want to mention.

Port of Stockton has a marine terminal, but sort of just doesn't seem to be making a lot of progress at this point, so we haven't included that in our estimate.

Nor have we included Questar, a more recent project that's being considered. This brings the rail cars out in the desert area, connects to an existing natural gas pipeline that's idle and would be reconverted to move crude oil. And the important element of that, it's connected, gets into the refineries in L.A., in Long Beach, and gets into the plumbing system. So but no permit application yet at this point, they're just doing engineering and assessment.

So that's California, but West Coast there's been a lot of crude by rail. They started earlier and if you hearken back to that slide I showed the cheapest rail tariff. That's why they were looking at these projects earlier. And so

there's several projects and there's going to be almost 200,000 barrels. And as you saw in California 17,000 barrels a day was being brought into California in 2013. So this is a much greater capability.

And but there are two, I think projects, one especially of note, Tesoro, and this is on the Columbia River, Tesoro-Savage. This is designed to bring in two unit trains a day, load up the marine vessel, there's no refinery there, and then it goes to West Coast refineries. So that's the design of this facility and that's still in its permit stage. And Shell Anacortes has a project as well and that's a little over 60,000 barrels a day.

So can refineries take this oil and is that okay? Well, they'll have to change their process equipment, but they do have to be aware that there are some operational issues they have to keep in mind about waxy deposits, sludges developing and even a potential additional risk of corrosion unless it's attended to properly by the use of these lighter crude oils.

And another aspect is when you take a lighter crude oil and you cook it you get more

gasoline in the first step in the refining process. And if gasoline demand is declining in California and in the U.S. you don't want that. So what are the refineries doing? Investing a lot of money now to handle lighter crude oil. Those projects aren't complete clearly, but will be in the near term, so there's a lot of it and that's just a laundry list.

A couple of final slides here. We don't just do crude oil and don't keep track of that at the Energy Commission, we actually have an awful lot of other programs. And one I'd like to highlight, AB 118, relegates we have alternative fuel programs and it's for, it's research, but it's also for infrastructure, advanced biofuel development. And so this is an example, about a half a billion dollars, 2009 through current, and the bottom chart shows how those projects that are currently active are broken down.

The Air Resources Board also has programs and they're designed to, along with the California Energy Commission policy, to reduce our dependence on petroleum. So the low carbon fuel standard is designed to reduce the per gallon carbon intensity of fuels. So that is creating a situation where

we're seeing a more diverse mix of renewable fuels. Ethanol from say sugar cane and more biodiesel coming from like used cooking oil and tallow and things of that nature, and renewable diesel. So that's driving those, greater uses of those.

And so the final slide has to do with there is a crude oil element of the low carbon fuel standard, and that's the carbon intensity of the crude oil coming in, and if that changes and becomes more, I guess has a greater amount of carbon, then there's some other steps the Air Resources Board has to take to sort of offset that incremental carbon debt, if you will. And this is just showing you what the 2012-2013 volumes are and these are the top 16, about 72 percent of the crude oils. And the red number there is the average, so you see some crude oils are lower carbon tendencies, some are higher. And then at the bottom are some of the heavy crude oils from Canada or synthetics that are coming in now and where their carbon score is. But you see some red numbers with an asterisk at the end? That's because a carbon intensity score has not been developed for like, Bakken crude and Eagle Ford

crude at this time, so I think the Air Resources Board is working on that.

I thank you for your time and attention and I think yes, we'll be taking questions after the first panel's concluded. Thank you.

MR. SCHAAL: Thank you, Gordon. My name is Michael Schaal, I'm the Director of the Office of Petroleum and Natural Gas and Biofuels Analysis within the United States Department of Energy's Energy Information Administration.

Before I begin I'd like to mention that while I have been working within the Department of Energy's EIA for the past eight years in the subject matter, I have deep roots to California. My mother was born in Oakland. I grew up in Northern California, I'm the product of Durham High School, I graduated from California State University Chico. I spent eight years with Bechtel as an engineer working on first-of-a-kind technologies. I then went on and got my Mineral Economics degree from the Pennsylvania State University, spent 11 years in consulting prior to joining the EIA in 2005.

And at that time the trend of the day was the rapid growth of ethanol, and short on that

heels was the rapid rise of shale gas across the United States. Following close on the heels of that phenomenon has been the rapid increase in tight oil and shale gas, tight oil, that leverages the same technologies that were developed for horizontal drilling and hydraulic fracturing. So what I'll be doing is providing a national perspective on some of these issues with perhaps some perspective on impacts on California.

So a little bit about EIA. EIA is an independent agency created by law within the U.S. Department of Energy to provide policy makers and the public with unbiased statistics, analyses and forecasts for policy makers and the general public. As a consequence, EIA does not propose or advocate policy decisions. We just develop the statistics and the analyses to help explain the way things are and the way things could be. We're often called upon to provide service reports to Congress in answer to questions such as climate change, what the impact might be of various policies that would affect the energy economy, and we provide those analyses to Congress and the public at large.

Many of you who've been involved with

energy have probably been exposed to EIA's statistics and analyses at some point. We produce weekly, monthly and annual data. We also conduct some real-time analysis, and particularly what I've highlighted is *This Week in Petroleum*, which provides us an opportunity to provide an analysis of various topics such as growth of crude by rail, changes in petroleum markets that might be noteworthy to policy makers, say a rapid rise in prices as a result of say refinery outages. And this provides us with a means of communicating an analytic context for these phenomenon.

We also produce monthly a short-term energy outlook, which provides roughly a two-year monthly forecast of the energy economy, much of which is influenced by external phenomenon such as global crude oil markets.

Once a year we produce an annual energy outlook and also an international energy outlook, so many of our long-term structural issues within the energy economy are examined within these projections. And within these projections we also consider various scenarios of considering unknowns with regards to the energy infrastructure and the growth of that infrastructure.

So one of our more recent publications launched in October of 2013 has been our *Drilling Productivity Report*. This was a result of us seeing how quickly this rise in crude oil production was occurring in different parts of the United States. And indeed it was six shale plays in particular account for nearly 90 percent of the domestic crude oil production growth and nearly all of the natural gas growth. And for that reason we developed a methodology that allows us to track rigs and also understand the productivity of these rigs. Gordon mentioned that these rigs have been able to reduce costs by being more efficient at drilling these wells. And indeed, the industry has through technological innovation improved the rate of being able to drill these wells and also be more productive in terms of the oil and natural gas production for each well drilled.

And this is an example for the Bakken area where Bakken oil production, we're estimating will exceed 1 million barrels per day in June based on the drilling activity that has occurred all the way up until this time. What we have found is that it takes about two months from a drilling rig

beginning a well to the time that a well begins production. And as we've looked at these descriptive statistics we've found that these rigs have become exceedingly more productive over time. In 2007 we estimated that each rig produced 100 barrels per day of new production. By 2014 that's increased to 500, a five-fold increase in the amount of crude oil production produced by each rig in each month. And therefore when one is looking at the movement of rigs and in some areas there would be a decline in rigs, there wouldn't necessarily drop-off in production. Indeed, in some cases production was actually increasing. And this has been a relatively interesting phenomenon as we've progressed.

So as I mentioned, there are about six plays nationwide that are responsible for the majority of the crude oil and natural gas production growth. But shale plays are located across the United States. This is an EIA chart from a few years ago that looks at these plays across the United States. Indeed, there are other plays that are shale that are just not amenable to the technology, because the mineralogy and other factors make that play not amenable to that

technology.

So this chart shows on the left the overall growth in tight oil production. As you can see, over the course from 2000 until approximately 2008-2009 fairly steady growth. There had been production from these plays over time at a fairly low level, but you could see how the application technology, which had been transferred from natural gas in many respects, has been very effective at unlocking oil that had been held within the source rock or the formations next to the source rock. And indeed we're up to just over 3-1/2 million barrels per day of tight oil production in the United States through May of 2014.

Now, one of the drivers of this activity is the nature by which the oil's produced. I referred to the initial production rates increasing five-fold in the Bakken over the course of the last few years. This oil and natural gas production is characterized by high initial production rates, which is very high production in the first month or two followed by steep declines in production where by the 12 month it's typical that the well will be producing 60 or 80 percent

less oil or gas than that first month of production.

Now, what that has done if you look at this from an economics point of view and from a driller's point of view, this front loads their return on investment. They get the majority of their commodity, which they sell to produce revenues in those first early years. This is different from the way oil and gas production has proceeded in the past where you may have experienced declining curves not anywhere to the level that's experienced with tight oil and shale gas.

And I put up the natural gas side on the right to point out another phenomenon, which is the industry learns where the highest returns exist. And in this what you'll see is that on the bottom part, which is the Barnett, which was the earliest application or successful application of the technology that produced significant amounts of shell gas. That was then the drillers moved their attention from the Barnett to the Haynesville. Then they moved from the Haynseville to the Marcellus and the Eagle Ford. And it's very clearly seen within the production here as

the capital investment has moved from where the drillers were active to where they could see they could have higher rates of return. And that's a phenomenon that continues to exist, this ability to move assets, not just within plays but across the country in order to achieve higher rates of return, which has led to significant increases in production.

So within our short-term energy outlook this chart shows the bars, the annual changes in production. And the line and our red on the right in the line shows total crude oil production, red off to the left we're exceeding 13 million barrels per day. And as Gordon mentioned, we've had these rather dramatic increases.

And indeed the British Petrol, BP's statistical analysis of the global energy system has been recently released and it's a very nice succinct summary of energy issues on a global basis. And not only was 2013 a record year in U.S. crude oil production growth, it's also world class in that, according to their measures, it's the seventh or ninth largest one-year increase in production by any country in world history. And if you discount the impact of bringing spare

capacity online, it is perhaps even more or higher level production in terms of changes in production for a country in a year.

So some of the interesting aspects of this increase in crude oil production is that it's consisted primarily of lighter sweet crude oil and that 96 percent of the 1.8 million barrels per day of production growth between 2011 and 2013 consisted of an API gravity of 40 plus. Now, API's measure is specific gravity of crude oil where an API gravity greater than 10 means that it floats on water. And the benchmark crude oil for many is the West Texas Intermediate, WTI, or the Brent Crude, and that has an API gravity of about 38 or 39 degrees by comparison.

And what we're finding is that, as you can see on this chart, which it shows the growth of U.S. crude oil by tight from 2011 in forecast through 2015, you can see that the increase in this production has occurred for the light aspects above 40, which is shown by the orange, the green and the orange and the -- or the yellow and the red above, up to an API of 50 plus. This chart breaks the same information down into year-by-year differentials. And here you can see that over the

last couple of years it's been the API in the 40 to 45 range that has experienced the greatest growth in production. We're forecasting that there'll be a decrease and a shift as much as possible to some of the lower API ranges, the heavier crudes. And by 2015 we're expecting that some crudes resulting from projects off in the gulf of Mexico will bring in some additional heavier crude.

The exploration production firms are actively doing what they can to respond to market prices and they're looking to drill for lower API crudes, heavier crudes. However, the geology and the technology that they're employing limits them to just how much down in terms of heavy crude they can produce from the source rocks.

And this is an example for a breakdown of the same data for the Eagle Ford. And it's in an example of how producers have attempted to shift their production to the heavier parts of the play. The Eagle Ford is characterized by a sloping from deeper in the south and east and near to the surface to the north and west. And over that interval as the play is sloped upward the hydrocarbon has been subjected to less pressure

and temperature over time, which has resulted in a heavier type of crude or a heavier hydrocarbon. So the deeper part produces mostly natural gas, which is the simplest hydrocarbon molecule, CH4. And generally as the activity proceeds across the face of the play you get more and more of the heavier hydrocarbons.

The tradeoff is that natural gas is still an important component of the production for the drillers, because it's the natural gas that helps provide the drive for the heavier hydrocarbons to make it through the micro-fractures that are produced by the technology in order to achieve the production flow rates that they're experiencing and that they find commercial. So it's a tradeoff between what they can produce in a period of time and being able to obtain the material that can be used by the existing refinery complex.

With respect to imports, this chart shows U.S. crude oil imports from 2010 to 2014 and in particular, the split between 35 API gravity or essentially a measure of light. And you see that while total U.S. imports have declined, certainly it's been the light sweet oil that has declined the fastest.

Now, other responses have included an increase in crude oil exports. As Gordon mentioned, there's essentially a ban on U.S. producers exporting crude oil to other countries. There are certain exceptions. The exceptions include that the crude oil could be shipped to Mexico or Canada, and indeed we've noted that there's been an increase of crude oil exports up to 240,000 barrels per day in 2014. And that has actually gone mostly to Eastern Canada, which has in turn displaced Canadian imports of foreign light oil. So what's occurring in the present time is a continued trend to displace foreign sources of light oil. And now the question becomes what will refiners do if indeed there is even more light oil available, what refineries might need to do in order to adjust the increasing mix of light oil in the system.

Switching gears a little bit, one of the things we noted is that the rapid rise of this production wasn't being effectively captured in our surveys in some respects, so we're currently seeking public comment on our plan to expand our survey of oil and natural gas production in expanding that to 20 states and the Gulf of

Mexico. We're for the first time asking to include production by type, API gravity and sulfur content. In the meantime, we're looking to purchase data from third-party sources to improve our information and our analyses.

And finally, we work with state agencies in producing states as represented by the Ground Water Protection Council to collect, to disseminate well-level data. This is an instance where a group of state geologists have approached EIA, and while they've made tremendous progress in standardizing the reporting of well-level information that we're stilling looking for a single point of a means of disseminating the information and providing some standardization. So they've approached EIA and we're working with that group to host their systems for reporting well-level production information.

Gordon had some excellent charts up about petroleum infrastructure. This is information available from EIA's website, you know, GIS layers if you're interested at that level of detail. And it largely explains the same information that Gordon has, which is that there's limited infrastructure by pipeline bringing inland crude

oil to the West Coast at the present time. And the options are presently limited by rail.

Indeed, a great deal of the infrastructure that existed was built to bring foreign-source light oil into the East Coast or the interior of the United States, and the increase in production at the interior has actually caused a shift, in many instances, in reversal of pipeline flows to accommodate the large increase in interior production. And that's all I'll say about that.

Now, the price differentials make rail attractive, and really what it amounts to is there has been this existing rail infrastructure that with marginal investments in receiving terminals has allowed for this capability to ship crudes in a fairly short order of time from producing areas to areas that would value these resources.

Pipelines by comparison don't exist to the same extent and would take years to permit. That's not to say that pipelines would not actually be built at some point. Gordon went through many of the capital investments that are going on in that area. And without a doubt, for now and for the immediate future crude by rail is necessary to bring the Bakken Alberta crude in

particular to market.

I've been asked to provide a few comments about EIA's changed estimate with regards to the Monterey tight oil resource. Between EIA's annual energy outlook 2013 and AEO 2014 EIA reduced our estimate of unproved technically recoverable resources from 13.7 billion barrels to 0.6 billion barrels. Now, this has been the result of several years of looking at the growth in production in different parts of the country with respect to an initial survey that was conducted for EIA to provide a comprehensive estimate of the resources that may exist as a result of the growth of this new technology. Understandably, at an early stage there is almost no empirical measures for production for technological innovation for which there has been almost no application within each of the plays.

In each year EIA is required to produce a systematic, comprehensive projection of the U.S. energy infrastructure and for that reason we engaged in an estimate of what resources may exist. In many instances our resource estimates were conservative with respect to what has actually occurred as what you've seen here.

One of the unfortunate outcomes has been that the empirical measures of the activity in the Monterey have not measured up to the same level of success as has been observed in different parts of the country. So as we've looked at empirical measures of drilling activity and the success from that activity, it became increasingly clear that the Monterey was not as prolific as initially thought. And therefore we felt that it was warranted to reduce the resource estimate for that to a more reasonable level pending additional information from other experts, and this summarizes that.

Nonetheless, what we ended up with in the Annual Energy Outlook 2014, based primarily as a result of data updates, is that the Monterey play we saw actually had a slight increase in production, but nowhere near the level that has been observed and that is projected to continue for other plays across the United States. Now I've had to be very succinct and dense with a lot of my comments as a natural course, however EIA has a wealth of information available on its website.

So our short-term energy outlook -- our

Annual Energy Outlook, which looks, among other things, at key uncertainties with respect to different aspects of the energy economy such as fuel efficiency standards, oil and gas production. And in the area of oil and gas production I would say that we are considering that the future is still relatively uncertain within the bounds of the way one would think about continued advances in technology. That if those technological advances were to continue even at a more limited fashion as they have been playing out over the last couple of years, the crude oil production could easily be 75 percent greater than in our reference case, which is described within the most recent annual energy outlook.

We also produce, and it's seen on our homepage, "Today In Energy". That's a good place to go to get a quick insight into some aspect of energy and that's updated on weekdays every day. And with that I'll finish and we can move on.

(Colloquy between staff.)

MR. BOHLEN: Good morning. My name is Steve Bohlen. I'm the California Oil and Gas Supervisor. I'm the Director of the Division of Oil, Gas and Geothermal Resources. I'm glad to be

back in California and serving the citizens of the state.

I'm going to give some overview of what the Division is. The Division has an interesting acronym, it's DOGGR, so if you have an acronym like DOGGR you probably need to have a mission that's actually useful. Otherwise the acronym becomes, well, something that you don't actually like.

The Division's been around for almost a century. Next year's our centennial. And the mission really has four parts. I call this the "do no harm" part. This is the part in which the Division works with industry to make sure that to the extent possible that we limit or eliminate damage to life, health, property, and natural resources.

We also have a part of our mandate to work with industry to deploy all means, including advanced technologies, in order to increase the ultimate recovery of underground hydrocarbons.

The third part of the mission of the organization is to -- I call this the "trust, but verify" part of the mission of the organization. Which is to work with industry to develop

monitoring programs to actually verify that releases of hydrocarbons and produced waters and so forth are protected, and we are not releasing these constituents into the environment.

And the fourth part is really an advisory part and that is to assist the state with meeting its needs in terms of the wise development of oil and gas resources.

So that is what the Division does.

I'm actually very new to the position, I'm in my fourth week, and what I've been asked to do is to give you an overview of sort of what California looks like and where California may be going. And the two previous speakers have actually introduced my talk very nicely. And we're going to focus on the state in some detail.

So this is a lengthy period of history showing the historical trends in California of oil production. And as has been shown in previous slides from previous speakers, there's been a rather substantial decline in California oil production. The result of mature fields and really three or four things have to come together if that curve is going to change very much.

First there has to be stable higher prices

for crude oil, so an increase in price that lasts for awhile or certainty by the industry that crude oil prices are not going to fall.

The other is advanced technology. When you have highly developed fields, mature fields, you basically have found what you're going to find. You will make additional incremental finds in general, that's what history shows. It's true whether you're in the super-large fields of Saudi Arabia to fields across the globe that have had their historical decline.

You also need the regulatory environment to encourage that and the will to go get it. And those four things really have to come together in California if that trend is going to change.

So where does California stand with respect to other states? You can see in this plot of crude oil production in Texas the recent rise as a result of unconventional oil and development.

You can see that Alaska has undergone a very rapid and steady decline basically as the crude oil bed plays out. And I don't think I have to tell anybody about the excitement over the National Arctic Wildlife Refuge debate and the fact that basically there have been no large

fields discovered in Alaska.

North Dakota is rapidly ascending, of course, again because of unconventional oil. And California comes in here, we are technically the third largest producer of oil in the country, of the states.

Oh, I see, I'm hooked, sorry, apologies. I was tying my tie with the microphone. It probably didn't work very well or didn't sound very good out there either.

So, and as you can see again, the long steady decline.

In terms of natural gas, no one competes with Louisiana except, of course, unconventional oil and gas starting to -- oh sorry, Alaska, and unconventional gas starting to increase gas supplies in places like Arkansas, Texas and so forth. California, though, is down in this area and basically California isn't really a large gas producer. The geology, the thermal history of the state, are not really conducive to a large amount of gas. Most of the gas occurs sort of north of the latitude of Sacramento. And these trends in California have persisted, especially within oil despite wider substantial changes in the posted

crude price.

This is Midway-Sunset Oil Field. This is the largest oil field in the state and this is another statement that fields in California are really quite mature. And even fairly substantial increases in the price of oil is not driving advances in the amount of crude we're taking out of the ground.

So as I said earlier, the picture is we need advanced technologies, we need stable higher prices, we need a regulatory environment that will encourage the application of new technology to new fields if California's going to change its picture in terms of oil production.

Another important fact about California oil is that about half of the oil that's produced is produced through some enhanced recovery method, whether it's steam injection, water flooding, there is some enhanced oil production techniques.

Another statement that the oil fields of California are very mature in their lifespan, but without any enhanced oil recovery techniques, without steam flooding or water flooding, cyclic steam, so forth, about half of the production of the state would not be possible.

So what's the future with oil and gas production in California? And, of course, that's been a subject of rather substantial debate in the state and I think it will continue. Michael just discussed this topic.

I like to ponder the wisdom of a very famous yogi, Berra I think, who said, "Predictions are difficult, especially about the future." I was in top management of the U.S. Geological Survey for several years and I was responsible for the USGS Oil and Gas Assessment for the United States. You know, we worked with the EIA on those estimates. And I think it's important to realize that everyone, the EIA, the USGS, and even the executives of all energy companies completely missed the advance of unconventional oil and gas in the last 15 years. They absolutely missed it. I was talking with the Vice President for Technology of Schlumberger and he said, "You know, all of us missed it." And I just think it's something to keep in mind when we start talking about what the future holds.

Technology advances. Energy companies and energy service companies have a habit of figuring things out. And Michael explained the EIA

methodology for getting the numbers that they've arrived at. It's a robust methodology, but as you saw in a number of Michael's slides and Gordon's slides, there's a long history where there wasn't much increase in the development of unconventional oil and gas, and then all of a sudden things took off. And really what that says is that the maturation for new technology is about a decade.

And I can assure you that I know from personal experience that oil and gas producers and the service companies are working very actively with advanced technologies with the national labs and universities to find solutions to the current problems. And certainly the Monterey Shale, where California goes will depend on what happens with the Monterey Shale, what the regulatory environment is around the potential development of the Monterey Shale, and advanced technologies to meet the challenges of the Monterey Shale. The Monterey Shale, they're not. The Bakken, they're not. The Eagle Ford, it's unique. California geology is different and it's going to take awhile to figure that out.

But one of the challenges is what do we mean by it if we talk about the Monterey Shale?

I'm going to show you just three slides with three very different views of what the Monterey Shale is. Some of this is, of course, arcane arguments among geologists about what makes a formation and what separates one formation from another. I am a geologist. I just refuse to be engaged in most of those debates because they're not terribly useful. But it is a fact that where the Monterey Shale is and where the sweet spots or fairways for oil development in the Monterey Shale is, is largely unknown at this stage. And so we have this view, we have this view, that's another view of where the Monterey Shale is, and we have that view.

So that just, I think, underscores some of the uncertainties, not to mention the fact that the geology of California is highly faulted and so that creates challenges. It's lovely when you're in the mid-continent and you can send out a horizontal wall two miles and basically not deviate that wall by more than a few meters up or down to stay in the horizon. It's a little different in California, life is much more interesting here, and so does oil and gas activity, so moving on from that we'll see where that develops.

As I said, predictions are tough, especially about the future. So a very important question though is, does oil and gas activity have an impact on California water supply? This is an enormous debate around the country. Obviously, in this state with a severe drought on, what are the competing uses for water and should we be using it for oil and gas development?

I think it's important to realize at this stage California is not the same as the hydraulic fracturing efforts that you've heard about, whether it's in the Marcellus Shale or other places. Those are very, very, very long horizontal walls for which the number of fracture stages is large and those are fairly substantial operations that consume fairly significant volumes of water.

California however is down here. There is well stimulation techniques, some hydraulic fracturing in California in vertical wells, and these are not these long horizontals. And so the water used for well stimulation in California is much more restricted than it is in other places in the country by virtue of the style of the wells that are productive in California. And but it is

important to note that a substantial fraction of California's production does require some kind of well stimulation in order to enhance recovery. So this obviously will continue to be a matter of debate and it depends on if, and how, the Monterey Shale is developed as to what the potential impact of water resources might be, if any.

So where are we going with regulations? Certainly regulations have historically covered facilities, pipelines, tanks, spill prevention contingency planning and well construction standards making sure that well bores go where they go, land in the formations in which they're intended. And to ensure zonal isolation. Make sure that the well completions are correct that are done properly to ensure protection of groundwater, drinking water supplies from the production techniques.

But as many or all of you in this room, of course Senate Bill 4 is starting to look at the future of regulation in the state regarding oil and gas development. And of course the regulations have just been issued, draft regulations have just been issued by DOGGR for public comment. And new aspects of the regulation

include things such as neighbor notification, pre-well stimulation evaluation of the formation and well, monitoring during and after well stimulation, water quality monitoring plans and water management plans. So these are going to involve multiple state agencies, the Air Board, the Water Board, DOGGR, in evaluating these plans moving forward. And some of the monitoring involves a provision open for public discussion, no decisions made yet of course involves seismic monitoring. And then public disclosure of the activities and the chemical used.

So the regulatory environment is changing, having learned from and watched the challenges in Pennsylvania, Texas, North Dakota, Colorado, Arkansas. And so there is great interest in the Governor's Office and the Legislature to develop what we would call smart or wise regulation that protects health, safety, the environment and drinking water as the development of oil and gas resources in the state moves forward.

So just some take-home points. California oil fields are mature. California's production will continue to decline without either new discoveries or the combination of new discoveries

and advanced technology. And I said there's some other things that are needed, the will and stable prices. New technologies may slow the decline as we've seen in Texas and in North Dakota and in fact, may reverse the decline. We just don't know. One thing that is absolutely certain is the Division will continue to play a very important role in preventing damage to life, health, property and natural resources of the state. That's one of our main missions.

So thank you very much for your attention and I look forward to the question and answer period.

COMMISSIONER SCOTT: So is this on? What I'd like to do now is thank you very much to our three excellent panelists. I think this was a terrific way to set the stage. It was very data rich. I'd like to actually ask the three of you to come back up to the podium here and we will take some questions from folks at the dais for you. So please come on back up to the stage and we'll take some questions.

Go ahead, Cliff.

MR. RECHTSCHAFFEN: Well, recognizing that predictions about the future are very difficult,

Steve, I'm wondering if you or Mike maybe could with respect to the Monterey Shale, which we're all very interested in, what signs should we be looking at to help gauge what progress there is or what potential there is beyond the most recent EIA report? What should we be focusing on the next six months, a year or two, to help us understand how rich that area is or how likely it is we're going to have economically recoverable resources?

MR. SCHAAL: Well, I'll go first. And first of all, thank you for explaining that it's difficult. It was clear that the Monterey was experiencing or has characteristics unlike that of the Bakken and the Eagle Ford. My suggestion, not as an expert in the area, is that research would unlock the potential of that play, and that additional technological innovation would have to occur before it could be considered a commercial success.

MR. BOHLEN: I think some of the keys will be around what kind of technologies are being deployed elsewhere. One of the challenges with the Monterey as a formation is that it has chert layers. In these inland seas diatoms, which have silica, shells get deposited, and those layers get

deposited and then with heat and pressure they form chert. You would know this as opal, that's a gem form of chert. They're very hard, they're very fracture tough. They're very hard and so technologies that are deployed that would put more energy into the rock and develop more robust fracture patterns in the rock, I think, are going to be necessary to develop the Monterey. And when those technologies are being considered by companies, hydraulic fracturing is actually something companies have known how to do for many years and is now being deployed in a new way.

But it actually -- rock mechanics is something I know a little bit about, so I hope I don't bore you. It doesn't actually create these dendritic patterns that you see in all the cartoons. There's just enough energy to actually get a fracture going, and what you actually need is to create energy so that those fractures start to deviate and form the dendritic patterns. Those are the kinds of things that, as we start to deviate and form the dendritic pattern, those are the kinds of things that as we start to see those kinds of technologies deployed, I think that will be an indication that the companies are ready to

take on the Monterey. I think that's a couple years out, maybe three.

COMMISSIONER SCOTT: I have got one from Commissioner Douglas and then I'll come on.

COMMISSIONER DOUGLAS: No, you're in front of me, go ahead.

COMMISSIONER SCOTT: All right, great.

Well, thank you. I wanted to ask Steven just a couple of follow-up questions on your presentation. And, of course, the Energy Commission and DOGGR work closely together and share data and information and have some similar analytical functions, so, you know, I wanted to ask when you expect to have your enhanced oil recovery data updated and available.

I noted that the chart in this presentation goes through to 2009 and shows a kind of interesting uptick there, but you can't really see where that's going. And then some other charts sort of end in 2012. It would be really good to just work and make sure that we all have and share the most recent data on some of these things. And -- well go ahead and then I had another related question.

MR. BOHLEN: Well, I won't answer when,

because I'm coming up to speed on some of these --

COMMISSIONER SCOTT: You've got to -- microphone.

MR. BOHLEN: Oops, sorry, sorry. I won't answer when, because I have trouble predicting the future, but I'm just coming up to speed on many, many issues.

I am aware that we are behind in producing many reports that we have normally done, including the annual report, so I've asked the staff to look at getting, you know, what's it going to take to get those out as fast as possible. There's a number of challenges in DOGGR and that's one of them, so I'm aware of the problem. I've asked my staff to give me a plan, so I should be able to tell you, you know, perhaps when we actually meet officially in Sacramento. But it is on the list of things that needs to get done and done quickly.

COMMISSIONER DOUGLAS: Well, that would be great, and I think we'd also be interested in talking about the potential for publication or data collection on production data for hydraulically fractured wells. But let me ask you a question.

You know, have you gotten -- I know you've

been in your role for four weeks so the answer might be no. Have you gotten any feedback? What are you hearing from companies about their success so far in using hydraulic fracturing in California?

MR. BOHLEN: You know, I haven't had a chance to engage the companies in that type of discussion yet. Most of my engagements have been meet and greet and promises to work together, so ask me that question in six months and I'll have a more robust answer.

COMMISSIONER DOUGLAS: No, that's good. That would be great, well --

MR. BOHLEN: Certainly my background will allow me to penetrate past the, sort of the glossy view that the companies will present. And I believe I can ferret out accurate information with time.

COMMISSIONER DOUGLAS: Well, that would be great. Well, welcome to your role and thank you so much for being here.

MR. BOHLEN: Thanks.

COMMISSIONER SCOTT: Chair Weisenmiller?

CHAIRMAN WEISENMILLER: Yeah, so I had a couple of questions. First one, just a follow-up

for Steven. Do you have a -- obviously we've done enhanced oil recovery for a long time. Do you have a sense of whether that's been shifting over to fracking as one of the ways of doing the production, and if so, how much?

MR. BOHLEN: Actually, a lot of well stimulation has --

COMMISSIONER SCOTT: Wait, we have to have you at the microphone so the folks over WebEx can also hear the answer.

MR. BOHLEN: You'd think I'd learn, I'm slow, slow learner.

COMMISSIONER SCOTT: Thank you.

MR. BOHLEN: So actually, a large very substantial amount of enhanced, of well stimulation in the oil business for the last 50 or 60 years has been some form of hydraulic fracturing. It's been somewhat less controlled, but hydraulic fracturing itself as a technique has been around for a long time and been used quite a lot. So it's a very substantial amount of wells have been stimulated through hydraulic fracturing.

It's really the advent of the development of these unconventional resources with the very long lateral hose on the wells that has really

brought this, I think, much more into focus in the public's mind. But there's been a -- this is a very common technique used in vertical wells for 60 years.

And you're going to ask what the fraction of wells are that have been? I don't know the answer to that, but it's a fairly significant fraction. It might be a quarter, it might be 30 percent. I actually don't know, that's just a guess on my part. Did I answer your question?

CHAIRMAN WEISENMILLER: Yeah, you did. Thanks.

MR. BOHLEN: Okay.

CHAIRMAN WEISENMILLER: So a couple of questions for Gordon. I'll start with the observation I was at an NRC event with officials from various states, and at one of our events a gentleman from North Dakota was very, whatever, emphatic that North Dakota now had beat Texas on oil production, which gives you a sense of how much things are changing or at least perceived to be changing.

So I guess in terms of questions for Gordon, first question is, back in '78 when I was here with the first Brown administration we had an

oil embargo from Iran and we had shortages at the gas pumps, and generally we ascribed that to two phenomena. One of them was that we have a fixed refinery set and our crude mix shifted to, you know, basically we backed out the light Saudi and we were relying on a much heavier crude input. And that meant you could produce much less gasoline given the refinery configuration.

And the other thing that happened was of all of our, you know, 20 or 30 million vehicles, suddenly people went from having say a quarter to half in the tank to trying to go for three-quarters to full, and that was a remarkable surge on gasoline demand at the same time and so that led to that shortage.

Given the current notary situation, how do these trends affect, in our refinery mix affect our supply situation?

MR. SCHREMP: Well, I think for crude oil I think what Michael was showing is that in general high-level examination you see more oil, most of its light incrementally speaking, so something has to give. Less importing, and so who are we not importing from? Light locations. One of those happens to be, by the way, and this is

more Europe, but some source spilled over into the U.S., Libya. So troubles in Libya, a lot of light oil production lost. Well, that's okay, because we're sort of displacing that need to import there. Other African countries, Nigerian light normally would come to the U.S., now can't find a home.

So I think there's a natural displacement of very similar crude oils, but we're getting to the point, as Michael showed in his chart, you don't have a lot of light imports of oil left to back out.

So what's going to happen? Refineries use a sort of array of crude oils, all kinds of different crude oils with different varying properties. Many, many of the refineries, most of them actually mix and match, they combine crudes together almost in a cocktail, if you will, to get the properties they want to run based on their equipment and the product slate and the economics they desire that change over time.

So up until this point they've been able to do mixing and matching. So you could actually take something, for example, more heavier crude than you normally take, more lighter crude than

you normally take, blend them together to get sort of a middle of the road crude and that mates up well with what you're trying to accomplish. So the refineries will continue to do this, but at some point you add so much light crude oil to your point of yes it makes more gasoline.

Your refineries have been increasing their utilization rates. They've been exporting record numbers, but there's a limit. If you look at their utilization rates, how hard they run the refineries, over 90 percent, over 95 percent, that's basically as far as you can go. You have to have planned maintenance and so that's why they're starting to get more of a concern about now what are we going to do to fit all that oil in, and what kind of impact? So you will continue to back out imports, but will still want some of that. So as long as the economics remain good for discounted crude oil, you'll see refineries running at very high rates and exporting to foreign destinations.

Does that properly address your --

CHAIRMAN WEISENMILLER: Yeah, that was good. I guess the one question is trying to understand how much we should anticipate refinery

modification projects being needed to deal with the really changing crude slate?

MR. SCHREMP: I think in California really nothing. They will -- if in fact, these crude oil by rail projects are permitted and they are built and we do get to a much larger number than today you'll see them back out light qualities. And so we do have foreign imports that are light in quality that look like some light crude oils, we also have some heavy imports that we can back out. So that's what will happen. It will be Alaska, it'll be foreign sources that will be backed out by rail.

Those won't have to make any changes because they still have that flexibility. We're not sure if they weren't landlocked, made up to a certain type of crude oil that now all of a sudden has changed dramatically and they have limited ability to receive other types. We're not like that in California. So you don't see announced projects in that arena to make modifications to handle a much greater diet of light. In fact, the West Coast refineries are about 50-50, 50 percent light, 50 percent heavy. Washington and California refineries with California a little bit

heavier.

So we do not expect that in California, but you will see that in other locations that not too many years ago always spent billions of dollars collectively handling what? Heavier crude oil coming out of Canada and then turn around, not being able to predict the future very well? Yes, now what am I investing in? Real money. Light projects to handle more light crude oil and this is primarily in the Gulf Coast is what you're seeing.

CHAIRMAN WEISENMILLER: Okay. One general question, particularly for you, but for everyone. So we've had this real shift in the product mix and new transportation modes coming in for bringing it into California or transporting it around California. Where are our biggest gaps in data at this point?

MR. SCHAAL: I'll take that. So a few of the -- at a national perspective some of our greatest data gaps have to do with crude by rail movements, understanding the movements across different regions of the United States. We have a fairly good data for pipeline movements and water-borne movements. We also, as I discussed in my

presentation, could have better information about the quality of the crude oil, and that would provide better information about the types of adjustments that the market might need to induce to provide the needed refinery additions.

Gordon's presentation, for example, showed a selection of condensate splitters and other types of infrastructure being built in other parts of the country that would have the capability of processing this lighter fraction of crude oil.

MR. SCHREMP: And I think I'll just echo Michael's comments. It would be nice for us to better understand what type of crude oil actually is coming into California. We know the locations, but now in many of these locations, for example Wyoming, they're loading crude oil from multiple locations, sources, Canada heavy, Bakken light, coming to some very large terminals for loading rail cars in Wyoming, 120,000 barrels a day, 140,000 barrels a day.

So we may know it came from Wyoming or even that loading center. What crude oil was it? We don't know. We just know the volume and so we're not even sure on the density. So I think that would be helpful to us to understand what is

being sourced, but that kind of information isn't provided to us at this time.

MR. PEEVEY: I'm not sure to whom this question should be addressed, but I'd just like your opinion on the following. To what extent, if any, would the building of the Keystone Pipeline alleviate a lot of this potential rail traffic into California of all this oil from Canada and North Dakota?

MR. SCHREMP: I think because of the technology development that Steven said no one saw coming, a renaissance in crude oil production and natural gas production in the United States resulted in -- which is very typical. Pipelines are constructed because you have a supply source and a destination point where they want that material and that's the most economical way. Sufficient volumes, it gets built. It takes years, lots of money. So pipelines are constructed and they are there, but they can't be permitted and constructed fast enough to respond to this, you know, remarkable increase in North Dakota, West Texas, Colorado. So what happens? Rail occurs, but over time.

I think your question is a good one for

say longer term, so no Keystone a consequence is you could have greater rail as a consequence. In time more pipeline projects will continue to be approved and constructed and operational. Pipeline reversals, there's many projects that have already occurred that way and in some areas you can look, crude loading facilities have gone down to a very low level because all of a sudden, oh, freed up some pipeline capacity, sign me up at half the price. And so that's what happens.

But I think more of a North America potential consequence is the Keystone was designed to bring Canadian crude down to the Gulf Coast Refinery, some of it for export but some of it really for the Gulf Coast economics and improve the economics to the refineries there. As a consequence, even more expensive development bringing the value economic (inaudible) good and Canada now looks where? Take the crude oil somewhere else, clearly not across the U.S. border, but take it to Western Canada, Eastern Canada. Two competing projects going into Western Canada, hundreds of thousands of barrels. Over half a million barrels a day will now likely go to the West Coast and now where is the crude oil

going to go? Not to the U.S. refineries at a discounted price; to China.

And so that is a -- now, we can't predict the future, but this could be a consequence of that project, that large project not approved. But don't get me wrong, many, many, many pipeline projects and reversals have been and continue to be approved and money spent and operational. It's just usually a lag of step changes.

MR. PEEVEY: My only concern is, I mean I'm not enthusiastic about having tens of thousands of more rail cars running full of crude oil running around California, because I think accidents are inevitable. And I just wondered if there was a clear offset from one to the other. If it goes there, it doesn't come here. And you're saying perhaps, but it's a much more complicated matter. Thank you.

COMMISSIONER SCOTT: I have a question, it's more of an underscoring and it's for Gordon. And you mentioned on one of your slides that about 1 percent now is coming into California by rail and in 2016 about 23 percent-ish could be coming into California, and you listed several factors, I think some really important caveats that went

along with that. And I would just ask you to underscore them, because a lot of times I see that statistic but without the caveats associated.

MR. SCHREMP: Yeah, crude oil projects take two major forms and one is to load the crude where it's being produced and get it to customers. So if you can load the rail car, your customer is anywhere in North America that has rail receiving, so you have a large customer base at that point. In California we're not doing that. Clearly, we'd be a recipient, the refineries would. So that customer, if they can build a rail facility, the North America rail loading facilities, that's their oyster. They can, you know, try to get crude oil from anywhere that has rail cars, because it's economical.

But there's changes that occur, so we've seen in some of these projects their transient nature meaning they're short-lived. The discounts are so large in some cases, over $25 a barrel, that if you could get your rail project constructed relatively modest 50 million, 40 million, 30 million, not a lot of money relatively speaking, you can pay for yourself in 7 months, 18 months. And so you're looking at a small window

and then your project is paid off. And then you have flexibility at your refinery for just shopping crude oil or contingent planning in case there's an earthquake takes out a pipeline and things of that nature.

So they're transient and so what has to happen is they have to look at that market and say, Is that crude discount going to be there for 18, 24 months or 36 months, however long? And if they're still pursuing their permit they have to have that as a backdrop.

So many people are still predicting yeah, the crude oil production is still going like gangbusters, it's outpacing pipeline expansion capability, it's going to be discounted -- Alberta, Dakotas. So go ahead if you need more time to build your project So they'll likely still pursue that, but once those discounts start to be eroded then they lose interest.

So you have to have that and I didn't have that in my presentation, I apologize. That's the backdrop, but then you need to get your permit, then you get customers. They don't build a facility like this on speculation like spec home building. They get approval, the permits to hand

and get the customers lined up and say, go to the Board and say they're all lined up. I have contracts signed. Okay, here's the money, go ahead and build it. That's how they get done, so all of those have to line up.

So will all of them line up in California for all of those facilities? Likely not. You can have a phenomenon of first in, Plains All American facility in Bakersfield will be operational later this year. They will be able to ship crude oil north to Bay Area refineries and south, so they will obviously have customers lined up. They do, they're building it. So now maybe another project who is going to do something similar, they have a tougher time getting customers.

So this is what can naturally happen, but still if you put that in larger perspective 23 percent, Alaska was 12 percent of our oil, 51 percent from foreign countries. There's plenty of room to back that out, to President Peevey's question, back out the marine imports. So but all of those factors, you're right Commissioner Scott, they all have to be lined up. And the crude oil discount must be sustained.

COMMISSIONER SCOTT: Thank you for

reiterating that for us. And had another one for Michael Schaal. You talked about the large reduction in the Monterey Shale estimate and I think that's also something that's really of a lot of interest to folks. And you did a great explanation and I would just ask you if you could underscore that and give us the key details of that just one more time.

MR. SCHAAL: Okay. And actually I'm much beholden to Steven, because I think he did an excellent job of explaining that the geology as represented by Monterey is substantially different from those plays that have had the commercial success in the interior of the United States. And so at a time when the technology was new and we were tasked with attempting to understand how this technology might be usefully applied across a range of plays, the Monterey has not played out in the way that had originally been expected. And it's the issues that Steven has discussed that have been in the way of achieving the commercial success and therefore warranted a reduction, at least for now, of the resource estimate.

COMMISSIONER SCOTT: Okay, thanks. I appreciate that reiteration as well. We've got

one last question from Commissioner Douglas and then we'll transition to our next panel.

COMMISSIONER DOUGLAS: All right. I think this question is for Michael Schaal. You know, I'm looking at the information you provided, it's really great. It just raised one question for me, which is if you could give me a sense of scale in terms of the estimates of increase in U.S. crude oil production and what that could mean for foreign imports, either Canada or, you know, the rest of the world: Middle East, South America, Africa. You know, I'm just trying to get a sense of the significance of this trend in terms of the larger crude supply.

MR. SCHAAL: So and I take it you're looking more of a longer-term nature than a shorter-term nature?

COMMISSIONER DOUGLAS: Right.

MR. SCHAAL: So EIA has a saying, and this was coined by EIA's first administrator. EIA was formed as a result of the shortages and the OPEC cartel behavior, and our first administrator, Moses, coined the term that there are no statistics about the future. And indeed, when we look at our projections, and we purposely use the

word "projections" and not forecasts, when we're looking ahead 20, 25, 30 years ahead. Because what we realize is that our understanding of today is not going to be the same understanding of tomorrow, next year or 20 years from now. That enough time will have transpired that significant new information will be made available to us that would alter our perception of what the future could be.

In this case our study of the background of the determinants of this type of production could result in continued technological progress that would enable bringing other plays into line increasing recovery rates. And this is somewhat key in that, while we've had rather impressive production growth from tight oil formations, the information from the geologists and petroleum engineers is that that represents a 3 to 9 percent recovery of the in-place oil that's in the formation containing the hydrocarbon.

So that is a positive for optimism that further technological innovation could unlock even greater recovery rates allowing drilling not to just be extended to other locations, but go back to existing locations, do completions and achieve

-- you know, if you doubled the recovery rates you could double the level of production for a period of time. And that's why when we look at the future in terms of alternate scenarios, and in this case it truly is a scenario, we look at a scenario of a reference case, which looks at what we understand the technology of today to be as extended through the next 30 years.

And then we also consider a scenario that involves thinking about the way the technology could evolve in the future. And that's where we see that potentially U.S. crude oil production could be more than 75 percent above our current levels. And that's fairly well described in our AEO issues and focus piece that was published earlier this year. And in that instance where you have increase in U.S. crude oil production and long-term trends of increasing vehicle fuel efficiency requiring less amounts of liquid fuel products, that there is an opportunity for the U.S. to rather substantially offset a majority of crude oil imports. You know, that possibility exists, we look at it, we try to make sense of it.

But one of the things we also recognize about the infrastructure needed to adapt to that

is we've noted that over time state agencies and federal agencies have been relatively good stewards about enabling the infrastructure to allow markets to work. And that while this trend may occur, it would occur over the course of decades, not necessarily over the course of just a few years.

COMMISSIONER SCOTT: Great, thank you very much to three terrific --

MR. SCHREMP: Oh, I just want to give (inaudible) closing.

COMMISSIONER SCOTT: Oh, I'm sorry, go ahead.

MR. SCHREMP: Sorry, just one little closing comment. Although DOGGR might be maybe a little behind on their traditional annual reports that we've come to love and expect and depend on, I've got to give a plug to DOGGR on they do have a living database. For those of you who may not be aware, you go to their website, you can find a living database. You can look up all the wells in your neighborhood or in some part of California and you can click on the individual wells and you'll see actual production data through the most recent month. So it's a remarkable achievement,

this database that's updated constantly, so I just wanted to let everybody know that there is a pretty valuable resource for that kind of information out there.

COMMISSIONER SCOTT: Terrific, thank you Gordon. And thank you to our terrific panelists. I think they did a great job giving us a lot of robust information to set the stage. So thank you Gordon, thank you Michael, thank you Steven, we appreciate it.

I'd like us to transition now to the Crude Oil Distribution Logistics Panel. And our first panelist is William Finn. Mr. William Finn is the Vice Chairman of the Railway Supply Institute Committee for Tank Cars.

(Colloquy between staff)

MR. FINN: Good morning. I'm William Finn. I'm Vice Chairman of Railway Supply Institute Committee for Tank Cars, and I'd just like to start out by saying I've been in the railroad business and specifically in the tank car business for over 40 years and 36 of those years I've been a member of the AR Tank Car Committee. I'll talk about that in just a second, but it's a standard setting body that does reference to

rulemaking with the federal regulators.

But in those 36 years on the Tank Car Committee we've had a lot of challenges, big challenges that have come and gone. We've been able to solve those, but this is the biggest challenge we've ever had. We've never been in a position where we had to supply cars as fast as we have and the buildup that we had. And also keep in mind the safe transportation of the commodity that we're handling. Crude oil, ethanol, the other flammable liquids, they all have their characteristics and they all have their concerns. And, of course, one of the biggest concerns we have particularly lately has been the transportation of crude oil.

Now what's changed in crude oil? And I'll get into my slides in just a minute. What we're doing with both crude oil and ethanol and is we're carrying with unit trains. We've never done this in the past. Generally what we did is when we put hazardous material cars in a rail car manifest train we would separate the commodities being aware of trying to not get too many hazardous materials together. In case you did have a derailment it would minimize the exposure.

With the advent of the unit train, which is a very efficient way to transport both crude and ethanol, we've now put blocks of cars of 40, 30, 20 cars together in a train. Our total cars in the train may be 100 or 80 cars, so that it's a challenge in that we've got to find and continue to work forward with a safe way to transport these materials. And that's what I'll talk a little bit about this morning.

And also, then we also need to be aware of that what we do in the way ensuring that we safe transport these in the way of regulations. Modifications that we're proposing in the industry doesn't just kill the transportation of crude. As we've seen in other discussions, particularly coming into California, there really isn't a pipeline to transport crude that's coming out the Bakken region, which is the major growth area as you've seen through some of these presentations before me. So the key here is how do we safely transport the material? How do we get it to its destination? How do we make sure we have enough cars to get the job done? So that's what I'd like to talk a little bit about this morning.

Let me tell you just a little bit about

our committee quickly. We are the Tank Car Committee, of course, of the Railway Supply Institute. We're eight members and we represent builders that build 95 percent of the tank cars in the United States. We also own 70 percent of the tank cars in the United States and we lease them to shippers. And then what's not shown on this slide, also we have the largest certified tank car repair network in the country. So when we talk about building cars or supplying them, repairing or modifying cars, we're a big player in this and we're committed to getting the job done in the right way and getting the safest transport vehicle out that we can.

Let me just give you a little timeline here. You know there's been a lot in the paper in the last year in particular about crude oil derailments. Certainly there's been some situations that have been very tragic. There's also some situations that you don't see much of and that's derailments that have occurred and not much of anything's happened in the crude oil unit train. But the fact is everybody's sensitized to transporting crude oil and ethanol because of some big events and some very tragic events that have

occurred.

We go back, in the work that we're doing with the AR Tank Car Committee, we go back to 2009 when there was a derailment in Cherry Valley, Illinois, and it happened to be what we call a manifest train, a large-block manifest train, ethanol. It derailed at a crossing. There were some people waiting to cross the tracks and tragically there was one fatality and two people were injured who were burned in this very severely.

So the Transportation Safety Board, National Transportation Safety Board in this case, went to the accident and they did an inspection. They wrote a report and the areas that they pointed out, which was no surprise to us, are that particularly cars need to be addressed in areas of the shell that had the top fittings and the bottom fittings, and I'll have a slide here in a minute to explain what that means. But their recommendations are that we needed to do something in those areas to make these cars perform better in a derailment.

Now, I should say transporting by rail is a very, very safe mode of transportation. We've

talked a lot today about what are some of the alternates. Barges are. Of course, that doesn't really enter into the Bakken situation. Truck transport is. The fact is rail is safer than truck transport by a magnitude of seven or eight and it would take a lot more truck transports to carry the same amount of quantity that you carry in a unit train of cars.

So what we did in the industry is we formed a taskforce, which is the way we addressed this in the Tank Car Committee, and we deliberated on what we could do to improve these cars, and in 2011, in March of 2011, excuse me, the Tank Car Committee sent a petition to DOT who regulates the railroads. You know, the railroads are regulated by the federal government, the Department of Transportation and specifically the Federal Railroad Administration and the Pipeline and Hazardous Materials Safety Administration. They're the people who promulgate the rules. They enforce the rules. They specify what tank cars should be in specific commodities and we're required to meet those requirements.

Now we can in the industry exceed the federal requirements. The railroads can set their

own standards saying effectively that the FRA standard is fine except we want a higher standard for the cars on our railroad. And what's important here is that we sent the petition to PHMSA in 2011, but recognizing that the wheels of the federal regulatory process are very slow to churn, we also agreed in the industry that we would voluntarily step forward and start building cars to a higher standard. These cars would be used for ethanol, crude oil and other flammable liquids. So in October 2011 the industry began building cars to this new, higher standard.

And that brings us up to date to today. In 2014 we are still waiting for our regulation from the federal government. We know that there is what we call a Notice of Proposed Rulemaking, which is a second step in regulatory process following an advanced notice that is now at the Office of Management and Budget. We expect it should be out sometime in July. It'll be published as a Notice of Proposed Rulemaking with a public comment period, but at this point at least the feedback we're getting through our sources is we believe this rulemaking will be complete by the end of the year and will be

promulgated as a final regulation.

One of the issues we deal with in the industry with the federal government is, once a proposal goes into the rulemaking processes there's very little direct communication that can take place with the government. We can come in, we can present our proposals, we can officially comment on published issues, but they cannot indicate whether they're for or against or where they're going with their rulemaking. So we attempt to direct the rulemaking to where we believe it should be, where in this case what we think will provide a safe vehicle, but in the end it's the government who makes the decisions. They'll send their rulemaking out for comment, we'll be able to comment, but in the end they'll decide what goes into the final regulation.

But just I want to go through this just quickly just to maybe familiarize you a little bit with what a tank car is and the areas that we're concerned about. The areas we're addressing in our new P-1577 or what we call the CPC-1232 Standard, which was a voluntary standard.

Basically, when a tank car derails it can lose commodity through a breach in one of four

areas. One would be what we call the heads of the car, which are right up in here. And those are generally caused by either couplers that will impact the car or the edge of the platform of another car, other freight cars. And the second area is through the shell, which is this area right through here, and those are side impacts. You know, the cars will careen as they come off the rail and a lot of times another car will impact them or they'll simply compress and split open. Third will be in the top of the area, what we call the top fittings protection. Sometimes these'll get wiped off and commodity will come out of that area, spill out of that area. And then lastly, the bottom fittings area. So these are all areas that were pointed out by the National Transportation Safety Board and those areas that we directed towards our new car, which I'll talk about in a minute.

There were other safety features on the old cars, the existing cars I should say, such as shelf couplers, which have intrusions on the top and the bottom. The intent is to try to keep those from uncoupling in a situation and impacting the adjoining car. And another is a skid down

here in bottom fittings protection, and the idea there is if the car goes off of its tracks and skids along the rail, that you won't wipe off the bottom fittings and leak through the bottom of the car.

Now, those were in place prior to anything that's been going on with the ethanol and the crude oil cars. The thing that's occurred that's changed on these cars is, because of back injuries, the industry requested that a new handle be put on the bottom outlet valve that could be accessed from either side of the car with minimal effort, and it would address some of the OSHA concerns. But what happened in derailments is that handle would, because of the large mass in the handle, tend to open and cause some of the commodity to leak out of the bottom of the cars.

So what we did to address this, and this is how new cars are being built and how cars that are going to be modified in the fleet are going to be modified, is starting with the top fittings area. We put all the fittings in a very robust, protective housing and it's called top fittings protection. The idea is that in a rollover situation you have to be able to wipe off the

valves and remove commodity.

Also what you don't see on this drawing, but inside the housing is a safety relief valve. What we've done with the safety relief valve is we've lowered the discharge pressure, the initial discharge pressure, and we've increased the capacity of the release. So the intent here is at a lower discharge pressure we can vacuum or evacuate higher commodity volume, therefore attempting to keep the pressure in the car buildup down so that we don't have what we call a thermal tear or a pressure tear.

We've applied head shields on the end of the car. These are half-inch thick steel plates that are attached right over the heads and they provide puncture resistance on the two ends of the car.

We're applying jackets to all these cars. Now, prior to this some cars were jacketed and some cars were not, and the reason you jacket a car is for ease of unloading, that you could put steam in the car and cause the viscosity to go down in the commodity, and therefore you'd be able to unload it. That was strictly for final discharge of the material. But we're jacketing

the car now because it provides another eighths-inch thick steel and we've found it's very effective in side impacts in minimizing the possibility of an impact on the side of the car that would release commodity and cause a breach.

We're also adding, and it's a little difficult to see here, but we're adding thermal blankets on the cars. Now, thermal blankets have been used since the 1980s on compressed gas cars and these cars are flammable. And we had a rash of -- in the late 70s we had a rash of derailments where we see these high-energy events where the commodity was released and you see somewhat of what you're seeing on a few of these derailments today for ethanol and crude oil. The idea with the thermal blanket is, it's a regulatory requirement on compressed gas cars and it's there to allow adequate time for the emergency responders to mobilize to address their evacuation plan and address how they're going to fight the fire if they intend to fight the fire.

One of the issues about losing commodity in any derailment is there's plenty of sparks in a derailment and ignition source, and when you couple that with a flammable liquid or compressed

gas there's always a possibility that you're going to have a fire. And then, of course, you have the ensuing issues of adjoining cars that could be impinged by the fire. The pressure would build and you'd release additional commodity, therefore it becomes a situation where you continue to feed the fire situation. So the thermal protection helps with that.

But the bottom fittings protection, we've got a design to replace that universal handle with one that will be contained within the skid housing and it should not open in a derailment.

And so these are the cars that are being built now to the CPC-1232 voluntary standard, and the cars that we're working hard to get the government to put into the regulations. And that's an important factor. I'll talk about the reason we're working hard on that in just a minute.

At the end of 2013 the total fleet of crude oil tank cars was 43,750 of which 14,350 of those were these new compliant CPC-1232 cars, the ones I just showed you. 29,400 of those are the existing fleet cars. Now, what we're doing in the industry is we're working to build up this fleet

as quickly as we can with new cars that are compliant, and then as quickly as we can get some certainty from the government on our retrofit proposals we're going to address this group of cars in terms of modifications that'll upgrade their safety.

Now, we're talking specifically crude oil here, but you can't uncouple crude oil from ethanol, because basically you're carrying the same type of commodity, a flammable liquid that are carried in the same cars and they're carried in unit trains, so they have all the same characteristics of crude oil. So we've got to, when we talk about what we're doing with crude oil we've got to also look at what to do with ethanol. And again, at the end of 2013 there were 29,850 of these cars of which only 500 of these are compliant cars. And there's a reasons for that, because the crude oil buildup took place years before -- excuse me -- the ethanol buildup took place years before the crude oil buildup. So most of those cars have been built and they've not been ordering new cars to the standard. So you'll see more of their cars, of the old legacy style design. And these again are the cars that have to

be addressed in terms of any types of a retrofit or a modification program.

So to take a look at where we're going to be by the end of 2015, you can see that the fleet's changing dramatically. Roughly the size of the crude oil fleet's double what it was two years ago and about 57,000 of those cars now will be compliant cars.

Now, it'd be easy to say, well, okay. If we're building these cars and we can build them up this quickly, why don't we just phase out these cars? Well, the fact is at this point in time, of course, this entire fleet is needed and more to meet the demands of what's going on in the buildup of crude oil.

And here's what we're dealing with in terms of how can we replace cars, how quickly can we get the new cars in the fleet. The full capacity industry is about 34,800 cars per year, so over a three-year period we can build 101,000 tank cars. But we have a current backlog of 55,000 tank cars that are already on order, so those cars are spoken for. Now, the good news is 60 percent of those cars are going in the crude oil service and those are on order. The capacity

remaining then over the next three-year period is 46,000 cars. Now, knowing that we have to service other commodities, there's a national tank car fleet that has to be serviced here. Our projection is that about 60 percent of that remaining crude oil, remaining -- yeah, excuse me, capacity could service a crude oil and ethanol fleet.

Well, you can see that if you look at the existing fleet and if you look at that's a legacy fleet. Now, these are non-modified cars and if you look at the capacity available, they don't match. There's no way you can get from here to replacing this fleet.

So our proposal is that, to the federal government and this is the railroads, the petroleum producers and the railway supply institute, who are very close, were a little bit off in some of the specifics of the retrofit, is that we need to get to a rulemaking in place as quickly as we can. So what we need to get the job done is what we call certainty. We need the regulation in place so we have a clear path forward on, number one, are they accepting the CPC-1232 voluntary car as the car for the future?

If not, what are they looking for and how is that going to impact our car building and our back orders? And two, we need harmony.

There's an issue that cars move back and forth between Canada. They're free runners, because of crude oil. Not so much ethanol, but crude oil. And we need to make sure that in the end -- and we also know that the Canadian regulators are working on rulemakings at the time also and we are in communication with them. But in the end we need the Canadians and the U.S. to come up with a rule that is in harmony so that cars can run freely between North America and Canada. If not, we've got a serious situation, because if we have one type of car going into Canada and one in the states, one is not going to allow the other to come in if they're not the same standard, and it creates some problems.

And then lastly, relative to retrofitting the existing fleet, we need a reasonable plan for priority in how we retrofit the cars. And when it comes to retrofit, what the government needs to consider is the availability and the capability of modification facilities. What we call the full retrofit or the tier one retrofit, which would be

applying the jackets, the head shields, the top fittings protection, bottom fittings outlet modification. There are only a limited number of certified tank car facilities that can do that modification, so we need a plan that addresses how we can get those cars through those facilities in the quickest way possible, make sure the job's done correct, keeping in mind, of course, the safety of the public.

One of the pinch points we had is car cleaning capacity. I should say in the end when you package the ethanol cars and you package the crude oil cars for modifications, and the balance of all flammable liquids, which is also part of the regulation, you're looking at about 96,000 cars that are going to have to make their way through some type of a modification program. Now some of it's as simple as applying the new safety relieve valve on the bottom outlet handle, but even that requires cleaning of the cars, because you can't work on these cars if there are flammable liquids because of the safety concerns. And that's a real pinch point in the industry right now, how do we get enough of these cars cleaned quickly, get them to the repair facilities

and get them out in a timely manner so that we don't shut down the industry?

Some tank cars will be retired or repurposed, we're guessing -- not guessing. We did a poll of our members and we've estimated that about 28 percent of the existing ethanol and crude oil cars will not make the cut for retrofit. They'll either be too old to be economically -- to handle the economics of the situation or they won't be upgradable to 286 trucks, which will throw them, we believe, out of consideration.

And then the last is, as I've said, is we want to make sure that this plan is such that we take full consideration for the safety of the public and the transporting of these commodities, but also try to be reasonable in the disruption of the tank cars to the shippers. And that's it for me.

COMMISSIONER SCOTT: Thank you, very much. We will now hear from Union Pacific with Liisa Stark, who is the Director of Public Affairs, and David Wickersham, who is the Chief Engineer at Union Pacific.

And I just want to remind all of our speakers that we do have a time keeper up there.

He's working hard to remind you. He'll give you a three-minute warning and also a please conclude, just to make sure we can get to everybody and hear everyone's full presentation. Thank you.

Welcome, Liisa.

MS. STARK: Thank you. Good morning. Again, I'm Liisa Stark, Director of Public Affairs for Union Pacific Railroad. And I do have two of my colleagues here, one from Union Pacific and one from BNSF, who will cover a little bit more things in detail about our railroad operations.

But I really wanted to just take a minute and just lay a little bit of a framework how freight railroads operate here. And I do also want to, before we begin, reiterate a point that Commissioner Scott made, and that is in regards to the projections of crude oil that could potentially come into the state.

And from our perspective, as the CEC staff report noted, there are a lot of things that have to line up for those projections to come to fruition by 2016, and from our viewpoint, we're just not seeing that happening by 2016. And for the railroads, the predominant factor for that is because the facilities just don't exist right now

to bring those quantities of crude into the state.

So, and again, I want to say thank you for allowing me to attend this workshop. I know that this really, to me, is the most comprehensive discussion that has occurred on this issue to date and I think there's a lot of valuable information that we're getting here today.

So to start, I just wanted to give you a little snapshot of Union Pacific Railroad. We are headquartered in Omaha, Nebraska. We operate in 23 states west of the Mississippi river and we run through over 7,000 different communities. We are essentially, if you think about it, a 32,000 mile factory without a roof, and it takes our 46,500 employees every day, 24/7, 365 days a year to keep that factory running safely.

Our California operations really represent a little over 10 percent of our total rail miles and employees. Very, very significant, and California is obviously a big part of that business. In California we have over 4,800 employees and we have almost 3,300 miles of railroad track.

And if you think about -- in addition, I know we're here today about crude by rail is the

topic of discussion, but if you really stop and think about all the products and goods that we all as consumers use every day, at some point most of those have been transported by rail. That includes the shoes you might have walked to the meeting in, the components that made up your bike if you rode a bike here today, materials that Public Transit uses to provide safe efficient service, and the cars that we drive. Also keeping in mind the food that we eat is transported by rail, the chemicals that we need for a safe drinking water supply is moved by rail, and all of that is done very, very safely.

Moving on, we're just building upon that safety. How is it that we can be such a safe industry? First of all, it's our number one priority. Second of all, significant capital investment in our system. And my colleague will go a little bit more into detail about what exactly that means, but in 2014 alone Union Pacific is making a $4.1 billion investment back into our system to ensure the safety of our operations, the safety of our tracks, the safety of our signals and all the technology investments we make to make sure the railroad is running

safely.

My BNSF counterpart, I don't know if she'll mention this, but I know that they are also making a $5 billion capital investment back to their system. So just between those two Class 1 railroads that's over $9 billion of private money going back into that system, not taxpayer funded. And as we talk about, too, just the types of goods or materials that are moved on the railroads, I think it's important to keep in mind why we have such a vested interest in keeping that system safe.

One of those reasons is we are classified as what's called a common carrier, so essentially that means that the railroads cannot pick and choose what type of commodity we will carry for our customer. Under those common carrier obligations, we're actually required to accept any type of commodity that a customer gives to us, provided that it is packaged according to U.S. Department of Transportation regulations. So that includes all the materials we move, all hazardous materials we move, and that includes crude today. And obviously, once that good or commodity is passed on to the freight railroads, we have a very

vested interest in getting it from point A to point B safely. And that is because we become solely liable for that product once it is handed off to us.

And from an environmental perspective, rail is the most environmentally friendly way to move goods today. It's four times more fuel efficient than trucks. And the industry is very proud to say that we can move one ton of freight over 480 miles on a gallon of diesel. So that would be like all of us getting 400 miles a gallon in our car, so we come second behind Tesla, I suppose.

But again, I just really want to iterate that safety is absolutely our number one priority. It's a priority for our employees, it's a priority for our customers, and it is absolutely a priority for the public.

And just to close I do want to say, you know, we today move 99.998 percent of all hazardous materials without a release from any type of train incident. I think that's a very significant point and that includes all types of hazardous materials that we move on a regular basis.

So with that, I'd like to turn it over to my colleague, Dave Wickersham, our chief engineer for the Western Region. Thank you.

MR. WICKERSHAM: Thank you. Good morning. My name is Dave Wickersham. I'm a Chief Engineer for the Western Region of the Union Pacific Railroad. We have three regions.

I'm very honored to be here today to share with you a little bit about how we maintain our infrastructure, but first I want to say that I live in California with my wife. My granddaughters live in California with my daughter. I started my career in San Francisco with the Southern Pacific Railroad 38 years ago today. I've done five tours of duty in California. And I want to tell you that the infrastructure today on our railroad is the best it's ever been in those 38 years.

So moving forward here a little bit, the Engineering Department responsibility on the UP, and the BN is the same, is to design, construct and maintain track bridges and structures and signals for our company. Now, our mission is a little complicated here, but basically our mission is that those 12,500 engineering employees go home

safe every day and we keep trains on the track. We spend $1.6 billion of private money to maintain that railroad. We also spend another billion dollars in operating money.

So a railroad track wears out. If you drive down a highway and look at a railroad track, you might think it's been there a long time, nothing happens to it, but it's a steel wheel on a steel rail and that track structure wears out and we're continuously replacing ties and replacing rail as it gets to a certain age. This is how I think my neighbors perceive what the railroad's like. So it's like that commercial that Buick puts out. This is not -- today it's not, this is our great, great, great, great grandfather's railroad and this is not how we maintain it.

So our railroad, the UP, was very instrumental in uniting California with the rest of the United States about 150 years ago. A couple years ago this was actually a Central Pacific work crew building a rail line across Nevada as they met the Union Pacific coming from Council Bluffs. We're very proud of that history.

Today's track design and construction is very similar to an interstate highway that

Caltrans puts out. You'll see that that compacted subgrade on top of earth is overlaid with about 8 inches of sub-ballast material, which is topped with 12 inches of ballast and then your cross-ties and then your rail. It's a very modern structure. Original rail that was built by the Central Pacific was in 30-foot lengths with splice bars in between them. Our railroad, mainline railroads in California are all continuously welded now. We're starting to put concrete ties in California.

Here's an example of how rail has improved. Now rail is measured by pounds per yard, and the original Central Pacific line was built with 60-pounds rail per yard and our standard now is 136 pounds per yard and 141 pounds per yard. So it kind of tells you how technology has improved. And the quality of rail keeps getting better and better and better. It lasts a lot longer, what we're buying today versus what we bought 10 years ago.

Today's cross-tie technology is we're still a wood-tie railroad, but we're going to concrete ties because they last longer and they're stronger. And we're exploring other types of ties like plastic ties and steel ties. Our railroad

replaces over 4 million ties per year, everything is all mechanized now. The average tie life in California, it's a dryer climate, is about 30 years per tie.

This is how we do it. This is how we maintain our railroad. We have 43 fulltime dedicated track inspectors in California. That vehicle on the bottom right-hand corner there? That's what we call a hy-rail; it's actually a pickup. It can go down the highway. It's got rail gear on the front and back and they can set on at a road crossing. The California PUC regulators that regulate our company will accompany our inspector in that vehicle as he does his annual inspections.

We have 17 managers of track maintenance in California. We have 480 full time track maintenance employees working in California. Tracks are inspected twice per week. All our mainlines are inspected twice a week. We do special inspections during storms and after earthquakes.

Here's the real key to technology that's helping us out. We have two of these vehicles in our company. They operate over California twice a

year. They're about $10 million apiece. They're arrayed with sensors underneath that car that measure different track geometry parameters, so they measure track gauge, which is the distance between the rails, alignment, cross-level profile.

And we use data. There's a computer on this car that analyzes what it's seeing immediately and correlates it with the FRA track safety standards. So if its load is required to be put out or even if the track has to be taken out of service, that information is highlighted immediately and the guys on the car can take action immediately. And then we use this data to determine where we're going to do our work in the next 30 days or the next year or the next 5 years,

Another key component of keeping trains on the track in California is this rail detector system. So we're required with the crude oil regulations that just came out to do an internal search of rail defects in our rail more than once a year, and we're actually in California exceeding that. Our railroad does it at least three times a year and there's some areas we do it every 30 days like our Tehachapi mountains.

But what this car does, it operates about

five miles per hour, seven miles per hour, and it sends a sound wave through the rail and it looks for an internal flaw in that rail, and when it finds it then they stop, back up, they mark the rail and we have crews following that day that change the rail out.

The UP puts a tremendous amount of money back into the railroad. So I've got the red card here, so I'll do the rest of the slides pretty quick. But this is the amount of ties and rail that we're putting in every year to make sure we keep trains on the track.

We're also doing a lot of upgrades with concrete ties. These are critical mountain territories in California, the best tie we can put in is a concrete tie. Tehachapi mountains are complete. North and south at Dunsmuir along the upper Sacramento River complete with concrete ties. The Feather River Canyon is complete with concrete ties. Our Sunset Route where we're building double track right now between L.A. and Yuma is 50 percent complete and our Donner Pass line is 33 percent complete.

This is our bridge program is very robust. We have 3,100 bridges in California or 56 miles.

We have a very robust inspection program. We have six two-person dedicated fulltime gang crews working in California. We use a lot of technology. That lower right-hand picture is a picture of one of our two-man crews in what we call a snooper truck. You'll see a little man lift where the guys are actually looking underneath the bridge during the annual inspection of components. But that's just an example of new technology helping these guys inspect bridges better. We're also replacing a lot of those timber bridges with steel and concrete in California.

A real key to keeping trains on the track is technology with wayside detectors. And if you remember cabooses, I don't know if anybody here remembers cabooses? But those two guys in the back of that caboose, as the train was going down the track, especially around curves, they would inspect their train to see if there was anything wrong with it, so they were looking for something smoking or they were looking for dust on the track where a car might be derailed. Well, we don't have those cabooses anymore, and the reason for that is all these detectors.

And that's a whole other subject and very complicated about what all these detectors do, but this is where they're located on our system. So every dot there is a detector and it's almost a continuous line. This has really helped us in these three areas. So that first column is detectors that help us determine how to maintain rail cars. So you can see all the different kinds of detectors and how that overlaps. And then operating performance to reduce train delays, those detectors help with that. But look at the far right-hand column in derailment prevention. So all these detectors, they really do the job of that conductor in that caboose infinitely better, because just about every detector prevents derailments.

And that concludes. I tried to give a little time back.

COMMISSIONER SCOTT: All right, thank you very much. Thank you, Liisa and Dave.

I'd like to welcome LaDonna DiCamillo, the Director of Government Affairs for Burlington Northern Santa Fe Railroad.

Welcome, LaDonna.

MS. DICAMILLO: Hi, I'm LaDonna DiCamillo.

As Liisa mentioned, we're colleagues, I work out of Southern California. She kind of did an overview of railroads and I could do a similar presentation, but I'm just going say ditto on that. And if you put them side by side you could notice some slight differences.

We're headquartered in Fort Worth, that's probably the biggest one, and they're in Omaha, but other than that our railroad operations are very similar. We have different track and I think there are maps out in the hallway that show the different track routes. Those are the primary differences between the two railroads. We each own our own track routes and you can see those out in the hall.

Listening to the other speakers that have proceeded me, I am kind of doing a summary and an overview of a lot of what you've heard. So if you see me flip through a slide it's information that I think you've gotten elsewhere in the presentations that are here, but I'm going to try to pull it together and talk about all the different things that we're doing from a safety perspective and kind of give you the overview. You've seen some microcosms of what we're doing

and I'm going to try to pull that together.

As Liisa said, we are focused on safety and it's extremely important to us, and our hazmat shipments, all of our shipments, arrive 99.997 percent safely without incident. And that record and those statistics are actually getting better and better, our safety statistics on that.

As an overview of how we look at safety, we are the safest mode of transportation. Our view is to do prevention, which is a lot of the capital infrastructure that we're talking about that David has spoken of. So we invest in our infrastructure to eliminate potential hazards that cause derailments as a prevention issue. We do mitigation so that, if there is a incident, how are we going to minimize any damage from that and then of course our response to that. And those are some things that I'm going to cover.

First, our safety incident rate is going down, down, down. This is extremely important to us for the safety of our customers, our employees, the products we carry. And we will continue to focus on keeping this trend downward, but this shows overall we do continue to improve on safety.

Kind of a general categorization of where

incidents, if an incident happens what category those fall in. They usually fall into one of these four categories, and I can show you a little bit about what we're doing in each of those categories as far as a prevention.

Of course, from human factor training we're also working on what's called positive train control, which is utilizing GPS positioning and electronics in our cabs to help keep communication in the event of the trains getting too close together or something's happened in front of one train that the other train can't see. This is where positive train control can really fill in those gaps. We are working installing that. It's a very expensive program for us, but we're committed to working with the federal government to move forward on that.

Track and signal you've heard a lot about, obviously that's a key focus.

Equipment detectors making sure that we're not overheating bearings. You've heard a lot about that too, but that is a key way to improve safety on the railroads.

Capital spending, very important. We own our own infrastructure. We've got to keep it up,

so you can kind of see with the economy how it's varied a little bit, but we are doing a significant investment in capital infrastructure.

Bridges and track, and you've heard most of that from Dave.

One other thing that we've done is really identify the trains that have the most risk, and we call those key trains. It shows you how we identify those, but we give them a kind of a special handling also with restrictions on speed, the routes that we use and how we attend to those trains. A few more specifics on that speed restrictions for crude that we've agreed to with USDOT, and I think you're going to hear from DOT later, so again I might go through some of these pretty quickly but you will have the information on the website.

Speed restrictions, of course you've heard a lot, if there is a derailment, to minimize the impact or the damage that's in that derailment. One of those ways to do that is by reducing our speeds, so that when a derailment might happen there's going to be less puncturing of the tank cars and less damage at that derailment. So reducing speeds is a key to that. We're working

with PHMSA to look at risk areas and find the most safe and secure ways to shut that.

Derailment prevention we've talked a lot about and of course our emergency response and training with the emergency responders that we work with. And I've got some more slides on that.

This is a little bit about positive train control. You've heard a lot about the tank car standards. This is a key element of mitigation in the event of a derailment. We're working to move toward the new cars, the 1232.

That gives you -- you've kind of seen this, but it is really important. There's a lot of science that goes into minimizing damage at a derailment that people don't really think about, but we as an industry have spent a lot of time and money evaluating this. But something as simple as our cars are coupled together like this. In a derailment they're going to go like this and push into the head shields. That's why the head shields are so important that those get strengthened. Of course, the lessening of the speeds minimizes this impact.

So we're doing a lot with the tank car standard to improve safety in the event of a

derailment. BNSF has actually put out an RFP for 5,000 new tank cars. We're trying to stimulate the turnover into these new tank cars that you've heard a lot about and we believe that this RFP will help move that forward.

And then I want to get a little bit to working with our first responders. We do provide shipment information to our first responders. We've been doing that actually for decades of the hazmat that's on different routes. We work very closely in training first responders, both those who are responders like our fire departments and so forth. But we also do a lot of training of our own employees. We have an employee team that does emergency response. As well as our customers. We do a lot of training with our customers to make sure that the tank cars are loaded properly and that the valves are sealed and checked and that sort of thing. We work on those as well.

BNSF has already provided first responders -- let me get down to that. This is an emergency order. Okay, BNSF on average trains 35 local emergency responders each year and over the course of the last couple decades we've trained over 65,000 emergency responders.

There is a special program in Pueblo, Colorado that provides in-depth emergency response training. They have mock derailments all set up in Pueblo. These are incredible experiences for the first responders. They get to go out and see valves, how the valves actually work, learn about the different tank cars, participate in a mock derailment. And BNSF is covering the cost of 730 students to go to Pueblo and learn more about how to respond. This is a three-day intensive course that's in addition to the training that we do where we come around and bring a tank car to the emergency responders. So this is above and beyond a specialized training.

This kind of gives you an idea of the emergency response equipment that we have placed along the system and these are the locations where we have responders and this additional equipment throughout our system. And, of course, if there is a derailment, we restore the site back to its original condition, so that's an important part of our process also.

So hopefully I've left a little bit of time for questions. Sorry I ran through those quickly, but like I say, the information, a lot of

it you've heard, and it is on your website.

COMMISSIONER SCOTT: That was fantastic, thank you.

Let me invite -- wait a minute, where my agenda -- Bill back up to the podium. And we will take some questions. I will start with Chair Weisenmiller.

CHAIRMAN WEISENMILLER: Thanks. I've got two questions. One of them is of the four or five billion a year that you spend in capital investments, roughly how much is in California, if you know? If not certainly later?

MS. STARK: Actually it was online, so I think it's about $426 million.

CHAIRMAN WEISENMILLER: Okay. And okay, other question is, obviously one of the things we've been talking about more from an air quality perspective is LNG. So I was trying to understand how shifting you over to LNG and then carrying that, what issues that raises on the tanker cars and where that stands with the Feds now?

MS. STARK: Just to clarify is the question on the LNG in the locomotives or LNG being transported in tank cars?

CHAIRMAN WEISENMILLER: In the

locomotives.

MS. STARK: Okay. I'll speak on behalf of Union Pacific and my colleague can comment on that as well.

As with any technology that you're looking at utilizing in the freight system, it takes a lot of testing to get to a point where it can be equal to what you're using today. We have long heavy trains, so if you're going to put it into what we call revenue service, which is on the mainline getting a product from point A to point B, it has to be dependable and it has to be performance-centric and comparable to what we utilize today.

That being said, we are actually in the process of testing LNG as a potential source, but again, that testing period is lengthy, but we are undergoing that right now.

CHAIRMAN WEISENMILLER: And I was thinking particularly on what we'd have to do in terms of the tanker safety for as you convey LNG along with the locomotives, if it's anything different than what you would do for either oil or ethanol.

MS. DICAMILLO: Honestly, I don't think we're far enough in that process. There would have to be an LNG tender car with the locomotive

if it is fueled by LNG. And that might be a good question for FRA, who I think you have later today. They're looking at how we might be able to do that, but there's a lot of process that going to be involved in that.

CHAIRMAN WEISENMILLER: Okay, thanks.

COMMISSIONER SCOTT: I have a question from Cliff for Bill Finn. One of your points was that we need to harmonize U.S. and Canadian standards. Are you okay with the U.S. adopting Canada standards?

MR. FINN: Well, we know this, that they're communicating on a weekly basis and they've had several meetings and we think they're. at least from what we know now, we think the two rulemakings will converge and we're hopeful that they'll be harmonious at that point. It's hard right now to read where PHMSA's going. Canada has indicated some recommendations relative to the existing fleet and a quick turnover of the cars, but they haven't really been opened up for what they call public discussion, which they will at their point in time.

COMMISSIONER SCOTT: Okay, great. And I have a question while you're still there, Bill.

About how many new rail cars do you think the industry can build each year?

MR. FINN: Well, 34,800 is the current capacity. There could be a little more capacity coming on, but we don't think that'll change that dramatically. And to put that into perspective, at the down cycle of the last ethanol build we were down to 4,000 cars, so we've reached that up to 33,400, which is a significant increase in capacity.

COMMISSIONER SCOTT: Thank you. One other question from Cliff for Liisa and LaDonna. What timeframe would you propose for phasing out all legacy tank cars?

MS. STARK: I'll take that. I can probably speak on behalf of both railroads, but as part of the rail industry we have already called on the federal government to make those changes and recommendations, keeping in mind right now that those legacy tank cars meet all federal standards for transportation. We would like see that obviously happen, you know, as soon as possible and we've encouraged the federal government to do so.

COMMISSIONER SCOTT: Okay. And so you

don't own any of the cars?

MS. STARK: We do not.

COMMISSIONER SCOTT: LaDonna, same thing?

MS. DICAMILLO: Yes.

COMMISSIONER SCOTT: Okay. All right, I know Commissioner Douglas has some questions, so let me turn to her.

COMMISSIONER DOUGLAS: All right, thank you. One question about the rail cars is, I was interested in learning a bit more about modifications. You were talking about modifications of the older tank cars. How effective is that? How close does that get them to the safety level of the new cars and what's the cost of doing that?

MR. FINN: Well, the modification will be very close to the safety level of the new cars, because it basically mimics the new car design. The only difference is some of the steel may not be the normalized steel and we may not be able to get 100 percent of the top fittings protection, but we're very, very close. The total cost of the retrofit including all the cars that I've talked about, the flammable liquid cars, is about $3.6 billion.

COMMISSIONER DOUGLAS: And how does the modification cost compare to building new cars, for example?

MR. FINN: Well, a new car is probably right now, and this is just general, we don't collect information from specific car builders because of trade considerations, but the cost of a new car is probably in the neighborhood of about $140,000 to $160,000. The cost of a modification is anywhere from about $63,000 to add another 10,000 for modifications of trucks.

COMMISSIONER DOUGLAS: All right, thanks. Quick question about the -- I was kind of intrigued to see the presentation on concrete railroad ties. I just wanted to ask what are the advantages of concrete railroad ties, how advantageous are they, and how do you prioritize where you put them?

MR. WICKERSHAM: Well, concrete ties are more economical in the long run because they're a stronger tie and they last longer; more environmentally friendly because we're not using creosote to preserve the wood tie. We're using them strategically. We can't spot them in like one out of every five, because we tried that and

that didn't work, so you have to replace all of them. So it's a big capital investment up front. So our railroad's putting in about 500,000 a year and I think the BN's comparable, so we're not going to be a concrete tie railroad for completely until probably another 50 years.

But the strategy is to put them in the areas that are more maintenance intensive like our mountain grades. And then we put them in our metropolitan areas, so we're basically the L.A. basin on the BN and UP is pretty much about 80 percent concrete ties. So you want a stronger track structure in your metropolitan areas.

And then we put them in our heavy freight tonnage areas, so where we're running 50 trains, 60 trains across our Sunset Route, that's an area where we want to put concrete ties in, because wood ties you've got to go in like every eight years and replace about 25 percent of them to keep your railroad track structure up to snuff. So every time you do that you take eight hours of capacity out of that rail line, so that's a big interference to meeting the needs of our customers. So if we put concrete ties in we think we're going to get 50, 60, 70 years out of those

ties. That's our strategy.

COMMISSIONER DOUGLAS: That makes sense. And then are the concrete ties -- I can clearly hear that you're reducing the maintenance and the need to go back as often and replace ties. Are they also less prone to risk of derailment? Are they similar in that regard, how do they -- what about their performance?

MR. WICKERSHAM: Yeah, absolutely. Absolutely. Just going back in my career in to Tehachapi, we were having a derailment every month. And it could be track caused, it could be human factor, it could be mechanical. And then when we put concrete ties in there we eliminated that. So what is does is, you might have a marginal problem with a car, but it's looking for a kind of a marginal problem with the track, so if you have a really strong track structure you can eliminate mechanical derailments. And that gives our inspectors a chance to find it in the yards, our inspectors and state inspectors a chance to find it.

The same thing with a human factor derailment. So if a train engineer is not quite handling his train right, concrete ties will

prevent that car from derailing at that moment. And that gives us, our transportation managers, a chance to find that engineer's behavior from studying the downloads from our black boxes, we call them event recorders. And educate that engineer before we put a car on the ground.

COMMISSIONER DOUGLAS: Okay. And then, you know, one of the concerns that people around here will obviously voice is the seismic concern. You know, I was curious if concrete ties or other types of track upgrades help address the seismic concern or what does in terms of the track itself?

MR. WICKERSHAM: That's a good question. I haven't really thought of that. I don't think there's an advantage to concrete ties for that.

COMMISSIONER DOUGLAS: Okay.

MR. WICKERSHAM: It is stronger. We might get less alignment. You know, if we were right on top of the fault where you get an alignment shift, you might get less of an alignment shift. But we're tied into the notification, both centralized dispatching offices, the BN and Fort Worth and our dispatching office in Omaha. We get notification when earthquakes occur, what the magnitude is. And then both railroads have kind of a protocol

what do. So at a certain magnitude we stop all trains. A lesser magnitude we might just put a slow order out for trains until we can get the area inspected. And then there's certain geographical area we inspect based on the magnitude.

COMMISSIONER DOUGLAS: Okay, and if a train happens to be in an area when an earthquake occurs does it stop, does it slow down, what is it?

MR. WICKERSHAM: Well, what would happen is immediately that dispatcher gets the information. He's got that information readily referenced. And he starts calling on the radio every train that, "We've had an earthquake and you're immediately required to reduce to 25 miles per hour."

One time in my career we did have a derailment. It was the Northridge earthquake and we had a train right there at the epicenter and we derailed about 25 cars there. I actually responded to that one. And then fortunately we didn't have anybody hurt in that derailment, but the locomotives turned on their side. You remember that earthquake lifted up about a foot to

two feet lifted up and went down. It wasn't kind of a sideways earthquake, but we were fortunate in that one.

COMMISSIONER DOUGLAS: Okay, thank you. Just a couple of other questions kind of on -- oh, go ahead.

COMMISSIONER SCOTT: Just have one briefly. But the other question I had for you is you had mentioned in your presentation that you have two of the train cars that can come and drive around and take a look at the track and that they come to California about twice a year. How much of the track are they able to look at when they are here?

MR. WICKERSHAM: Well, they operate at track speed, so we cover 100 percent of our mainlines with those two cars.

COMMISSIONER SCOTT: Oh, okay. They do the whole thing and they do that twice a year; they can do all of the track in California?

MR. WICKERSHAM: Twice a year, that's correct. And we're actually looking at increasing that frequency in our mountain territories in California as part of this crude oil initiative.

COMMISSIONER DOUGLAS: So a different line

of questions really. How closely do the railroads track products, you know, what products are carried by what trains to what locations? I mean, I can imagine this would be a big record-keeping operation, but I can also imagine it would be hard to build and that you probably need to keep that information. I'm sure --

MS. STARK: Sure, there's several ways that that is tracked. Obviously, we have a manifest for every train crew that has a train although the train cars are GPS tracked as well. And everything besides the train crews and the yards, that know where all of the cars are at any given time, everything is also centrally tracked out of our dispatch systems at corporate headquarters so we can at any given time pull up a list and show where everything is on our system at any time.

COMMISSIONER DOUGLAS: At any time, you know, you'll know where all the trains are? You'll know what all the train cars are carrying and where they're going?

MS. STARK: Absolutely.

COMMISSIONER DOUGLAS: Okay. And do you maintain that information? I mean, is that

maintained on a going back or going forward basis?

MS. STARK: Just to make sure I understand the question, it's every time we get a product from a customer, we deliver a product to a customer, our system is updated, so we do know where that is at all times. As far as everything that's in the car itself, we do have an idea of the type of commodity it is, but if it's real specific information that's something that the shipper, which is our customer, would actually have. Does that answer your question?

COMMISSIONER DOUGLAS: Sort of, it helps. I mean, I'm kind of wondering, well, if we wanted to ask specifically how many shipments of this kind of crude have originated in this area and ended up in that area, you know? And then we had Gordon talk about how well, you know, the shipments might come to a hub and might be intermixed with other shipments and might end up in different destinations. So is that information that you currently keep? If we said in the past 12 months how many shipments of this kind of crude have gone from here to there?

MS. STARK: Yeah, and we can do that actually for all the commodities that we carry

right now. And we do provide commodity flow data that's the previous snapshot of the previous 12 months to any emergency response agency that wants to see that.

There's obviously with other hazardous materials a little bit different requirements on the disclosure of that for Homeland Security purposes than there is with crude, but again under the U.S. Department of Transportation Order that came out we are required right now to report shipments of Bakken on, I think it's 35 cars or more that are transported in one train. And then the routing of those as well to each state, so that is also occurring right now.

COMMISSIONER DOUGLAS: So one of the things that we've been hearing and reading about is that some kinds of crude are obviously more volatile and might respond differently in the event of a derailment than others. And, of course, the Bakken is a case in point.

So do you -- you know, we also heard today that while there are cars being manufactured at higher safety levels and there's an effort to get those online as fast as possible, nevertheless, we've got a fairly significant number of legacy

cars in the fleet currently operating. Is there an effort to match up the strongest cars with the more volatile product? How is that actually done? Or is it really a matter of, you know, there's this larger shipment and we've just got to get cars there and move it and whatever is available is available?

MR. FINN: I was at a workshop last week and we saw presentations from the oil classification working groups, and three different groups reported that their initial evaluations of Bakken is that it's not any different than any other light sweet crude. Now, whether or not that's the way it's going to be and whether in the future, and whether the government accepts that still is up for discussion, I believe. But at least from what we've seen, the initial reports are it's not really any different from what they've been hauling.

COMMISSIONER DOUGLAS: So does that mean that currently, UP and BNSF, there's not a -- you know, is the prevailing view that crude is crude or is there some distinction? Or is light crude generally --

MS. STARK: Yeah, that's actually not a

factor that the railroads have any control over, because we don't actually own the tank cars. It's the shipper or the customer that owns the tank cars, so that is completely out of our realm of influence.

COMMISSIONER DOUGLAS: Okay. Thanks. I think I'm done, go ahead.

COMMISSIONER SCOTT: Yes. Well, I was going to thank our panel on the Crude Oil Distribution Logistics. Bill and Liisa and David and LaDonna, we appreciate the information that you brought to us today. Thank you very much.

Okay, great. And I would like to just, before we go to our next panel on government responsibilities on crude oil distribution logistics, welcome -- we have some city council members with us. We have Chris Worthington from the Berkeley City Council. We have Karen Hemphill from the Berkeley School Board, she's a Berkeley School Board Director. We have Linda Myo from the Berkeley City Council. We have Alana Floyd also from the Berkley City Council office. And Jonathan Gaast from Congresswoman Barbara Lee's office. So welcome. Thank you all for joining us for the for this today.

I will do a time check. It's about 12:10. We are a little bit behind, so we'll do this last panel. Maybe we'll just do a couple short questions and then break for lunch.

So let me welcome Laura Kovary who, is the Chief of the Marine Facilities Division in the California State Land Commission. Welcome, Laura.

MS. KOVARY: Thank you. I'd like to thank the Commission for this opportunity to address you on this important topic. Let's see, how do I change the slides? Just this button, okay.

Okay. I'd just like to start with a short introduction of the Marine Facilities Division of the California State Lands Commission. Marine Facilities Division was created under Lempert-Keene-Seastrand Oil Spill Prevention and Response Act of 1990. Our goal is to prevent oil spills in state waters. We're able to accomplish this goal through annual inspections, spot inspections, our Marine Oil Terminal Engineering and Maintenance Standards, MOTEMS, and monitoring of marine oil transfers.

We do not have enough personnel to attend every oil transfer; therefore, we use a risk-based system to prioritize which transfers we will

monitor. If either the tank vessel or the marine oil terminal are considered high risk, our personnel will be present for the most critical portions of that transfer. These are normally the startup and end of the transfer, and we make every effort to have personnel available 24/7.

The MOTEM standards began as a way to ensure that marine oil terminals in the State of California were up to California building codes. There were some terminals that were built in the early 1900s and they were lacking in both maintenance and upgrades. MOTEMS established a system requiring not only initial audits and repair work, but also regularly scheduled subsequent audits.

All marine oil terminals in California were assigned a risk classification based on the number of barrels of cargo that was at risk should the terminal be damaged either by a vessel or some sort of event, seismic or otherwise. And other risk factors that were considered were the number of transfers per year and the size of the vessels that called at those marine terminals.

Each terminal is required to have a mooring and berthing analysis completed. The

result of that analysis is required to be shared with terminal personnel, local pilots, and the ships that call at those berths.

MOTEMS also looks at fire protection and suppression for the area of the marine terminal that falls under our jurisdiction, and that is up to the first valve ashore within secondary containment.

MOTEMS also requires a seismic analysis, and any deficiencies are noted and tracked to completion of repairs.

MOTEMS does differentiate between corrections required for existing terminals and those required for a new marine oil terminal. Our engineers have taken into consideration the limitations of an existing terminal and its infrastructure versus building a brand new terminal from the ground up.

Marine Facilities Division works closely with the U.S. Coast Guard on marine oil terminal inspections. Following 9/11 we were tasked by the U.S. Coast Guard to establish marine oil terminal security regulations. The Coast Guard realized in that situation that to establish marine oil terminal security would take going through the

entire CFR process. So MFD was able to fill that void and have port security for marine terminals in a very short period of time.

Marine Facilities Division works very closely with the State Fire Marshall on pipeline inspections and other marine oil terminal issues. We also have a sister relationship with California's Department of Fish and Wildlife's Oil Spill Prevention and Response known as OSPR. Our field personnel will often inspect mobile oil transfers over water and we're currently looking at other ways to support OSPR in their mission.

The next two slides are a visual representation of crude movement into California through marine oil terminals. The first slide shows a fairly steady decline in Alaska North Slope crude. This is what the experts have been referring to over the last several years.

This slide shows crude imports from 2003 to 2013 with total barrels ranging from 225 million barrels up to 300 million barrels in 2008. The average range of imported crude through marine oil terminals seems to be around 280 million barrels.

This slide shows non-imports of crude oil

arriving through marine oil terminals. This would be crude from domestic sources, but coming in through U.S. ports either by barge or ship.

I'd like to talk for a few minutes about some of the hazards associated with crude oil. The hazards are not new, but in my opinion, populations are growing in areas where we drill for oil, in the areas through which we're transporting oil and in the areas where there are natural seepages. There have always been sour crudes or crudes with a high H2S content. These can be deadly inhalation hazards. High vaporization rates are also being seen with some crudes, which can increase volatility and the possibility of hydrocarbon releases. Both of these issues can obviously cause public health and worker safety risks. Additionally, a release of crude oil into the environment can cause long-term effects due to the persistent nature of the oil.

The gaps I've noticed in regulations are one with H2S, as I referred to in the last slide, and the relatively new biofuel and renewable diesel markets. There's a wide range of what we refer to as biofuels and these can have various flash points. Under the Lempert-Keene-Seastrand

Act, Marine Facilities Division can only regulate biofuels if they are mixed with hydrocarbon components. I think the regulatory community needs to stay engaged in the changing biofuel industry.

I wanted to include a couple of slides of maritime disasters that changed my life and the lives of many other mariners. Sadly, both of these explosions came with loss of life and damage to the environment. I actually was a cadet on a vessel across the channel at the time of this explosion and I saw it happen, so it definitely did change my life.

Although the focus here today is on crude by rail, I'd like to draw some parallels with crude oil transportation by sea.

On December 17th, 1976, the 810 foot Sansinena was completing crude oil discharging operations in Los Angeles Harbor. The crew was ballasting, which is the process of taking on sea water into tanks in order to increase stability. This displaced hydrocarbon vapors from the tanks onto the main deck through open vents. The lack of wind in the harbor that night was a key factor in the explosion. If there had been a breeze the

vapors would have likely disbursed. However, at 7:38 P.M. something aboard the Sansinena sparked, setting off the explosion. Nine people died as a result of that explosion.

One of the conclusions of the Marine Casualty Report was that deterioration of vent piping was a contributing factor to the explosion. It was also noted that the rate of deterioration of piping varies with the type of cargo. The Sansinena had previously carried sour crudes for an extended period then switched out of that trade. Sour crudes are known to be corrosive, and if the vessel had continued in that trade, the deterioration of the piping might have occurred even sooner.

The Betelgeuse disaster at Bantry Bay, Ireland took even a larger toll than the Sansinena with a loss of 60 lives, including the entire crew of the Betelgeuse and some of the terminal personnel who were on duty that morning.

Partly due to these disasters the International Maritime community made changes in the way that crude oil is transported by water. A couple of these changes were to require closed loading and discharging operations and for the use

of inert gas to replace ambient air, therefore keeping oxygen away from flammable vapors.

After the grounding of the Exxon Valdez more changes were made, including double-hulled tankers and bridge management systems including STCW, which is Standards for Training Certification and Watch Keeping. This defines the competency requirements of crews.

More recently the oil industry has been developing safety management systems for marine oil terminals through the Oil Companies International Marine Forum, or OCIMF, including a baseline criteria auditing process. So these are some of the changes that followed the lessons learned and the reports coming from the Sansinena and the Betelgeuse.

So I would invite and encourage the rail industry to take some of these lessons learned from the maritime industry and look towards safety management systems and prevention first. Thank you.

COMMISSIONER SCOTT: Thank you very much, Laura.

I'd now like to welcome from the Office of the State Fire Marshal Pipeline Safety Division,

Bob Gorham, the Division Chief. Welcome, Bob.

MR. GORHAM: Thank you. Okay. Well, thank you for inviting me. Somebody does water transportation, I do pipeline transportation, which I think is I think the safest alternative. But I just wanted to describe our program. We've been around for about 30 years.

The regulatory oversight. We are actually partners with the Federal DOT Pipeline Haz Material Administration. They're responsible for the nation's safe transportation regulations for pipelines. Presently in California they regulate about 1200 miles of interstate liquid pipelines. States are encouraged by them to have certified programs. The State Fire Marshall has been certified since 1985 and we regulate the intrastate pipelines and we have about 4500 miles of those.

This is kind of the infrastructure we have in California, pretty evenly divided between crude oil and refined product pipelines. We regulate a total of 842 separate pipelines, 52 different pipeline operators, and about 780 breakout tanks. Commodities include basically all petroleum products: crude, gasoline, diesel, jet fuel,

ethanol. We also have -- if we had any we'd have CO2 and anhydrous ammonia, but presently there are no pipelines in California carrying those products. And also the butane, propane and highly-vol liquid.

Since we're talking about oil I thought I'd do -- well you can see this map outside, but new and existing pipelines are being designed and constructed to handle the increased demand from crude oil unloading facilities. Hazard liquid pipelines are constructed of high-strength steel and are designed to transfer all types of petroleum products of various flammability, gravity composition.

And existing federal regulations require the pipeline operators to continuously monitor, investigate any potential corrosive effects of the haz liquid and take mitigative actions for internal corrosion.

And what I'm trying to say on all of this is California has quite a mix of, over the years, of different kinds of petroleum products, so the infrastructure's already capable of handling any of the West Texas or Bakken oil as it comes into the pipeline systems and the federal regulations

are in place to ensure that the operators monitor those correctly.

Briefly, this is our organization. The Division Chief, we've got two engineers, ten inspectors, some clerical mapping people. We have offices in Sacramento, Bakersfield and Lakewood.

These are the type of things that we look at when we inspect a pipeline operator. Make sure they're qualified, that they have a public awareness program. We look at the design and construction of their facilities. We investigate their accidents, make sure that they're out doing emergency response procedures. They're required to be drug and alcohol tested, integrity management and control room. Quite an intensive inspection program.

Some of our response capabilities -- I'm kind of going through this because I know everyone wants to go to lunch, so if you have any questions you can call me later.

Anyways, so we've got one thing being a state fire marshal and we're a bunch of engineers. We're not really fire people, like we were fire, but we've emerged as Cal Fire. But the advantage of being a state fire marshal is we have a really

close relationship with the Fire Service and I think that puts us unique in the country.

So we get notified on any pipeline spill or train derailment, for that matter. And then we evaluate those responses from the OES. We determine if we have any pipelines in the area, whether we need to contact the operator, send somebody out to investigate. And so, you know, we follow up on all of those. That's a 24-hour day, 365 days a year we get notified of all train derailments and all pipeline fails.

And what we look for on train derailments is they could -- Santa Fe Southern Pacific used to be Santa Fe Pacific Pipelines, so if a train derails it may impact the pipeline buried below, so we want to make sure that the appropriate companies are aware of that.

One of the unique things that our program has is our integrity testing. We were the first state in the country, and actually we beat the federal government by 15 years, to require every pipeline to be hydrostatically tested or internally inspected every five years. We have a couple dozen independent testing firms that witness every test that the pipeline companies

conduct. We review all those reports as they come to the office and we make sure that every one of our pipelines we regulate are being properly inspected and tested.

As I said earlier, all of our emergency or our civil penalty funds are dedicated solely for emergency response training, so that's gradually building up. And we do conduct training exercises or provide training courses for local fire response. So that fund can be, as we move forward in this, I think used more fully to help meet some of the needs of this program.

Authority, we have exclusive safety regulatory enforcement authority over the lines, so basically we preempt local government and other state agencies on the safety aspects of a pipeline. We also focus on the safe design, construction, operation, maintenance of the pipeline to protect public safety and environment.

What we don't have authority, though, is we don't have authority to approve projects, issue permits or prescribe location of routing of the pipeline facilities. So the local communities and agencies can debate whether or not where the pipeline could go, how it operates and stuff, but

once it gets permitted, that's where we step in and make sure that it's safely constructed, designed and operated through its lifetime.

We don't track throughputs or volumes; that's Gordon's job. It really doesn't matter how much is going through it. We don't care if they're making a profit on it; we just want to make sure it stays in the pipeline. And we don't direct cleanup after a spill; we turn that over to Fish and Wildlife or OSPR or local agencies. They're the experts in that area.

We do, as I mentioned earlier, have a couple of coordination agreements. We have an agreement with DOGGR. Basically, when they end their production and they ship it off into pipelines that we regulate, we want to make sure that we properly cover -- there's no gaps in regulation between the two agencies.

And then also at the marine terminals, as mentioned, we want the operators to know what regulations they need to comply with, so we've jointly inspected each marine terminal, determined is that a State Fire Marshall regulated pipeline or is that a State Lands regulated facility.

Other areas of coordination with the

federal government, we do team inspections of a lot of our operators across the country, also in California, that we team up with the federal inspectors and do joint inspections. It helps us get a better, broader perspective of the company operation.

We also cooperate with the Department of Fish and Wildlife on spill responses and make sure that they get the information they need and we get the information we need to conduct the investigation. And we routinely provide technical and informational assistance to basically any state, county or local government that needs our assistance. And that's it.

COMMISSIONER SCOTT: Thank you, Bob.

Let me invite Laura and Bob both up and I will see if I have questions here from the dais.

I do have one question for Laura. And I just wondered whether or not you have completed a review or approved from your MOTEMS program a compliance plan from any of the crude by rail projects like the WesPac in Pittsburg or the Targa at the Port of Stockton?

MS. KOVARY: We have spoken to the Targa folks about the Stockton project. I have my

engineer in the audience, Avi.

AVI: Yes, it looks like we have completed that one (inaudible)

COMMISSIONER SCOTT: Oh. The answer was they have completed the WesPac. I'll just repeat it so the folks on WebEx can hear. Okay, thank you.

I don't think we have any other questions, so thank you again, Laura and Bob, for your great presentations and letting us know what your offices do in regards to this, so thank you.

I just wanted to do a reminder to everyone in the audience that all the slides that have been presented here today are available on the website. The link to that is in the agenda and also on the notice so that you will be able to access those.

Also a reminder that if you would like to make a public comment please be sure to get the blue card from our public adviser who's sitting up front and fill that in so she can get it to us.

And we're actually -- we'll come back at 1:30, 1:30 sharp. Thank you.

(LUNCH RECESS)

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AFTERNOON SESSION

COMMISSIONER SCOTT: Hello everybody and welcome back from the lunch break. We want to go ahead and get started, so we would like to -- we've got an addition to our agenda for this afternoon. We would very much like to warmly welcome Assemblywoman Nancy Skinner and she has a few remarks for us.

Welcome Assembly member Skinner.

ASSEMBLY MEMBER SKINNER: Thank you, Commissioner Scott and Chair Weisenmiller and, Karen, I'm forgetting your last name. I've known her so long.

Anyway, I'm very happy that the Commission is doing this event here in District 15. Obviously, the I-80 corridor, all the cities along the I-80 corridor, the trains run right through there and this is a very, very large issue of concern. I wanted to just bring some attention to some things that the Legislature recently did in the budget that may have been touched on earlier, but since I wasn't able to be here earlier I don't know, but I thought I would fill you in.

The budget for this next 14/15 year was adopted on Father's Day, and in it we included

funding to add seven additional safety inspectors to the CPUC. The CPUC has responsibility for the inspection of the railways themselves, the cars and such, the trains rather, and it includes oversight of rail bridge safety, and the additional inspectors are paid by a fee on the rail carriers, meaning like BNSF, Union Pacific, etcetera.

The other thing that we did in the budget was we expanded California's what's called OSPR, Oil Spill Prevention and Response Network. It's been up to this point pretty much focused on marine and waterway only, and we expanded it to cover the whole state, including inland waterways and obviously land spills too since no one can predict where, if there is a problem in any of the train transport, no one could predict where it would be, so we needed to have that spill recovery ability statewide. And we provided for funding for 38 new positions for prevention, emergency response, cleanup and enforcement, and that is also on a fee, a per barrel fee, okay, similar as the per barrel fee on refineries.

There's also a number of bills that are working their way through the Legislature right

now. One of them, AB380, has passed two Senate committees. There's not been a floor vote yet. But it would ensure that state and local emergency responders have information about what's moving through and when, so that like our other emergency preparedness networks, we would be more prepared. So that's that bill that's moving through, not yet passed by any floor.

And then SB1319, which has passed the Senate, now in the Assembly, and it would require that oil spill prevention response entity that I mentioned previously to provide training and equipment grants to local first responders. So those are county based, city based first responders. And it requires the state to study where the response would be most needed in either urban, rural and sensitive environments, so meaning all of the above but for the state to determine that in advance. And it would also include disclosure of oil transport to the local emergency responders.

So I thought that might be helpful as you pursue this discussion to get updated on both what we included in the budget and also what legislation is moving through.

And I again very much appreciate the Commission holding this event here in one of the primary corridors affected and look forward to some good outcomes. Thank you.

COMMISSIONER SCOTT: Thank you so much. Thank you so much, Assemblywoman Skinner, for joining us today and for the information on both the budget and on the bills that are moving through the Legislature. I think it was incredibly helpful and we are just delighted that you could join us today, so thank you.

I just wanted to note that the lunch break is finished and you have here me, Commissioner Janea Scott. I am joined by Commissioner Karen Douglas from the Energy Commission, by Cliff Rechtschaffen from the Governor's Office, by Ken Alex from the Governor's Office, and by our Chair Bob Weisenmiller, so I just wanted to make sure folks know who is here.

We are now going to turn to our panel on government responsibilities, safety requirements and oversight for crude by rail movements, and our first speaker will be Ernie Sirotek from Region 7. He's a hazmat specialist from the U.S. Department of Transportation Federal Railroad Administration.

Welcome, Ernie.

MR. SIROTEK: Thank you. Thank you for having me here to speak about the Federal Railroad Administration. I am a hazmat specialist headquartered in Sacramento, California. There are eight regions within FRA plus a headquarters section. Within each of the regions -- our region is Region 7 -- we have a responsibility for California, Nevada, Utah and Arizona. Now, in each one of the regions we have staffing of various disciplines. We have operating practices, we have motive power and equipment, we have track, we have signal and train control, and me of course, hazardous materials. And then we have a group of inspectors within the region that go out and enforce hazardous materials regulations on the railroads and on anyone who offers or transports by rail, so we can reach out through our authority out to refineries or anybody that offers a tank car or other type of package by rail.

The subject I want to cover today is some fast facts. Some of the stuff I'll breeze over really quick, but according to the AAR, Annual Report of Hazardous Materials Transported by Rail for 2012, crude oil shipments have increased 443

percent since 2005; we all know that. The first quarter of 2013 saw 166 percent increase in crude oil shipment by rail over the first quarter of 2012. Growth is expected to continue for the foreseeable future in the most frequently transported hazardous materials 2012. So those are some known statistics.

We've seen this slide before. This is the shale deposits in North America. And we've seen this slide before where we do not have -- there's not a pipeline that reaches onto the west coast to the refineries, so the best solution to this is petroleum crude by rail.

Now, in 2011 we looked at a waybill sample, this is one percent of the waybills, just to see the routing associated with petroleum crude by rail, and you can see the corridors as coming up and down what we call the I-5 corridor. There's some heavy movement within California and coming across California through what we call the Transcon Railroad, which is the BNSF. So that's just a snapshot and it's pretty true today on the routing of these materials coming into the west coast or into Region 7.

Now, some of the loopholes that we were

looking at and tried to limit or remove the loopholes, one of those was classified petroleum crude by rail. Now, here are the challenges that the rail transportation faces.

There's multiple truckloads from different well sites being transloaded into a single car. Now, transloading means it's coming by another bulk package like a truck, it's going to a site where there's rail cars and they load those trucks into rail cars and it comes from various sites.

There's high levels of hydrogen sulfide. There's severe corrosion to tank and service equipment. Service equipment meaning valves and fittings associated with the rail car. There's impurities in the mix, wax, sludge, water, etcetera. And we discovered there was a lack of product testing and there was improper classification of this material.

Not in the sense that you would think. I mean, it's still a class 3 material, but when we started getting into packing groups there was a misclassification whether it's a packing group 1 or a packing group 2 or a packing group 3, so we looked at that really closely. And because you were loading tank cars out in the field into rail

cars, it was very hard to determine how much material that was being put into a tank car so a lot of overloads were occurring.

And then of course there's a shortage of rail cars to meet the demand, all right. So then we have that fine balance that we talk about, the older legacy cars and the newer tank cars that are being built and how do we balance that so that we get a good transition of newer cars into the fleet, so you've heard some information on that already.

So here I just want to break out the packing groups a little bit. This comes right out of 49 CFR, Title 49, Code of Federal Regulations Part 172.101 that breaks out the different packing groups, packing group 1, 2 and 3. And then there's some special provisions associated with that, and then it actually gets into packaging requirements in the far right-hand column. Now, these special provisions I'll just briefly cover.

Residue and underground storage tanks really doesn't apply to us here.

Marketing requirements, that's applicable for hydrogen sulfide.

Then there's this little loophole here.

Those materials that are above 100 degrees Fahrenheit with flatoid over 100 degrees but less than 200, then this material can be reclassified as a combustible liquid and get into a different type of packaging under 173.241. And so what we want to do is make sure we get this material into the strongest package possible that's available out there, right, or an authorized package.

242, those are the rail cars that are authorized.

243, which is a packing group 1 material, those are the packages that are authorized. You can see DOT 103, 104s right on up to a 120. The 106s and 110s are what we call a multiple unit tank car or 110 cylinders, yet we're not seeing that stuff move in that, we're seeing it moved in tank cars.

Okay. So here's the problem with 173.241. Bulk packages for certain low hazardous materials, solids and liquids can be packaged into a 211W tank car, that's an AAR specification tank car. Okay. there are certain things with the 211 that doesn't quite meet the standard of a DOT specification package, so we want to eliminate that from the options and so we've come up with

some solutions for that and I'll explain what those are.

But to further define what a packing group 1, 2 and 3 material is, is a packing group 1 material has an initial boiling point of less than or equal to 95 degrees Fahrenheit. A packing group 2 material is less than 73 degrees Fahrenheit on a flashpoint and has a boiling point greater than 95 degrees Fahrenheit. And then packing group 3 materials are greater than 73 degrees Fahrenheit but less than or equal to 140 with a boiling point greater than 95 degrees Fahrenheit.

So how can I explain that very simply? Think of gasoline as a packing group 1 material. Think of diesel fuel possibly on the border but more leans towards a packing group 3 material. Just to give you a general idea of what we're talking about here. So we have concerns, and these are our concerns.

We have train derailments. We've seen that, they're all publicized and well-known.

We have securement issues with valves and fittings.

Tying down a train more definitive,

defined a little bit further.

And train handling and emergency response to those incidents where we have a release of materials.

Also, proper material classification is a concern, and selection of the appropriate packaging for these materials when they're being offered for transportation.

Now, I won't get into specifics, but here are some of the things that's been publicized here in the recent news. The derailments, the damage caused, the thermal tears. This is an example of a thermal tear. This is a bigger thermal tear, rip.

But so after the Lac Magantic derailment, NTSB recommendations to the FRA were this.

Require expanded hazardous materials route planning for railroads to avoid populated areas and other sensitive areas. Now, realize that this is already a requirement for explosives, poison inhalation hazardous materials and radioactive materials, they're already using this database already and this route planning. So now the NTSB is recommending flammable liquids be included in this planning.

Develop an audit program to ensure rail carriers that carry petroleum products have adequate response capabilities to address worst case discharge of an entire quantity of product carried on a train of petroleum crude.

And then audit shippers and rail carriers to ensure that they are properly classifying hazardous materials and transportation and that they have adequate safety and security plans in place.

Now, PHMSA also came out with an alert advising that this material that we think about, this petroleum crude, is not the black thick crude that we normally would kind of associate with petroleum crude. It's a lot thinner, it's a lot more flammable than what you would think, so this advisory came out in January of 2014.

Misclassification. PHMSA did some testing and came out with a finding and some appropriate proposed penalties associated with that.

As far as FRA, we came out with Emergency Order 28. That's one of our enforcement tools that we have in our tool bag and that established six requirements to eliminate the immediate hazard of death, personal injury or significant harm to

the environment, and related to the securement of certain unattended equipment. We're talking about trains. Lac Magantic, that was a runaway.

So we came out in answer to that we come out with Emergency Order 28, and this really applies, the applicable part of that is Appendix A of EO 28. Five or more tank carloads of any one or any combination of materials poisonous by inhalation is defined by 49 CFR 171.8, and including anhydrous ammonia and ammonia solutions.

Twenty rail carloads of intermobile portable tanks, or now we're looking at combination within the train to include class 3 flammable liquids or combustible liquids, okay. Whereas that was not part of that before, it now is under this emergency order.

Now, what this emergency order requires the railroads to do is develop a security plan for leaving unattended trains, develop a process for securing trains outside of yards and terminals, review and update existing procedures, and implement operating rules requiring the discussion of the securement of any train or vehicle. And further, if you read that emergency order, it says communicate with the dispatcher if you leave that

train tied down.

Inspection by a qualified employee of any equipment that emergency responders have been on. That was one of the questionable things with the Lac Magantic derailment, runaway, was that there was a locomotive fire and emergency responders respond to that and there's a question about securing that train, whether it was done properly after the emergency was over.

All affected employees must receive notice of EO 28. Now, we as the FRA group have been out there, we've done that, we've visited the railroads, we've ensured that they have complied with Emergency Order 28, and they're doing a great job of that.

September 2013 in response to the tank car question about its structural integrity and its survivability in a derailment came out with an advance notice of proposed rulemaking in September 2013. I won't spend a whole lot of time on that. Already someone previously has discussed what those requirements are, but that advance notice came out in September of 2013 under Petition 1577.

Okay, thank you.

Now, the railroads have voluntarily

initiated some things in addition to the regulation. They're voluntarily doing increased track inspections, they're adding distributive power units to unit trains to provide additional braking power. The use of rail traffic technology to determine the safest and most effective routes. Lower speeds within high threat urban areas to 40 miles an hour, and 50 miles an hour outside of high threat urban areas. What did they do here? Increased track side technology, every 40 miles is the minimum. And increase ER training, and this is what I really wanted to highlight on really quick.

The railroads have agreed to train 1500 emergency responders to a new program that they're developing at Pueblo Transportation Test Center to fight or to respond to petroleum-related incidents. So 1500 first responders by the end of the year. And then develop an inventory of emergency response resources for large amounts of petroleum crude.

Now I'll just kind of summarize on this. Emergency Order was issued that no matter -- we talked about packing group 1s, 2s and 3s. The emergency order basically says no matter what it

is, we want you, you have to treat it as a packing group 1 and 2 material. You can classify it as a packing group 3, but have to treat it as a packing group 1 or 2 material to get it in a tougher package.

And then this emergency order requires the railroads, which have already been providing emergency response or traffic commodity flow data to emergency responders, but this requires to notify the state SERCS of a million gallons or more of petroleum crude that originates from the Bakken, so there has to be that notification. It includes routing, anticipated amounts, etcetera. And that's actually in effect and they're doing it right now and FRA is rolling out a process to audit that procedure to make sure that's being done.

And then we are encouraging industry, those that load tank cars with petroleum crude, we are encouraging them to use the newer equipped CPC 1232 tank car, the new tank cars that are being manufactured, realizing that we want industry to phase out the legacy tank cars as soon as they possibly can.

Okay, next step. Implement NTSB

recommendations. FRA is currently doing that. There's a notice of proposed rulemaking coming out. And our national safety program plan is to continue auditing for EO 28, inspect trains for proper valve securement, which we currently do with our inspectors, and then develop an audit process for railroad emergency response plans.

Okay, Thank you.

COMMISSIONER SCOTT: Thank you very much for that presentation.

Our next presentation is going to be from Jack Whitley, who is on the HazMat Safety Assistance Team from the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration.

Welcome Jack.

MR. WHITLEY: I do work for the Pipeline and Hazardous Materials Safety Administration, and that's made of two offices, the pipeline and the hazmat. I work for the hazmat side of the house. If you have pipeline questions, I'll be more than happy to give you a name and phone number, but I can't answer them.

The Pipeline and Hazardous Materials Safety Administration hazmat side of the house,

our main function is to regulate hazardous materials in transportation and commerce. We do that by having operational rules, how you market, label, placard it, all that type of stuff, and also the packaging. So when we're talking about rail cars and transportation of oil, we regulate how the tankers themselves are built, okay, not how the railroad moves the cars. That's the FRA's job. So please understand there is a difference in what we do.

This kind of breaks down what it is that we do, what the HMR, the purpose of it is. The main purpose of it is simply safety. The Pipeline and Hazardous Materials Safety Administration, our mission is the safety of people, property and the environment, and this is how we do it.

Classifying hazardous materials, as Ernie was talking about. With the crude oil, how do we know what class of crude oil it is? Is it a packing group 1, packing group 2, packing group 3? You'll see more of that in a few minutes.

Contain it, put it in the proper package. Again, that's what we're doing with the rail car regulations.

Communicate. Make sure the emergency

responders know what it is that they're dealing with, and we do that through placards and labels and markings and shipping papers.

And make sure everybody understands the rules so that they can comply with them.

Okay, this is what we want to get to, this is what we want to talk about.

So the big question has been when is PHMSA going to come out with the new rule? I don't have an answer for you. I do have a statement that I am going to read, and this is all I am allowed to say about this.

And I quote, "This rule proposes new operational requirements for certain trains transporting a large volume of flammable materials, improvements in tank car standards and revision of the general requirements for offers to ensure proper classification and characterization of mined gases and liquids. These new requirements are designed to lessen the frequency and consequences of derailments involving ethanol, crude oil and certain trains transporting a large volume of flammable materials.

"The growing reliance on trains to transport large volumes of flammable materials

poses a significant risk to life, property and the environment. These significant risks have been highlighted by the recent derailments of trains carrying crude oil in Castleton, North Dakota; Aliceville, Alabama; and the one in Quebec, Canada.

"The proposed changes also address National Transportation Safety Board recommendations on accurate classification, enhanced tank cars, rail routing oversight and adequate response capabilities." End of quote. So as far as the new rule goes, there's my statement.

But let's talk about what we have been doing.

As you can see from the slide, May 14th of 2010 we did issue a final rule and changed some of the operational rules for rail cars. This one specifically has to do with checking some valves and the weight limits of those cars.

January 25th, FRA issued a notice that has to deal with our final rule.

March 9th, PHMSA received a petition 1577, and we've seen this several times today, from the Association of American Railroads requesting

changes to tank car specifications, and that's what we've been talking about and that's what this new rule is concerning.

In 2011, the AAR got a taskforce together to help go over the regulations, find out what the best way to do this was.

In April through October we took a lot of comments about the proposed rule. Three of the petitions, 1587, 1595 and 1612, basically what they ask for is hurry up and make the rule, so we are working on that.

2013, PHMSA and FRA published the ANPRM, Advanced Notice of Proposed Rulemaking.

December 2013, the comment period closed. And as you can see, we got a couple of comments.

In April, we submitted the ANPRM to OMB, the Office of Management and Budget, for review. Now we're working with them to finish the final rule.

The reason -- look, rail regulations have been in place for, what, 40 years now, and they've worked pretty well up until now, we haven't had too many problems. We want to make sure that whatever rule we write lasts for another 40 years. Being hasty in creating a new rule would not be a

good idea for anybody. We don't want to have to go back and redo it, we don't want to make a mistake. So is it taking a lot of time? Yes, but hopefully we will get this right the first time.

Some of the other things that we're going to do, and I'll let you read these, there's just a couple things that I want to highlight real quick and then I'll get out of your hair.

PHMSA is working very closely with industry, with civil agencies, state governments, city governments, helping to get the emergency responders trained in what to do in case of an event. There is a lot of ongoing effort. You've heard of some of the efforts in New Mexico, some of the efforts the rail industry is making to get fire fighters trained, and that is not the only thing they are doing. They're really stepping forward to help ensure that the fire fighters and other emergency responders get the training they need to deal with these types of incidents. PHMSA is also assisting with this in a coordinated effort to make sure everybody that needs the training is getting it.

We've also launched Operation Classification. As Ernie said, what hazards does

this oil actually present? We know it's a flammable liquid. It's oil, right, so it's a flammable liquid. Is it a packing group 1, is it a packing group 2, is it a packing group 3? The only way to determine that is through testing, so PHMSA has gone out and we have taken samples and we have sent them to labs for testing so we know specifically what we are dealing with when it comes to oil throughout the country. So we have focused a lot of effort in North Dakota. That effort is now shifting to a national effort to make sure no matter what oil field the oil is coming from, we know what it is that we're dealing with. I don't have the test reports back yet, we're still waiting on those. When we do, that information will be published.

And that will be the end of my presentation. Thank you.

COMMISSIONER SCOTT: Thank you. Thank you very much, Jack.

Our next set of presentations is going to be about the California state rules and responsibilities for the crude by rail projects. We have a series of speakers. I'm not sure if you all want to come up to the podium or quite how

you'd like to do that.

But first we'll hear an overview of the interagency working group on oil by rail safety from Cliff Rechtschaffen, who's a senior advisor to Governor Brown. The other panelists will be Gina Solomon, the Deputy Secretary for Science and Health from California's Environmental Protection Agency; Paul King, PhD., Deputy Director of Rail Safety Programs from the California Public Utilities Commission; Tom Cullen, Administrator from the Office of Spill Prevention and Response; and Tom Campbell, Hazardous Materials Program Chief from the Office of Emergency Services.

So welcome state panel and I'll turn it over to Cliff.

MR. RECHTSCHAFFEN: There were two federal people, we think we could at least have four state people, right, we could really beat that.

Thank you very much. I want to especially thank the railroad industry. I see some of you are still here, I don't know if others have left. And the oil industry for participating. And I apologize having to dart in and out this morning. We wanted to have a comprehensive multi-party view at this forum and it's great that you are able to

participate and we look forward to working with you together on these issues.

Of course, you've correctly pointed out that 99.8 percent of rail trips don't result in an accident. We're all concerned with the .2 or .3 percent, because then we all have to respond and deal with those.

We formed an interagency working group in January of this year with all of the state agencies that have some kind of responsibility dealing with oil by rail in various aspects, and these list some of them. You're going to hear from some of the key agencies in a moment. And our thought was, as Gordon and others have mentioned all through the morning, California is on the cusp of dramatic changes in the sources of our oil and increasing transportation. We wanted to be ahead of the problem. We heard from other states that they were behind the problem, that they were being reactive. We wanted to be proactive and deal with the risks as they are in a sensible and thoughtful way.

You've seen statistics and you've heard about the tragic accidents. Nationally there are more accidents occurring, that's true and it's

inevitable with increased traffic. The same thing is happening in California although at a much lower level. We have much less traffic so far, but similar trends are happening in California.

What we also realized -- and you're going to hear a presentation from Dr. Solomon in a minute -- we looked at the places where our crude by rail is likely to be shipped and matched them against population centers, areas of sensitive resources, waterways, and also our emergency response capabilities, and we found sources of concern.

We found that there are lots of population centers, potentially affected sensitive resources, and we were short in our emergency response resources. Assemblywoman Skinner talked about one of the bills pending in the Legislature that we're hoping to get through the Legislature to remedy the problem.

We have up here the PUC, the Office of Spill Prevention and Response and the Office of Emergency Services. These are the main agencies with regulatory authority over oil by rail in California. The PUC, of course, implements and enforces federal requirements, and OSPR and OES

deal with emergency preparation and response, contingency planning and so forth. And those areas are the main focus of our report.

We have a very handy dandy report that's available free on the Office of Emergency Services website. I don't know if it's in the program materials or not. But what we found is a few major themes and then we'll elaborate with the different speakers.

The federal government's doing a lot. Ernie and Jack talked about many of the initiatives and I think the federal government deserves a lot of credit. As they're learning more they're responding with increasing alarm, frankly, and stringency with their measures, so we applaud that, but we found that they're not doing quite enough and we want them to do more. We want the industry to do more, and we want the state to monitor more of what the railroads are doing. So part of our recommendations is to increase inspections and inspectors at the CPUC, and you heard from Assemblywoman Skinner we were fortunate enough to have the Legislature approve that in the budget that was just adopted.

We also realized, taking a careful look,

that we wanted to have the best possible emergency preparedness and response program, both at the front end where we have training, contingency preparation, and at the back end where we have first responders coming on the scene with equipment and emergency responders to quell the immediate response, and then the Office of Spill Prevention dealing with the long-term cleanup, rehabilitation and restoration of resources. That's why the Governor recommended expanding the oil spill prevention program. You'll hear more about that, and that also was approved by the Legislature.

We want to provide further funding for additional local emergency responders to remedy the gap, especially in rural areas where 40 percent of our fire fighters are volunteer, so we have a real resource gap that we need to deal with.

We also heard, talking to people, and we also saw in our research a real need for more information for emergency responders, and quite frankly for the public, so a lot of our recommendations go to having emergency responders get from the federal government, from the industry

voluntarily and from others as much information as possible so that they can be best equipped to handle responses.

There's a very important right to know element of this as well, and our taskforce prepared a map that you'll see from Dr. Solomon that depicts what we know about routes and potential risks. And that's going to be posted on our agency websites as well.

And the other series of recommendations about reviewing state emergency response plans and requesting additional information and additional action from the federal government.

So that's it in a nutshell. I'll turn it over to the specific agencies now who can go through in more detail what our recommendations are. I think first Gina's going to show the oil by rail risk map to set the tone a little bit more.

DR. SOLOMON: Thanks, Cliff.

Many of you may have seen the map that is in the back of the report, the Governor's report, and so you may even have discovered that if you open that map and zoom a bit, you can get some more information and really look at some of the

local areas. But we decided that that wasn't quite enough. What we're hoping to do with this new interactive map that I'm going to give you a sneak preview of right now is give people a tool to look at local vulnerabilities and local response capabilities and help target our actions at the state and local level.

What I'm going to just first show is that this is an interactive RGIS map that has layers that include the rail lines, the main lines and some of the short lines, the locations of the major refineries, locations of existing and proposed oil terminals.

The areas that are highlighted in bright red that you can see there are rail high hazard areas that are historically disproportionately responsible for derailments.

The locations of hazmat teams across the state is an important aspect of our response capabilities.

We looked at hospitals and schools. You'll see that those only appear when you zoom in quite a bit, because otherwise they overwhelm the map.

Geologic faults.

Pipelines, because we realized that many of the pipelines run along rail right-of-ways and so there's a possibility of disruption of a pipeline, for example, in a derailment.

Rail stream intersections, sensitive species and habitat, highway corridors and population.

So we considered these to represent the major vulnerabilities, including the vulnerabilities of the rail system itself, vulnerabilities of the population living along the rail lines and pipelines, and then the vulnerabilities of the ecosystems, habitats and waterways.

So it seems appropriate to start by zooming in a little bit on the Dunsmuir area, and you can see up here this red high hazard area is the Dunsmuir zone, and then this other high hazard area here is along the Feather River, and there's been some talk about both of those zones.

You can also see from this map the locations of the nearest hazmat teams. These are, as you can see from the key, type one or type two teams, so these are the elite hazmat teams. But Redding is about 55 miles from Dunsmuir, so it

would take a little while for this team to actually get up here. There is no closer response team.

So as you zoom in further you start to pick up some of the other issues, you know, the nearest hospitals and some of the -- it's going to come in in just a moment -- the stream crossings and habitat. Maybe I have to zoom in just a little bit more. There it starts to come up. And here you even can see the locations of the nearest schools to that high hazard zone.

Somehow the habitat is not showing up here. Let me turn it on. Ah, yes. Because in this area you have a lot marked in green here of sensitive habitat and species.

Any rail transit coming from either the north or from the east coming through this Feather River area of over Donner Summit where there is also a high hazard area, as you can see here, does go through the Sacramento area on its way down either into the Central Valley or into the Bay Area. As you can see here, there's a lot of both rail and then this sort of purplish color, grayish purple is the pipelines. And then just since many of you will be interested in the Bay Area, a lot

of sensitive habitat obviously along the bay and delta.

And you can zoom right into the Martinez area. This is the location of a proposed terminal at Valera that was mentioned earlier today, and the proposed WesPac site is also marked. And the existing terminal in Richmond is also noted, as are the refineries in that area.

And you could see the density of both rail and sensitive receptors. All the little greens are schools on this view, and some of these areas are quite well populated, as you obviously know. So the population layer appears as you get closer, so that's the shades of brown, the darker brown obviously being the higher populated areas.

Just running down to a couple other issues. All right, the purple lines are earthquake faults, so you start encountering those more as you come down into the Bay Area and south.

And I just wanted to show the Bakersfield and San Luis Obispo areas, because those have some areas of interest as well.

So as we've already heard, Tehachapi is a major route into the state. Unfortunately, every route into the state goes through some steep

mountainous areas, and so that is largely the reason for these red high hazard areas.

I also want to point out that the red high hazard areas represent a little bit less than 20 percent of the historic derailment zones, so don't just focus on the red areas because if you do you will be missing the many, many places where accidents can occur. And obviously as we've heard from the railroads, there's a lot of attention to these high hazard areas, including improved track and the cement ties being put in place, so we can be hopeful that those will be less of a concern going into the future, but we highlighted them now for people to be aware of but we're hoping that that will improve.

So in this Bakersfield area we've already heard about oil by rail coming in, these unit trains coming in through Tehachapi down through the center of Bakersfield and then to this Plains All American facility where it is then being transferred into pipelines that will take it either to northern California or southern California. This facility is under construction, so it's this short line and this route is likely to be reasonably important.

Moving over toward the coast, there's a proposed facility here in San Luis Obispo and a rail high hazard area because of this very twisty approach into the town, which you could see right here, it's a very convoluted zone. There are obviously, again, quite a lot of hazards in this area. You can see the earthquake faults crossing the rail lines. You can see the sensitive species and habitat. You can see hospitals right along the rail line. Quite a number of schools as you get down into the town, and then quite a reasonable population in this area as well.

And then just before I finish I want to show you one more zone that is of some interest, which is in southern California. The map has to load as I move it around. I'll pull back out a little. Which is in the Riverside area, and what we see in that zone again are historically high hazard stretches of rail and very heavily populated areas with many, many sensitive receptors.

This map allows you to actually zoom in pretty far if you're interested and really get a look at actual street intersections and locations and the locations of sensitive receptors, so it's

helpful in that regard.

So this will give you a feel of the tool that is currently at our disposal and that will be publicly available for people to look at and for local governments to use as they plan their emergency response and make sure that they have the capabilities to respond to the risks in their areas.

Thank you.

COMMISSIONER SCOTT: Thank you. Gina, before you turn it over to the next speaker, could you tell us what qualifies as a high hazard area? You mentioned some things like lots of twists and turns or elevation, but what other considerations went into high hazard area?

DR. SOLOMON: I actually should let the next speaker answer that because he's the expert on it, but just quickly, this is a total of about 2 percent of the track in California responsible for a total of about 18 or so percent of the derailments historically, which makes those segments of track disproportionately of concern. The other incidents that have occurred, you know, are sort of scattered all around the state, and so it's a little less predictable where those might

occur.

DR. KING: Just to add to that, there were two methods used to identify those sites, so I'll get into it a little more.

Basically, one was based on accident frequency where there are clusters of derailments that happened here that couldn't have happened randomly, there was some characteristic of the site. Corroborating that was the second method, and that was, were there extra operating restrictions put by the railroad to account for the severity of grade and curvature basically. So it was those two methods.

COMMISSIONER SCOTT: Thank you.

DR. KING: So just to back up to 1911, the Public Utilities Commission was originally the California Railroad Commission. It was founded during the reform era of Hiram Johnson. 1946, to recognize the utilities it was renamed the Public Utilities Commission, and when I first came to the Commission in 1981, the first FRA trainee was finishing up his training as a track inspector, so our federal/state participation program with the FRA started at that time.

Basically, our mission could be said two

ways. It's accident prevention. Another way is risk management. We do that by compliance with federal and state regulations, but also looking for things that aren't regulated and addressing those.

Again as I mentioned, we share jurisdiction for inspection with the federal regulations. We have, and you'll see here we have 52 staff positions; 38 of those are inspectors with another 7 coming in the new budget.

And Ernie named the five disciplines. Track inspections, we do track inspections. We inspect locomotives and rail cars. We observe operating practices for compliance and inspect signal and train control. There's a lot going on there right now with the implementation of the collision avoidance system called PTC, or Positive Train Control. And then we do hazardous materials inspections to ensure that all the hazmat regulations are followed.

Now, the states can adopt regulations over the railroads, but under federal law since 1970 they can only do that where the FRA has not covered the subject matter. That's not entirely clear where you can and cannot do that, because

it's the courts that end up determining that, and the PUC has been successful at times and not successful at other times.

There's an exception to that. If the FRA has covered the subject matter, the states, if there's an essentially local safety hazard, can adopt a regulation. PUC was not successful in doing that and the Ninth Circuit has made that very difficult and has defined it as, if you can encompass it with a National Uniform regulation, then it's not an essentially local safety hazard.

So just backing up to 1991. Many of you are probably familiar with the derailment in Dunsmuir that the tank car of herbicide went in the river and poisoned it for some tens of miles and killed most everything in the river. At that time the state Legislature required the PUC to do a statewide risk assessment looking for other areas that might have similar hazards. We did, and we identified, like I mentioned, by two different methods those sites. We adopted regulations and then ensued in having several years of litigation on that, I think from about '97 to 2004. And the local safety hazard exemption for increased track standards, stricter

track standards at the Cantara Loop in Dunsmuir were denied. However, we did work out with the railroads a settlement to have an agreed and enforceable standard for train makeup.

Train makeup is how you place cars in a train. If you put light cars on a head end and heavy behind that, you can pull the light car off the track going uphill. That's what happened in the 1991 accident. The settlement requires a process that the railroads use basically a scientific process that allows the PUC an opportunity to review that and allows the PUC to enforce the ensuing rules.

So about this time last year our program manager for the Rail Safety Operations Branch, the one I mentioned, the 52 folks, initiated what he called a crude oil recon team basically to look at the areas that were being developed to ship the oil to get a jump ahead to make sure that compliance was going to be followed, that the infrastructure was going to be sound. And I do want to give an example of how things are being rebuilt and give credit where credit is due. We went out and looked at this, just a little informational tour for me.

The rail that was in the ground was 1897 rail. It weighed 75 pounds per yard. Right next to it is a rail that was getting put in, 2013 rail, 136 pounds, the new standard. So that's obviously very significant. And the ties were getting renewed as well.

So we were asked to join the working group, the Governor's Office Interagency Rail Safety Working Group, and brainstorm about what could the state do -- given there are limitations on promulgating regulations, as I've mentioned -- what could the state do to address the risk? What areas could we add value to? So we came up with 12 different things, and I'll just run through them quickly.

First one is to become more engaged with the rulemaking on stronger tank cars and to urge that to be expedited and to be finalized. You've heard reasons why that's important both for the industry and the rail supply institute, besides just public safety.

We also asked that the FRA identify any area where crude oil trains would be run but there would not be positive train control. Right now positive train control is required, the collision

avoidance system is required where you run poisonous inhalation hazard tank cars and where you have possible conflict between passenger trains and freight trains. That's what initiated this, the Chatsworth accident of 2008. You may recall the head-on collision with many fatalities.

Another one here is request that the FRA consider requiring electronically controlled pneumatic brake technology. Right now train brakes are initiated by a change in air pressure in a train line that runs from the head of the train to the rear of the train. The brake propagation depends on how fast that air pressure change travels through the train line, and if you have a two-mile-long train it takes a long time. Electronically controlled does it at speed of light, basically. Electrically initiated, it has a number of advantages. I won't go into detail, but can stop trains more quickly. You have much greater control over the brakes and it can provide, even in a derailment it can provide for more instantaneous brake application.

We also have some ambiguous reporting requirements for hazardous material releases. That's that the PUC will need to do something

internally on that, open a rulemaking.

Normalize data. Right now we get accident data, anybody can go online to the FRA website and get data for California accidents, but what you don't have is you don't have data that tells you what the rate of accidents is, how it compares nationally, how it compares to other states and how it compares with previous years, like locomotive miles, employee hours, those kinds of things that are used to normalize data to get trends and rates.

And of course we will be, with all our inspectors we will be monitoring and there will be public reports, the results of our inspections, our public information on all the inspection requirements for crude rail shipments.

And with our inspectors we plan on conducting at least one additional inspection of the crude oil routes each year. Right now PU Code, Public Utilities Code, requires the PUC to look at every mile every year. We're going to at least do the oil routes one more time, effectively doubling our oversight. Granted, the railroads inspect these routes, but we have a role of oversight of the inspections.

Also the next one, the railroads have volunteered to add end-of-train devices which add a second location for initiating an emergency brake application. You can do on the head end at the locomotive that travels all the way through the system. With the end-of-train device, you do it on the head and the emergency application automatically to the rear end of the train too so you double the speed of that application. Distributed power does the same thing and can stop a train faster. We want to see where that might not be applied, where it already is. That actually is probably already required on all the oil train routes.

And we want to be involved in knowing what the route analysis is, what those factors are, not only for information that the state should have available, but also just even to have our staff engaged so we can be better educated about these route analyses and be more involved.

And complete a survey of speed limits. The railroads voluntarily have stated they'll drop the train speeds in high threat urban areas from 50 to 40. We want to examine that, do a survey of that and see if there's anything else should be

considered and go to the FRA for that.

And also, of course, we can already, and I haven't talked recently with our program manager about what the history is here, but we do look at train speeds, we do test for train speeds. That's the first most important thing we can do on these voluntary speed limits is to see if they're being complied with, to provide the public with the confidence that somebody independent is looking at that. We do that, of course, with the Federal Railroad Administration.

And the last thing is we want to get an inventory. You saw one slide earlier about all kinds of automated inspection ways that are alongside the track that inspect components of the train. I used to sit on the caboose and look ahead at the train. This technology actually provides a very sophisticated survey of the train as it rolls by, and so we want to get a handle on that.

And finally, I am sitting in the seat for the Rail Safety Advisory Committee for the FRA and we're going through new regulations that are meant to be crafted in a consensus. Ideally, if it's a consensus you can adopt the regulation a lot

faster than if you have to go through the long process of an NPRM and evidence and so forth.

Right now the current tasks, finished these first three, hazmat securement. The train at Lac Magantic was not secured. And this establishes there was consensus on a permanent regulation for train securement.

Minimum crew size. There was no agreement there and recommendations to PHMSA, I believe, have gone forward.

And there are some other things that are of course in the pipeline too, but I think I've run out of time.

MR. CULLEN: Well, good afternoon everyone. My name's Tom Cullen. I'm the Administrator for the Office of Spill Prevention and Response -- I'll call it OSPR from this point forward -- and we were created back in 1991 as a result of a piece of legislation called the Lempert-Keene-Seastrand Oil Pollution Act of 1990, and it closely paralleled what we call OPA 90, the Oil Pollution Act of 1990 on the federal side, and that was, of course, in response to two major events that happened. The Exxon Valdez that we're familiar with, but also the American Trader spill

down in Huntington Beach. And we are established within the Department of Fish and Wildlife now, formerly Fish and Game, which is in the National Resources Agency, so we are trustees for the natural resources of the state, and in our world that would be particular to water, wildlife and habitat that could be affected in a spill.

So for the first 23 years of OSPR's existence we're primarily a marine, you could also say coastal, jurisdiction. We collected a fee of, right now it's currently 6-1/2 cents per barrel. A barrel is 42 gallons of oil, so if you take $105 and 6-1/2 cents of that would go to our program, but being a fee it restricts our jurisdiction to the activities associated where it's collected, and we collect that fee at marine terminals and so all of our activities have been traditionally coastal.

However, I, as administrator, and my staff, we are also tasked with being the state on-scene coordinator, the participant, if there were an oil spill to any state water, and so we have a little bit of a problem. We're not resourced on the interior of the state and we're coastal. Of course, trains are mainly coming into the state

from the interior.

So basically the mission that was defined in the 1991 act called for us to strive for best achievable protection. And some of the words you don't see up there, we try to do that through assuring best achievable technology, and technology is always changing. We see with emergence of better bandwidth and other tools, what we saw with the RGIS that Gina had up there.

And oil is a funny product. Anywhere it's transported or contained, it wants to get out, it wants to escape, and we've seen that. Cal OES gets reports, and that's one of the mandatory things; any of you from industry know you have three main people you have to call if there's any type of spill of any size. And so Cal OES then gives the reports to us and there's about 8,000 reports a year of oil spilled in the state. Of that 8,000 about a third or so could directly affect water. And you saw on some of the earlier maps there's about 7,000 rail crossings of water. That doesn't take into account where it runs parallel. And there's about 5,000 crossings of pipeline over water.

So Cliff mentioned earlier, and it was

about this time last year that we first heard, it was about the time that BP was selling off its state equities to Valero, and during this very subtle conversation about the transfer of contingency plans to the new Valero folks we heard about the crude by rail and we were saying, what? There's no crude oil coming into California by rail. And it was like, uh-oh, and we started looking deeper into it.

And Thanksgiving came around and we were sitting in front of the Department of Financing, hey folks, this is serious, this is going to be ramping up fairly quickly from the numbers we're looking at. It's of particular concern to us because, as I described, you know, we didn't have that inward reach to cover in the state. Our revenues, we could see, were going to probably go down on that per barrel fee we're collecting, yet we have a fixed capability in the about 250 folks that are working there that are still going to need to respond on the maritime side, or prepare for responses on the maritime side, but our left flank is sort of exposed.

And so that's how we kind of got into the Governor's budget, and we're very grateful that as

of last week the Legislature passed it fairly untouched from what we originally proposed and the Governor signed it.

And it was a very, very simple proposal. We basically said anywhere that oil moves, that tricky stuff that wants to escape containment, anywhere it moves in the state or is stored in the state in any volume should contribute to the fees, and we didn't raise the fee, we just simply extended it. So if you have 100 million barrels coming in by sea it will pay 6-1/2 cents at the refinery. If it comes in by rail, 100 here, 50 here, it's all the same, it's perfect, it balances. And we think that this is going to provide the best overall protection and the most cost effective solution for the state.

So as part of this proposal we're going to bring on 38 new positions on top of the 250 that we already have. Now, those 38 won't be just dedicated to inland with the 250 on the marine side; they're all now going to have the authority and responsibility for covering the whole state as of the start of the new fiscal year next week.

Another big success in this is that it makes available now something called the Oil Spill

Response Fund. This was a $55 million fund that was initially filled up when OSPR was created through a 25-cent-per-barrel fee at the refineries. It has never had to be turned back on again, it was filled and it's there, but it was restricted to kind of fronting the response on the marine side. Now it's going to be available for any type of spill of oil that could affect water or habitat in the state.

There's something called the Oiled Wildlife Care Network. That is a very important entity that exists in California. It's a world class network of about 31 wildlife centers, managed by UC Davis. It's about a $2 million-a-year operation. And the industry plan holders are required to talk in their plans about how they're going to handle any wildlife that could be affected by oil.

That program was funded by interest on that response fund I just described to you, and as you can imagine with interest rates on public paper below one percent, it wasn't meeting that $2 million-a-year need. Now with the new Governor's budget we're going to protect that program. We're going to increase it very slightly to now look at

wildlife centers on the interior of the state that could take care of species that could be affected, you know, small mammals and so forth, and that's going to be preserved so that industry's contingency plans will be still valid.

One other major change in our response posture. We used to be restricted from responding to any spill less than a barrel, less than that 42-gallon limit. And if you think of if you have five cups of oil, that could create a sheen on water greater than an acre, so you can imagine what 42 gallons could create. The Coast Guard where I came from in my previous life, we would respond to any visible sheen, and so now with the removal of that 42-gallon limit we can go out and respond without having to worry is it a barrel or is it not. We're going to go and make sure that proper efforts are being taken.

These are some of the main mission areas that OSPR has. Right in our name, we're the Office of Spill Prevention and Response. Preparedness and restoration and remediation would probably be the two other biggest things that we do.

These are some of the elements that make

up our historical marine program that will cascade nicely into the inland. You've heard a lot of folks talking today from both the federal and state side on prevention activities. We're not looking within our office to duplicate or overlap. We're going to have a very limited role in preventive activities with respect to rail or pipeline.

On the marine side, yes, we still have OSPR inspectors in concert with Coast Guard and State Lands folks that will go and visit ships or marine facilities. Any time there's a major transfer of oil at a ship at anchorage, like many of you here in the San Francisco area may remember the Dubai Star in 2008, a year after the Cusco Bussan, that had about a 500-gallon spill while it was transferring fuel over the gunnel. So we'll still have a preventative side on the marine jurisdiction, but others with the Public Utility Commission and the State Fire Marshall will be looking more at the pipeline and rail.

Preparedness side, we're going to be looking for contingency plans that describe some of the things that I mentioned earlier with respect to wildlife with sensitive site

strategies. A performance standard of how quickly you can get, you know, response personnel and equipment to the scene. The certificates of financial responsibility. And a very important thing is going to be development of plans. You saw some of the areas in red that Dr. Solomon showed, the more risk prone areas. We're going to have to develop these area contingency plans or geographic response plans to then do drills and exercises in those areas.

And then the response side, I'm going to talk very quickly here since I know I'm running short. Again, we are the state on-scene coordinator that participates in the unified command as described in the national response framework, so you have the federal on-scene coordinator, the state side, you'll have a local government rep and of course the responsible party. And then we'll be participating in natural resource damage assessment to try to make sure that we can restore the valuable resources back to their original condition.

And coordination of state agencies is so critical. We enjoy a fantastic relationship on the marine side across all levels of governance,

but also into the non-governmental environmental groups and with industry. We expect it's going to be the same on the inland program as we go statewide.

One of the key interagency relationships that's not mentioned up here would be the Department of Defense, particularly Corps of Engineers. One of the big threats that I'm looking at or particularly concerned with are the many, many thousands of abandoned and derelict vessels that are throughout the state waters, and Corps of Engineers will be able to play a big part, as will Coast Guard, EPA, Cal Recycle.

So we have our work cut out for us the beginning of July and we're very grateful for all the support and interest that we've gotten from many of you in this room. Thank you.

MR. CAMPBELL: Good afternoon. How's everybody doing today? Well, since I'm the last speaker for the state, I guess I'll see if I can bring this train to the station. Sorry.

MALE VOICE: That's good. That's good. Keep going.

MR. CAMPBELL: All right. I work for the California Governor's Office of Emergency Services

in the Fire Rescue Branch, I'm the Deputy Chief of the HazMat Division. Do I still have time left or was that ten minutes?

A little bit about what OES does. OES -- soon as I get my notes -- the California Governor's Office of Emergency Services exists to enhance safety and preparedness in California. Throughout strong leadership, collaboration and meaningful partnerships, our mission is founded in public service. Our goal is to protect lives and property by effectively preparing for, preventing, responding to and recovering from all threats, crime, hazards and emergencies. Our mission is very simply put. We protect lives and property, build capabilities and support our communities for a resilient California.

So how does OES fit into the Governor's Taskforce for Rail Safety? We sit on the panel and we provide input from the first responder aspect and the planning stages and preparedness. And we look at all angles, we play the 'what if' game. We're out there looking at where the gaps are and what do we need to prepare California and our first responders so they can do the mission that they've been tasked with. We do this by

coordination. We do this by talking to various agencies, other state agencies, and partnership also with private industry, so we work across a broad range of avenues to try and do this.

One of the things that we have is also the warning center. Where is it? I lost a slide here. So what we do is we do this through warning center, okay, that was already mentioned. The warning center is the California State Center is responsible for informing communications, alerting and notifying executive leadership of any natural or human caused emergencies. The California State Warning Center is staffed 24 hours a day, 7 days a week.

The mission of the California State Warning Center is to be the central information hub for statewide emergency communications and notifications. The Warning Center is staffed with emergency notification controllers, senior emergency controllers and senior communication coordinators. Services are highly reliable and accurate one-stop resource for emergency management, law enforcement and key decision making personnel throughout the state. So that's what we do in a nutshell. We provide, hopefully,

a resilient California and we coordinate through all agencies.

Now, one thing that we did is we did a hazmat team gap analysis, and what we did with this is we took a map of certified hazmat teams and we overlaid the projected routes of oil coming into the state of California, and we noticed that we have a couple areas that are not well protected with our hazmat teams.

Now, a certified hazmat team is a team that has voluntarily come to the state of California and asked to be evaluated on their resources, their equipment, their training and their overall capabilities, and this is done by established state levels and requirements.

So a type one team would be like the SWAT of the hazmat teams, they can do everything. They can go into an unknown type of environment with their suits. They can do weapons of mass destruction detection. They can do all this sort of -- they have the high level detection equipment. So a type two team would be a step down, they can't do the WMD stuff. And then a type three is very limited, they don't have the capability of going into an unknown type

environment.

So we looked at these gaps and we realized that there were definite issues, and one of our main concerns was up in through the Plumas area. As was mentioned earlier, Redding's about the closest one out there, and to get a hazmat team up there in case we have one of these rail cars decide it wants to skip the track, how are we going to get a hazmat team up there? Because the quicker we get resources on scene, the better we can limit the damage to the environment up there. And I've been up into Plumas, it's very pretty country up there, some of our more pristine parts of the state.

We've also looked at the gap analysis as far as financial capabilities. These volunteer fire departments are very limited in their financial stability. Plumas has tried to field a hazmat team; couldn't do it. Can't maintain the funding. So those are things that we have to look at as far as our gaps. Over the last several years fire departments across the state of California have taken financial hits to their budgets, and it's very difficult to maintain a hazmat team, because it's quite fiscally

intensive, you might say.

So, as I mentioned, we coordinate with other areas, but we also provide emergency expert personnel for the state operations center, for regional operations centers and the joint field offices. We provide on-scene support at incidents if we have to, subject matter experts. Several members of my team have been out on these teams and on site providing information. And they are very good at what they do, by the way.

So we can -- part of our position at OES is we have the chair of the State Emergency Response Commission, and the Emergency Response Commission is also known as the Chemical Emergency Planning Response Commission, or CPERC, and oversees implementation of EPCA in California through the following responsibilities.

By establishing emergency planning districts, the same as the California mutual aid regions. Okay, these are six regions that are highlighted in that map. So right now we're sitting in Region 4. We're kind of on the border of 2 and 4 really.

Appointing six LEPCs for each one of those regions, Local Emergency Planning Commissions.

Establishing procedures for receiving and processing requests from the public for hazardous materials information as administered by Cal OES and the certified unified public agencies, or CUPAs.

And we receive disclosure information from facilities in handling hazardous materials as they are subject to EPCA requirements as administered by Cal OES and CUPAs.

Some oil-related tract. Our spill warning center receives all spill notifications and tracks those. I get notified on a few of those myself. Which is one thing I kind of like about this room. I noticed that I don't have any cell service on my phone right now so it's kind of nice I'm not getting pinged by a lot of things.

Collects information from railroads, sends it to the CUPAs. This would be the emergency order from DOT, and for other agencies such as OSPR, the State Fire Marshall, the PUC, Cal EPA, and the list goes on. Just like the federal government, there's a lot of acronyms out there. The state loves their acronyms, I guess.

So some additional data that we need as an agency that would help streamline things is we're

looking at timely routing and consistent information. We are getting that information, but we feel it could be a little more timely.

24/7 contact information. Again, we're getting that from the railroads.

And interagency training with the railroads. It's kind of spotty, you might say, throughout the state of California. Some fire agencies work very well with their local railroads and some we could probably enhance that cooperation some. So it's reaching out to our industry partners and developing that relationship is what we work for, and that is part of our mission at Cal OES.

So we also have some gaps in some regulatory authority here at Cal OES, but we like to look at things as more of an all hazards approach. We don't want to get focused in on one particular aspect because there's a lot of things out there that we have to deal with, and hazmat and rail is just a small part of what we do at Cal OES.

If anybody remembers back to some of the fires last year, the Rim Fire, American Fire. We were involved with all that for mutual aid

responses.

Some recent developments. The only one I'll speak of is 506 because the assemblywoman stole my thunder earlier. Thank you very much, appreciate that. That's okay.

So 506 is one thing that we're looking at right now, and it's a bill that has been introduced by Senators Hill and Wolk and it's a railroad tank car hazardous material safety fund. Right now the language is under development, so I haven't gotten a recent update and, like I said, since I'm not receiving cell phone information, that's good information.

Right now we're working on a regional area plan assessment project to update our six regional response plans, and that is to be completed by September of this year.

And then we will continue working with the interagency safety working group so we can provide our input and together the state, with all the agencies working on it, will provide a strong and resilient California.

And with that, I thank you for your time and I hope you all have a great afternoon.

COMMISSIONER SCOTT: Thank you very much.

My thanks to another excellent and informative panel. We have one more panel, which is the regional and local governments, and then we'll have everybody kind of gather together for questions after that.

So for regional and local government panel today we will be joined by Alexander Crockett, who is the Assistant Counsel from the Bay Area Air Quality Management District. We will be joined by Rick Martinez, the Fire Chief of the City of West Sacramento Fire Department; and by Caren Ray, the County Supervisor of San Luis Obispo County. So I will turn it over to Alexander to take it away. Welcome.

MR. CROCKETT: Thank you. Good afternoon. My name is Xandy Crockett. I'm Assistant Counsel with the Bay Area Air Quality Management District. We are the regional agency that regulates air pollution from stationary sources, so we have regulatory authority over many of the users of crude oil that might be delivered into the Bay Area by rail. For example, the oil refineries. I want to sort of give an introductory presentation about what the role is of local and regional agencies like ours, and then turn it over to my

colleagues here for their perspectives as well.

So when I say regional and local government agencies, by local governments I'm thinking of cities and counties that have primary jurisdiction over land use and primary policy power for what goes on within their jurisdictions. Then also regional agencies like ours, a lot of those are specialized agencies like ours which has jurisdiction over air quality issues. Another example would be the regional boards which have jurisdiction over water quality issues, that kind of thing.

So I want to start with what our sort of formal legal regulatory authority is over railroad transportation safety issues. The short answer is, not much. We don't actually as local and regional agencies have the legal authority to regulate railroad operations or safety issues on the railroads. We can't as local or regional agencies, cities and counties tell the railroads where they can or cannot put their tracks or build their facilities. We can't tell them what kind of materials they can transport or what they need to do to ensure safety.

Our local regional authority is preempted

by the laws that establish the regulatory jurisdiction of the federal government, which has the primary authority for regulating safety of hazardous materials transportation by rail. And then also the Public Utilities Commission, which you heard also has an important role to play there.

So those are the agencies with the legal jurisdiction, the primary legal jurisdiction for addressing these safety issues, and what we can do as local and regional agencies from a formal legal regulatory perspective is much more limited, which is part of the reason why I don't have a whole bunch of slides here today of all the wonderful things that our agencies are doing as local and regional agencies to address these important safety issues.

That doesn't mean that this is not a very important issue for local and regional agencies. Obviously, for a local city or county, if you are having the impacts from rail transportation in your city or county and you're bearing the risks of a catastrophic accident if an accident happens, it is primarily the local area in which those impacts are felt that is going to be concerned

when a potential accident or impact happens.

And so I think that what you are seeing is a level of frustration, I think, among local cities and counties and local agencies at really bearing the primary burden of the impacts that are coming along with this very major increase in rail transportation of crude oil that we're seeing, because it's those cities and counties where the potential impacts are being felt where they don't actually control the policy levers to address the potential safety issues that are coming down the pipe. And so I think there's this level of frustration that local areas are being asked to bear the burdens, and yet they don't call the shots as far as responding to these emerging issues of importance, and I think there's a little bit of a frustration that maybe the agencies that do, the federal government, the state agencies, have been a little bit slower to respond than some of the local areas have wanted.

And I'm actually very encouraged to hear over the previous presentations of all the initiatives that have been put in place recently or coming down the pipe. But I think that what you might hear from the local perspective and in

some of the other presentations coming up this afternoon is a manifestation of that frustration that I think that local people are feeling in their communities where they're being asked to shoulder the burdens but don't necessarily have the wherewithal to address the safety issues.

So, although local and regional agencies don't have the primary regulatory jurisdiction in these areas, that doesn't mean that there isn't any regulatory jurisdiction, and that's the final bullet here, in that local and regional agencies can regulate ancillary operations that may receive the crude oil by rail transportation. So for example, the refineries that receives the crude oil, that is subject to local regulation. The distribution terminal.

And here a paradigm example is the WesPac project in Pittsburgh. As I understand that project, it needs a conditional use permit from the city; and so the city, although it cannot tell the railroad how it's going to operate, where it's going to run its tracks and what it's going to deliver and so forth, the city certainly can decide whether it wants to have this kind of development, an oil distribution terminal, within

its borders.

The city can decide how it wants to develop its land. This is a piece of currently unused industrial zone land. It currently is a disused oil storage terminal that hasn't been used in several decades, and what WesPac is proposing to do is to revamp it so it can receive crude oil by rail and then be marketed out to the refineries. It needs a use permit from the city, and that is the kind of decision that the city can make and should be making of is this the kind of development that we want to have in our city. And some of the issues that go along with that consideration by the city of whether it wants this type of development can be some of the impacts that would be associated with building the facility and then having a certain number of additional train deliveries coming through the city in order to serve that land use.

So that's an overview of the regulatory framework that cities and counties are working under. And now I want to go into some of the things, some of the roles that cities and counties and regional agencies can play in that regulatory framework.

The first role, obviously, is first responder preparedness, because the primary first responders that are going to be closest to where any potential accident or emergency occurs are usually going to be the local city or county fire department, the police department, the paramedics, that kind of thing. So there certainly is a role for local agencies to make sure that their first responders are prepared for the kind of impacts that will be felt if there was a rail transportation related accident involving crude oil. Make sure you've got the personnel and the training and the equipment and the coordination in place with the knowledge to respond to the particular impacts that would come from an accident involving this kind of transportation.

Interestingly, there's a financial angle here as well in that if you have to devote additional resources to being able to respond to one of these types of accidents, that's an additional financial burden. I'm encouraged to hear some news about the budget and some additional resources that have been devoted to statewide first responder emergency type issues. If there were people at the state level who were

looking for a way to help leverage some of the local concerns and local issues, I think that maybe providing from a state level some financial resources to help the local first responders ramp up their efforts in this area, that would be an important way forward.

In addition to the fire departments and police departments, there's also a role for specialty agencies like mine to play in terms of education and training and making sure that the first responders are aware of some of the particular environmental impacts that may come along with accidents involving crude oil. For example, particular air quality concerns to be aware of, particular water quality concerns to be aware of. These may not be things that first responders are generally aware of from their, for example, general fire response training, but they could be issues that are brought up because of the particular nature of crude oil if there was to be an accident.

And then finally, obviously there's a coordination role for local agencies to play. Make sure all the various different agencies that may be called on to respond in the event of an

accident know who's doing what, where to go and who their contacts are so that when the emergency comes down everybody kind of knows what role they have to play.

As I mentioned, there is a local regional role to play for permitting of ancillary activities, and so there is a role for local agencies to play there when they have a permit that they need to decide on. And primarily that role comes through the California Environmental Quality Act, CEQA. That applies where a local agency has a discretionary permit or approval it needs to grant for one of these ancillary activities like an oil refinery operation or an oil distribution terminal. And their CEQA requirement is that the agency evaluate all the direct or indirect impacts, environmental impacts, that would come along with going forward with the project.

So here, the rail concerns, environmental concerns or hazardous materials concerns related to spills or accidents, those would be indirect impacts that would arise from building this project, which would then have to be served by an increase in rail shipments down the rail lines to

serve the project.

CEQA requires an evaluation of the impacts and then where feasible you have to impose mitigation measures. Because of the preemption issues I was talking about before, mitigation measures cannot actually be directed at telling the railroad what it can carry or how it has to carry it. Those impacts can be evaluated, but mitigation cannot tell the railroad how it has to operate, but mitigation measures can be imposed on sort of ancillary impacts with the way the facility that's being permitted can operate.

And then finally, in addition to these roles there also is an opportunity for local and regional agencies to use their voice as sort of a bully pulpit to help the public process and decide some of these larger policy issues. There's public engagement in processes like these where policy makers that are actually going to decide how these things come down want to hear from the public and hear from government agencies, local and regional agencies like ours. A lot of the agencies have specialized expertise. For example, my agency has specialized air quality expertise and in particular how it relates to the Bay Area,

and we can provide that expertise to the policy makers at the state and federal level to help them grapple with some of these policy issues.

And then there's also technical study. The universities and the federal agencies and the state agencies do a lot of that, but there is a lot that goes on at the local government as well from agencies like ours.

And then one thing I didn't have on the slide, which is what I'll close with, there is also an opportunity to engage with railroads and have them adopt measures on a voluntary level, and we've heard some of the other speakers talk about that as well and that's actually something that we've seen at my agency, where you can engage with the operators and the railroads and so forth and say, hey, we'd like you to do this, and a lot of times what you hear back is the railroad saying, you can't force me to do that, look, there's preemption, but I'm not going to play that preemption card because what you're proposing makes sense, and so you can come to some sort of a voluntary accommodation there, so that's another important role to play.

With that, I'll turn it over to my

colleagues and they can give you their perspective. Thank you.

MR. MARTINEZ: Good afternoon. Hold on here, we're going to start my slide presentation. No? Yes? Okay, perfect. You can put Mr. Crockett's back up there, because I want to tell you, my name is Rick Martinez. I'm the Fire Chief for the City of West Sacramento. I actually intended to have one slide, so that's the best news you've probably heard all day. The slide would have had my name on it, because that's about all you really didn't know from me.

I'm a 40-year fire fighter. I've been in the business, I started in 1974, and over the course of those 40 years I've spent most of it in the Fire Department and almost 8 years as the chief of emergency services for the city and county Office of Emergency Services in Sacramento.

Over the course of my career I've had the opportunity to respond to a number of events. Not just fire events. I responded to the Oklahoma City bombing in '95, the World Trade Center in 2001, and a number of other activities including Hurricane Katrina. I don't tell you that because I want to impress you, because quite honestly

that's not very impressive, but I tell you that because in my short time here today a number of the presenters, which I've learned a lot from, have talked about various aspects of what happens with rail, what happens with commodities like oil, and what happens when something goes wrong. Today I learned something. My role is when the authorized packaging goes wrong.

In short, Chief Campbell talked a little about the Office of Emergency Services at the state level and how they coordinate resources. I talked about my experiences, and all of those experiences ties back to one consistent factor. That is, in each and every case, whether you talk about west Texas and the blast that they had here just a few years ago, whether you talk about the oil by rail issue and the Bakken oil, or whether you talk about any other manmade event or natural event, it is the local fire fighters, supplemented by law enforcement and emergency medical service personnel, that will respond to an event that goes wrong, when the authorized packaging fails due to accidental or intentional acts.

But I can tell you quite simply that we in local government -- in fact, this morning I

started out talking about heat and the dryness of our wild land. Last night in our small town we had a pretty good wild land fire. In a few weeks we'll talk about heat as it affects the population in the community with cool zones followed by the wild land season will kick up at the end of August through October. In November and December we'll start talking about floods. And through all of these times there will be kind of what we call our bread and butter activities of emergency medical services and fires.

And the picture I'm trying to paint to you, that it's the same fire fighter that's going to answer each and every one of these calls, that each and every one of those incidences are served by local government. I've worked for the federal government, I've worked for the state of California and I've worked for local government. What I can tell you is the consistency there is all disasters are local. They affect the local community first. The local community will be first on scene and they'll deal with the cleanup and the mitigation and the long-term recovery.

Mr. Crockett, first of all he got my bully pulpit up here and then he painted the picture

because he talked about the authorities. If that were my slide that would be a pretty good slide for me because of the fact that we in local government have no authority over rail. Minimal authority over rail.

You take the same commodity you put on a tank car on a transit truck, I have a great deal of authority in the city of West Sacramento, as do my counterparts through local ordinance. But when that commodity, that product is on a tank car or a boxcar, we have no authority. But if something goes wrong, you'll see a sad face like mine in front on screen and people will start asking us what we did to prepare for it.

I can tell you that we do all that we can, but as has already been stated, local government is strapped, and particularly local public safety entities have been strapped over the last several years of the recession. That doesn't surprise any of you, nor are we special, because everybody has from schools to parks.

The one big difference is, however, as we've entered in these discussions what I want to highlight is a few things that we think are important. I've spent the last few weeks,

actually several weeks, talking to my counterparts throughout Yolo and Sacramento County and Placer County.

A good portion of the rail lines that you see that will carry and are carrying today Bakken oil and other like products. Bakken is not the only product that comes by rail that we have a concern with, it's one of many. But what I can tell you is what we've been advocating at the local level, why I'm here before you today.

I'm not a hazardous materials specialist. I couldn't describe to you with any technical expertise, but I can tell you that you don't have to be a rocket scientist to figure out that, geez, when you start by taking material of any kind and you package it properly in a vessel that is designed to transport it, as long as you do that and things don't happen, everything's good. And it's only when something changes that activity.

So what we have been advocating for, and I should have started by saying I appreciate the Commission's interest in the topic, and that is, as has been stated by everybody else, is improved container. Tank cars, vessels, whatever's carrying the material.

The implementation of positive train controls, including automated speed controls and safer crossing. Improvement in crossing is important to cities like ours because we have a number of rail crossing where commodities, the trains that they're carried in can come in contact with some of our local motorists.

A lot has been said about appropriate training, but I want to issue a caution when it comes to appropriate training for local first responders. We are offered training and equipping on occasion, but you need to be mindful that what comes with that is a responsibility. A responsibility to maintain the equipment, of which there's no funding for and I can tell you in our budget like many of my colleagues' budgets there is no funding for.

Secondarily, while we can receive training in a number of facilities, well intended, we can't afford to send people. To send ten fire fighters to a 40-hour week, a one-week class, it costs my agency $15-20,000 of backfill, because we have no down time. When someone leaves we have to replace them. That $15-20,000 for one one-week class for ten people, we have to figure out a way to get up

that money.

So as you legislate training, particular when you legislate mandated training, we are mandated today as fire fighters to take not only fire fighting classes, not only hazmat classes, not only weapons of mass destruction classes, not only SIDS training, sudden infant death training, senior protective training. The list is long. Each one of those carry mandated training. So as you mandate training without the capacity to get people there, doesn't help. So I can go on, but what I would tell you that as you deliberate and as many of you come together that you think of those things.

And two last things.

One is notification. As issues come forward on notification, notification has to come to local first responders in a way in which we can consume it. We need real-time notification when we have an incident. We have to have a way to access what's on a particular train on a given moment. It is good to know what's coming through our community. That helps us with planning, training and equipping, but when we're responding to the incident it's really important to know what

we're going to be faced with quickly.

And lastly, something I mentioned before which is near and dear to my heart. As we look towards a long-term strategy dealing with rail safety in general, we should look towards a long-term strategy with how and where we keep commodities within our community. Today many communities have overnight storage of products which would not be allowed to be in those communities if it was on another container.

With that, I appreciate the opportunity to address you today and I'd be happy to answer questions at the appropriate time. Thank you very much.

MS. RAY: Hi everyone. I'm Supervisor Caren Ray from the County of San Luis Obispo, and my presentation is going to follow Mr. Crockett's perfectly because mine will be the local manifestation of the frustrations that he spoke about academically in his presentation, so I'm going to kind of buzz through this because he really did touch on many of the same things that I'm going to touch on here.

First of all, why San Luis Obispo? Why am I standing in front of you? We are ground zero

for this issue. We are identified, as you saw earlier with Dr. Solomon, we are identified as a high-risk area or a high hazard area. We have pristine coastline. We have urban areas across the entire county. We have a steep and curvaceous rail line that is very dangerous. And we also have a pending project that happens to be in my district, which is the Phillips 66 rail spur, so this is one of the ancillary projects that Mr. Crockett was speaking about and where we have a little bit of land use authority.

We also have our regional transportation plan that we do through SLOCOG. That's our council of governments, and we've got a little bit of an interface problem here, because we have adopted policy for what we want coming through our county and when and how, and because of the preemption issue this is in direct conflict with our regional transportation plan that identifies piping oil as the preferred method.

Now, we have roles related to crude. First of all, of course we have the decision making regarding projects, but again, that's ancillary. We have with regard to CEQA implementation, this is where the rubber meets the

road for decision makers, and this is where it becomes problematic.

We also have our emergency operations. We are not only staffing those and planning for those, but again, as decision makers we're funding those, and I'll echo what the previous two speakers spoke about, about having legislation or regulation come down the road and making sure that that's funded regulation or that we get funding for those operations.

And on top of all of that, I am the one who is perceived as responsible here, and yet I have very little decision making authority. So the rubber meets the road with the public with my office, so I'm the face of any problem that comes here.

Now, there's a lot of data that we need as decision makers. First of all, you've heard -- and I'll buzz through these too because you've heard it before. We need local scheduling and we need real time information. We also need to know what's coming and in what volumes so that we can adequately prepare. We need some kind of a volatility index, and I'm going to talk more about this in a few slides. And the possible impacts.

And again, the people before me spoke about making sure that we know what's coming, when is it coming and what is it going to do if there's a problem. And lastly, we need to have a plan for where is regional apparatus. It's got to have coordination across agencies, not just in our local agencies.

There are a lot of gaps in regulation authority and people all day have been speaking about this, and really this conference has been so helpful, or this workshop has been so helpful to have sort of a clearinghouse of everybody and all the decision makers in the same room.

We've got the issue of preemption. We've got CEQA, and especially with regard to cumulative impact analysis, and it becomes impossible with the absence of data. Again, we've got our adopted regional transportation plan, and it really has become moot at this point on this issue. And as you know, we have no regulatory authority to restrict what's coming into our county.

And lastly, again I'm encouraged by previous speakers to hear about the coordination and funding that is coming down the pipe, but that hasn't reached the local level yet, so we're not hearing about that so it feels like we as decision

makers are making these decisions in a vacuum.

Now, again, in our area we've got the Phillips 66 rail project pending, and what they are proposing are five 80-car unit trains per week coming through the county, and they're talking about an offload site within 2,000 feet of a very large home development in my district.

We have an EIR that came out in draft form in November of 2013. We expected in our 60-day commentary period to get about 150 comments. We got over 800, and we got them coming statewide. So again this is ground zero; we're hearing it. That recirculated EIR is due back in August or September and it will come to our planning commission in December and to the Board of Supervisors in early 2015.

So again, as all these things are coming through the pipe as we get through the legislative session. All of the things that we're talking about today have very real impacts on San Luis Obispo County.

Now, the next thing that I'm going to buzz through here are ten local safety concerns. There's been a lot of concerns, and I'm going to get real technical in the things that San Luis

Obispo County in particular is concerned about. And the people who worked on this with me include our emergency operations services manager, our council of governments administrative director, our Cal Fire chief, and then of course my office.

So the first one is we also have a nuclear power plant in our county and so we have a robust emergency response warning system, but our siren system stops just north of the refinery and it stops just south of the high risk area of track, so we need to have an expanded siren system.

We need some kind of a quarantine area. Because the trains are going through high population areas, we need a place where, if we have a problem, if we have a leak, if we have a car that's disabled, we need a place where they can go and be repaired that is prepared to handle that kind of issue.

Our emergency operations group said that they wanted some kind of a tiered notification system. Don't worry, I don't mean that we need Homeland Security, but it was really nice and colorful. And they were talking about having some sort of a weekly -- and this of course would be only for EOC use, it's not for public use -- but

some sort of a color coded weekly determination of what's coming through our county and when so that we can make sure we staff our emergency operations adequately.

We'd like to have a text or email notification system, and this is somewhere where we can get direct and immediate communication with our constituents in the case of a catastrophic accident. We don't have that capability right now. It can be area specific, either near the refinery or wherever the issue may be. And this also offers a layer of protection in the rural areas because, again, emergency response is difficult as you get away from the high population areas.

And lastly, it's low cost, but our local taxpayers are the ones that are going to have to pick that up. It's estimated in our county to be a little less than $100,000 per year, but again, where is that funding going to come from?

We'd like to see the signalization modernized in San Luis Obispo County. We still have direct train control signaling and we have hand-thrown switches in our county, and these are issues that become problematic when we talk about

scheduling. We really want to make sure that the system performance is up to par within our county because we want to make sure that all trains are going through at the proper organizational capacity, let's say.

We also want to make sure that the appropriate ballast is there, and our emergency operations are concerned about this because we don't have class one track in our county and we're concerned about the weight per car increase. We're concerned about the average unit train weight. And we're concerned with overall traffic of the unit trains.

And another word on that. It's not just the five unit trains that are being proposed as part of the Phillips 66 project, but we also have other trains coming through our county and we don't know how many or when because of the preemption issue.

We definitely would like to see the positive train control implemented. We've heard that it may be delayed but that it is hopefully at this point required in 2016. And we also believe that it should be required system wide on any tracks that have interface with the manifest

trains that have over 35 units or the unit trains. We think that all of the cars should be equipped with this if they have the probability or possibility of meeting up or passing with unit trains with the crude oil.

And this is a really important one to us as well. There's a lot of talk about Bakken crude, and our concern is that we should not be identifying the commodity by its place of origin but rather by its volatility and that there should be some kind of a volatility index, not just the packaging ratings, but for emergency operations use. And again, we kind of have this colloquialism that has developed that Bakken crude is now being used interchangeably with high volatility crude, and so we're getting away from accuracy here.

We need local financial support. We've heard about this all day long. We don't have local funding for this and we don't have anything coming down from state or federal funding, so our taxpayers, my taxpayers, are the ones who are knocking on my door saying why do I have to pay for this? And I have no way to tell them that I have any discretionary authority over this.

And lastly, again, the proper CEQA analysis. That's a picture of the Phillips 66 project. I'm sure that you are all well aware of this, right? No, I'm just kidding. But we have a cumulative impact analysis that we've got to do, but again, without the information it's very difficult for us as decision makers to make an accurate determination of what those cumulative impacts may be and how we can adequately condition a project.

And on top of that, the last one here is, how do you condition the project when the -- I'll say problem but I don't mean to point at the railroads, but when we're looking at the impact of the main line but we're conditioning an applicant that's not the main line operator, that makes the whole thing very difficult. So again, you're hearing that real world frustration that Mr. Crockett talked about.

So in conclusion, San Luis Obispo County has been identified a high hazard area for just about every reason you have on the list, and we need a resolution of safety concerns as this is critical as part of the CEQA analysis for not only this pending project but anything else and it's

almost impossible to make those determinations without the information that we're begging for today. And our concerns center around the lack of control over rail traffic and access to information, and also with inadequate local emergency preparedness and with funding.

So thank you so much for the opportunity to speak on behalf of San Luis County and other local decision makers.

COMMISSIONER SCOTT: Thank you. Thank you very much. And that was yet another terrific and informative panel. Thank you for that great information.

What I'd like to do is it's time to have a few questions from the dais. We had quite a few speakers, and so what I might suggest is that maybe folks gather kind of near the front row and there's the two mics that we can see right here and that way everyone doesn't have to kind of stand around and potentially jockey for position at the one microphone there.

But this would be Ernie Sirotek from the Federal Rail Administration; Jack Whitley from the Pipeline and Hazardous Material Safety Administration, all of our state roles and

responsibility folks, Gina Solomon, Paul King, Tom Cullen, Tom Campbell, and let's keep our regional and local folks as well, which is Alexander Crockett, Rick Martinez and Caren Ray.

I also just wanted to remind folks that if you have questions or comments that you'd like to ask during the public comment period, please be sure to get a blue card from our public advisor. She's sitting up front and she's happy to take your cards and collect those. That's the way to get involved in public comment from here.

And a reminder to everyone that the presentations that you saw are all up on our web page so you'll be able to access those.

So let me turn to my friends here on the dais and see what questions we might have.

COMMISSIONER DOUGLAS: All right.

COMMISSIONER SCOTT: My first question is for Jack from PHMSA, and I just wanted to make sure that you would please submit for us on the record the statement that you read as you were making your presentation. Would you please do that?

MR. WHITLEY: What would you like me to do?

COMMISSIONER SCOTT: The statement that you read while you were giving your presentation, would you please be sure to submit that to us? Was the whole statement in the PowerPoint?

MR. WHITLEY: I don't believe it is, but I'll see what I can do about that.

COMMISSIONER SCOTT: Yeah, if you'd just hand a copy of it to the -- that would be terrific.

MR. WHITLEY: Yes, ma'am.

COMMISSIONER SCOTT: Okay, thank you. I have some questions too, but we'll start with you. Go ahead.

COMMISSIONER DOUGLAS: So I just had a couple questions for the federal representatives, and maybe between yourselves you may both want to answer the questions or you may one or the other decide to step forward.

But I was hoping you could comment on what the Canadians have done with regard to regulation of tank cars and also with what they recently did regarding legacy cars. In other words, the tank cars that are not being built to newer specifications -- that were not built to newer specifications.

MR. SIROTEK: Well, I don't have any documentation in front of me to quote from, so in general terms this is my understanding.

My understanding is that they're treating all petroleum crude products in Canada, originates in Canada, as a packing group 1 material until further notice. That was the last communiqué that I had received on petroleum crude oil being generated in Canada.

Secondly, I am under the understanding that they are restricting the loading of the legacy cars, period. They are encouraging all offers of petroleum crude to be loaded into the newer CPC 1232 constructed tank cars and that they're restricting the loading of the legacy tank cars. And that's what I know at this point.

Jack, you have anything to add to that? Okay.

COMMISSIONER DOUGLAS: Okay. Just a brief follow-up question. You know, we heard from the industry a concern that to the extent possible regulations should be the same and not different across the border so that, you know, you could imagine a different schedule for phase-in of retrofit requirements or you could imagine

different substantive retrofit requirements and that potentially causing issues. Is that something that you've been looking at?

MR. SIROTEK: Well, we recently come out with a safety advisory as well recommending that industry utilize the newer constructed tank cars for consistency, with the understanding that there is, you know, a phase-out period that we're suggesting and not making mandatory at this time, but in the form of a safety advisory encouraging the newer tank cars to be used and phasing out the legacy cars as you can. And yes, we would like to see some consistency between what we're doing and the Canadians are doing as well.

COMMISSIONER SCOTT: When you say 'as you can' there's not a specific timeline that's associated with that.

MR. SIROTEK: That is correct, there is not a specific timeframe, but we have this understanding that new tank cars are being constructed daily and the numbers are just not there to meet the demand, so it's very difficult to put a specific timeline on the phase-out of the legacy 111 tank cars.

COMMISSIONER SCOTT: Okay, I have a couple

questions and then I'll see if other folks have some as well.

The other question, Ernie, that I had for you, since you've got the mic in your hand, was you mentioned the emergency order that you had put together, and I was wondering if there was additional information that you need that would help to enforce that emergency order, or do you have enough information to enforce that?

MR. SIROTEK: Well, there's two key emergency orders that we're talking about, right? There's Emergency Order 28; that was the securement of the trains outside of yards and terminals and communicating that to the dispatchers and stuff.

And the other emergency order was related to notification to the SERCS of the million gallons of petroleum crude originating from the Bakken.

You know, I think we have a good handle on -- I just looked at the draft questionnaire set that came out to us from D.C., and it covered all the elements. There's going to be some coordinated efforts from headquarters and there's going to be some participation from the regional

folks as far as coordinating with the SERC to see if they are actually getting the notification and what kind of notification they're actually getting so that we can put the two data elements together and make sure that we have a complete audit cycle in that.

COMMISSIONER SCOTT: Thank you. Okay, I'll just keep going. I had another question for Jack.

In your slide you mentioned the placards and the labels, and I was wondering whether or not the placards and labels give the emergency responders enough information to know how to respond and do they give the FRA enough information to know how to make the three classifications that they laid out, or does it give enough information to the railroads about what is actually being carried? And so I just wanted to know a little bit more about those placards and labels.

MR. WHITLEY: The placards that are required for a bulk package are also required to have the UNID number put on there. That UNID number is product specific, it is not packing group specific. But in the case of crude oil the

response does not change for the packing group, so the emergency responders have all the information that they need in order to respond to that incident as long as they can read that UNID number on the placard itself.

COMMISSIONER SCOTT: Yes, please.

MR. SIROTEK: I would just like to add to that just a little bit. Now, there's been some discussion from D.C. on how the railroads can communicate emergency response information so that they could specifically identify like materials from the Bakken or materials of that nature that have a really lower flashpoint, packing group type one material.

Now, the railroads, everything they transport is identified with a standard transportation commodity code, okay, or STCC for short. Anything that transports in the hazardous materials realm starts with a 49 series stick. Now, it's been suggested as a recommended solution, whether the railroads adopt it or not, is that a recommendation exists that maybe they can identify those specific commodities with its own stick number and generate its own emergency response information driven from that stick

number. Now that's being considered out there, so we hope that that kind of information will come out in the end product as we see it.

COMMISSIONER SCOTT: Good.

MR. RECHTSCHAFFEN: I have a question for Supervisor Ray. Supervisor, I'm wondering, are you working with your counterparts in other counties on similar efforts for their projects in different parts of the state? Are you --

MS. RAY: You mean with regard to emergency response or with regard to the approval of the CEQA documents that we were talking about?

MR. RECHTSCHAFFEN: Not the specific project at stake but the more general issues in gaps and needs that you identified.

MS. RAY: We're still trying to identify that internally and those discussions are just beginning, so we're just starting that outreach right now, but right now we're still identifying who's got what information at this point. So I hope to continue to do that and to continue to reach out to other counties. But again, what we're really trying to do is identify just what information we need in the first place and who to get that from.

MR. RECHTSCHAFFEN: Thanks.

COMMISSIONER SCOTT: Great. Another question that I had, and this is maybe to everyone who was on the panel. When you looked at the terrific map that Gina showed us where we had the high hazard areas, and you know, I was wondering what you all think, and many of you mentioned this as you were giving your presentations as well, but what types of fixes or improvements would you recommend or are things that you would like to see that would make some of those areas potentially less hazardous?

MS. RAY: Before I hand it off, I know that in my presentation we showed some pictures and some of that is, you know, our rail line, our main line isn't traditionally used for this kind of freight, it's more the passenger type thing, so ours needs significant upgrading to bring in modernization, especially with regard to the direct signalization and the hand-thrown switching. So I'll pass that off to others who may...

DR. KING: Well, and those areas were developed in the mid-90's, and the nice part about that map is it's a work in progress. We'll be

updating it, working on it and making sure that it's providing information that's needed from it today rather than the purposes it had back then, which are very, very similar but still there are some nuances that we need to address, so that's a work in progress.

COMMISSIONER SCOTT: Others? Any questions? Okay.

All right. Well, again, thank you very much. I think this was an incredibly informative panel. I appreciate your thoughtful presentations.

We are now going to shift to an outlook from other organizations. We will go to environmental perspectives, and we're actually going to flip the order of the speakers, so we will hear from Diane Bailey, a senior scientist at the Natural Resources Defense Council, first, and then she'll be followed by Greg Karras, senior scientist from Communities for a Better Environment.

Welcome, Diane. Welcome, Greg.

MS. BAILEY: Good afternoon. Thanks very much for including the environmental perspective here. These have been really great informative

presentations. I want to talk to you about a recent series of maps and information that we released called The Exploding Threat of Crude by Rail in California, and this stems from some community work that we've been doing with the various communities across California who are now facing large new crude by rail oil terminals and very concerned about the safety threats.

And these are not the rail terminals of yesteryear, as you guys know. What we're hearing from our experts as we consider three or more large terminals in the Bay Area and many more across the state, at least two in Bakersfield, and we've heard in the central coast, potentially also in southern California, we're hearing that these rail terminals present dual threats, not just in the prospect of exploding rail cars and accidents with the rail cars, but also with the contents of the rail cars and what we might be bringing into California, these extreme crude oils, fracked, Bakken crude, and of grave concern to NRDC, tar sands, Canadian tar sands, a very contaminated, dirty crude oil. We're already seeing an influx of some of these into our state.

Before I get into some of our concerns, I

want to note environmental justice considerations, especially in these Bay Area projects.

As far as we know, every refinery in the Bay Area right now is proposing a new project, and we have some additional oil terminals on top of that, and these seem to overlap almost perfectly with areas already identified by our air district as health vulnerable and vulnerable to air pollution, so we have some very serious environmental justice considerations with these new terminals that I think bear extra consideration. We're talking about historically contaminated areas and overburdened populations.

Let me talk first a little bit about the direct safety threats of these rail cars coming through these communities. This is the most serious concern that we keep hearing from the advocates that we're working with out in the communities.

In Benicia where there's the recent Valero crude by rail EIR that was released. In Pittsburgh where folks have been fighting off the WesPac oil terminal, the marine rail pipeline and tank farm complex, as well as many other communities, Richmond, Rodeo and Martinez.

Everyone's seeing these rail cars filled with crude oil derail and explode on the nightly news. We've seen at least a dozen very serious accidents over the past year as crude by rail has ramped up. With the 100-fold increase in crude by rail in California, you can't help but ask the question what if that happened here? Six of these accidents had major fires and explosions, so this is a really serious concern. And not just to the communities that are hosting the oil terminals, but also to the communities that will see these mile-long trains laden with explosive crude oil go through and get no say in these projects.

So we did a little mapping exercise to see who is in harm's way by these oil terminal proposals, how many people in California may be in harm's way, how many schools are in the federal evacuation zones.

Now a note about these maps. We looked at two different distances from the main rail lines. We looked at the half-mile federal evacuation zone for derailments, but we also looked at one mile because the DOT recommends a one-mile evacuation radius for any derailment that involves a fire. We think the one-mile zone is the most important

because you can never predict when these things are going to catch on fire.

We found hundreds of thousands of people in harm's way around these rail lines looking at these seven communities. Sacramento is most impacted. There are many communities along the way that we didn't map, but in total, looking at all the new crude by rail projects that are proposed, we found that almost four million Californians are within a mile of these rail routes and very much impacted, and several hundred schools as well.

So this is what it looks like in the community of Richmond where the Kender-Morgan rail terminal popped up virtually overnight in terms of its crude oil capacity. It was formerly an ethanol terminal and it changed over to accept mile-long crude oil trains. I was just visiting earlier this afternoon, saw two very large crude oil trains there today, one coming in, one coming out.

And this is a serious threat. People in Richmond are very upset. They weren't consulted about it. There was no public process. Yet we see 75,000 Richmond residents who are directly in

harm's way from this project, and we're demanding a public process on that.

This is what it looks like in Pittsburgh, California with the WesPac terminal outlined in yellow, that's that proposed project. You see a lot of different schools there, and we actually talked to the unified school district out in Pittsburgh and they were very alarmed by the project, so alarmed as to adopt a resolution opposed to WesPac.

So I can't emphasize enough that proximity matters. We're very concerned about children and residents being directly in harm's way, living too close to the rail tracks. And it's a little hard to see in this picture, but this is a photo of a home in Pittsburgh that's just a stone's throw away from those tracks. There are churches, schools, playgrounds. You see the tank farm in Pittsburgh looming over a playground and the Saint Peter School right on the fence line.

Okay, so let me quickly shift gears and talk about the threats from within the rail cars, and that is the dirty extreme oil that's coming in.

Right now we have some amount of tar sands

coming into California and it's a concern, but of greater concern to us is the potential for growth, the potential for a quarter or a third of our refining capacity to change over to dirty contaminated tar sands and present a whole host of environmental health and community problems.

As far as air pollution, one thing to note about tar sands is they are contaminated with a lot of heavy metals. For instance, the lead levels in tar sands crude oil are five times that of standard conventional oil or the average U.S. oil. And so you have to ask the question, well, what happens to all those heavy metals when you start to refine that dirty contaminated crude?

We're going to see some pretty serious air pollution problems. And you have to work a lot harder to refine tar sands crude because it's much heavier, and so we expect to see perhaps a 50 percent increase in air pollution from tar sands refining. We actually really don't know and we're asking our regulators to take a close look at that and tell us.

There are lots of studies that look at greenhouse gas impacts of refining tar sands and show us that we could be looking at an 80 percent

increase in greenhouse gases from refining tar sands relative to the U.S. average. We would expect a comparable or higher increase in air pollution, so that's a serious concern.

Other concerns include noxious odors. This is an ongoing community concern, and tar sands have a particularly serious problem because they are high levels of sulfur compounds, especially the very noxious mercaptans, which are also highly flammable.

Okay, so just speeding along here.

The production of petroleum coke, a toxic byproduct, is also a serious problem. Tar sands typically produces about twice as much toxic petroleum coke as standard crude oil.

And then also coming back to accidents. Extreme crude oils are much more corrosive than standard crude oil, and that's a serious problem that the Federal Chemical Safety Board has identified. So not only are we concerned about the transport accidents but also refinery accidents with extreme crudes.

We're very pleased that the state has a working group on these issues and is looking at some recommendations, but what we really need is

urgent action. We want to see all of the new crude by rail infrastructure projects put on hold until we really get a better sense of what the consequences are of these projects and get the safety situation under control.

We have a lot of other recommendations, they're in our report recently released online. I think I'm going to turn it over to Greg Karras to give you a few more details and concerns about dirty crudes. Thanks very much for your attention.

MR. KARRAS: Hi everybody. Greg Karras, Communities for a Better Environment, I'm a senior scientist. Thank you for the invitation to speak. I'm going to be brief and be happy to answer questions.

So just to get out of the way what do we want, we don't want any crude transported by rail. We think it's even more dangerous than the current unacceptable situation with oil in our communities and our state and we think it's unnecessary. I'm going to talk about the downstream impacts after the oil gets delivered, and I guess you could ask why?

Three reasons. The crude's coming here

now at least while there's no domestic export allowed. The refineries here are the reason it's coming. Their desire for it is the reason it's coming.

We can do things here that matter. This slide, I think it's always important, first of all, to keep in mind that we're in the middle of an historic change in our energy system and in our oil industry and the use patterns. There's a clear and dramatic several percentage drop for the first time in, I think, the industry's modern history in our state in how much gasoline we're using. That's projected to continue. It's one example of many of the things we can do here that matter that will make a difference.

And finally, as Diane mentioned and started to get into, the reason is that there are real impacts from refining different qualities of oil.

So just in terms of scale, this is a projection. Well, most of this chart is a projection. The exponential increase in rail transport of crude in the last few years is the small part. These are the terminals, the capacity of the terminals we know of from CEQA documents,

and it's expressed as a percentage of the capacity of all of California's refineries, so we're looking at a scale of what could be in a very few months or years a massive change in the sources of the crude supply.

Just note that the color code there is pretty speculative. At the moment it's a little more than half of the crude coming in, according to your CEC records, it's coming from Canada actually, not from domestic sources so not from the Bakken. Bakken might be near 50 percent, might be most of the rest of it. And it's about that kind of mix if you're going to try to mimic Alaska north slope density. So take the color coded sort of distribution of where it comes from with a grain of salt, but that's the scale of the total increase. It's very significant what could be coming very soon.

And we actually know a lot, not everything, but a lot about the potential refining impacts. CBE has been faced with this problem and has been investigating it for almost 30 years. This is a 20-year-old slide from a report on water pollution, toxic selenium discharges per barrel refined. More than a 10-fold difference depending

on the oil that's used.

This is peer review work that I did for CBE, a couple of studies. These are actual observations. This is actually real world data from operating refineries around the country and California. And in case you're wondering, California is near the high end of this already on average. If you were to assume that we go to 100 percent tar sands bitumen, that would be off the chart to the right in a bad way.

All of these slides except for the first one are things that have actually happened and been observed, by the way.

This is data from the CSB and from CBE on the mechanical problem, the damage mechanism that caused 15,000 of us to have to go to the hospital less than two years ago when Chevron blew and had their fire in Richmond. The pipe, just to explain it, the shading in gray represents the thickness of the wall of the pipe that corroded, thinned and eventually ruptured when it go to be less than the thickness of a dime. The red is sulfur in crude, the black sulfur in gas oil distilled from that crude that was running through that pipe. Sulfur caused the corrosion and high temperature. And

you could see that the corrosion accelerated dramatically, four times faster, a little bit more than four times faster after the sulfur level went up.

A point worth noting. The highs there, the increase in sulfur that caused this at this refinery in this pipe, Chevron now is proposing to double that amount of sulfur, that sulfur content in its crude, and that still wouldn't bring it up to the level that we could see from tar sands imports. Sulfur is not the only problem with corrosion and with safety with the crude, but this is a good example of it.

Another one, and this relates to Bakken and shale oil. On average in California refineries, because of the way they're built, unless they were completely rebuilt we will see blending of the shale oil when it's really light with other oils. Turns out that blending shale oil appears to cause a number of problems in refineries which, as we know, does not mean that they will not do it if they're allowed to and if it's cheaper, but it means those problems will occur, and some of them are safety problems.

One I'd like to talk about a little is the

potential for increasing production of coke deposits. Most people think that the coke's all from cokers and it all gets exported and burned somewhere else. In fact, coke is burned every day in almost every refinery in California in the hundreds of tons because it is also depositing on the catalyst and catalytic crackers.

This is a simple diagram of it. The way a cat cracker works, the catalyst mixes with the oil, the coke builds up on it, very quickly it is -- the catalyst is expensive and so coke's burned off the catalyst so that it's reused. That also heats the process. As a result, Chevron, for example, about 750 tons of catalyst coke are burned every day.

If the coking rate increases because of the oil switch causing that from mixing with Bakken, you could see a drastic increase in this. For example, fine particulate matter. This cracker, according to the air district measurements, the best data that we have that have been reported in the district's inventory, we suspect that there are some accuracy issues and in fact they might be high or low. But according to the reported data, Chevron's cracker is admitting

more fine particulate matter than every source. Tailpipes, fireplaces, all other industrial sources, every stove in all of the rest of Richmond outside of the refinery combined. This is a really major source.

So going back to the one slide that is speculative and hasn't happened yet and can be stopped. I guess I'd say that, you know, kind of obviously environmental justice would demand considering the potential refinery impacts on top of all the costs that many of you have eloquently put forward for local governments, for state governments, on top of the safety concerns and the very real threat of having frankly an even more dangerous way of transporting oil than we have already. And I'd like to ask a couple of questions.

You know, note the part of the chart I haven't talked about. Right now still today crude by rail imports into California are less than one percent of the capacity of our refineries, less than one percent, in a world where we're using fifteen percent less gasoline than we were ten years or eight years ago. So is it really needed? Do we need? What benefit is there to our state,

to our communities from also importing crude by rail?

And if there's no societal downside, and we have rather than just talking about preemption from a law that was passed. I'm not a lawyer but I'm pretty sure that the railroad laws and the preemptions were laws that were passed long before the Civil Rights Act was passed.

You know, for example, you might consider all getting together as a state and as local governments and joining us with a civil rights complaint to the federal government. There's more that you could do.

And I'd like to say just in general we don't have to lay down for this, we should fight it if we think it's a bad idea and not just prepare for it, not just assume that all we can do is adapt.

Last, I would ask a couple of questions on the data side. Why do we know so much about the impacts of refining this stuff? Why do we know as much as we do about the volatility issues, about the way bitumen will sink to the bottom? Obviously it's because we have some data on the oil quality and that hasn't been trade secret,

it's public data.

So ask what in terms of practical immediate steps we could take to build towards having more local power and more state power to protect ourselves and protect our wallets too, what would it be like if we actually had more of those data? Why can't we get them? Thanks.

COMMISSIONER SCOTT: Thank you. Thank you very much, Diane and Greg, for the environmental perspective and your thoughtful presentations.

Next we will hear the oil industry perspective, and that is Tom Umenhofer. I'm sorry if I didn't get your name quite right. He is the Vice President of the Natural Resources Group and a senior environmental advisor to the Western States Petroleum Association.

Welcome, Tom.

MR. UMENHOFER: Thank you very much. Feel like I'm batting cleanup here a little bit. And want to just mention Western States Petroleum Association represents the major oil production refineries in the state of California. We are usually on the receiving end of the rules and regulations made by most of you in the room here, and we're also an active willing participant in

the rulemaking process.

What I wanted to do here is a little different. You notice I don't have any slides. A previous speaker got applause for having one slide; I have zero slides. What I wanted to do is something a little bit different here. Because we are not in the business of rail cars and railroads, what I wanted to do is kind of bring this back and talk about takeaways, at least takeaways from our industry perspective from what we heard today.

If I were to do a PowerPoint presentation, it would be the slides you saw today. Many of us in this room have done pieces of this during the past several years, and I want to commend the CEC because this is the first time all these presentations have been done in one day at one place. I think it's just been excellent. And so what I'm going to try not to do is repeat what folks have done, but I do want to get up here and talk about takeaways.

I also wanted to make a comment. I don't know if Supervisor Ray is still here, but I empathize with her. I was a county Commissioner in Santa Barbara County, neighboring county, for

many years and we're responsible for incorporation of cities, and I used to walk down the street in my neighborhoods and my neighbors would come up to me and say, when are you going to fix the sidewalks? And I said I don't do that, that's Public Works. I'm a different kind of commissioner. So you in these public positions do have challenges because folks sometimes don't understand exactly what you do. I think we've done a lot today to get a better understanding of what folks do.

I've been in the environmental business for some three, almost four decades and dealing with a lot of these issues in the energy industry, primarily gas and oil, so I wanted to talk about four takeaways today.

And the first takeaway is that U.S. crude oil production is clearly on the rise. Notwithstanding what your position is on that, we're seeing these great increases in crude production in the Bakken, Eagle Ford and other locations. The increase we've had over the last three years, over a million barrels a day, was the largest increase worldwide and certainly the largest uptick in U.S. history. So the supply is

increased and it's not where it traditionally has been.

And in light of that, something that hasn't been mentioned, it provides a higher level of satisfaction in domestic energy security. In other words, less imports, and I think that's a good thing, along with job creation and economic development.

The takeaway point number two that I had was California oil production suggests that it cannot meet the demand in California, and you've seen it in the graphs earlier today and in a graph just now is that California consumes about 41 million gallons of gasoline, 11 million gallons of diesel fuel per day. The refineries can meet that demand, but the production in California cannot.

Earlier today you saw the presentation by Steve Bohlen where he talked about how the oil fields are mature. They are indeed mature in California. And you saw a production that is relatively flat. In order to meet the demands of the public through the production of refineries of gasoline and diesel products, the crude oil is going to have to come from somewhere, and it can either be done by rail or by the ports. That

means international perhaps transport of crude oil. And then you saw the limitations, the significant limitations in pipelines coming to the state of California. So that's point number two.

I did want to touch on a couple things briefly, just informationally.

We talked about production and Monterey shale formation. That does offer an opportunity and where the gas and oil industry is today is looking at advancements in technology to address that opportunity, but the answer to that question is yet to be seen. And I think you've seen that in presentations too, the projections were greater in the past than what they are today, and there's a lot of work that needs to be done. So for now as we sit here today, you can look at a production as it's represented by the traditional production that we have here and it shows a little deficit.

The second item I wanted to touch on is hydrologic fracturing. It was mentioned in an earlier presentation as well. Hydrologic fracturing has been done for some 60 years in the state of California. It's what we call part of a completion process. Now, what that is is a process after you drill a well to connect the well

to the reservoir. Hydrologic fracturing takes a matter of hours, doesn't take a matter of weeks. It's usually vertical, state of California. Much different than elsewhere because we're talking about oil plays in the types of formations we have in California.

Undoubtedly, we have focused on safety and this is strongly regulated for decades by DOGGR, who have done a fine job, and indeed SB4 new regulation will ensure fracking will continue to be done in a safe and efficient manner.

Takeaway number three that I had is crude by rail is important to supply the markets of the west, and you've seen a lot about that today. Even though the state of California is the third largest consumer of gas in the world, we can't possibly supply that need with the supplies that we have here, so it has to get here some way. I think that those are decisions that you folks have to make on how that gets done, but it is an important component of our economy and is important to how we service this energy desire that we have in the state of California.

And the final and perhaps the most important takeaway for me is that rail safety is

still, has been and will be priority number one. The rail by crude (sic) is considered extremely safe operation. You heard the data earlier in the day more than once, 99.997 percent, but we're all working to make that number even smaller. There's been great cooperation going on amongst the trade associations and the rail operators and the gas and oil industry is a part of that, and as part of that we've gone into these programs that you have seen listed in the past, including tremendously enhanced emergency response training and experts getting together to try to work on better technology, better policies and better science in terms of how we operate, and particularly for our end of the business, the loading and unloading of crude. So we can only expect better things for the future.

In closing, I did want to do this. I wanted to express appreciation to the state and federal agencies we've worked with for many years to improve the safety of operations, both the gas and oil industry and rail, as well as protecting the environment. We are key stakeholders, but we also work very, very closely with agencies such as the State Lands Commission; DOGGR; the U.S. Coast

Guard, unbelievable operation; the Air Resources Board, sometimes called my second home; and OSPR, which is sometimes called my third home. Great agencies, great associations. This is how we need to get things done as a community working together and certainly this is an example of going in the right direction.

I thank you for the time.

COMMISSIONER SCOTT: Thank you. Great, thank you very much.

I would like to invite Diane and Greg to come join you, Tom, and we will see if we have some questions from the dais.

Go ahead, Cliff.

MR. RECHTSCHAFFEN: I have a question for Greg and Diane. Can you summarize or characterize -- I don't know if you know this -- from the proposed projects that you've reviewed what information there is about the quality or the characteristics of the oil that they're likely to be handling or building to import, what do we know so far?

MR. KARRAS: I'm guessing either of us or both could answer.

MR. RECHTSCHAFFEN: I think you should

fight over it.

MR. KARRAS: Yeah. She won, I get to answer. Again, Greg Karras, CBE.

I have been directly involved in analysis of many of the projects. As the lead investigator, I have been involved for CBE in checking or secondary analysis on almost all of the others. The exceptions would be the Bakersfield ones. And so for all the coastal projects north and south, including the one in San Luis Obispo County and Nipomo, the Phillips 66 project that the supervisor spoke of, with one exception the projects appear to be linked to changes in refineries that indicate or at worst in most cases show that the oil would be denser and more contaminated. That's what they're tuning for in the refineries.

The one exception appears to be one of the newest projects at Shell Martinez, which is closing or proposing to shut down one of its cokers and proposing some other changes that preliminarily look like what they say in the notice to the county, switching to a lighter crude slate, which in that case might involve more shale oil.

And I would just add that that's based on public information that's not included in the CEQA documents. In most cases, only two of the EIRs that I've seen have actually disclosed the oil quality and the industry has generally claimed its trade secret, but we know that's not true because we're using published information even in our peer review work, so we know that information is available.

MS. BAILEY: Let me just add to that that this has been a real problem for us to evaluate these projects, because with the crude by rail project proposal documents that we're evaluating, they're not forthcoming with this information. We see some evidence of a range we could be having Bakken crude or Canadian tar sands, but none of the project documents are specific.

In fact, when we do Public Records Act requests to get further documentation, we're getting lots of redacted documents and we're having a tough time evaluating what the air pollution consequences of these projects would be for a lack of specificity around the crude oil quality.

You know, one way around this is that we

think that the EIRs for these projects should evaluate both scenarios. Bringing in Bakken, what is the worst case scenario around the safety considerations because it's more volatile? And then what are the air quality consequences of bringing in the heavier crude oil? We're seeing both of those crude oils mentioned as possibilities in a lot of the documentation and most recently with the Valero draft EIR for their crude by rail. We see a little bit of a discussion of the Alaska North Slope lookalike crude, or ANS lookalike crudes that's a blend of Bakken and tar sands.

MR. RECHTSCHAFFEN: I'm wondering, and I know you don't speak for all the individual refineries, but I'm wondering if you have any insight into that question?

MR. UMENHOFER: I was waiting for that.

MR. RECHTSCHAFFEN: Since you didn't have any slides, (overlapping).

MR. UMENHOFER: The first thing I'll say is that in the role that I serve, and in fact for other folks in the industry, there are limits of what we can talk about due to antitrust, but one thing I can say is that with regard to -- and I'm

a CEQA expert, I'm a CEQA guy. I've been in the environmental business for my whole career.

I think what's been talked about here is very interesting and important elements of how is information coming out in the proper way in the CEQA process. So folks with the most information of what's happening in a certain place are, obviously, the owners, and in the industry we can't talk amongst ourselves about that because that's antitrust, and the agencies, and there has to be some confidence in the agencies that you're getting some information. But questions from the public such as these are fair questions, and the thing that I would say is that I hope and trust that, as regulators you have a good handle on that. I know individual operators are sincere in what they're doing and sincere in providing the information that they have.

Certainly, it is not uncommon in the CEQA process when you don't know exactly where your source is, is to characterize sources. The question is, is that enough for you guys, and that's an agency's responsibility to ferret that out.

MR. RECHTSCHAFFEN: Thank you.

MR. ALEX: Tom. Is this on? Yeah? Tom, my question is for you. I think you heard some of the representatives from local agencies and local governments express a number of frustrations, but one of the most specific was about the lack of funding to deal with emergency response, and I wonder if WSPA is willing to support fees to support efforts for local emergency planning and response at the local level.

MR. UMENHOFER: I will happily take that question back to the president of the WSPA and the WSPA Board.

MR. ALEX: Thank you.

COMMISSIONER SCOTT: Okay, great. Well, thank you again to our terrific panel who provided some outlook from other organizations: Greg Karras, Diane Bailey and Tom Umenhofer.

I'd like to go now to the relationship of crude oil trends to environmental and energy policies. Before I call up our first speaker, I would like to remind folks that if you want to make a comment, please talk to our public advisor. She's up front, she has the blue cards, she'll bring them up to us and that's how you get in the cue for public comment. She's sitting right

outside the door.

Also, during the state presentation we mentioned both the maps and the report and there's copies of the report up there and the map is available on the webpage.

So I would like to welcome Ryan McCarthy, the Senior Policy Advisor from the California Air Resources Board to talk to us about the implications of climate policies on oil demand in California.

Welcome, Ryan.

MR. MCCARTHY: Thank you very much. So I'll be changing gears here a little bit and not talking about oil by rail, but instead talking about what we're doing from an energy, environmental and climate perspective in California and what it might mean for greenhouse gas emissions in the transportation sector and oil use in the state. What I'll be presenting is a fairly simple analysis.

I want to clarify and be very frank up front that this is not official ARB numbers that will be used for any rulemaking, but instead sort of some rough -- perhaps a little more refined than back of the envelope or top of the bar

napkin, but maybe not too much more refined than that -- numbers for, you know, what our policies might translate to in terms of oil use in the state and emissions, so I'm trying to give a sense of where we're going.

Certainly, ARB through its ongoing air quality and climate planning, and I know CEC and their IEPR process and many other organizations, I think, will be refining these numbers over time if they haven't already. And I'll state now, and probably again later, that we at ARB look forward to working with CEC through the IEPR process this year and next year to try to do just that and refine some of these numbers and provide greater clarity and insight into where we're headed.

So some initial context for the California policy realm.

First of all, I think it's probably fair to say that under the Brown Administration greenhouse gas emissions have become an overarching metric for a lot of what we're doing. You know, when it comes to the electricity sector, whether one agency's planning for a liability or another energy efficiency or renewables, or in our case greenhouse gas emissions, increasingly we're

working together better than we have before and focusing on making sure that everything we do individually also works collectively, and that includes to reduce greenhouse emissions. We're doing the same thing for transportation, and now when we plan our cities and towns and streets we're doing so with an eye towards not just, you know, providing mobility but reducing greenhouse gas emissions. And the same thing for air quality.

The Scoping Plan and Update that the Air Resource Board released this year builds on the framework that we laid out in the first scoping plan five years ago and calls for increasingly doing this in all sectors, in water resources, agriculture and everything else. So I think, again, it's probably fair to say that greenhouse gas emissions is really becoming an overarching policy driver in the state. To that end, we already have a number of greenhouse gas emission goals.

We have economy-wide goals to reduce, or laws to reduce emissions to 1990 levels by 2020 under AB 32. We also have goals to reduce emissions to 1990 or to 80 percent below 1990

levels by 2050. That's an economy-wide goal set by executive order as well as a transportation sector-specific goal set by Governor Brown in an executive order as well. And now we are beginning to think about where to go in the midterm and what appropriate target climates would be for, say, 2030 or some other midterm timeframe.

I think it's also important to state as context that California is doing more -- Alan Lloyd can correct me, but I believe that again it would be fair to say that California has done more and is doing more to reduce emissions of criteria putting some greenhouse gas emissions and oil use in the transportation sector, probably more than anybody else in the world is doing. And we've been doing that for decades and we're continuing to do it.

That said, we know we're going to have to do more to meet our ongoing climate goals and to meet our air quality goals. So part of that comprehensive framework we have is really, I think we can say, the beginning of a success story, especially for transportation or passenger transportation.

In the passenger transportation sector we

have begun to -- we've built this framework where we are targeting oil use and emissions from every angle. We are dealing with the land use and trying to bring things closer together and provide mobility options to reduce the amount of driving people have to do. We're building more efficient vehicles and requiring more efficient conventional vehicles. We are requiring zero emission vehicles in increasing numbers and supporting efforts to deploy zero emission vehicles and supporting consumer experiences in zero emission vehicles through a number of collaborative efforts, public financing incentives and supporting infrastructure and working with locals. We are dealing with fuels and requiring cleaner fuels through the Low Carbon Fuel Standard and through the Cap-and-Trade Program, and I'm sure there's others as well.

So especially in passenger transportation these policies are coming together, as I'll show shortly, to really reduce emissions in a significant way. They are also reducing costs for consumers, and we expect that in 2020 the average Californian will spend about $400 less on fuel than she does currently.

So, you know, the success is, I think we

can say -- well, we can say, California is outpacing others, but it's not limited, these trends of reducing oil use and emissions are not limited just to California. It's a trend that is now occurring throughout the developed world. Not globally. Developing nations are outpacing or more than offsetting the reductions in oil use and emissions from the developed world. But in the developed we have reached peak oil consumption and we are seeing reduced emissions and reduced oil use. And this isn't just fanciful thinking, but this is what the oil companies are saying themselves, you know, in the absence of any additional policy or dramatic technology development is that in the developed oil use and emissions are going down. So the direction is correct in the developed world. We certainly need to do more to meet our climate challenges and we need to accelerate progress further.

And I'll just say as sort of context for some members I'll show later, is that Bloomberg recently did an analysis of where California's policies will translate to in terms of oil use reductions and found about a 9 to 13 percent reduction in, I believe that's just gasoline. I

don't think it should say "gasoline and diesel use," but in gasoline use from our existing policies by 2020 from, I think, 2014 levels was their analysis.

So what we did, in something a little slightly more complex than an envelope, but an initial analysis where we looked at four scenarios, and the four scenarios are listed here.

But the first one is sort of a counter-factual, as they say in academic circles, where we undo existing policies and look at what would just happen for market forces if the state did not have its suite of climate policies. Now, this scenario does include federal greenhouse gas emission standards and CAFE standards for the light-duty vehicles, which is driving oil use down, but it does not include any other state activities nor does it include, I believe, the federal renewable fuel standard.

The next, the existing state policy scenario looks at just the suite of existing state policies. As I mentioned SB 375 dealing with land use, the low-carbon fuel standard, the rules pushing zero-emission vehicles, heavy-duty vehicle rules that exist at the federal level and that the

state has adopted as well. It does not look at Cap-and-Trade or any potential incremental reductions on oil use from Cap-and-Trade.

The next scenario is extended policies, I'm calling it. This calls out, I guess just two real key additional drivers that were identified in the 2014 Scoping Plan Update. In that document we called for extending existing gains in new vehicle efficiency by about 5 percent per year. That's what's being accomplished already on the heavy-duty side. Over the next several years we call for extending that and achieving similar gains through 2025. And in terms of passenger vehicles, extending current policies which will achieve about 5 percent improvements in vehicle greenhouse gas emissions through 2025, we call for extending that through 2030. So that's one of the big key policy drivers. The other that is included in this scenario is extending the low-carbon fuel standard to 2030. In the Scoping Plan Update we mention a 15 to 20 percent reduction, perhaps by 2030. I think what's modeled here is an 18 percent reduction in 2030.

And then the final scenario reflects a document that we developed at ARB in 2012 that we

called a Vision for Clean Air Analysis, and this was looking at how you achieve air quality goals as well as 2050 climate goals.

Something that I meant to mention in the slide before but did not was air quality is a driver, and there's federal rules for air quality that California, despite all of its successes -- we've reduced all pollutants by about 75 to 90 percent over the last several decades, but we still have a long way to go. We still have the worst air quality in the country. And there's federal air quality standards saying we have to reduce emissions from vehicles. Well, the implication is we have to reduce emissions from heavy-duty vehicles and many sources by as much as 90 percent in many parts of the state over the next 20 years. So that in itself can be a driver that might be more powerful even or more challenging than 2050 climate goals. And a lot of the technologies to meet our air quality goals and our climate goals are likely to be the same in the transportation sector, and in fact they'll have to be the same if we're going to try to meet both of them.

So the scenario represented here depicts

that scenario that we developed in 2012. It's only one way, of course, to try to meet these goals. In fact, it did not successfully meet the air quality goals. It met them a few years late, but it really dramatically pushes on zero emission vehicles and clean fuels to try to meet those goals. We're updating that analysis now and we'll roll out some new scenarios on that a little bit later this year.

So this is just an overarching view of some of the results, how they translate to total crude oil demand in the state. So this includes, or this chart anyways includes all crude oil basically going into refineries to supply California demand as well as an existing set of exports. I think 10 or 11 percent of current refinery product right now is exported to other states. So this keeps that export fraction as well as including jet fuel and other products like asphalt and lubricants that come from refineries.

Later I'll look at just the gasoline and diesel use in the reduction in gasoline and diesel use or petroleum for in-state gasoline and diesel use. It's more dramatic than shown here, because our polices are more directly targeting those.

But you'll see, you know, in all the scenarios including the counter-factual where we undo our policies, we're reducing oil use, and in some of them, you know, we're reducing it fairly significantly. Perhaps not enough to where we need to go, but it's a good start.

To translate these results into greenhouse gas emissions and specifically 1990 emissions, which I think is a good barometer and a common barometer for progress to 2050, a little bit of background. I won't venture to speculate on what appropriate targets are in 2030, but I'll give a couple data points.

One is if you just draw a line connecting 2020 to 2050, a straight line, assuming our emissions in 2020 are 1990 levels as required by AB 32, in 2030 your emissions would be 27 percent below 1990 levels. So that's sort of one data point.

Another is, you know, there's an increasing focus in the scientific community on this idea of a global carbon budget and that we can only emit so much carbon if we want to have some percentage chance of staying below two degrees global warming, which folks have basically

agreed upon as global targets. And how you attribute a global carbon budget by countries let alone by state is, you know, challenging, and you could do so in a number of ways, but I'm familiar with two studies that have tried to do it in a manner that they deem equitable. And those studies basically agree that in the U.S. you would want emissions to be, you know, 36 to 38 percent below 1990 levels by 2030. So that's sort of another data point that we can consider.

And when we look at these scenarios we see that existing policies are not going to get there, again so for on-road GHG emissions and passenger vehicle emissions. So the on-road GHG emissions is just gasoline and diesel, so now I'm ignoring sort of the other refinery products in other sectors like aviation that California has less of an ability to impact and just looking at our policies in terms of gasoline and diesel.

But we're not quite there from our existing policies for the on-road sector, but we are about on the path to 2050 for the passenger vehicle sector from our existing policies on that straight-line path. So that's good progress. The extended policies puts all on-road transportation

about on that straight-line path to 2050 and begins to get your passenger vehicles pretty close to that climate stabilization or that accelerated pathway.

Now, neither of those scenarios are anywhere close to where the Vision for Clean Air Analysis gets you. And that case, I think, there's about a 60 percent reduction. And so to the extent that is at least somewhat indicative of what we might have to do to meet our air quality goals, you can imagine needing to do a lot more than we show here.

And one other note I'll emphasize here is that with the existing policies we're doing a lot, especially on the passenger transportation side, but diesel use is still expected to increase. And we have not -- you know, we need to replicate similar successes we have through existing policies on the passenger side, we need to do that on the heavy-duty side, and the proposed policies in the Scoping Plan will reduce that and begin to get reductions in the heavy-duty side as well.

I think it's important to emphasize that, you know, with all the unknowns that we've discussed today, we don't know where our oil's

going to come from. We don't know what type of biofuels might become market winners. We don't know how many natural gas trucks we're going to have. We don't know how many zero emission vehicles we're going to have. But we do have some certainty because of our policies of what emissions are going to be.

And, you know, the two key performance-based policies that we talk about are the Low Carbon Fuel Standard and the Cap-and-Trade Program. And the Low Carbon Fuel Standard says that we have to reduce the carbon intensity of our fuel by ten percent by 2020. And so, you know, if oil companies want to bring in more Canadian crude oil, which has a higher carbon intensity, they create extra deficits and they have to offset that basically with either cleaner alternatives than they would've used otherwise or a higher volume of, well, basically more biofuels or electricity or hydrogen.

So we know that, you know, regardless of where our oil's coming from, regardless of what the mix of fuels looks like, we know that the average carbon intensity of our fuel, whether it's produced in state or out of state, is going to be

a certain value and it's going to be declining and getting cleaner.

The Cap-and-Trade Program deals with just emissions in the state, but it sets a limit and says that regardless of how much we're driving, regardless of how much oil we're producing or refining in the state and regardless of how much economic activity we have really in any sector, our emissions are not going to exceed a certain level. So that provides certainty on total emissions in the state whereas the other provides certainty on the life cycle embedded emissions that is in our fuel mix, whether it's coming from in state or out of state.

So they both provide flexibility for entities that need to comply to do so in the way that they see most fit. And for the oil companies that means they can either sell more oil or less oil as they so desire. If they want to sell oil with a higher carbon intensity, then they can do so, but that means they have to sell less of it and use more biofuels or other cleaner alternatives.

Alternatively, they can clean up oil and sell more oil if they want. We have this

provision in the Low Carbon Fuel Standard called the innovative methods pathway where if they use carbon capture and sequestration or solar steam generation or biomass in the production of oil to reduce emissions they get credit for that. And so they can, you know, comply while using relatively more oil than they would've otherwise.

This just sort of depicts that graphically, that you can imagine a range of demand for oil or supply of oil while still getting the same compliance with our policies. This is not bounding, you could actually imagine a greater range, but this is sort of one sample that shows a few reasonable compliance pathways.

So I think my time's up and I won't go through these too much, because I think I've hit on them already. But I will touch on this last one.

You know, if you just imagine what level of oil use we can have in 2030 to meet, say, those two targets that I mentioned, the 27 percent or the 37 percent reductions. In 1990 we used about 15 billion gallons of petroleum-based gasoline and diesel, so you can just -- at least as an upper limit you can just subtract or divide by or

multiply, I guess, those fractions. So the straight line, if you want to just reduce oil use by 27 percent, that would set a cap on the total amount of oil you see you could have while meeting that target and that would be about 11 billion gallons. Alternatively, the lower one is 9.5 billion gallons. So those just give us, you know, two other sort of benchmarks for where we might want to be in 2030.

And that's all, thank you.

COMMISSIONER SCOTT: Thank you, Ryan, for that excellent and informative presentation.

We will now turn to our closing presentation, which will be done by Dr. Alan Lloyd, President Emeritus of the International Council on Clean Transportation. And he's going to speak to us about the impact of climate change and petroleum displacement policies and programs.

Welcome, Dr. Lloyd.

DR. LLOYD: Thank you very much, Commissioner Scott. Again, it's a pleasure to be here.

It's very interesting as we reflect back on, not many years ago, we were wishing that we could get off Middle-Eastern oil, have energy

independence from that oil. Today we're saying, we now have a glut of oil, but look at the problem it is creating. So I have a solution to some of that. Again, it's a real pleasure to be here with distinguished workshop participants. What I will focus on is basically trying to get off petroleum, and is that feasible and is the timeframe feasible?

So while we get set up here, I recognize the time here, and so, yeah, I'll finish by five o'clock or before.

So I think the need to get off petroleum, I'll identify that in terms of climate. Ryan did a good job of explaining that. We talk about two degrees centigrade, but let's face it, are we being honest when we see what's happening in the rest of the world and over here. It's only recently the administration's begun to attack the problem, but it's not really very much. California again, has that leadership there, and thank goodness for California; otherwise there would be nothing there. So we have to realize we've got to do more and less.

Air pollution I emphasize, and I'm pleased that Ryan did as well, because people overlook

that. We've never met the targets for air quality and attainment of air quality standards since the Muskie law, we've always delayed that, and now for ozone and PM, that's back in the 2020s/2030.

The other thing that people have to recognize is the air quality standards decrease as we learn more information on the health-related air quality standards. But also, the global background of all of these are increasing, so ozone is increasing, PM is increasing. So the margin with which you can basically pollute is growing smaller, so that has to be taken into account, which means that from the air quality plan that Ryan talked about, any time you combust something it creates a problem because you're creating NOx and you're typically creating PM. Now, you can control that to the maximum standard, but you always have degradation when you get that into place.

The other drive I think to get off petroleum is AB 32, and the likely successor leading out at 2050. Ryan's covered that.

The Obama Carbon Pollution Standards, again, I think that's a very important piece of that or part of it.

And then as we've seen, the increasing costs of petroleum and the increasing costs of dealing with petroleum.

So with the consumption of oil, obviously California is a major consumer of oil and gas, but that's decreasing, as we saw, that part of it, so that's the good news and that'll continue. But, on the other hand, when we look globally you can see these major markets in the number of cars. The U.S. is by far the most important in terms of the millions of vehicles, but if you look at the EU-27 and then you look at the rapid growing in China and other areas, it gives you an idea that, while it may be going down in California, worldwide you have this stock which basically will expand the desire for petroleum.

And if you look at something similar on the heavy-duty vehicle fleet, similarly the numbers are down there, but again you can see this is U.S. and the EU, but also look at the higher number in China compared to the U.S. even, so demand is not going to go away very quickly.

Now, the good news is, as we heard, that the fuel economy standards are beginning to take effect. Europe led the way for that with

passenger vehicles, now California and the U.S. is doing that and that's also being expanded into the heavy-duty side, as Ryan was stating. But the developing world is still showing strong growth and they are acting in some areas, but some countries not as fast as others.

This is an ICCT one, which shows you typically what has been happening. But you can see in 2009 basically only Japan and the EU were operating on CO2 standards, and then you can see the rest of the world and U.S. taking the lead from California. Remember, U.S. here is CO2, California was CO2 equivalent because we couldn't control fuel economy standards, but you can see it going down pretty steeply over a period of time or to 2025 there. But you can see how far that's away from the axis, and if you want to get down to basically two degrees, you're going to get down to around probably lower than 50, so quite a ways to go in that part of it.

But I think what you see here is some of the countries are already transitioning to low-carbon vehicles. And this shows some data from an ICCT study carried out by some of the staff in Europe, and what this shows is the market share of

electric cars in comparison to total sales in 2012/2013. You will note there, and the intent of this study, by the way, was to look at the impact of financial incentives on new car sales for electric vehicles. You can see, you know, California is number three there. Of course, it far outweighs the others in terms of total numbers.

But the interesting thing about that part of it was that one major inclusion, incentives are important, but not the only thing, because incentives for example are to 55 percent of the base price in Norway, which accounts for the high volume, a high percentage. Netherlands, 75 percent. The UK, they've got 5,000 pound of vehicle, which is significant, but it has hardly any impact you look at UK. Similar for Germany. So the bottom line for policy makers, incentives are important, necessary, but not sufficient.

Now we move into one of the California scenarios. This is just a scenario that are updated all the time, but this just shows by 2050 the on-road vehicle programs, and this has guided some of the California thinking in terms of why do you need to look at some of the electric drive

piece there.

In order to go do that, also, you have to look at some of the costs there. And some of my statements here come out from a study that David Green did for us from Oak Ridge National Lab in that the net costs for this are incurred for about a decade. And we'll see some more of that.

Incentives are initially large but are generally unnecessary after 2025. You can see it by the decade. Some of the caveats: Incentives need to be properly timed; an estimate provided for total cost, but no need for entire incremental cost because the car manufacturers put money into that as well.

Again, out of this study comes some observations in general. In general, when you are looking at the penetration there, fuel cells achieve higher deployment levels than battery electric vehicles. That's over the longer term, and the only reason for that was because you can get fuel cell vehicles into the heavier side, heavier vehicles, where it's more difficult to get that for all batteries.

Most scenarios result in a mix of powertrains, but given adequate infrastructure the

larger shares go to fuel cell vehicles, but without advanced provision of hydrogen infrastructure in California, fuel cell deployment is derailed nationwide. Now, of course, the good news is after this comment, is CEC and the Legislature stepped up on both in terms of hydrogen infrastructure, but also for their electric vehicle side, for the plug-in side there.

Plug-in hybrid electric vehicles are a transitional technology and do not achieve the ongoing deployment rate. That may be somewhat controversial and I should give you the reason for that later.

Petroleum prices do not strongly affect the pace of the transition, because once the vehicle's highly efficient, that has less impact on consumer choices.

I mentioned here these are the bases for the National Academy of Sciences study, some new cost curves which I'll show you here, and then the same model is used by David Green. Again, I stress this is a model, and obviously as the discussion this morning in terms of the future, you can only project certain things. These are scenarios with lots of assumptions, but this is

one of the things that gives you some confidence that electric drive over the time period can be cost competitive.

So about the 2035-2040 time period you can see there that battery electric vehicles, fuel cell electric vehicles in high volume, are less expensive than conventional IC engines. Because the IC engine is getting more efficient, you have to clean it up, but it is costing more, whereas the trend is going the other way with batteries and fuel cells. The other part, if you look at the green line, the plug-in hybrids will always be more expensive than those two because you have two power plants. Important in terms of looking at the sustainability.

So I think the thing here is also, given the expected progress, you can see there's strong public policies. Your benefits of the transition to electric drive appear to be giving you about ten percent the benefits compared to what the investments would be. And that's some stuff that we'd report about a year ago. And you can see, looking at the impact of the net present value of $190 to $290 billion for California and the Section 177 states, based on all the potential

benefits you get there, which are documented in the David Green study.

Now, the good news is that California is very well-equipped to handle this and set up for this transition. And it's more than a transition, because essentially this is a revolution going from the combustion to the electric drive.

And, of course, one of the major drivers here, the Governor's ZEV Action Plan. And we've got the Governor's Office well represented here today on the dais. And that's a very important driver for coordinated action in this area. And we can see, as we've seen happening recently, the great example of Tesla close to home here is leading the way at the higher end, but also leading the way in terms of battery development.

And then you've got a public-private partnership here with the plug-in electric vehicle collaborative with a multi-stakeholder effort. Again, providing the type of leadership and coordination that has been talked about today in terms of oil by rail. Everybody working together with a common end product.

Similarly for the fuel cell partnership we get all the stakeholders. I will say it started

off with all the stakeholders, then the oil companies walked away, so this is most of those involved there.

So I think the other key part of this is that without de-carbonizing the whole system then you know there's no point in going to electric drive. So you require renewable electricity for ZEVs and the hydrogen for fuel cell vehicles. California has the 30 percent requirement going up to probably 50 percent.

And the timing is right to look at these, because the future trend is to distributed generation, self-generation and battery storage. Some of that is driven by the need to get renewable energy, but it's also a need to get together for things like terrorism. You don't want everything concentrated in individual substations. Which again nothing was discussed today, at least when I was in the room, about the potential for terrorism attack on all of these oil cars coming through California. Something else that has to be put on the agenda.

I think the potential to get off the grid completely for ZEVs is very feasible and should be encouraged because of the target with renewable

energy. And then the power to gas approach for restoring renewable energy through hydrogen allows, in fact, the hydrogen to be produced or to decarbonizes the natural gas supply.

So in summary, I think that, you know, public health, the air quality, climate concerns demand the ultimate elimination of carbon in most combustion. The transition will take time, and natural gas can and will play a role during this time. It's a significant de-carbonization there.

The ultimate goal of electric drive with renewables is necessary and I think it's feasible. It takes advantage of reducing costs and increasing performance of both ZEVs and fuel cells, trend to DG and self-generation utilizing competitively available renewables. So while the transition will require time and investment, it is viable, necessary and benefits are about ten times the investment. And I think again, on parts of this, as I've indicated, California is well ahead of everybody else. And you can expect that leadership to continue. Thank you.

COMMISSIONER SCOTT: Thank you so very much, Dr. Lloyd. We really appreciate your wisdom.

And thank you to both Ryan and Dr. Lloyd for their thoughtful speeches. I think it's incredibly helpful to put today's conversation into sort of the broader context and look at it through the window that they presented.

That wraps up our formal presentations for today. I just want to say a hearty thank you to all of our speakers. I really appreciate their indulgence with our yellow and red cards throughout today. It was an ambitious day, we have lots of great information, lots of speakers who know a lot of things and since they indulged us we were able to get through all of that information. The details of it, of course, are on the webpage, so you can look on our IEPR webpage to see the presentations and get more detail.

We are going to turn to the public comment portion of the day and I have some blue cards here in my hand. If you also have been wanting to speak today, please be sure that you fill out a blue card with our public advisor. She will run it down here to me and that's how we know to call on you.

Our first person is Vice Mayor Linda Maio from the City of Berkeley.

MS. MAIO: Thank you, I (inaudible) Mr. Umenhofer, because I actually wanted to ask him to stay for my comments.

I wanted to thank you so much for this presentation. I came out of it -- I've been here all day and what I know is that there's a lot I don't know and a lot that we need to know. I was very heartened by the last speakers. Berkeley has a climate action plan of its own and we're working very heartily in that direction, but I'm going to confine my remarks now to public safety and say that I don't have to redo what Supervisor Ray outlined. We're very concerned on that level with what we don't know and what's planned to come through our cities. I'm working with other cities along the route. And I will say that we need to know all of the hazards.

And Mr. Umenhofer, it's not okay for you to be shipping this volatile hazardous crude in DOT-111 cars. It simply should not happen. You're going through cities where we have daycare centers, shopping centers. The Amtrak line actually goes right by the Bayer Pharmaceutical Company, it goes right through Jack London Square. And these cars are not up to the volatile

hazardous crude that the fuel companies are shipping. And so you can leave now as far as I'm concerned, so I wanted to just let you know that it's simply not okay.

Our job as local elected officials is to get the word out, because most cities along the routes have no idea what they're exposed to. Not at all. And so I'm working with Emeryville, Freemont, Sacramento, Davis. We will want a presence, have a presence at the California League of Cities meeting in September to basically educate and organize our cities regarding this planned increase uptick and the accident rate that's guaranteed be concomitant with that. We have been really pleased to work with the CPUC and all the other agencies. Hazardous response is good, but it's not enough. It happens after the fact and we know we have to get there a whole lot sooner than that.

So I think my main news is that we'll be looking at the California League of Cities meeting to actually get a lot more interest and energy regarding responses from our cities that will affected. Thank you.

MR. RECHTSCHAFFEN: Can I ask you a

question, Vice Mayor? Are you working with other cities on the legislative efforts to raise additional fees for emergency responders that are pending now in the next couple of months?

MS. MAIO: Actually until today I heard what monies had been put aside in the budget etcetera. We can work more on emergency response certainly, and I think it's critical at the local level, because we have to be prepared.

MR. RECHTSCHAFFEN: I just mentioned it, because there's an additional proposal that -- there's an additional set of proposals that Assemblywoman Skinner mentioned, and Chief Campbell mentioned and others, that would help supplement some of the gaps that the Office of Emergency Services would --

MS. MAIO: Well, we work very closely with Nancy Skinner, so we'll be working on that as well. Thank you.

COMMISSIONER SCOTT: Thank you. Our next person is Kriss Worthington from the Berkeley City Council.

UNIDENTIFIED SPEAKER: He's not here.

COMMISSIONER SCOTT: Kriss is not here? Okay.

We will then go to David F. Gassman (phonetic) from the Green Action for Health and Environmental Justice. Did everyone leave? Okay. I will keep working my way through just in case maybe they're out in the hallway and come back.

Our next commenter is Dr. Henry Clark from West County Toxics Coalition.

DR. CLARK: Shall I come to the mic?

COMMISSIONER SCOTT: Yes, please come to the mic. And also, I should mention if you would, if you have a business card or could please spell your name for our court reporter, so that it's correct in the transcript that would be very helpful.

DR. CLARK: Dr. Henry Clark, Executive Director of the West County Toxics Coalition based in Richmond, also a member of Contra Costa County Hazardous Materials Commission and a council member of the North Richmond Municipal Advisory Council.

Per the safety information that was presented today, but this particular issue about crude by rail is a issue that has hit my hometown of Richmond and West County Coalition. And residents are addressed this issue now as it

relates to the Kinder Morgan facility there in Richmond.

First of all, these issues of who's at risk. You look at who's at risk, you know, a lot of people may not be familiar with the geography or the demographics, you just say that communities in Richmond or San Luis Obispo or whatever. But the bottom line is that in my community, and most what we call involvement with justice communities or communities that are disproportionately impacted by risks from refineries and chemical companies and railroads, those are communities of color primarily. Like in Richmond area where there's a 70 to 75 percent of the population is Afro-Americans and 20 to 25 percent of the population live below the property line.

These type of demographic statistics have been documented on a national level as well as international level. The first study called "Toxic Waste and Race in the United States" by the United Church of Christ, that documented where landfills are located and in this same pattern in terms of the executive order on environmental justice that former President Clinton signed. Executive Order 12898, which basically states that

no people or community should be disproportionately impacted by environmental policy. Well, that's great after the fact, but the fact is that many communities like mine throughout the country is already disproportionately impacted.

And now this recent Executive Order, I believe 13650 by President Obama on chemical safety and rail transport, here again we're talking about the same people, the same communities that are already disproportionately impacted.

And I don't believe by no stretch of the imagination, and nor does the environmental justice movement that we are part of and pretty much one of the founding members of, believe that is no accident that our communities happen to be disproportionately impacted in the first place, period. And continues to do so, yet we talk about doing something about it, you know, and looking at cumulative impacts. And here now we have a deal with more fuel to the fire with the risk by this highly explosive crude by rail.

And then you say that you want to help us, you know? And we sit on all these committees and

so forth and then you say, “No more disproportionate impact, yet you come out with some Cap-and-Trade nonsense that basically allows polluting trade in while it would allow emissions in greenhouse gases say, in Richmond, from the Chevron Refinery to increase and more fuel to the fire and disproportionately impact us that you said you’re trying to stop. Yet it allowed that to happen on the Cap-and-Trade.

I mean, you talk like Native Americans said a long time ago. “You end up talking out of both sides of your mouth, period.” What are you trying to do? Are you trying to stop this disproportionate impact or are is just some type of shell game?

Well, I’ll just conclude by this saying. You know, if the government won’t protect us, the people will. That’s why West County Toxics Coalition organized a demonstration out there about two week ago at Kinder Morgan (inaudible) and we will continue to do so. There should be a moratorium on these facilities and until the government finds out what is causing these explosions and putting people at risk and it needs to be stopped. And if the government don’t, the

people will, and that's what the West County Toxics Coalition is all about.

The people will stop those trains from rolling and putting our community at risk until the government gets off its behind and do some real protection of our community. Thank you.

COMMISSIONER SCOTT: Thank you, Dr. Clark.

We'll go on now to Kathy Kerridge for -- I can't read the -- Benicia, I'm sorry, Benicians for a Safe and Healthy Community. And I'd like to ask, we do have a three-minute comment period for folks to speak to make sure we get to everyone. So if you would all please respect that we would appreciate it. Please, go ahead.

MS. KERRIDGE: Hi. I'm with Benicians for a Safe and Healthy Community. As you may know, we're opposed to Valero building their crude by rail project in Benicia.

Today was really informative. I'm glad you held it. What I see from all the presentations today is that there's a great deal of risk, both in terms of population and natural resources from crude by rail, yet we have little to gain. The oil companies have a tremendous to gain when you're talking about $25 barrel

discount. And Valero's talking about bringing in 70,000 barrels a day that's a huge amount of money. That's about $1.7 million a day that the refineries are going to be gaining, but it's putting my community at risk and every community along the rails at risk.

There are regulations that are being promulgated or being proposed. The Department of Transportation has known since 1991 that this I-111 rail cars are dangerous and insufficient for the things they're carrying. Are we going to be having these facilities in our community while we're spending the next 20 years trying to get these rail cars to be safe? That's unacceptable. I don't think we should build any of these facilities until we have guaranteed safety, until we know what's coming down the pipe, and until we can regulate it.

The Hazmat teams are not there to deal with it. And frankly, I find it a little depressing that that's what we're talking about. How we're going to clean up after the explosions happen, after the derailments happen. Well, if you're talking about Tar Sands it's too late. We can't clean that stuff up. If you're talking

about Bakken crude exploding, by the time it explodes you could've had a catastrophe.

If a train is derailed going around the curve in Davis that's right next to their downtown. It's going right through Berkeley, right through Emeryville. It's going to be going right through within half a mile of elementary schools in my own community. Right through our industrial park.

We don't need this. I don't see anybody saying we don't have enough oil right now, right here in California. Our consumption is declining. This crude by rail is not good for anyone in California except for the refineries. I think you need to put a moratorium and stop these local projects from happening until we can do it safely.

The final speakers were very hopeful, because I think they really show that we are in the process of transitioning away from fossil fuels. And when we're faced with oil that's as dangerous and as risky to our community as this oil is, it just means we need to be emphasizing not how are we going to clean up when things explode, but how we're going to move into the next transition of energy production.

Last year I had a Christmas party, no one came in an electric car. This year, three people did. Thank you.

COMMISSIONER SCOTT: Thank you, very much. If you would make sure that the --

MS. KERRIDGE: One final thing, we are in the process of reviewing a draft environmental impact report in Benicia. If you are concerned. If you live anywhere a railroad track that's going to be -- a train that's going to be going to Benicia, please get your comments in by August 1st. Thank you.

COMMISSIONER SCOTT: Thank you. Please make sure too, that the court reporter gets a business card or knows how to spell your name, so that they get it right for the transcript.

I have heard that Kriss Worthington is here, from the Berkeley City Council, so I'd like to invite Kriss Worthington to please come and give some remarks, give a public comment.

MR. WORTHINGTON: Well, first thank you very much for being the patient and persistent panelists who stayed all day and listened for hours and hours cooped up in this room without any natural sunlight. I can assure you that once you

walk out the door you'll be in the heart and soul of Berkeley, the arts district, the gourmet ghetto. And there's many great restaurants within a block or two if you want to stick around Berkeley and enjoy the culture of Berkeley.

In the meantime I came to join Councilmember Maio, who spoke earlier, in thanking you for your work so far. And encouraging you to have the vision and the commitment to see this is a giant concern in our communities and needs massive attention at your levels of jurisdiction. You know, yes cities can try to do what we can do to take steps, but generally we have almost no jurisdiction over the important policy areas.

We have examples happening around the country. Governor Cuomo has adopted many directions to many state agencies strengthening his state's oversight of shipments of petroleum products that really give us a direction of some possible ways that we can move forward in California. The NTSB has pointed out a whole bunch of things that need to be addressed by federal agencies, so I hope that we can count on our governor, who has a long track record of concern about consumer issues and environmental

issues, to live up to his legacy from his past careers and take serious action on this.

And I know that we can count on your Commission to work very closely with all of our communities and with the legislature to come up with real-world, practical steps that we can take to address these concerns. We can't wait until there's a giant media barrage of, you know, drastic horrible things happening here in our vicinity. We've already started to see those happen in Canada and other parts of the United States, so we need to craft careful legislation and policy regulations at your level.

Thank you very much for committing your day to being here and starting the process to move in that direction. Thank you.

COMMISSIONER SCOTT: Thank you, Councilmember Worthington.

Our next commenter is Paul W. Rea.

MR. REA: I'll keep it brief. I want to particularly riff on the things that have been said in the last hour or so by Caren Ray, Diane Bailey, Greg Karras, Henry Clark and others.

Basically, what the question seems to be, why would we want to just lay down in front of

this oil juggernaut and not resist? Yes, we can say as cities or citizens we don't have the power, but really we do. If we lit a fire under Jerry Brown we'd get some action and some pushback against the federal agencies that hold the real power here.

I'm wondering too, if we just admitted that these I-111 tank cars are hopelessly outmoded and just refused to let this thing go forward until we have a whole new fleet of safe tank cars. We know what the new ones look like. The railroads are still making the I-111s as we speak. They're not serious about upgrading their rolling stock in order to have safer railroads.

And more broadly, just because new technologies or new discoveries of fossil fuels have been made, in other words of Tar Sands fracking and so forth, why should we let Big Oil just run over us and send a tidal wave of gas and oil into California? Or anywhere else for that matter. Are we just going to let new technological developments run the way we live and increase risk to all of ourselves? I don't think so.

More broadly, I guess I'd like to just ask

a question. How many of you consider yourself climate deniers? Ah-hah, I didn't think there'd be many in the room. Okay. So I think we can assume that intellectually, at least, you believe that climate change is for real. That we humans are causing a climate crisis and yet, and yet most of us and I include myself sitting over there taking notes all day, sat there and didn't raise any questions. Sat there as though we didn't believe that unleashing all of this fossil fuel is not going to exacerbate the already dire situation of our climate.

What are we thinking just sitting passively like this as though we were all climate deniers? I really urge you to start getting active on this, supporting the people and we -- some of them are right in this room who are resisting this. We've really got to do this. If we lose it, if all of this oil and coal and gas is not left in the ground, if all of this stuff that can be mined and shipped, is mined and shipped, we're cooked folks. We're cooked. Thank you.

COMMISSIONER SCOTT: Thank you. Our --

UNIDENTIFIED SPEAKER: (Inaudible)

COMMISSIONER SCOTT: He's right there,

thank you.

Our next commenter is Nafiah Muhammad.

MS. MUHAMMAD: Good afternoon. My name is Nafiah Muhammad. I will be graduating next year from Mills College with a degree in Political, Legal and Economic Analyst and a minor in Environmental Studies.

However, I believe my qualification for standing before you all today is that I am 19-year-old resident of California who hopes to continue to reside in an environmentally-sound California in 50, 60, 70 years. And maybe this comes from my educational background or maybe just my own personal opinions, but my concern with this whole thing is, is this truly going to be worth it? And I don't mean worth it to the oil companies, because I was raised in Berkeley and have some slightly opinions about oil companies.

But is this going to be worth it to all of us and to, presumably, your children and your grandchildren? Is this actually going to be worth it? And by worth it I don't just mean economically, though economically you really should think about whether or not this is worth it. Think about the amount of money that is going

to go into setting up these railroads, into setting up these railroad cars, into training these Hazmat teams into cleaning up afterwards. And cleaning up afterwards and years afterwards still dealing with the effects of this. Is it going to be economically to anyone besides the oil companies?

And is it going to be environmentally worth it? Last semester I did an analysis of a draft I that came out in February for the Peninsula Corridor Electrification Project in which Caltrain is actually trying to convert its trains to run from San Jose to San Francisco on electricity. The number of electric and hybrid vehicles is going up. Our oil consumption is going down, so how is that bringing in more and more oil from out of country and out of state, going to actually benefit us environmentally?

Think about the amount -- not just the amount of I2, and they've discussed this to a much higher level than I can with, you know, not even a bachelor's, but of how this is going to affect the environment? But also how transporting it is going to affect the environment? Think about the number of trains coming in and out producing I2.

Think about the amount that, you know, that's going to burned, it's going to be going up.

And there is a report of no return. I hope you all realize that with climate change, I believe it's about two degrees and then we're kind of screwed from there. Forgive my teenage wording. But is it going environmentally worth it to bring all of that in, to bring more and more oil in, when we potentially won't even be using it? We can't export it to other countries. I desperately hope we don't change the policies, so that we can export it to other countries. So then what is the point of destroying our environment to bring in a resource that we're trying our hardest to stop using? And that we don't actually need. Thank you.

COMMISSIONER SCOTT: Thank you. Thank you for your comments. If you would make sure the court reporter knows how to spell your name that would be terrific.

I have one blue card left, I don't know if the public advisor has any others, and it's from David Gassman. Did he return?

Okay. I do believe that that is all of the public comment that we have. The docket will

be open, so you can submit comments to us in writing and we would look very much forward to hearing from all of you there.

I just want to make a couple of closing remarks and then I'll turn to my fellow dais mates to see if they have anything for you as well.

I just want to say that I thought this was just an excellent and informative day. I think we really laid a good foundational background on what the trends are and why they're changing and how they're changing. We talked about, and we brought together many of the federal, state and local agencies that have a role or responsibility. We learned what those roles and responsibilities are. We learned a lot about the data that we do have, the data that we don't have, the data that we do need to be able to do our jobs well. We identified some of the gaps and we talked about some solutions for how to fill those gaps.

I am very heartened by the proactive approach that the Governor's Office and the state is taking to put all of the state agencies together to collaborate, to share information, to work together. And the CEC is thrilled to be a part of that.

Today we heard concerns and issues. We heard some solutions to those concerns and issues and we learned that there is still a lot that needs to be done. Like the role of retrofitting the old rail tank cars or the need for attention to some of the local regions for training and preparedness for emergency responses.

I thought it was great to hear from Assemblymember Skinner with an update on the budget, and the nimbleness and the flexibility of the budget and the Legislature to provide the identified and needed resources that'll help put all Californians in a better place.

It was just an incredible amount of data and information that as provided here today, so I want to remind everyone that you can find it on our webpage. And you can lend your voice to us by submitting written comments. Just submit it right into the docket and Heather will -- actually the next steps are right here for you to see how to get that data and information to us.

I wanted to say a many, many thanks to our presenters, a lot of whom traveled a long way to provide this information for us. And again, reiterate my appreciation for their indulgence in

the red and yellow cards that allows us to get through actually quite bit of data and information during the day.

And then last, I would just note that it takes a village to put this together. I'm not sure if I can thank everybody who really helped to play a role, but I just want to say thank you to our I team, Heather and Lynette; to Gordon and I for pulling this together, and for Gordon's terrific presentation; to Jim Bartridge; to I; to Alana; to Lauren and to our media team. It just was a lot of folks who worked really hard to make sure that we had great presentations and a great day.

And I want to thank also our partners at the Governor's Office for helping with this. It's great to get to work with you all on these. And that is all. Let me turn it to you all and see if you have any closing remarks for the day.

COMMISSIONER DOUGLAS: I'll just join Commissioner Scott in thanking everyone she thanked, because it really did take a lot to pull this together. I'll add again, Berkeley City College for hosting us, making it possible for us to hold this event in the Bay Area.

And I want to say that, you know, I did note that a number of local elected officials and members of the public made it through the entire day. And so it was good to see that, because one of the purposes of this workshop was to, in fact, provide information to the public about all these agencies and what they do and trends. And, you know, we pulled together a very information-packed agenda. I learned a lot and I think that, no doubt, many people learned a lot, because we covered so much material in a day.

So anyway I appreciate everyone's participation today and look forward to any additional comments we may get on this workshop.

MR. RECHTSCHAFFEN: Thank you very much to everyone for participating. A special thanks to the Energy Commission for preparing such a comprehensive and detailed information-pack filled program on a tough set of issues that are emerging and pulling all of us together.

I want to just to commend to everybody the I, that actually is really the policy guide for state energy policy in the state. It's chock full of great information and this findings from this will be incorporated into that report. We learned

a lot. We realized we have a lot to learn and it's still very much a work in progress. And we look forward to continuing to work with everybody in the days ahead. Thanks again.

MR. ALEX: Yeah, I'll echo that quickly and say thank you to the Energy Commission and staff for putting this altogether. These are a very complicated set of issues as we try to deal with climate change and, as you heard, some of the challenges around weaning ourselves off of oil.

And I, you know, continue to be concerned that California has a huge usage of oil that we have to come to grips with and cannot our snap our fingers and simply be done with. So how we work our way out of that usage is essential. And it's also part of both our strategy and our obligation to deal with climate change. So these issues are going to come up in a series of different ways as we try to confront it.

So thank you very much for spending the day with us and trying to help us understand better, the set of issues that we're facing.

COMMISSIONER SCOTT: Great, thank you. We're adjourned for the day.

(ADJOURNED)

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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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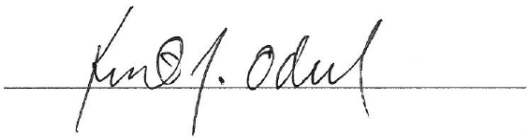

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Terri Harper

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