<table>
<thead>
<tr>
<th><strong>DOCKETED</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Docket Number:</strong></td>
<td>15-IEPR-13</td>
</tr>
<tr>
<td><strong>Project Title:</strong></td>
<td>Changing Trends in Sources of Crude Oil</td>
</tr>
<tr>
<td><strong>TN #:</strong></td>
<td>205690</td>
</tr>
<tr>
<td><strong>Document Title:</strong></td>
<td>Transcript of the July 20, 2015 IEPR Commissioner Workshop on Trends in Crude Oil Market and Transportation</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Filer:</strong></td>
<td>Cody Goldthrite</td>
</tr>
<tr>
<td><strong>Organization:</strong></td>
<td>California Energy Commission</td>
</tr>
<tr>
<td><strong>Submitter Role:</strong></td>
<td>Commission Staff</td>
</tr>
<tr>
<td><strong>Submission Date:</strong></td>
<td>8/12/2015 8:51:21 AM</td>
</tr>
<tr>
<td><strong>Docketed Date:</strong></td>
<td>8/12/2015</td>
</tr>
</tbody>
</table>
CALIFORNIA ENERGY COMMISSION

STAFF WORKSHOP

In the Matter of: Docket No. 15-IEPR-13
IEPR Staff Workshop -
Trends in Crude Oil Market and Transportation

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET, FIRST FLOOR
ART ROSENFIELD HEARING ROOM
(HEARING ROOM A)
SACRAMENTO, CALIFORNIA

MONDAY, July 20, 2015
10:00 A.M.

 Reported By:
 Kent Odell
APPEARANCES

Commissioners Present
Janea Scott, Commissioner CEC
Karen Douglas, Commissioner CEC

Staff Present
Heather Raitt, IEPR Program Manager
Gordon Schremp, EAD Administration

Panel Presenters (* Via telephone and/or WebEx)
Gordon Schremp, California Energy Commission
Ryan Todd, California Office of Spill Prevention and Response
Paul King, California Public Utilities Commission
Jim Duffy, California Air Resources Board
Paul Penn, California Environmental Protection Agency
Bob Gorham, California Office of State Fire Marshal
INDEX

Introduction
Heather Raitt, IEPR Program Manager 5

Opening Comments
Commissioner Janea Scott, CEC 6
Commissioner Karen Douglas, CEC 7

Setting the Stage: Background, Energy Overview, Near-Term Trends
Gordon Schremp, Senior Fuels Specialist, CEC 8

Safety Requirements & Oversight of Crude by Rail Movement Discussion
Ryan Todd, Office of Spill Prevention and Response 35

Discuss Statewide Oil Spill Program.
Paul King, Office of Rail Safety, California Public Utilities Commission 37

Discuss expanded California rail inspection program, proposed changes to national rail tank car safety standards & train operations trains (speed limits).

Lunch Break 87

Panel Member Opening Remarks & Questions 88
Moderator − Gordon Schremp, CEC
Jim Duffy, California Air Resources Board
Paul Penn, California EPA
## Index (Cont.)

<table>
<thead>
<tr>
<th>Panel Member Opening Remarks &amp; Questions (Cont.)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bob Gorham, California Office of State Fire Marshal</td>
<td></td>
</tr>
<tr>
<td>Paul King, California Public Utilities Commission</td>
<td></td>
</tr>
<tr>
<td>Public Comments</td>
<td>127</td>
</tr>
<tr>
<td>Closing Comments</td>
<td></td>
</tr>
<tr>
<td>Commissioner Janea Scott, CEC</td>
<td></td>
</tr>
<tr>
<td>Commissioner Karen Douglas, CEC</td>
<td></td>
</tr>
<tr>
<td>Adjourn</td>
<td>139</td>
</tr>
<tr>
<td>Court Reporter's Certification</td>
<td>140</td>
</tr>
<tr>
<td>Transcriber's Certification</td>
<td>141</td>
</tr>
</tbody>
</table>
JULY 20, 2015 10:05 A.M.

MS. RAITT: All right, good morning. Welcome to today's IEPR Workshop, IEPR Commissioner Workshop on Trends in Crude Oil Market and Transportation.

I'm Heather Raitt. I'm the Program Manager for the IEPR.

I'll go over a few housekeeping items. Restrooms are in the Atrium, a snack room is on the second floor. If there's an emergency and we need to evacuate the building, please follow staff to Roosevelt Park, which is across the street diagonal to the building.

Today's workshop is being broadcast through our WebEx conferencing systems, so the parties should be aware you are being recorded. We'll post an audio recording in a few days and a written transcript in about a month.

Today we'll break for lunch at about noon for an hour.

And at the end of the day there will be an opportunity for public comments. We'll limit them to three minutes. First we'll hear comments from those in the room and then from WebEx participants.

For the WebEx participants you can use a chat function to tell our WebEx Coordinator that you'd like to make a comment during the public comment period. And we'll
either relay your comment or open the line at the appropriate time. Then we'll hear from the phone-in only participants.

If you haven't already, please sign in at the front entrance to the hearing room where there are materials from the workshop.

Written comments are due on August 3rd and the process for submitting comments is in the notice.

And with that I'll turn it over to the Commissioners. Thank you.

COMMISSIONER SCOTT: Great. Thank you very much, Heather.

And good morning to everyone. Thank you all for being here today. I am Commissioner Janea Scott and I serve as the Public Member here at the Energy Commission. And I'm a Lead Commissioner on Transportation.

I'm also joined today by Commissioner Karen Douglas. And we're holding this workshop as part of the Energy Commission's 2015 Integrated Energy Policy Report.

Last year I oversaw the 2014 Integrated Energy Policy Report Update. And as part of that effort we had an initial workshop that focused on the changing trends in California sources of crude oil, with an emphasis on the growth of crude oil being delivered by rail.

I thought it was an informative forum that
brought together Federal, State and local agencies, rail operators, the oil industry and environmental organizations.

The workshop presentations and discussions made a nice foundational background on the trends being seen in California, as well as why and how those trends are changing. There was a great exchange of information. And overall, I thought it ended up being a very informative and valuable day.

Today in the presentations and conversations we hope to provide an update on the latest trends in petroleum and crude oil distribution logistics. We will also take a look at the progress that has been made on safety requirements and oversight of crude by rail transport, as we all recognize the importance of California proactively addressing safety concerns.

Overall, today is a good opportunity for us to get this update on some of the information that we heard last summer. And I'm very much looking forward to today's workshop.

And with that I'll go ahead and turn it over to Commissioner Douglas for any opening remarks.

COMMISSIONER DOUGLAS: Well, great. Thank you. And I'd just like to join Commissioner Scott in welcoming everyone to this workshop. As she said, we had learned a
lot last summer, and we're looking forward to hearing a
number of updates. And seeing, you know, both some of the
progress and some of the work that remains to be done in
this area.

So those are my remarks. And I guess from here
we go on to Gordon's presentation.

MR. SCHREMP: Good morning Commissioners,
attendees, and people listening in on the Webinar. My name
is Gordon Schremp. I'm a Senior Fuel Specialist at the
Energy Commission. I work in the Energy Assessments
Division, formerly the Transportation Energy Office.

So part of what we do in our office is collect an
awful lot of information from the industry, both petroleum
and renewal based. We're looking at volumes of fuel coming
to the system, how much is produced, and imported and
exported.

And we're also very interested in changing trends
that could affect the transportation and energy
infrastructure. So that's why crude and crude by rail has
been a bit more of a focus at the Energy Commission, as
Commissioner Scott mentioned beginning of last year.

And so, today's workshop is intended to look at
what has changed; some meaningful changes in the industry,
certainly with crude oil production and prices. And that's
caused an impact on crude by rail projects, especially out
here on the West Coast as well as logistics of crude by rail.

And there have been many changes in the arena of safety for the movement of hazardous materials, the containment of hazardous materials in rail tank cars, train operations, etcetera. So our two speakers today from the California Public Utilities Commission and the Office of Spill Prevention Response will be addressing those meaningful changes in greater detail.

So in my presentation I'll be covering these topics, provide an overview of California, switch gears to the U.S. and finally a global perspective, primarily on supply of crude oil and prices.

And then getting into sort of the meat of the topic, looking at crude by rail and where projects are going now. And I guess the word best describing these is "delay" I think, across the board, whether that's in California or in Washington State.

And finally to do a bit of a review, I think it's important to mention all of the sister agencies in California, and all of their efforts in this space. We have a couple of slides from our previous IEPR document highlighting their areas of responsibility.

So California is an isolated market along with Washington State. We are isolated by time and distance for
resupply hence we're seeing quite a price spike in California lately. Not related to crude oil, certainly, but our market is different than that of other areas of the United States, whether a large exporting region like the U.S. Gulf Coast or a large import area like the Northeast and East Coast of the United States.

So our refineries are concentrated in Southern California and Northern California primarily, some refining capacity in the Bakersfield region and in Santa Maria.

It's about 1.6 to 1.7 million days of processing of crude oil, a little bit higher capacity than that. But we have essentially 12 refineries doing the lion's share of the production of California compliant fuel, whether that's gasoline or diesel fuel.

So the refineries, certainly they operate 24-7 basically, unless there is some significant unplanned outage. They do conduct planned maintenance on some process units, not normally taking down the whole refinery, and continue operating and producing from those other units.

For crude oil receipts, for a variety of locations, certainly the refineries have access to water, so foreign imports by marine vessel is certainly an option and provides the greatest flexibility to source different types of crude oil and prices. So we get most of our crude
oil, or about 52 percent, from foreign sources. Alaska sources are declining as Alaska production declines, which makes sense. And so companies will just instead import some additional foreign oil.

And we do have our own crude oil production. It's about 30-35 percent, it ranges, and that's primarily distributed by pipelines. And more recently rail, tanker truck -- mainly rail -- but a very small percentage of total of about 1 percent of our total supply for crude oil.

So California crude oil production had been declining for many years from its peak in 1985 here. And you see that it's dipped down to a trough in the last two periods of information, 2013 and 2014. A little bit of an upswing and so that upswing is about 5 percent. So that's quite a change from where it has been, but certainly not a resurgence in crude oil production like one has seen in the United States, to which I'll get into.

So producers are still trying -- certainly with crude oil in the $100 to $110 range as it was into summer last year -- lots of drilling activity, which you see is the -- well, not drilling activity, but actually producing wells kept going up and up. And that, of course, can only be accomplished through additional drilling permits. So companies have been drilling, highly motivated because of the high price.
Recently, producing wells have been some shut-in wells. This can happen in the early part of the year and this is a seasonal impact. But I think some of that shut-in well capacity recently has to do with a decline in price.

So as you can see, the green line is just how much crude oil comes from each producing well each day. And it's just a little over 10 barrels. So you contrast that to some other areas that have produced 1,000 barrels per day -- and even in Iran, whose production output is estimated in some places it would be over 2 to 3,000 barrels per day per well -- so California is 10. So you have to have a lot of producing wells, nearly 50,000, to keep that production up in California.

But it hasn't been changing that much. Certainly producers are looking to drill in the areas that will have a little bit higher output. But most of the crude oil produced in California is through enhanced oil recovery practices: mainly thermally-enhanced oil production recovery techniques, steam injection primarily. You do have a little bit of carbon dioxide injection, a lot of water flooding to push the oil to the surface.

So these are indicative of a very old crude oil formation, and business, that we have here in California, over a hundred years. Whereas shale oil production in some
areas is a relatively recent phenomena.

So the purpose of this chart is to show that there are lots of pipeline projects because of the tremendous increase in U.S. production. So producers want to get access to where the refining capacity is. As I mentioned the U.S. Gulf Coast, largest refining capacity in the United States, they want to get the oil down there to get the highest prices. Unfortunately, it's kind of trapped up in northern parts of the Dakotas as well as in Alberta.

So pipeline projects are in other areas, but you don't see any pipeline projects going to California. That's because it's hard to compete with water-born imports. And so the industry has turned to crude by rail as a means of trying to import some of this discounted crude oil in these trapped regions of the United States for domestic production.

So as I mentioned, foreign imports have been growing as Alaska declines, and as California had been declining, up until the last couple of years. We expect this trend to change a little bit depending on how much crude by rail comes in. We could see that green area, that lower part, which includes not only California production. It also includes crude oil brought in by rail and crude oil brought in from domestic sources other than Alaska, like
North Dakota, by marine vessel. And that is crude oil transported by rail to the West Coast, put on barge, put on a ship, brought in to California.

And so last year, in 2014, a little bit more crude oil came in by barge from North Dakota than it did by rail. So this is a trend that could continue to grow, especially if some projects in Washington State are approved and ultimately constructed. And I'll cover those.

So pipeline access is very important for refiners that depend on California crude. And so when there's a problem with pipelines, which we've seen recently in the Refugio Oil Spill, we've had some impact on refining capability because of the shutdown in part of the playing system as a consequence of the oil spill.

So the State Fire Marshall's Office, one of their roles is oversight of the intrastate pipelines. And they do not cover the interior state pipelines, of which there are some petroleum products that do that. So hopefully we'll have an update on how Refugio is doing with the cleanup and what is happening with the pipeline.

So rail imports from outside of the state are expected to displace water foreign imports, foreign imports. And that's what we expect to see decline as rail capacity increases.

And also important to note that rail does provide
a very important flexibility option in the event of, say, losing some pipeline temporarily. A company can import more oil by rail to work around interdiction of crude oil from other sources.

And it's also something that can be looked at in the event of a catastrophic event as a location, maybe, to bring in gasoline and diesel fuel into California and unload it after we've had a catastrophic earthquake, as one example.

So foreign sources, certainly from the Middle East not a surprise, because the dominant exporter in the world. Although you do see a lot of local area crude. And I mean from South America, Central America, Columbia, Ecuador. That makes sense because we're a very large user of crude oil here, so we're a good market, especially those countries on the western side of the Panama Canal.

And Mexico crude has been declining in what goes into the California refineries as Mexico crude oil has continued to decline in output.

So you have to have a marine oil terminal to import crude over the water and these are very important facilities. Most refineries have access. Either they use their own marine oil terminal that they own and operate. Or, as in the case of the City of Los Angeles and Long Beach, they have leased these facilities from those two
municipalities under long terms and that's how they operate in bringing in crude oil by marine vessel.

So we'll switch gears and look at the United States and see what's been going on there. Different, as I mentioned earlier, compared to California.

So these three lines corresponding to the colors on the chart: Yellow being the Bakken or North Dakota Crude. And we're seeing that the purple is the Eagle Ford you've heard about in Texas. And the dark green is Permian Basin, also in Texas and a little bit in New Mexico.

Those three fields, if you will, are all characterized as super-giant fields, producing over a million barrels a day. And to put that in historical context, you see the fields I have listed on the slide are internationally, over the years, not very many.

So a remarkable renaissance of crude oil production in the United States through the use of hydraulic fracturing deployed in a widespread use in shale formations, both in oil and natural gas, as well as improved drilling technique with regard to extended reach. Being able to drill laterally a much greater distance, much greater accuracy in drilling, and much greater understanding of the formations with seismic 3D imaging.

So the companies have been able to be more efficient and extract these resources from relatively new
formations of shale oil, so all total almost 5 million barrels a day from these three formations alone.

And so you put all of that together in this dark blue line and you see a tremendous rebound in U.S. crude oil production. Not quite breaking the all-time record, which is a little over 10 million barrels a day, but getting close. And it may not quite get there, because of the drop in prices and a decline in drill rigs being deployed, which I'll cover in just a moment. But certainly, the highest point on this chart.

And you see where that's primarily coming from: Texas, the purple line; North Dakota, the green line. And that's recently peaked and started to decline a little bit, which is something probably OPEC was looking to see at some point with the collapse in oil prices.

So the final two lines on there, you see California is a blue line. It's relatively stable, then rising a little bit. And Alaska continues to decline.

So comparing to January 2010, the biggest jumps between that point, and April the most recent month data is available, 2.6 million barrels a day from Texas -- incremental oil production. And North Dakota, almost a million barrels a day.

And you see California, virtually unchanged from those two points in time.
And Alaska is continuing to decline.

So as production has had that meteoric rise it's been backing out imports, so that's helped with the trade balance. And you're looking at imports that are now at the level they were in 1995, so a rather significant reduction.

And to the extent that crude oil production continues to rise in California, which is now going to be in doubt, and the efficiency of using transportation fuel in engines, which over the long period of time both we and the Energy Information Administration are forecasting to decline, that will have the impact on imports. But there's no forecast that they will return to their pre-oil increase peak back in early 2000s.

So global activity, a lot of it has been focused on what OPEC will do. So OPEC keeps pumping out crude oil, Saudi Arabia over 10 million barrels a day. No change. They're not willing to cut their output to keep prices elevated, because that's their market share. So they're keeping a lot of crude oil on the market, discounting their prices. And in part, a large part, that has led to a lot of downward pressure on prices. So they're not relenting, there's been no change in position.

And even non-OPEC members, very important oil producers like Russia, are now actually producing over 10 million barrels a day currently. And it is actually a
record quantity for them post-Soviet Union collapse. So lots of oil production outside of the United States, keeping a lot of oil in the marketplace.

So demand growth is still very strong. And especially with a bit of decline in prices is going to spur a little bit more incremental demand globally. And you can see about 1.5 percent this year compared to last year. So demand growth, where is it occurring? Well, if you look at the green bars, Asia on the very far right. That's the biggest jump you see on here.

The former Soviet Union is a decline, because of the recession there, a lot of that having to do with the sanctions imposed.

In Europe, now, for the first time in quite a while you saw declines going on in Europe because of their economic difficulties -- quite a rebound. So that in conjunction with North America, which was also either flat or declining.

And Asia is looking at a 1.5 percent growth. So it is a bit of a rebound, so that's sort of where you have a increase of supply, increase in demand. If demand was actually dropping off you'd see a bit more of a collapsing in oil prices than you do today.

So comparing to 2008, and then this is an updated slide for 2014, where has the most oil come from? That
would be the big, giant red bar of the United States. So rather remarkable looking at the all of the other oil-producing companies, these are the top 21, and you see that's more oil than all of the other -- it's three times more than the remaining countries, their net increase of 1.5 million barrels a day.

So pretty stunning that that's occurred and likely not going to be sustained, it will start to drop off a little bit. But that in large part, so much supply, demand not rising nearly enough, and so you have what? Too much oil on the market.

So this somewhat busy chart is looking at supply in blue and demand in orange. So when that blue bar is higher than the orange bar, excess volume onto the market place. And you look at those excess numbers, when did they start? First quarter of 2014, second, and then you get into the third quarter all of very positive numbers. Lots of excess oil had to go into storage. And you had to discount prices, so that's why the price collapses essentially start right after the second quarter of 2014.

And has that situation improved? No. Lots of supply on the market as I mentioned, Saudi Arabia and Russia, as well as what was coming out of the United States.

So through the first quarter almost a record
imbalance of crude oil supply, so this is keeping a
downward pressure on prices. And don't be surprised to see
a continued slide of crude oil prices going in to the end
of this year.

    And what is not factored into this is what is
going to happen with the Iran sanctions being partially
lifted or gradually lifted. Is the nuclear deal
consummated with Iran and if so, what's the timing?

    Everyone wants to know these questions, because
what is going to happen if that does occur is you are going
to see a new resurgence of Iranian crude oil exports in the
marketplace. And that will not put upward pressure on
price; it will put additional downward pressure. So then
OPEC's going to have make maybe some other decisions on
what to do.

    So these are just some numbers that you can look
at later. Where they peaked and then how far they dropped.
It was really significant before we happened to see a
rebound right sort of in February. That's the dotted line
and this is using a international benchmark, Brent North
Sea Crude Oil. And you see it rebounded, it came up a
little bit in May, and is now has started to do a little
bit of a gradual decline.

    So this is indicative of international crude oil
prices doing the same thing -- drifting down, will likely
drift down some more. But look at last year, 2014, when the decline started by mid-year and went down rather steeply. So yes, we're 47 percent lower as of last Friday, but it is possible that that difference will be narrowed moving deeper into this year, because of the rapid decline last year.

So this is just to show you that there are different types of crude oils, but they show a similar relationship to one another meaning they go up together, they go down together. And somehow, they are priced off of benchmarks.

And certainly the San Joaquin Valley is a more heavily discounted crude oil; it's of course sort of trapped here in California, really can't get out. That's because you really can't export crude oil from the United States. There are lots of restrictions, so it's very difficult. There have been lots of attempts to modify these regulations from the '70s to allow those producers to get into the international market and fetch a higher market clearing price.

So because of the inability to easily do that or even partially do that we've seen crude oil prices discounted heavily in Central United States and in Canada.

So that drop in oil prices led to a direct drop in drilling for crude oil. Drill rig deployment is
expensive; when oil is $110, no big deal, when it's 50, big deal. So deployment has dropped off a lot and where that drilling was occurring shifted to areas that were known to have high output.

Let's do some fill-in wells in our own producing acreage that we have great knowledge in, rather than more exploratory and less known territory. So that's what's going on right now. And you're seeing some of the biggest drops are in Permian Basin in Texas, the Williston, which is Bakken and Eagle Ford, also Texas.

So crude by rail, it's a rather recent phenomena, end of 2010 going into 2011 we started to see an increase. The Energy Information Administration is now collecting data and publishing information monthly on crude by rail. So this is a really good development for information to see where regionally crude by rail is being sent and so, very helpful now, to look at this in different parts of the United States. You can't look at specific states, but you can look at regions.

So if you look at the green bars are all of the crude oil movements and this includes crude oil imported from Canada and then transported on the rail lines. So that's important for the volume of crude moving on rail in the U.S. Territories. So that's why we include that in the data as does the EIA.
And also, when looking at what percent of total U.S. output we exclude those Canadian barrels. And so you get about 9 percent of all U.S. production is going and being transported by rail.

So that's quite a bit in the United States. And in California it's far less than 1 percent of our own production is going to rail. It's on the order of two-tenths of a percent, a very small amount.

So here are our statistics for 2014. And you're seeing that it's a little bit less than 2013. And it's like, "Well, why is that going down?" It has everything to do with what is the price of the crude oil at its point of origin, meaning how much is it discounted, and what's the cost of the rail tariff to bring it in?

So that had been going on in some areas. McClellan had -- SAV Patriot was bringing in some rail cars with crude oil and transferring it to tanker trucks. This is something called transloading. This happens a lot in other areas of the United States for ethanol where you don't have storage tanks, but the rail cars can transfer directly to the tanker truck. And so this was going on at SAV Patriot as well as the Kinder Morgan Rail Yard in Richmond.

So the Patriot's permit has been rescinded, so no crude operations there. And a little bit at Kinder Morgan,
but really the crude by rail activity has died down a little bit.

You see a capacity in California. And this excludes the one crude by rail that can receive unit trains every day, a facility by Plains All American, from that number. So this is 58,000 from all of these other operations in Northern California and Southern California.

And to put it into perspective how much were being used, it's about 15 percent of that capacity was being used in 2014. Oh, actually in the first quarter of 2015.

And then the crude oil, where does it go? Well, this is very important to our first responders on where are the routes being taken. This is something that I think Paul will be mentioning from the CPUC on what these routes are. They have certainly concerns about some high-risk areas of derailment as well as high-risk areas of population centers where the oil trains could transit.

And so there's lots of different routes, but primarily you have to get across the Sierras or you have to come in from the north. And there are limits on where you can shift your routing to ultimately get to these distribution terminals, either in Northern California or Southern California -- I mean, Bakersfield -- if they're all constructed.
As I had mentioned crude oil by rail in California declined. You see the peak in December and then it drops off and you see it change in the colors. So Canada was the yellow color and then, all of sudden, no Canada. What happened to Canadian crude? It's just not very good anymore? I'm from Canada, so you know, I maybe take a little offense to that. But there's good reason this happens. It has to do with, "What's the price in Canada? What's the price here? What's the rail tariff?"

And so this busy, busy chart is taking the price of a particular type of crude oil, subtracting it from an international benchmark crude like Brent, and so the bigger the line the bigger the discount. So no coincidence, maximum crude by rail came into California when the largest discounts were present.

And then those discounts fell off and what fell off particularly fast? The dotted lines, Canadian crude oil discounts.

This occurred because of additional pipeline capacity that came online in Canada that allowed Canadian producers to fetch a higher price, because pipeline tariffs are less expensive. So we'll see how this goes, but right now it's less economical than it used to be to bring in crude by rail into California than it was before.

So this slide is intended to show you where crude
by rail projects are being examined or pursued, I should say, is more accurate. One operational, that's the Plains All American I'll talk about, and we have a couple of other ones.

A significant change is the WesPac facility in Pittsburgh, no longer pursuing crude by rail. They have a marine terminal they are pursuing, but not rail.

And then for emphasis I've crossed out in red lines, purposely so, to show that our estimate of sort of a maximum amount of crude by rail that could occur and when has changed. It has shifted in two ways: down in total percentage to 19 percent and extended out one year to 2017.

So this has to do with the tremendous opposition to crude by rail projects in California. And no different than what is going on in Washington State.

So the operational crude by rail terminal is near Taft in the Bakersfield region. They can handle a crude unit train of 100 cars a day. Their initial delivery began right around Thanksgiving. But there hasn't been a tremendous utilization of that facility, because of the poorer economics at this time. So we'll see.

And then there's some litigation underway with regard to rigorous their permit was that was granted by Bakersfield, the Bakersfield county down there.

So Alon is also in the same region at the Alon
Refinery that's currently idle. Their project has been approved and they've actually let an engineering contract to get a little bit more serious about the plans. And then they certainly would have to sign up customers and secure financing. So that project is not dead and nor is it in stasis. So it does seem to be progressing, but we haven't had construction start yet.

And that's rather significant, 150,000 barrels a day. It's a significant amount of crude oil. And they are able to bring in crude oil that would be heavy, because one half of the project is steam -- has steam access -- so they would reheat the rail cars to get the crude oil out of them once they arrived from, say, Canada.

So in Northern California, in Benicia, the Valero Refinery is looking at crude by rail to improve their flexibility and access to crude oil. They currently don't have rail access there; it's just marine and pipeline. So that's 70,000 barrels a day. That Recirculated Draft Environment Impact Report is going to be released soon and then there will be a 45-day comment period. So that project has not received approval at this point and time. And the comment in the whole -- I think the Environmental Review has been a rather lengthy process as to when it originally started.

The WesPac Project I mentioned in Pittsburgh,
Antioch Region in Northern California, no longer pursuing a crude by rail element or a crude rail receipt capability. But that was a smaller portion of the project that was intended mainly to receive crude by marine vessel.

And I think the importance of this is sort of where it's situated and how connected it is, so the whole point is to get in to the pipelines that go to the refineries, so four of the five refineries in California would have access to crude oil being brought in by the water into this facility. So it uses the existing pipeline infrastructure, if you will. So it's just bringing some more in, so that's their project.

And there's going to be -- I'll just back to one more slide. We have comments are due July 31st, so soon, in about 11 days from now, on the Recirculated Draft IER. That's the notice on that. So that project, still in review.

And one more, that's an active permit, and that is the Phillips 66 Refinery in Santa Maria. They receive by pipeline and a little bit of trucking goes into that facility of crude oil.

And this is a facility that has had an impact by the shutdown of the Plains All American pipeline after the Refugio Oil Spill. So they certainly would be utilizing their rail at this point if they had project, but that has
not been approved for construction. And it's a little bit smaller than it was originally. I think we had over 41,000 barrels a day. Now it's under a little more than 37,000 barrels a day, so that's still in process.

Two other projects we have included in that estimate that gets us to 19 percent by 2017 are one facility in Northern California, the Targa Project in Stockton. They still have to -- this has a marine terminal element to it. And they still need approval from the State Lands Commission. So that step has not been completed of demonstrating a game plan to bring their marine terminal up to current seismic standards.

So these are basically Marine, Oil, Terminal, Engineering and Maintenance Standards or MOTEMS, building codes for marine oil terminals that all of the facilities in California must comply with.

Questar is a different kind. It's almost like the Plains Project or the WesPac. Put the crude oil receiving point at a location where you can get it into the pipeline system. So this is well outside of the Los Angeles-Long Beach Basin, where the intent is to put the receiving facility and then build some new pipeline that gets all the way into Long Beach. And then gets into the infrastructure of crude oil pipelines to oil refineries down there.
And so that has still not been finalized as a receiving point nor the development of the documentation for the Environmental Review of that. So we haven't really included these. They haven't progressed as much and we don't know if they ultimately will.

So a final state of crude by rail is talking about Washington State, important because we are seeing some crude oil coming down into California that was transported by rail to some Washington locations as well as Oregon and the Clatskanie, along the Columbia River. And as you can see, not one operational facility, but many in Washington State, and almost 300,000 barrels a day of offloading capacity. Compare and contrast that to California of a little over almost 120,000 barrels, so much more.

These projects were started sooner, because the rail tariff cost to the Pacific Northwest is much less expensive than that of California as well as the fact that refining capacity in Washington State depends a lot more what? Crude oil from Alaska, which as you remember from the earlier slides is continuing to decline. So there is concern about, "What am I going to do if that continues to decline?" And so that's why these projects were pursued initially at these locations.

And all of these are refineries except for
Clatskanie, which is on the Columbia River. And now it has been expanded to be able to receive up to 120,000 barrels a day at that location. Transfers the oil on to marine vessels down the Columbia River and they go to the West Coast refineries.

There are two important projects I'll mention here. One is Tesoro Savage, also on the Columbia River, you see the site location near Portland. And this is up to 360,000 barrels of day; a very large throughput project. Once again bring it in by rail, put it into storage tanks, load marine vessels. Ocean-going marine vessels and they of course would have to be Jones Act vessels going from one U.S. port to another.

And so this project has been taking a lot longer to get approval than originally anticipated by the company, I'm sure.

And so right now maybe the end of November is when we will see a Revised EIS come out. And then that will take the project review into the following year. So it's doubtful they'll be operational in 2016 if they are approved. And so we'll have to see how that goes.

But certainly a lot of this crude oil could end up in California by marine vessel, which for an infrastructure issue wouldn't be one, because it would be displacing foreign imports by marine vessel. And so a ship
just still shows up at the same marine terminal, just the 
crude oil came from a different location, domestically or 
from Canada.

So the other is Shell Anacortes, which has gone 
into a full EIS Process. They thought they could get sort 
of a negative declaration, if you will, but that was 
refused. There was some litigation and that didn't 
succeed. So possible startup is sometime during 2016 and 
that is still in the review process.

So I find a couple of slides. And these are 
from, as Commissioner Scott mentioned, we had an off-cycle 
IEPR in 2014 publication. And in the crude oil chapter you 
will see agencies listed in their respective roles and 
responsibility, vis-a-vis crude oil and ethanol, another 
hazardous material transported by rail.

So the Governor's Office certainly is for 
emergency response. They look at contingency plans and 
they also receive information in advance of some selected 
crude by rail on the shipments that are going to occur. 
And I'll let Paul talk about that in his presentation. So 
that's, I think, a matter of contention about how much 
information is shared ahead of time. And this is for first 
responders to be able to know where the crude by rail is 
coming.

OSPR has done an awful lot of work in response to
legislation and direction by legislation. And Ryan Todd is going to talk about that.

And then I'll switch to the second to the last slide. The State Lands Commission, who won't be able to participate in the Panel today, does have a lot of roles in crude over the water. And it has to do, because as I already mentioned, they have engineering standards for the terminals. But they also have inspection to make sure those facilities are operating properly and not putting the community or the environment at risk.

And they also collect a lot of information on use of marine terminals. So everything that's offloaded and everything that's loaded is all tracked by the State Lands Commission and quantified. And that kind of information is very, very useful for the Energy Commission in our Reporting Unit to properly account for and quantify where crude oil is, and other products are going to, and where they have come from. So we depend heavily on the State Lands Commission data collection activity to help augment our own.

And the State Fire Marshal has a lot to do with pipeline oversight and we'll hear about that in today's Panel.

And we collect a mountain of information from the industry. In the crude by rail arena our data collection
is from the railroads, the two Class 1s, they provide us
the information monthly: number of rail cars, the delivery
locations and the source of that oil.

And we also have all of the refineries and other
parties are reporting to us monthly on their imports and
exports for everything. That also includes some crude by
rail.

And then Jim Duffy will be here to talk about
what information is being collected by the Air Resources
Board as well as their regulations, looking at reducing the
carbon intensity of crude oils.

So those are all my slides. I'd be happy to
answer any questions, if you have some.

COMMISSIONER SCOTT: And that was a terrific
presentation, Gordon, very thorough. I do not have any
questions. We don't have any questions from up here for
you.

MR. SCHREMP: All right, thank you very much.

COMMISSIONER SCOTT: All right. Let me just
remind folks in the audience that if you'd like to make a
comment we have these blue cards. They are at the table
right up front, so please feel free to fill one out and
give it to the IEPR team and they'll make sure I get it and
know that you want to make a comment.

And I would like to welcome Ryan Todd from the
Office of Spill Prevention and Response. Thanks for joining us today, Ryan.

MR. TODD: Thank you, Commissioner Scott. Let me adjust this microphone here.

So yes, my name is Ryan Todd. I'm a Senior Attorney at the Office of Spill Prevention and Response. Thank you for inviting us today to describe and explain our role in the changing movement of oil.

So the main topics today I'm going to talk about, are trustee responsibility just real briefly, to set the context for what we do. I'll have a couple of slides on the changing shifts in oil, not nearly as extensive as Gordon or Paul might discuss. And I'll explain our program and how we've had to implement our program statewide.

So real briefly, the Public Trust Doctrine, it can be traced at least as far back as Emperor Justinian. And sort of the concept of the Public Trust Doctrine is, as he explained, things like air and water and the shore are common to all people. And in a certain extent you could say that about oil.

So here in California, for wildlife, the Public Trust Doctrine is played out through the Board of Fish Commissioners back in the 1870s. And then over time it evolved into the Department of Fish and Wildlife. And you can see in 1991 our program was established by the
Legislature.

So just our public trust responsibilities are codified in statute and it's the guiding principle for our mandates.

Pollution is one of the biggest threats to wildlife. If you think about a tanker going down or a bunch of rail cars or a pipeline rupturing, it's a one-time large threat to wildlife and habitat. And you can sort of compare that to disease. And it's hard to think of things that can be as significant to critters and habitat.

So in 1991 the Legislature created our program. It was originally a coastal program to protect waters of the state; originally coastal waters from oil spills. And then in 2014 the program was expanded to all service waters of the state. We don't cover groundwater.

So the program consists of an Administrator, who is a Governor appointee, and that person is also a Chief Deputy Director of the Department of Fish and Wildlife. Presently that's Tom Cullen. And you can see that the Administrator has significant responsibility, they have the state's primary authority to direct prevention and removal and cleanup of oil spills.

And our office serves as the Incident Commander for -- as a state rep, for oil spills. And that's in all state waters, except groundwater.
So this slide is a significant summary of what Gordon talked about. As I said, our program was coastal originally, so we were focusing on ships and pipelines in rain waters. But as you know, there's a significant -- from our perspective a significant shift to rail, to crude by rail and its potential impact on the state if there was a spill. And again, it's a significant summary of what it showed.

But rail is going to come into California three main ways: through the northern part of the state, southern part of the state and, as Gordon mentioned, through marine vessel down the coast. And I'll defer to him and Paul King in for routing and volumes that might be coming in, because the CEC's data is going to be more current than ours.

Again, it lists the potential facilities along the coast.

And as most people noticed, there seemed to be an uptick in the number of incidents involving crude by rail, especially in the past couple of years. And with crude by rail coming in through the northern part of the state along some -- you know, the Feather River and the Sacramento River, if you had a number of cars go into those rivers that would really be a significant incident. And so the Legislature recognized that and the Governor recognized that and expanded our program last year.
So how do we take a marine program that was that way for about 24 years and make it an inland or a statewide program --

COMMISSIONER SCOTT: I have a quick question on this?

MR. TODD: Yes?

COMMISSIONER SCOTT: The slide before where you show the increase in incidents. Does that kind of go along the fact that there's a lot more crude oil that's going by rail? Or now let's see, am I not articulating that right. So previously there was a lot less crude oil coming into the state by rail, so you would think that there would kind of less accidents, because of that. And then we had that spike in how much crude oil was coming in. And is it kind of a one-to-one thing here?

MR. TODD: I think I know what you're asking and I don't know if I could answer it. I don't know to what extent oil has displaced other commodities. I think that would be the question?

COMMISSIONER SCOTT: Uh-huh.

MR. TODD: Our program is, in terms of contingency planning and financial responsibility and drills it's just oil. We don't have those mandates for HazMat.

COMMISSIONER SCOTT: I see.
MR. TODD: So maybe if we did HazMat also we could maybe -- like chlorine, chlorine tank cars, maybe I could explain or answer your question.

Some of that it might just be the unfortunate luck of the draw for rail, obviously the large incident in Lac-Megantic in Canada. You know, it's hard to foresee something that giant coming along.

COMMISSIONER SCOTT: Right.

MR. TODD: So I'm sorry, I can't answer that easily.

COMMISSIONER SCOTT: No worries, thank you.

MR. TODD: So the main components of our program, these are all by statute. Although prevention is in our title we don't do a lot of prevention. The prevention we do is mostly in terms of harbor safety. We have harbor safety committees that we appoint and those committees are responsible for developing a Harbor Safety Plan, which is basically vessel traffic within the five major harbors of the state.

We don't do prevention in the context of pipeline design, rail tank car design, vessel design or operation or equipment standards. So in that context we're not a prevention office. What we mostly are is a readiness and preparedness office and a response office. And I'll talk about these elements in more detail.
So, when we became statewide the number one challenge was this -- or the proposal to go statewide, was how was this going to be funded, because we're just a coastal program? And how would we expand it statewide? And so our focus was oil coming in by ship essentially, and a little bit of pipeline on the coast.

So the solution that the Governor and the Legislature came up with was the same fee that we were collecting before -- six-and-half cents per barrel. Crude or petroleum that is now received at a refinery or a marine terminal if the delivery system, which could be pipe, ship, truck, tank car, if anywhere along its route posed a risk to waters of the state.

That's probably just about every shipment. It's hard to imagine a shipment that somehow didn't cross or wasn't near waters, but it's possible.

So something else we had to look at was how many new operators would be impacted by our mandates and what constitutes a threat to state waters? We adopted a quarter-mile distance, which is similar to federal pipeline requirements. We estimate that there will be about 250 to 300 new operators or facilities or companies that will have to comply. And you can sort of see the estimated breakdown.

This is something we will have to explore over
time as we really figure out who really is or is not close
to state waters and looking at what their operations are.
Most of them, you can see are production facilities.

Gordon's slide showed that there were tens of
thousands of individual oil wells, but you know, some
companies own a lot of oil wells, so that this number is
much smaller than actual wells.

So we were required to establish standards for
their oil spill contingency plans. We were guided by Best
Achievable Protection, which is always something we review
periodically.

Again we don't get into the design and
construction of the facility or vessel, but it's more the
equipment used for response. We focus on the reasonable
worst-case spill that a particular vessel or facility might
have and use that as the basis for determining types of
equipment that they need to bring to an incident, the
percentages they need to bring within a certain time frame,
and the contractual arrangements for the cleanup services.

Their contingency plans also must address how to
protect environmentally-sensitive areas. Those protection
strategies on the coast are found in area contingency
plans, which are a federally led document. They'll be able
to identify particular estuaries or beaches or other types
of places. And then have strategies for how to deflect
oil, using boom or completely block off maybe an entrance to a marina.

And then the last bullet there, use of a rated oil spill organization. The statutes say that the plant holders must use at least one rated OSRO. And we started rating the cleanup companies around 2000. And I'll talk more about the rating process and the OSROs.

So for inland, we had to come up with the reasonable worst-case spill volume. And we weren't that familiar with the inland oil wells and the inland oil well operators. So one of our tasks was to figure out what is a reasonable amount of expected spills. So we had to figure out how much of these wells produce at any given time. So we came up with a 10 percent daily average of the largest producing well.

And I think we established a cutoff of 10 barrels per day. So if a well operator produces less than 10 barrels a day we're not even going to regulate them, they're too small to have the requirements. And there's already going to be equipment and responders and contractors and in the area anyway that could respond to those, if it was spilled, from the really small operators.

So for inland pipelines we use a similar formula and it can be a complicated formula, based on shutoff times and flow capacity and tank volumes, so for inland
pipelines, a similar formula that we use for marine
pipelines.

And so for railroads we had to come up with a
reasonable worst-case spill volume. And we looked at some
of the recent incidents over the past five years or so.
And actually Wikipedia has a list of all the railroad
accidents in history. Not a totally scientific method, but
if you look at that, it seems to be a very comprehensive
list, a worldwide list. And we looked at just the freight
accidents. You know, not the passenger accidents, just the
freight accidents. And we looked at how many cars came off
the track.

And it seemed, for a freight incident, it seemed
to be around 15 to 20 or so that were coming off the track.
Not necessarily opening up, but at least falling off the
track. And if it falls off the track we consider that to
be a threat or a risk.

So we have come up with 20 percent of the oil
cargo in a train. So for a unit train, if you say that was
100 cars in a unit train, the reasonable worst-case spill
would be 20 cars. Obviously for a manifest train, which
has all sorts of different cargo in the cars then there
would be 20 percent of whatever they happened to be
carrying.

And then there's a few other miscellaneous types
of facilities that we've had to develop a worst-case spill for.

So we had also looked at the bigger planning picture, not vessel or facilities specific, but regionally. Along the coast, as I said, there are these area contingency plans. Their development is led by the U.S. Coast Guard. With identified sensitive sites and strategies to protect those sites.

But inland, USEPA is the lead for developing those. And there aren't as many of them in the state. And so we're going to have to work with EPA to develop them. A current one being worked on is the Feather River Canyon and its collaboration of, like I said, ourselves, EPA, and the two main Class 1 railroads. And its focus is on rail and transportation risks, because there aren't a lot of facility risks in that area. And that development will involve the public and the locals.

COMMISSIONER SCOTT: Do you have a sense of how many geographic response plans EPA would be developing for California?

MR. TODD: I don't exactly, but it could be that there is -- I don't have the list of the ones that currently exist. There's one for the Tahoe area already. I think there's one already for the Upper Sacramento River. You know, if there isn't one that would be one. And then I
think there's one for the Colorado River, but not one for
the interior part of the state down there. You know, near
Inner San Bernardino or Imperial. So you could have a plan
for that part of the state to look at rail and transport.

These plans take a number of months or years to
develop, because you're really looking at the whole area.
You've got to identify the sensitive sites and come up with
some protection strategies that you think will work.

It's just that EPA's the lead and I know they are
tasked with a lot of other responsibilities also. This
influx of crude by rail is new to all of us, so we're
trying to catch up.

COMMISSIONER SCOTT: Yep, thanks.
MR. TODD: As I mentioned the oil spill response
organizations, these are the contractors that the operators
hire. Most vessels and facilities don't have their own
cleanup crew with cleanup equipment on hand, so they sub-
contract out.

And starting around 2000 we started rating those
companies. It's voluntary, they come to us, and they say
they can perform a certain type of service. And as you can
see, the services generally are on water, booming and
cleanup, shoreline protection. And there's a new one we've
had to develop for what we're calling "terrestrial."

So we'll do drills and inspections on these
companies to make sure that they have the resources ready to go.

We require a certain percentage of their resources to be dedicated, which means within the first six hours. So if they say they can bring something within the first six hours it has to be doing nothing but OSRO cleanup. Or if it's assigned out to some other type of job for that day, it needs to be able to drop whatever that other task is or whatever that other contract is, and show up.

So for inland, as a coastal program, the ocean is always wet, there's always water there. The significant challenge for us going inland is how do we deal with locations that are not always wet? What type of equipment should we require in a dry wash that's dry most of the year and only has water in it seasonally? So we're developing a terrestrial rating. It's mostly focused on like backhoes and bodies, people coming out with shovels, and storage bins.

And we have to develop response times for the interior part of the state. You know, along the coast it's all focused right on the shore and then offshore. For the rest of the state we have to figure out what's reasonable to expect folks to, maybe, get up into the Feather River Canyon or get into Bakersfield or to get out into the
Mohave Desert. So that's been a significant challenge.

And because the plan holders subcontract for this work we've directed a lot of our focus or our efforts on the cleanup contractors themselves. So they are receiving their service ratings by response planning area, which I didn't spell out there, or counties within a response planning area. And I'll talk about that in a little bit.

As I've said, we do drills: announced and unannounced. And the industry also calls drills on themselves too and they can get credit for that. All the elements of an operator's contingency plan must be drilled at least once every three years.

So there's a national drill program, NPREP.

National Response -- I forget what NPREP stands for -- and so we mirrored the NPREP standards. But we also have some specific California objectives. And with the only program -- we've taken it as an opportunity to take a fresh look at our current regulations and scale out, remove things that didn't make sense or don't make sense anymore at this point and time.

So the for the drilling rigs we've developed tiers for drill objectives, and they're basically scaled to the size of the operator. So if you're a small operator posing a small threat the types of objectives you would be expected to meet are different from a giant operator, like
a large pipeline or a tank ship.

So about a year from now, we'll be doing formal rulemaking and we will take this tiering for drills and put it to the (indiscernible) operators, so it will be at statewide tiers.

So as I was explaining, moving inland, how are we going to roll this out regionally? And we came up with these response planning areas. The coastal ones were basically essentially set and they followed the area contingency plans. But for the interior of the state, we decided to use boundaries that are the same as the local emergency planning committee boundaries. We did that because it tied -- it allowed our folks to coordinate better with like local responders.

An alternative approach we thought about was watersheds. That seemed to make sense too, but we decided that the LEPC version would, with the better coordination, seemed like the better bang for the buck.

So the response times where we've established for contingency plans and the coastal cleanup contractor ratings will be within each one of those planning areas. So if a cleanup company wants to say they can provide on-water cleanup in that entire planning area we'll drill them and test them to see if they can actually accomplish that.

Or a cleanup company might say, "Well, within a
given planning area we're going to be really good in just a couple of counties." So we'd say, "Okay. We'll give you a rating for those particular counties."

Another key aspect of our program is financial responsibility. The operators need to at least show a minimum level of money available to pay for cleanup and damages. Again, it's based on their reasonable worst-case spill volume. And there are several methods they can use to demonstrate that they have financial resources available.

COMMISSIONER SCOTT: I have a quick question for you there. Oh, that might be on the next slide.

I was going to ask you if it's the financial obligation relies on the shipper of the crude oil, so the railroad, for example? Or does it go to the person who owns the oil that's inside the car? Or is it both?

MR. TODD: It's the owner or operator generally is the one stepping up and providing the financial responsibility. I think there are a handful of situations where the owner has actually stepped up and provided the financial responsibility. The significance of coming to us and saying, "I want to be financially responsible," is you're going to be financially responsible.

COMMISSIONER SCOTT: Right.

MR. TODD: So I think --
COMMISSIONER SCOTT: So it's the railroad or the marine, not the refiner, who's ordered the oil to come to them?

MR. TODD: Correct.

COMMISSIONER SCOTT: Got it, okay.

MR. TODD: It will be the ship owner or operator, it will be rail company or operator. It would be the refinery itself, as someone as a risk, because it's got tanks. They'll have their own COFR, we call it a "COFR Certificate."

COMMISSIONER SCOTT: Got it, thank you.

MR. TODD: It's not usually the owner of the oil.

So for facilities there's a formula we use and it's generally the worst-case spill volume, which is measured in barrels times either 12.5 or 10,000.

Again, we had to figure out what's appropriate financial responsibility for the inland part of the state. You know, a spill into a dry wash is probably generally going to be a cleaner cleanup versus like cleaning up a tide pool. It's much more expensive, much more difficult to clean up generally, a coastal environment or an estuary than it is to clean up a spill inland.

So you'll see that this 10,000 is used for inland financial responsibility calculations, the 12.5 is for coastal. And there is a maximum demonstration of up to 300
million. And you'll see that's the same for non-tank vessels below. And tank vessels all have to provide a 1 billion, there's no variation there.

We are required to have an Oil Wildlife Care Network. The UC Davis Wildlife Health Center administers that for us, they do a great job. It's, as far as we know, the only one in the world that does this. And as I said, it's been coastal all these years.

The purpose of it is to have facilities and treatment and care organizations just ready to go. So when is there is a big incident or any size incident, we know exactly -- it's like having hospitals. You know exactly where you're going to take those oiled critters for care and treatment.

So the network, UC Davis in particular, is going to have to look at the inland part of the state now and figure out, "Where are we going to need new facilities and who are the organizations within the interior part of the state that can provide care for oiled critters?"

And it's going to be a different set of critters. You won't have marine mammals, really, in the interior part of the state. I imagine it will be mostly mammals and small mammals and birds. I suppose we could get bears that get oiled, or mountain lions. We'd have to have facilities that could handle those types of species.
Let's see, I covered that.

Not too much change for spill response. We've been responding to spills statewide anyway for decades. The Department of Fish and Wildlife has been mandated with doing spill response for like since going back to the '30s. So not much change.

For spill response we're the Incident Manager. We oversee the cleanup. We have staff that will do a Natural Resource Damage Assessment and that's an assessment of the injuries to critters and habitat. There will be an investigation to see if the incident should be handled criminally or civilly.

And the spiller is responsible for the costs of our department and any other state or local agency that responds to the spill.

So we had to come up with new -- figure out where we are going to locate staff. We went from, as I said, we had basically three coastal divisions for staff, so now that it's statewide we've broken it up this way. It's very similar to the response planning areas. So we have six new locations for staff and we're in the process of hiring biologists and game wardens and oil spill prevention specialists to occupy these places.

So we were required to establish emergency regulations to roll out this new program. Those will
hopefully be on the street in just a couple of weeks. They will be valid by statute. They are only valid for 12 months. And at that time we'll have to do formal rulemaking in the next 12 months, once they come out, to make sure that there's no gap. So when that 12 months expires we will have rules ready to go or already out that have gone through formal rulemaking. We anticipate workshops for the formal rulemaking to occur in 2016 in the spring.

The last couple of slides, the two Class 1 railroads and their trade group, the Association of American Railroads, sued our office saying that as it applied to rail our program was preempted. We obviously disagree.

The case was just dismissed in June as not ripe, because our regs are not out on the street yet, we are not enforcing anything yet. But once our regs come out we know they will re-file and at that point it will be ripe.

Something else we have been tracking, and I think Paul is going to talk about this a little bit, the Federal Pipeline Hazardous Materials and Safety Administration had two rulemaking packages out last year. One had to do with Tank Car Standards and the final rule came out earlier this year, just a couple of months ago.

And the other package they had had to do with oil
spill contingency plans for railroads. It was an announced
Advance Notice of Proposed Rulemaking. It was basically
nine questions they were throwing out to the world, seeking
coment about the questions, about what types of revisions
should they do to their regulation about oil spill
planning? And our office submitted comments, as did a
number of other states.

So far PHMSA has not taken any action yet.

And then this year there were two federal bills,
which I don't think they're still active. And I don't know
if that means they are completely dead, but it would --
they are the same language. They would put the FRA or DOT
directly in charge of oil spill planning for railroads.
And that's actually a significant shift from the current
law. The current law says the President, in the Clean
Water Act, it says the President shall be responsible for
planning, oil spill planning within the nation.

And the President who was George H. Bush at the
time, he delegated those mandates to various Federal
agencies.

And so these two bills would basically take rail
planning, coastal planning for rail, and put it directly
with the DOT instead of the President. And that would be a
significant shift.

And also those two bills had very open ended
mandates or directions to DOT. It just said -- I forget
the language exactly -- but it said something like, "Just
the revise the oil spill planning." It was really open
ended and vague, no specificity about how to revise or what
to look at. As I said, with these bills I don't think are
active anymore, but I don't know if they can also be
resurrected.

And so that's where we're at. Any questions?

COMMISSIONER SCOTT: Awesome. I did have a
question for you. I'm not sure if you're the person who
helped put together the Oil Spill Contingency Plan
Revisions? You mentioned that they had nine questions,
PHMSA did that they were asking folks about.

Is there any you can highlight from us about the
revisions you might like to see or if you're not in the
weeds on that one, that's fine too.

MR. TODD: At the time I was in the weeds.

Our comments were essentially -- and if you would
like to see the comment letter we can certainly provide it
to you.

COMMISSIONER SCOTT: Okay.

MR. TODD: Our comments were essentially that we
think California has got a good program and we would like
the federal regulations to be more aligned to what we have.

The Federal Railroad Oil Spill Plan requirements,
there are two plans that a rail operator might have to
develop depending upon the amount of oil they are
transporting. Neither one of them is -- I mean, they're
required, but the actual requirements are pretty minimal,
compared to what a lot of other states want to see in a
plan. And so our comment was essentially that their regs
should be beefed up to be similar to ours or at least some
other states.

For example, the FRA does not review or approve
Federal Rail Plans like we do. I think the FRA checks to
make sure they have a plan, but they don't do any
substantive review.

COMMISSIONER SCOTT: Great, thank you.

MS. RAITT: Any more questions?

COMMISSIONER SCOTT: I asked all the rest of mine
as you were going along.

MR. TODD: Sure.

COMMISSIONER SCOTT: Thank you so much for your
terrific and informative presentation and for joining us
here today.

MR. TODD: Thank you.

COMMISSIONER SCOTT: Let's see. I would now
like to welcome Paul King, who is the Deputy Director of
the Office of Rail Safety at the California Public
Utilities Commission. Welcome, Paul.
And while he's making his way up I'll just remind folks, if you'd like to make a comment the blue cards are on the table at the front of the room. And just please fill one out and make sure you get it to the IEPR team and they can let us know that you'd like to make a comment.

MR. KING: Thank you, good morning.

Just a real quick background, the California Public Utilities Commission originally was the Railroad Commission and during the reform of the early 1900s and 1911, under Hiram Johnson, led an advance in railroad safety at the time. We still have some of those regulations on the books and are enforcing them, mainly employee safety, because the Federal Railroad Administration, who we work with, has pretty much covered the field otherwise. And I'll get into that a little more.

Just to jump quickly to an overview here, I want to first apologize for not expanding these acronyms. FRA is the Federal Railroad Administration. PHMSA, P-H-M-S-A, is the Pipeline Hazardous Materials Safety Administration. And NTSB is, of course, is the National Transportation Safety Board. CPUC is California Public Utilities Commission.

And our role, as easily summarized as different from OSPR, is that we're charged with preventing accidents. We don't get into emergency response or response. And in
doing so, we're directly with the FRA who has the same
purview.

To review some of the crude oil accidents, this
wasn't news, this was not a story over two years ago. On
July 5th, two years ago just this month, it became quite a
story during the tragedy in Lac-Mégantic where 47 people
were killed and as you can see in the picture, Downtown was
destroyed.

Since that time there has been somewhat of a
succession of the tank car accidents. Most notably, on the
lower left, you have the Casselton, North Dakota one, which
seemed to really catch the attention in the U.S. beyond the
Canadian one. That incidentally was a derailment of a
grain train on a parallel track with a crude oil train.
The crude oil train, coming the other direction, ran into
the derailed cars.

What really caught Washington's attention was the
lower-right picture there, Lynchburg Virginia, where one
exploded right on the river there in the town.

Then notably the Mt. Carbon derailment -- three
cars derailed and ruptured. Well, I think about 13 cars
derailed, but 3 cars ruptured. And the ensuing pool fire
cauised another 10 cars to heat up and expand and explode,
one after the other, for about 10 hours after the
derailment, which is a significant point of the New Tank
Car Standards requiring thermal protection to try to prevent that.

The middle upper-photograph shows damage up in Canada where a train -- you can't see the bridge, it's in the smoke there -- but the derailment itself and the heat from the fire totally destroyed a steel bridge; warped it completely. And you can see the big, dark area on the upper right on the river, it fouled the river pretty badly.

The most recent explosion was May this year in Heimdal, North Dakota; that's that lower middle slide.

And of course, just in the news, not in time for these slides. But a fortunate accident in the derailment in Montana where there was no fire, no ignition, and no explosion, but it was in a crude oil train. That was last Thursday.

And not to forget ethanol is every bit as dangerous. In fact, of all the crude oil accidents, only the Canadian Lac-Megantic one had fatalities. Ethanol, there were fatalities, I don't know if you can see in that upper-left picture, but there's a minivan right at the crossing. There was a fatality to the driver in that minivan.

It's notable, also when you have a derailment the cars usually accordion up. One car will derail and the cars behind keep moving until they stack up in accordion-
like fashion. And yes, we did have an ethanol incident in California up in the Tehachapi Pass that ruptured an ethanol car and lit that and a car of plastics on fire that burned for about a day.

The lower-right side, of course, shows the power of an ethanol derailment and explosion. It's quite impressive. If you look very closely, you might be able to see the sides of the rail car on the bottom there.

So the risk to California, why is this relevant to California? Well, obviously the populations. We have trains going through highly-populated areas. It's not a coincidence populations grow around rail hubs for good reason.

The cities listed there, all the cities you might expect. Some are not listed, that I found a little surprising, but I guess they didn't hit the thresholds. And that would be Central Valley, basically from I think, Stockton down through Bakersfield are not listed here.

Then of course, environments: rivers, reservoirs, bays, coastline. Rail lines tend to follow rivers and, of course, go through and along bays and down the coastline. And including bridges over reservoirs. I think the Oroville Dam and Shasta are two very significant ones.

After the Dunsmuir Spill in 1991, where a carload of herbicide derailed at the Cantara Loop above Dunsmuir,
it poisoned the river for about 40 miles. It killed every living thing in the river, including some invertebrates that have not returned.

The PUC was charged with determining what were high-risk areas in the state -- high-risk for derailment. It was termed "Local Safety Hazards" at the time, because there was a provision in federal law that the state could regulate, even though the federal government has regulated, if it was a local safety hazard. So we've identified several of these, they are listed here. The most important ones are listed here.

Unfortunately, it seems, there are no local safety hazards anywhere. A law was drafted or adopted in 1970, and none have been identified since then. They've all lost in court, including us. Fortunately, we did settle on regulations for the kind of accident that happened at Dunsmuir.

So we have the Sacramento River, high incidents of derailments, quite a spike around the Cantara Loop, historically.

The Feather River Canyon, coming down from Portola, through Quincy into Orville and down into Sacramento; between Lake Almanor, that's the line that comes down from Oregon.

Klamath Falls, that is the Bakken crude oil
route. Of course, we're not getting any right now. If you look closely at Gordon's slides you could see the bar that represented the Bakken no longer was there since November.

Donner Pass, you all are aware of Donner Pass. It's the one that comes right in to Roseville and then Sacramento. It does not parallel major waterways as much as the Sacramento River and Feather River routes, but it still comes through obviously, high-populated areas.

Cuesta Grade, north of San Luis Obispo, that's that steep grade just before you arrive in San Luis Obispo.

Tehachapi Pass is the main North-South route for California. Very little freight goes on the coast.

Then Cajon Pass, steepest grade in California, that and Tehachapi are probably the two heaviest travelled lines in the state. Cajon Pass feeds into the L.A. area, a primary route into the L.A. area.

Beaumont Grades, that's the southern route, the old Southern Pacific-Southern route. It goes up from Palm Springs, tips at Beaumont and then comes down in to San Bernardino area.

Then the Miramar Grade, just north of San Diego.

These all have statistically significant historical concentrations of accidents. If you were to predict where they occur you would pick these spots.

The analysis was originally done about 1994
through '97, something like that, but it still has
predicted well accidents since that time.

   And here's a map that depicts -- I don't know how
well you can see that, but the dark orange areas show
population concentrations by deepening shade of orange.
And if you can see on some of the rail lines, there's a red
or orange outline, in some places both, that shows where
historically the accidents have occurred.

   The one on the line, upper-part of the state to
the left, that's the Dunsmuir area. The line on the upper-
right coming down, first you have the red area, that's the
Almanor to Greenville and then the Feather River Canyon
coming down towards Sacramento. And right below that you
can see Donner Pass, that red area is between Colfax and
Casa Loma, I believe. And that's primarily, as most of
these are, the steepest and curviest part of the line is
where you have the most end-train or derailment forces
occur. Of course, they come all through Sacramento down
through the Bay area there.

   Southern part of the state, most significant here
is Tehachapi Pass. That's right about the middle of the
photograph just east of Bakersfield on the line that's
headed east. Then to the left of that is Cuesta Grade.
And I don't know if you can see down below to the right of
the L.A. population centers, you can see a red area there;
that's the Beaumont Grade. And below that it's San Diego-
Miramar Grade.

So I was asked a question recently by a
California State Legislator about, "Well, we haven't seen
any of these trains explode in California. You know, why
are we concerned?" Well, you can't predict where the next
accident is going to occur. You can't predict when it's
going to occur. It's a matter of volume of trains that
you've seen. Some of the spikes yes, I would say that's
somewhat correlated, just to the volume of trains. Things
are going to happen: wheels wear out, track breaks, these
are heavy trains.

So I think the juxtaposition of these two
pictures is informative. That's a Bakken crude oil train
in June 5th of last year going through the Feather River
Canyon without incident.

November 25th, a train loaded with grain
fortunately, similar tonnage, similar weight, similar
forces on the track, ended up triggering a rail break. It
was a defect that was there, but it triggered a rail break
and you can see the result. It was simply a matter of luck
that it was this grain train and not a crude oil train.

So I want to spend most of my time talking about
the federal regulations, because they are significant and
they took a lot of work. We commented, spent a lot of time
commenting, advocating for the stronger portions of the rule. And I think, overall they came out with some very significant improvements.

They were adopted May 8th and they went into effect just July 7. Now, of course, there are timelines for a phase-in. You can't rebuild the whole tank car fleet overnight, obviously, so the Federal Railroad Administration and PHMSA set out a timeline they figured would be manageable.

So the scope, and it doesn't address all crude oil tank cars, it addresses high-flammable liquids including ethanol. This was a major step up, to include ethanol and any other highly flammable liquids that are in a continuous block of 20 or more cars or if you have a total of 35 in your train.

Now, one of the reasons -- and I was involved with the original Railroad Safety Advisory Committee negotiations and rulemaking on this -- one of the reasons is that the Federal Railroad Administration set this was it was one way to capture the most risk with the least cost. The most bang for your buck, to be able to actually get it through some fairly onerous cost benefit criteria in the Office of Management and Budget. But also, maybe more importantly, they realized that the most of this oil shipment was by solid trains of oil. They were not mixed
in with regular freight. So this would capture almost all
the shipments and the ones that where you see these 100 car
long trains, it would capture all of those.

Same thing for the next one, it's a subset of the
definition. It's a high-hazard flammable unit train,
meaning it is all flammable liquids and nothing else, but
the threshold here being 70 cars. Most of them we see are
100 cars, so it was meant to capture all of those.
Obviously, you could avoid the requirements for that by
running 69 car trains and time will tell.

So splitting it into two primary safety areas:
enhanced braking and Tank Car Standards are improved by
this rule. The requirements require major improvements.

One, any high-hazard flammable train must have an
end-of-train device. I hope this won't be too much
information, but I think it's important to walk through
just how trains are braked, how they are slowed.

It's an air brake system, where the brakes are
signaled to apply, the brake signal is a decrease in air
pressure. And that comes from the locomotive. So if you
have a decrease in air pressure starting, and the
locomotive will signal all cars to brake, it takes quite
awhile to get to the back to the very rear car of the
train. When you have 100 trains (sic) it's a matter of --
well, it's quite a long time. If we were to sit here and
count off 15 seconds it would seem forever in order to apply the brakes.

   End-of-train device, when they took the conductor off and the caboose off the train, you no longer had somebody back there to tell you how much air pressure you had in the train line throughout the train, which was important. But you also didn't have somebody back there in case you had a failure of the train line system somewhere; a blockage, for example. You didn't have somebody back there to put the train into emergency brake application.

   So EOT, end-of-train device, is a telemetry device to replace the caboose and the conductor, basically. And it would apply to brakes, not only from the head end of the train, but from the rear end of the train by telemetry. And it also gives you a read-out of air pressure.

   DP locomotives, Distributed Power, DP stands for "Distributed Power." That's where you have locomotives at different locations in the train, probably mostly at the head end and rear end, but then some trains will have another set cut in middle.

   And what that does, is again, by telemetry it allows for emergency brake applications at those locations at the same time as the head end locomotive. But it also allows you to use the brakes in a non-emergency way, also controlled at those three locations, so it's more
responsive.

But the greatest improvement that is required by this rule goes to these high-hazard flammable unit trains, where you could have a unit train -- a high-hazard flammable train -- but if you have one car of the highest flammable like Bakken Crude or ethanol by January 2021 you must have electronic control braking system, which transmits the signal to each car, to every car, simultaneously electronically.

And by 2023 all trains over 70 cars -- if you recall, high-hazard flammable trains of over 70 cars -- have to have electronically controlled brakes. This is a huge improvement. Basically, taking a system that's in existence today, but was invented in, well about -- patented in 1872.

COMMISSIONER SCOTT: Well, I have a question for you there, 2021 and 2023 seem kind of far away. Is there a reason why the timeline is so long?

MR. KING: They'll have to retrofit old tank cars. And they'll have to build new ones with the electronic braking control systems on them. And they also have to retrofit locomotives and any new ones will have to have those systems. My sense is that the Federal Railroad Administration looked at how long it would take, what it would do to the fleet if you required it too soon and how
that would impact the cost benefit. And this is what they did in order to meet all the criteria that they have, actually, to get a regulation out on to the street, so to speak.

COMMISSIONER SCOTT: Uh-huh, thanks.

MR. KING: So, just to start very quickly, the first train brakes were a bunch of brakemen running along the top of cars twisting hand brakes to signal the engineer to release and to tighten, very dangerous, especially in bad weather. The life expectancy of a brakeman was very short.

The air brake system was invented and developed, called "straight air" that pumped air from the engine into the brakes to apply the brakes. But as you can imagine, if the air brake hose broke you would have no brakes, you would run down the hill uncontrolled.

So George Westinghouse invented what's called the automatic air brake, where it was reversed. You fill reservoirs on each car with about 90 pounds air pressure by pumping into the train line. That releases, because there's what's called a triple valve, it makes that valve slide so it releases any air out of the brake cylinders. Your brakes are completely released the car is charged with air. You take air out of that brake line and the triple valve slides over, allows the air from the auxiliary
reservoir to go into the brake cylinder. So if you ever brake the train line all the brakes go on it completely, it's a fail-safe mode.

    One of the problems with that is if you set and release the brakes too often you can't charge that reservoir, you run out of air. And there you go down the hill, uncontrolled.

    Now, we've had several dramatic accidents in California. Not recently, I think they're '89, '94 and '96, during that time frame there was about four of them. Three on the Cajon Pass where we had runaway trains. One of them ended up with about six fatalities in the town of Muscoy. I don't know if you recall that, 1989, where a train ran uncontrolled down the hill, crashed into a neighborhood. And during the cleanup a gas pipe line was ruptured. Cima Grade had a runaway too, a runaway, down from Las Vegas.

    So, electronic braking has a great number of features, mainly to have the electronic signal to set the brakes. It's done simultaneously.

    And most notable for the FRA's extension of the requirement here is that it's extended to unit trains, because the most cost-effective way to implement this new braking technology is to do it for all cars in unit trains; not all cars in the country. But these unit trains that
stay together they are not switched, so you can keep from having to retrofit the entire fleet.

Shorter stopping distances -- up to 70 percent shorter stopping distances -- as I said before, the brake signal is light speed instead of the speed of sound or slower. The brakes apply simultaneously.

And when you have a derailment, rather than having that big stack up of cars behind the derailment, because the cars behind you -- the brakes have not applied yet -- all the cars apply when one car's brakes apply in a derailment. And it'll decrease the number of cars that end up in a pile.

Also, because the air line is charging the entire time, you don't set the brakes by pulling air out of the train line, it's always charging. The brakes are controlled electronically, so you can release the brakes and set, release and set, without worrying without depleting the reservoir like you did with regular brakes.

And because air leaks and trouble with the triple valve, which is quite sophisticated -- it has been improved over the last hundred and so many years -- it's quite a sophisticated valve, but any problems with that can cause undesired brake applications, which in and of themselves can cause derailments.

Also improves train handling. Some of the
problems in these mountain grades are you have a run in and run out of slack in a train. There's about 100-to-150 feet of slack in a train. And you can simultaneously brake each car to better control that. And thus, control if you have slack run in, for example, coming downhill it will cause the cars to buckle out. And we've had many instances of that, actually, in California.

We also reduce brake shoe wear, because instead of for example, Donner Pass, in order to keep from losing your air pressure, so to speak, you'll leave the air set the whole way in. And when the grade lessens a little bit, you have to apply power and drag the train down the hill with brakes applied. So this eliminates that.

For the same reason, you'd reduce fuel consumption. And you also have electronic monitoring of every car, which opens up a whole new era of electronic monitoring.

Also, before braking, you used to have to go back and set what are called "retaining valves" to retain the air pressure, so you wouldn't lose it on steep grades on the cars. You no longer would have to do that.

So tank cars -- the other part of this -- stronger, better tank cars. There are thresholds now, timelines required here, for both the new tank cars and for retrofitting existing ones. They must follow a
prescriptive schedule that's outlined entirely in the regulation. And they must provide information to the Federal Railroad Administration and PHMSA if they would not be able to meet that timeline.

And just to go over some of the features here, to start off with the tank shell, you can see in the upper-left expansion on that picture, the tank shell has to be thicker. It's an increase from seven-sixteenths to nine-sixteenths. And that's not linear protection. It depends on the square of the thickness. So you're getting instead of maybe 30 percent more resistance to puncture, you're getting 65 percent or something like that. I don't know the exact figures.

And then I mentioned thermal protection to keep the car cooler longer, while there is a response to the derailment. Insulation will be required. And then, of course, there's a steel jacket required on the outside of that insulation.

A head shield is required. In fact, I believe most of the cars being built now to the AAR standard -- American Association of Railroad Standards -- have head shields. A head shield simply protects the end of the car. If you notice the coupler sticking out on both ends of the cars down near the wheels. In a derailment, when that slips off in the derailment, it's been a problem
historically where the coupler has then punctured the end of the tank car. The head shield serves to prevent that.

Also, the top fittings and bottom fittings are both to be designed, so that they don't open in a derailment. They'll make them more resistant to shearing off, but also originally even the handles were set that when you slid along the ground it would open the valve. So that's all been changed in the new standard.

Additionally the new standards call for restrictions in speed. Again, reductions in speed give you more than a simple linear measure of the speed. It goes to the -- a force of impact depends on the square of the speed, so you get great reduction by slowing the trains down.

And there's a problem here though, because at some point if you slow trains down too much you slow down the entire throughput of all freight in the nation. So this has been a tough choice for the FRA to balance.

Also, part of the problem that surfaced in the Lac-Megantic accident was that the product was misclassified. It was more flammable than some of the cars were labeled. So there's been quite a bit of work not only in appropriate classification and placarding of these cars, but also in testing. When you pull product out of the ground it is not consistent from one day to the next, one
well to the next, one part of one well to the next. Unlike a manufactured chemical, which meets a standard. So it needs to be tested so you know exactly what you have.

PHMSA has done a lot of work on this and now it's required in the regulations to be a lot tighter.

Rail routing --

COMMISSIONER SCOTT: I had a quick question for you on that.

MR. KING: Yes?

COMMISSIONER SCOTT: I noticed that it said the high, what was it, urban areas? And I wondered, you had a bunch of areas that are not so urban on a map a few slides back that had that red, because there's lots of curves or because it's very steep. Will that speed also slow down a bit, they probably already do, I hope slow down in those areas?

MR. KING: Almost all of those have a track speed of 25 miles an hour already.

COMMISSIONER SCOTT: Okay, all ready. All right, so that's -- got it.

MR. KING: And that's simply because they're too curvy to go faster.

So but for the overall risk 27 factors have to considered, and a route selected with the lowest risk. Unfortunately in most areas you don't have a whole lot of
choice. You might have a little bit of a choice to go around Sacramento, for example, but then you go over a bridge. So I don't know how this one will work out. This is something that we'll all be looking into and following. But some of the routes are that's probably just what you see is what we'll get.

Now, one of the issues that we've probably done the most work with was notification. Originally in May 2014 the Federal Railroad Administration and PHMSA came out with an -- well, I guess it was the FRA -- came out with an Emergency Order requiring the railroads to notify a state emergency response center, or what's called an acronym, of "SERC" of the shipments expected in the next week for Bakken crude oil trains. Unfortunately, that ended up being something that didn't actually provide you with very good information. And I'll get into that in a minute.

But first, just to tell you what the new rule does was the new rule -- now there's a tension between SSI, Security Sensitive Information, and providing information to the public. There's some information that the general public does not get, because it would present a danger to the public if that information were to fall into the wrong hands. Critical infrastructure or highly sensitive information, that if the people with bad intentions found it, it could give them a leg up on doing some harm.
So that's one backdrop and it's a hard one for the railroads to handle. They know, they have to know, they know the information about what's in every train, they know where every train is. And that's information that, certainly, in a need-to-know basis, emergency responders should know it. Should the general public know it? There's where the debate lies.

But what happened here was, also because the railroads didn't want to be out of compliance what happened in the Emergency Orders is the information ended up not being helpful to emergency responders, so the PUC originally objected to how that was being interpreted by the Federal Railroad Administration.

When the new rule came out it tried to address the Security Sensitive Information issue, and in doing so it moved most of this information into an existing regulation where the emergency responders must contact the railroad. The onus went from the railroad notifying the emergency responder -- it was reversed -- the emergency responder must contact the railroad. And it did not give much detail on what information the railroad had to give.

In other words if you called them every day and said, "What's coming tomorrow?" they wouldn't necessarily -- it's not specified what the response has to be.

So the new rule would have had the Emergency
Order expire next spring. But a Congressional Delegation objected, and I think it was nine senators, and said, "Oh no, don't go there." And PHMSA decided that it would keep that Emergency Order. And it's my understanding, they're working on making it permanent and working on the issues that have been identified here between the new and the old. And are likely to come out with the ANPRM or an NPRM or they might send it to the Rulemaking Committee.

So here is a summary of the two: the new rule does cover ethanol, but again like I say it changes the dynamic of who tells who. The Emergency Order only covers Bakken crude shipments. So we're kind of at an odd place, right at the moment.

Just to go into the notification issue. This is the first notification Cal OES got. They made it public, they looked at the interpretations of the law and they decided it could go public. The railroad was not happy with that, but the FRA agreed it was not Security Sensitive Information.

And I would have to agree, because it's hardly any information. "A train was on the way." This is supposed to tell you what you should expect, emergency responder, "A train was on its way." It wasn't in California yet. And that's the information they got.

All the counties in California, all zeros. "This
is one for the next week." And what that was the train had not gone the previous week and they are basing on historical. Now, here's the next week and it showed the train came. But that week that this is supposed to be projecting, no train came.

So you've got the opposite information from what you wanted.

And over on the left was something that I really didn't know what they meant. I thought zeros and nines were maybe computer fillers for nothing. It was simply that they said, "You could get from zero to nine trains."

One time they had, I think, seven after a snowstorm blocked trains in North Dakota. One time, one week they had seven. And they just added a couple, just for safety I guess.

There's the route you got. There's the routing information that was on an 8 1/2" by 11" page and that's as good as you got.

We worked with Cal OES on that. And obviously, I've been 45 years in the industry, so we were able to pin that down real well with the time tables and so forth. We worked with the Federal Railroad Administration and we still are. It's gotten pushed into a larger issue with the new rule.

To get information, you saw the previous maps that we generated through GIS systems, and when you pull
those up you can get all the highways, all the towns, all
the rivers, all the critical infrastructures, such as
hospitals, seniors. Whatever you want, you can get on GIS
system. You can get it and pin it right down to that rail
line and you can make it correspond with this. And
emergency responders have wonderful source of information
that will get them right to the milepost, right to the
spot, that they otherwise would not have the information.

We've been working on that. Unfortunately,
change of personnel on the railroad, it slowed down a bit,
but it's still a work in progress and I am optimistic we
will get the right information out there.

But the status of these rules, it's all not
behind us. There are timelines for implementation. We
have a long wait on some. As you mentioned, 2023 is a long
way away. The Emergency Order and Notification, they're
still working on it.

The AAR, Association of American Railroads, has
appealed the ECP Brake Requirement. And on the other hand,
they would like to not allow just any tank car to carry
these flammable commodities in the fewer than 20 or 35-car
thresholds.

One way to summarize these is you can well
predict any parties opinion about the new rules by how much
it costs them. The ECP brakes will cost the railroads
money. They have to retrofit their locomotives. Tank cars, they don't own the tank cars. Then the American Petroleum Institute has appealed for more time to make tank car retrofits. Their shippers don't want to be slowed down.

On the other hand, environmental groups want the tank cars phased out sooner.

And we have current discussions with the FRA and railroads and Cal OES about the notification requirements.

So let me just try to quickly -- NTSB has been involved since the beginning. I'll just let you read this list at your leisure, including the latest one is the thermal protection for tank cars.

Federal RSAC Administration immediately came out after the Canadian accident with emergency committees, emergency orders. I participated and am on that RSAC Committee as the one state rail safety member, with 67 other members.

Early PHMSA, PHMSA was very concerned about the classification of the oil and it has done a lot of work there, very early and continuing.

Here is a timeline if you want to go through it. The FRA has been very busy, I wanted to make sure they got due credit for the activity that they have put into this.

And here's the summary that I believe I've gone
over, but all of these are still in effect, including even
the administrator meeting with the railroads after specific
accidents and pretty much saying, "Tell me how you're going
to keep this from happening again."

And we'd focus on inspection with state programs.
We have the inspection program here that's critical to
prevention.

And our agency working group was gathered to get
all state agencies that could have some part of the crude
oil transportation into California look for gaps that might
exist between the agencies and coordinate the agencies. I
must say, it's been a great program. I've learned a lot by
sitting down at the table with OSPR, with Gordon, and all
the other folks that are at the table.

CPUC, we have 45 FRA-certified railroad
inspectors. That's more than the FRA in California. And
the primary prevention here is these accidents are caused,
not by the crude oil, but by failures of track, equipment,
operating rules. These first five here are the disciplines
for FRA Certification of Inspectors. Plus we have State
Regulations from Employee Safety. And we have the first
Bridge Integrity Observation Program. We're working with
the Federal Railroad Administration and we're the first and
only state to have such a program.

We also do accident analysis and risk management,
because it's simply not a matter whether there is a regulation, it's a matter of whether it's safe or not, whether we need to attend to it.

Let me just highlight the one here — I know I'm a little over time. I'll highlight the one I'm particularly proud of. That wasn't my doing, our Program Manager for the Railroad Operations and Safety Branch that has those federal inspectors, developed a Crude Oil Reconnaissance Team that actually before the Plains All America went into service, well before that, when the plans were just coming, when the permits were being filed they started reviewing that. And found some things, quite a number of things that we believed helped enhance the safety.

We also have focused inspection. And like I say, we are involved on the Federal Rail Advisory Committee rulemakings. We have quarterly meetings with the railroads, we bring up topics. And we mostly bring up topics of non-regulation. If it's regulated it's cut and dry. You've just got fix it or you can get a defect or a violation or a fine. But issues that are not being regulated we address directly with them.

This is out on the Button Willow Branch that goes out to the Plains All America near Taft. You can see upper-left our inspectors looking at a split stringer beam;
that bridge was rebuilt.

Lower left, the rail that was out there, it was the measure strength is by pounds by yard: 1897 rail, 75 pounds per yard is what was in there. And it's upgraded to 136 pound new rail.

Up in the upper-right what you see going over the track is Interstate 5. You've probably gone over that quickly, as everybody seems to do. But as you notice, the pillars supporting that are very close to the track. If there were a derailment there our concern was -- no regulation -- our concern was you take out a pillar you've lost a major part of infrastructure and possibly created quite a disaster.

So in formal talks with the railroads, and actually no pushback, they decided to go ahead and put a guard rail in there. A guard rail means there's two extra rails in the middle. If the train becomes derailed the train, the car won't continue to go off the track, it'll be guided along the on the ties and make it through to the other side. We'll use those on all bridges, all bridges will have a guardrail like that, for that same reason.

And so finally just other activities, notably here supporting Senator Wolk's bill to require at least two people on the locomotive of a train. We believe, to summarize that, just like there are two cooling systems for
a nuclear power plant, two pilots in the cockpit of an airplane, we believe that the redundancy is necessary on a crew. Plus the tasks that a crew has to perform would provide too much information overload and task overload on one person.

So I'll leave it at seven minutes past time and for any questions.

COMMISSIONER SCOTT: Well, this is another excellent presentation.

I did have one more question for you. I asked most of mine as we went along. You know, you showed us the forms back here on slides 24 through 26, the type of information that you've been getting. How can we get better information or information that would be helpful in this space?

MR. KING: Well, we started off by filing a defect with a violation recommended. And when the railroad started working very cooperatively with us to -- in fact, I had a draft showing that they were -- It was by a person that subsequently retired, unfortunately that showed a layout of information that would give us exactly what we thought the emergency responders would need. Unfortunately he did retire. Part of the problem for that railroad was that he wanted to automate it for their entire system, so then they ran into some automation problems.
The Federal Railroad Administration read their own Emergency Order and the Frequently Asked Questions about that Emergency Order such that this complied. So we had a disagreement.

My understanding is, informally, we've resolved this disagreement and that it's proceeding ahead very well, very constructively. I don't know, quite yet. And it's all happening informally and there maybe something up formal on it soon. But what can we do to do it? Well, we're in talks with the Federal Railroad Administration about this. We've communicated with them, we've given them the detail, they know the issue. And I think we're on the right path to getting good information.

COMMISSIONER SCOTT: Great. Any questions?

COMMISSIONER DOUGLAS: No.

COMMISSIONER SCOTT: Well, thank you very much Paul for joining us today and for your also incredibly informative presentation.

We are at, let's see, it's 12:10. So why don't we regroup at 1:10. So everyone please come back right after lunch at 1:10 and we will start at 1:10 sharp. See you then.

(Off the record at 12:10 p.m.)

(On the record at 1:11 p.m.)

MS. RAITT: Well, we're all here. We can go
ahead and get started again.

So now we have a panel discussion and Gordon Schremp is the moderator.

MR. SCHREMP: I am?

MS. RAIGHT: Oh, and I'll just add one correction to the agenda. Rolando Caabay is not going to be joining us today.

MR. SCHREMP: From the State Lands Commission, yes, that's correct.

All right, well I think the purpose of the panel discussion this afternoon is two-fold. One, it's to provide the representatives of the various organizations an opportunity to make some opening remarks when they introduce themselves. You know, explain to us sort of what your role is in the space for crude oil, ethanol, movement, distribution.

So I think we had some slides in the first part of the agenda this morning talking about the roles and responsibility for your agencies, so I think people have seen those. But if there is something else you'd like to highlight your agency does or gets involved in or we should be aware of, that would be I think a good opportunity.

And then I think we have some questions related to the subject matter today for the respective agencies and I'll sort of prompt some of that discussion. And Heather
is going to let us know if we have some -- I'm sure we have questions from folks online, listening to the Webinar, any folks here. And she'll prompt me for what the appropriate sequence is and what those questions are.

So if we want to do some introductions, Commissioner Scott, is that okay?

COMMISSIONER SCOTT: Sounds good.

MR. SCHREMP: All right. Well, I'll start to my immediate right and we'll go to Ryan Todd.

MR. TODD: Sure. Thank you for having us on the panel, us meaning the Department of Fish and Wildlife and the Office of Spill Prevention and Response. I was one of the speakers this morning, so I will be brief. But for those that are listening online and missed the presentation, our office is responsible for oil spill preparedness and response in the state. Essentially that's oil spill contingency plans, financial responsibility, conducting drills and exercises, incident management and damage assessment for injuries to wildlife and critters. And I'll leave it at that.

MR. KING: Yeah, I'm Paul King, Deputy Director for the Office of Rail Safety, Safety Enforcement Division, California Public Utilities Commission.

The CPUC has the state responsibility for railroad safety, which is prevention. We enforce the
Federal Railroad Administration's regulations as well as state regulations. Our inspectors are FRA certified. And we've been involved in the crude oil issues easily since mid-2013 and at all levels of enforcement including rulemaking and negotiations in Washington.

Just to add a little bit for those who may have missed the earlier presentation, and just to add a little bit to it, one of the concerns we've had about the rules is getting the information emergency responders need to prepare and to be prepared for any situation where there is a spill. And I'm optimistic that we're on the right path here. And obviously we're inventing a new wheel in some regard, but that will get to the point where we can get a meeting of the minds of what emergency responders actually need and want and will be able to use. And what the railroads can provide. I don't think we're quite there yet, but a lot of effort on the part of the railroads to develop computer programs and we'll be looking and reviewing those, as of course, will the FRA which has the lead on this.

MR. DUFFY: Hi, I'm Jim Duffy with the California Air Resources Board. And thank you for inviting me to participate on the panel.

For the past six years I have been a staff lead on a number of projects with the Air Board, but most
recently the past four years I've been the staff lead with
the Crude Oil Provision under the Low Carbon Fuel Standard.
And under that provision I've developed the regulation
language, implemented that portion of the regulation, and
also worked with Adam Brandt at Stanford University to
develop the Oil Production Greenhouse Gas Emissions
Estimator, which is the model we use to estimate carbon
intensity values for crude oils.

And so I've been invited by Gordon to answer any
questions related to LCFS treatment of crude oil, what data
that we collect on crude oil as well as carbon intensity
values. And just how the regulation deals with crude oil.

MR. PENN: Good afternoon, I'm Paul Penn, I'm the
Emergency Management and Refinery Safety Program Manager in
the Office of the Secretary Cal EPA.

As most people fondly remember a big black cloud
over the Bay Area in August of 2012 when the Chevron
Refinery, lacking an effective damage mechanism review, had
significant impact. And from that the Governor established
a working group that generated a report that was finalized
in February of 2014.

In many cases a report is issued and nothing
happens, not in this case. It gave us recommendations that
we've been following, we hope, astutely and assiduously.
And focusing in on number one, safety and prevention;
number two, emergency preparedness response; number three, enforcement coordination. Another component is outreach.

The safety and prevention focus has been on both strengthening and aligning two similar, but very distinct regulations. One is the Process Safety and Management Standard that is a California version of a federal regulation that is in the hands of the Department of Industrial Relations Cal/OSHA. And an analogous one that protects the community and the environment, which is the Risk Management Prevention Program, a component of the Clean Air Act Section 12(r) known in California as the California Accidental Release Prevention Program.

And those draft pre-regulatory regulations were issued on May 26th and 27th by the Department of Industrial Relations and the Governor's Office of Emergency Services. And they're taking parallel but slightly different paths with a hope of adoption June of 2016.

The next component is the Emergency Preparedness and Response of which we have separate proposed regulations we hope to be out in a month or so, again the pre-regulatory phase addressing a separate section for those regulated facilities, which we call under the CalARP Program, Program 4, which are defined as refineries. And then basically the next step up, which would be local regulations implemented by the CUPAs, the Certified Unified
Program Agencies; the local agencies that's enforce several of the environmental laws. I think California has basically driven things down.

The overarching organization is the Interagency Refinery Task Force, which is composed of several of the state agencies, some represented here, plus the CUPAs and Air Districts and strong involvement with the U.S. Environmental Protection Agency. They're running under their own sort of, let's say mandate, and that is the Executive Order 13650, which came out of the Chevron and the West Texas Sodium Nitrate explosion.

So we also have a series of outreach where we have what are referred to as safety forums, of which we've held around 10 around the state in the past 15 months that I've been back to the state.

And that's probably enough for now.

MR. GORHAM: Good afternoon. My name is Bob Gorham. I'm a Division Chief with the Office of the State Fire Marshall. My agency is responsible for the safe operation of 4,500 miles of intrastate hazardous liquid pipelines. We have approximately 50 pipeline operators operating these crude oil, gasoline, jet fuel, diesel fuel pipelines throughout the state. We have an inter-annual certification agreement with the federal government, PHMSA, to conduct the program. We inspect using the federal rules...
on pipeline safety as well as additional California laws pertaining to pipeline safety.

We do not regulate or we are not an agent for the interstate pipelines. And I'll leave it at that.

MR. SCHREMP: Well, thank you panel members for introductions, some of them lengthier than others -- Paul. So I think why don't we work kind of backwards? We'll start with something we've been talking a lot about this morning, of pipelines, certainly.

I mentioned about 30 or 35 percent of crude oil going to refineries can go through pipelines. And pretty much even all of the crude oil being imported by marine vessel does go through a network of pipelines that go to storage tanks, connect to the refineries. So pipelines are pretty much everywhere for crude oil and necessary for their conveyance as well as the finished products produced by the refineries.

So I think for Bob, what's been in the news certainly is the Refugio Oil Spill down there in Santa Barbara County. And could you sort of give us a status update of where things stand on the cleanup operation? And then maybe get it a little bit into, to the extent you can, where things stand on the pipeline? You know, certainly what parts are down and maybe how long it might before that comes back to service?
MR. GORHAM: Yeah, as we -- I can't really comment too much on the investigation. I mean, it's an interstate pipeline, which is under the authority of the federal government. I don't really have a lot more information than what's been made available in the press as far as I do. And the PHMSA has issued some corrected action orders that the Plains All American must do before they're allowed to resume operations. I don't know what the status of that is at this point.

And I understand the beach, Refugio, opened up over the weekend. And there's just some minor cleanup left, but don't really have much more information.

COMMISSIONER SCOTT: Maybe a general question, an overarching general question, about your agency's role regarding pipeline leaks in general maybe?

MR. GORHAM: Okay. Well, basically once a pipeline is permitted we get involved with the design and construction; make sure that it's put into the proper standards. And then we stay with the life of that pipeline as far as the operation maintenance of it, the inspection of it, testing. We monitor their field review and also record review. We do various types of inspections on the operator either it could be operator qualification, their integrity management program, a drug and alcohol.

And then the emergency response portion, we make
sure that they have procedures and personnel available to
monitor their pipelines and respond appropriately. And
until the pipeline's abandoned it's under our jurisdiction.

COMMISSIONER SCOTT: Thank you.

MR. SCHREMP: So for pipeline projects, I mean
for example I think one of the slides I had this morning I
was talking and mentioning there's really no crude oil
pipelines coming into California. But there is one project
in and well you had mentioned the name of the project,
that's Kinder Morgan's Freedom Pipeline, a project they
proposed back in 2013 initially. It didn't get a lot of
customers potentially signed up for that, it went into the
background.

I think more recently it's come back and there
might be some renewed interest in that. I think Kinder
Morgan has changed the scope of the project to potentially
include BHP (phonetic) shipments of condensate in the same
crude oil pipeline.

So I guess my question for you is they're looking
at using some underutilized natural gas pipeline
infrastructure, El Paso Natural Gas coming all the way into
Southern California. So would your agency's role in sort
of reviewing a game plan if one was put forth, would that
be just from the California border on all of that
infrastructure or would the federal government have
oversight over that project?

   MR. GORHAM: Well, without knowing a lot of the
details, traditionally if it's going to be begin out-of-
state, and it's an interstate commerce, then we wouldn't
have any role in that process. Now, if it was -- if they
brought the product into California, for instance, and
maybe put in some tankage or a start point or there's some
laterals off of that line, it's possible those could be
classified as intrastate. And then we would be involved
with a review of that pipeline.

   MR. SCHREMP: Oh, okay. And clearly, the Plains
All American pipeline that was involved in the
(indiscernible) Refugio oil spill that's in California, but
you mentioned PHMSA has the lead on that. And is that
because the pipeline originates in federal offshore waters;
is that sort of how they got the lead on that?

   MR. GORHAM: Well, they're looking at basically
interstate commerce is one of the reasons. When the
pipeline was originally constructed it was connected to a
Plains All American line that went to Texas. But the
company can do what they call a FERC filing, and according
to the PHMSA definitions that can put them in the
interstate classification.

   MR. SCHREMP: So it's almost like a vestige of
how the pipeline tariffs are set up in the description of
their system. That's why the feds have a --

   MR. GORHAM: Yeah, and it's not my system. And I
don't know if there's an opportunity for a review of that
classification or how that's done, but it's more at the
federal level, how they classified the interstates.

   MR. SCHREMP: Okay, great. Thanks.

   I have no more questions for this witness. No,
I'm just kidding, didn't mean to come across as grilling
you or anything.

   So that might change for Paul. So Paul Penn,
with CalEPA, I mean you talked about a subject that we
really haven't covered at all here today, but there's
certainly a nexus with -- the reason crude-by-rail is
coming into California is an interest by the refineries to
access more economically-advantageous crude oil. And
certainly it's get into the refinery arena.

   A couple of these projects are associated with
refineries directly, so your areas that you've been
involved in recently have a lot to do with refinery safety,
which can touch on these projects that go right into the
refineries themselves. So could you explain in a little
bit more detail sort of what's trying to be accomplished at
the California refineries vis-à-vis safety? Is it more
inspection in the facilities by state entities, is it some
change is reporting requirements or monitoring of refinery
operations? I mean, what are some of the real, big drivers here in what you guys are trying to get at?

MR. PENN: First, well I think it's significant to note that traditionally you have projects or events or things are going on that are generated by an event that have occurred previously. So talking about the reason that OSPR came about or the reason the PUC is involved, and sometimes within government we tend to focus on this. And there has not been as good an integration of the pre-refinery, the transportation, and extraction and then the distribution issues. Our focus here is in the refinery itself and we've really tried to reach out and not fully integrate, but integrate as well as possible with the other organizations, so we work closely with all the folks here.

I'd say right now the emphasis is on prevention. We've figured that if our efforts are put into prevention the chances of uncontrolled releases will be minimized. And I would be more than happy to provide to the Commission a detailed presentation on the different aspects of both the process safety and management and the risk management prevention at CalARP programs.

But here the focus again, is in for example, damage mechanism review. Basically saying to avoid the problems that occurred at Chevron where over time sulfidation, which is basically high sulfur crude that was
under high temperature and pressures, basically ate away
the pipes. And if they had an effective damage mechanism
review that likely would not have occurred, because they
would have replaced that pipe and replaced it with a higher
chrome or higher silica content.

But then it also goes into topics such as
hierarchy of hazard controls, so that they identify what
are the outstanding hazards. And they're required to
addressed those. Now, where the ultimate hammer is and
who's the final arbiter of good taste is still somewhat
undefined at this point. But there is a heavy onus on the
refineries.

The model that is used in many cases is the
industrial safety order in Contra Costa County, which holds
four large refineries within the state. And that has been
in place for quite a while and so we have a track record of
things that do work fairly effectively. And there are
basically seven elements including such things as
comprehensive and incident investigation, but most of all
focusing on the prevention side than just going out.

Then there is the question of how does one
prepare for effectively, emergencies that go beyond both
inside the facility and focusing in on worker protection,
and then on outside the facility on environmental and
community protection. So that is an ongoing activity
although I'd say the safety and prevention is the primary emphasis right now. The emergency preparedness response is concurrent. And as I indicate earlier there's also an enforcement coordination and then enforcement coordination works with the different agencies that may have a piece whether it's the air districts, the local CUPAs, the USEPA, any one of a number of other agencies to work effectively together so that there is a coordinated effort.

Does that answer most of your questions? What did I leave out?

MR. SCHREMP: No, as normally, you're pretty thorough, Paul. I appreciate you --

COMMISSIONER SCOTT: I was going to ask about the -- that was very thorough -- about the outreach component, because that was number four I think on your list from your opening remarks. And what are some of the examples that you have of the Refinery Safety Outreach Program that you're doing?

MR. PENN: So as they were beginning this program and again, the event occurred in August of 2012, and there was a series of activities in 2013 and 2014 where they met with the communities. But the formal refinery safety forums, which were mandated, were intended to generate dialogue between industry and the other refineries, workers, community groups and regulatory. So we've held
a series of ones, of which often our featured speaker is sitting at this table, Mr. Gordon Schremp, because of the interest in transportation of petroleum. We tried to avoid focusing entirely on crude by rail, but knowing that that was of great interest to the community although it was not specifically to the refineries. And unfortunately we put him in an unenviable position of sometimes of he would tell us what was going on and they demanded answers of him, of which was not in his universe. But he was skillful and the Kevlar jackets that we gave him before served well.

But we did things on that. We talked about the air monitoring systems around the refineries. There are several that have fairly comprehensive either community monitoring systems, some that are actually fence line monitoring systems throughout the state. There are really three refineries that have effective monitoring systems that we can access right now. And I dare say that you will see comprehensive monitoring within the communities, within five years I would say all of them will have something of significance. That's just a conjecture on my part.

But then we also talked about warning systems. Contra Costa County has a very effective warning system although they did have some glitches during the Chevron event. And they had a flaring event in December 18th of last year where they probably could have used a warning
system, because it had considerable concern to the communities.

Most recently we've held community safety forums down in Southern California in both Carson, Torrance and then in Bakersfield where we actually went over in detail the proposed process safety and management and CalARP regulations. Plus there is a separate project by the California Air Resources Board on emergency air monitoring systems available on inventory right, part of a three-fold project of an inventory, an assessment and recommendations. So they completed the assessment and they've well into the inventory and now they're into the assessment phase.

So we've had everything from 20 people to 100 people. We had simultaneous translation for non-English speaking participants. And we've had some where we've had large community involvement, some where we've had greater industry involvement.

COMMISSIONER SCOTT: Sounds good.

MR. SCHREMP: So Paul, you mentioned the Industrial Safety Ordinance that's been around for awhile from Contra Costa County. Has there been any attempt to replicate that into Southern California where ether has even greater refining capacity than Northern California?

MR. PENN: The CalARP Program is basically a reflection of the Industrial Safety Ordinance and then
takes it to the next step, so that will have statewide
application. If I were a refinery in Northern California I
would encourage the adoption of the statewide, because it
somewhat levels the playing field.

See, that was short.

MR. SCHREMP: And certainly I think unplanned
refinery outages, which was the case at Chevron Richmond
that you mentioned in your other set of comments, that's
certainly something that we've seen here in California can
have a significant impact on fuel pricing. We see
temporary supply tightness and a rapid escalation in
prices, something we've had, I think, in a significant
number of unplanned outages this year in California.

So has your agency looked at refinery unplanned
outage frequency, done any sort of an analysis like that or
looked at some primary root cause analysis of unplanned
outages to see if there's any sort of pattern or changing
trends? Have you done any of that sort of work?

MR. PENN: The short answer is no. But the thing
that jumps out at us right now was the February 18th
explosion of the ExxonMobil facility in the electrostatic
precipitator that caused a partial outage within that
facility. So we have not done the analysis and I'm happy
to say that there are unplanned outages, but the number of
events that have had either impact on worker safety or
community safety have been fairly limited in the past number of years. So we're hoping that we'll even reduce that greater. As we say that when you deal with hazardous materials they are hazardous. And when you put people and hazardous materials together eventually something is going to go wrong. We're trying to minimize that and I think we've seen significant progress.

And many of the aspects in the proposed regulations, many of the refineries are doing already, but not in a comprehensive and integrated fashion. I daresay after these regs are generated we will have much more data, because there are reporting requirements that we will be able to get much more information out of. And the place that you'll probably get some of the best information is most likely out of Cal/OSHA, because they have an established process safety and management program.

MR. SCHREMP: Thank you very much, Paul.

So we'll switch gears a little bit here. So Jim, you mentioned -- I think everyone here knows the California Air Resources Board has a Low Carbon Fuel Standard for gasoline and diesel to reduce that carbon intensity over time. And then you mentioned that another aspect of that program is a crude element, to monitor and try to reduce the carbon intensity of crude oil being used by California refineries. So could you expand on that a little bit? I
think there's a couple of aspects of that. There's a data
collection activity that the Air Board undergoes trying to
identify those different types of crude oils. And there's
also a monitoring activity that looks at how potentially
the carbon intensity is changing over time. Could you
maybe give us a little detail on that?

MR. DUFFY: Sure. In December of 2011 the Air
Board approved what we call the California Average Crude
Oil Provision, which is what we're operating under today.
And this provision is designed to hold the line, so to
speak, against increased in crude oil carbon intensity.
And not individual crudes, but rather on a California-wide
average basis.

So under the California Average Provision we have
set a baseline carbon intensity for crude oil supplied to
California during the baseline year of the regulation,
which is 2010. So we took the individual crude carbon
intensities for all the crudes that came to California in
2010 and calculated a volume-weighted average of those
carbon intensity values. And that sets the 2010 baseline.
And then each year of the regulation we redo that.

And so the regulated parties for CARBOB and
diesel, which are the refineries in California, they report
to the Air Board on both a quarterly and an annual basis,
the names and volumes of all crudes that are supplied to
their refinery. And so each year we recalculate what we
call the Annual Crude Average Carbon Intensity. And then
we kind of aggregate that. We calculate a three-year
average and that was at the request of the industry kind of
to even out any big changes that may occur on a yearly
basis, they wanted a three-year average. And we compare
that three-year average to the 2010 baseline.

So if the three-year average is greater than the
2010 baseline then the refiners are assessed an incremental
deficit, an additional deficit on all CARBOB and diesel
that is sold in California. And that deficit is
proportional to the increase that we observe between the
annual value and the 2010 baselines.

So just as a summary, we have quarterly and
annual reporting of all crudes and volumes. And we
calculate these annual crude average carbon intensities
just to ensure that the overall California average isn't
increasing over time. If it is increasing then the
regulated parties are assessed a deficit. If it decreases
over time then really nothing happens. So it isn't really
designed to decrease the crude carbon intensity, but rather
to hold the line to prevent increases.

MR. SCHREMP: Okay. Thank you. So here we're
into 2015 now and I think recently your agency has released
the 2014 analysis, the results. So what has happened to
sort of that average basket of crude oil the refineries have used? Is it sort of about the same, has it changed a little bit, relative to the baseline?

MR. DUFFY: It is pretty close to the same, slightly less. The 2010 baseline is 11.39 grams per megajoule. For 2014, just the 2014 year itself, it was 11.19. The three-year rolling average, which combines 2012, 2013 and 2014 was 11.3. So over that period it has been slightly less than the 2010 baseline, but pretty close.

MR. SCHREMP: Okay, thanks. I know we talked a little bit this morning about crude by rail and certainly it begs the question of where might that crude originate from? And clearly I think some of the projects in California and those in Washington state have talked about Bakken Crude is one natural source, especially if you go further north into Washington in crude-by-rail receiving facilities. And then certainly Canadian crudes, both in some conventional, but for the most part either synthetic crude oil or some heavier crude oil coming out of Canada.

So with regard to kind of like North Dakota, heavy crudes, synthetic crudes, where do those kinds of crude oil types stack up relative to the average? Are they in general, higher or are they kind of similar to what's coming into California now?
MR. DUFFY: Yeah, as I am often reminded the crude oil carbon intensities kind of fall upon a continuum. And we see that in the analysis that we do. If you look at a lot of the crude that's coming out of the Bakken region the carbon intensity value that we've calculated for that crude is just a little bit less than the 2010 baseline average. It's about somewhere, if I remember correctly, on the order of about 10 to 11 grams per megajoule.

I will caution that statement however, in that the OPGEE Model, the Oil Production Greenhouse Gas Emissions Estimator model that we use does not have a specific module related to fracking and some of the additional emissions that may be present when you produce out of tight oil formations.

So delivering frack water, frack sand, chemicals to the site, any emissions associated with pressurizing the flue to frack the formation, emissions associated with flow-back if there's any venting fugitive emissions and then disposal of fracking wastewater. That is not explicitly modeled at this time. We do however have a contract currently under way with Stanford to expand the model to include a fracking module so to speak that will capture those emissions. So when I say a CI value for Bakken on the order of 10 to 11, in actuality it may be a little bit higher once that modeling is completed. But I
can't see it increasing significantly above the average at all.

With respect to heavy crudes that come out of Alberta, there are a number of different production methods up there. Some of which may have carbon intensities that are below the average, some of which and many of which have carbon intensities above the average. So there is cold heavy production that occurs in Alberta crudes on the order of 15 to 20 API gravity. Often times, at least as far as our modeling, those have been coming in a little bit below the 2010 baseline.

But similar to California there's also thermal production: SEGD and Cyclic Steam Simulation and carbon intensities for what we call diluted bitumen. Those are generally transported as a mixture of about 75 percent bitumen and then about 25 percent natural gas liquids. Carbon intensities generally for those crudes range on the order of maybe 15 to 25 grams per megajoule, very similar to California heavy production.

And then there's the mining, the oil sands mining, which is usually upgraded. And oil sands mining with upgrading generally varies on the order of about 20 to maybe 30 grams per megajoule depending upon whether the upgrading is integrated with the mine or whether it's a separate upgrader from the mine.
COMMISSIONER SCOTT: I have a question for you. You mentioned, back kind of to the data that Air Resources Board collects, you mentioned you got quarterly and annual reporting of all crudes and the volumes. Is there other information on crude that you collect?

MR. DUFFY: Under this provision, no. It's just that information. We do have a separate provision, which is called the Innovative Crude Production Method Provision. And under that provision, oil producers that implement what we call innovative methods, which range from like solar steam to carbon capture and sequestration, solar and wind electricity used on site, those type of innovative methods that will reduce greenhouse gases -- they can receive credit for the emission reduction associated with those projects. To date we have not received an application for any of those projects, but we're expecting some to be coming in soon once we readopt the regulation.

And there will be separate reporting requirements for those crude producers, but as far as the refineries are concerned it's just the crude names and the volumes.

COMMISSIONER SCOTT: Thanks.

MR. SCHREMP: So I understand that in shale plays, new areas of shale plays, by consequence of there not being a lot of infrastructure there when they -- certainly when they bring wells online there is a lot of
flaring. And so it goes on and you can see that from some of the satellite imagery at night. So flaring is certainly greenhouse gas emissions and then some of the methane leakage that can go on as well is not actually being burned. So does OPGEE capture that kind of activity as well or that's already being captured?

MR. DUFFY: Yes, it is. And the data for that flaring comes in a number of different forms. For many of the states within the United States we get that data from the state governments where they'll track the flaring rates. We also for internationally produced crude oil, the NOAA, National Atmospheric and Oceanographic Organization (sic) I guess, something like that, they do satellite imagery of the entire world. And they detect flares using satellite imagery and based upon calibration they can take the light intensity from those flares and calculate a flaring volume.

And so OPGEE for any crude production where we don't have better site-specific data OPGEE uses the NOAA flaring volumes that are captured via satellite.

MR. SCHREMP: Thanks, Jim. That was helpful.

Well, maybe I think we'll shift over to some of our morning presenters. I know that they were very thorough, I thought, in coverage of their topics, so I thank them for that information. And I just want to sort
of open it up to them and we'll start with Paul King.

I know you talked about a lot of, I guess interaction with the federal efforts, because there's federal preemption, there's federal regulatory development that holds sway over operations in California to a large extent. But you have a seat at that table, because of the knowledge and expertise and you've been able to get a lot of input into that space. So other than what has been promulgated recently by PHMSA, are there some other areas that you think need attention specifically in California, that you would like to see some additional efforts?

I know there's so much effort right now to tie up these recent regulations, work through some of the advanced train reporting that you mentioned this morning, that is very critical to first responders. But are there some other areas that haven't been getting a lot of air play, but maybe something that your agency is tracking or has concerns that you think need some attention and should get some attention in the near term here?

MR. KING: Well, a couple of areas come to mind. One is ever since the tragic Chatsworth Metrolink train collision there's been an effort, and now legislation to implement what's called positive train control, which could have great safety value for any train. It was originally targeted, because of the passenger train collision and I
think, those 25 fatalities. That is supposed to be implemented nationwide by the end of this year.

The railroads have pointed out, and we're pretty sure that this has been the case, we've been following it, that there have been difficulties out of their control such as obtaining the radio spectrum necessary for the communication between the satellites, the back offices, the wayside and the locomotive to implement this system that will automatically stop a train before a collision.

The various parties have different views of how far out the deadline should be extended. As far as 2023 was one request in Congress and that's in a bit of a state of flux right now, but it needs to be fleshed out. It needs to be resolved. And it needs to be applied to these high-risk routes and we're watching that. It is an area where the state is preempted. It's obviously a national network crosses state lines and has to be interoperable between not only railroads, but between political borders as well.

For example, my understanding is the Klamath route, which is the only Bakken route, the only route that's been used for Bakken so far is actually called "dark territory." There are no signals even there. Trains operate by track warrants, which say you'll be in this siding to let the other trains pass at a certain time.
It's not the best system. It is a low-traffic route, but still that's one area that positive train control would be well-utilized but, of course, in all the other high-volume areas.

Another issue is the volatility of the Bakken Crude. I don't think that's been entirely resolved. I think Congressman Garamendi may still have a bill proposing to have a national standard for volatility for shipment of crude by rail. North Dakota has developed a standard. And not being a chemist I can't comment on that, although I do know quite a few people do and say that the standard is too high. It should be lower as far as volatility, so that's something that I would say needs to be resolved nationally as well.

And, of course, in California we do have issues where we're developing a program. One program is the Bridge Safety Program where we're working very closely with the Federal Railroad Administration. And I must admit too, I give them credit, the railroads have been very cooperative in helping us get up to speed, so we can provide that kind of oversight that the public should have.

Offhand otherwise, you know, for me it's almost the bread and butter of our work and that is just preventing any derailment for any train for whatever reason. And again, working for the highest risk, highest
likelihood and highest consequence accidents and working
down and looking for areas that aren't regulated. And what
we do there, of course, if we can work it out informally
with the railroad to get the same result if we worked
formally that's great, it saves everybody time, it happens
faster.

Otherwise the PUC does have two avenues to craft
a new regulation and one is on its own, if the subject
matter is not covered by the Federal Railroad
Administration. And if it is we can work through the
federal processes and you can petition or suggest an RSAC
task.

MR. SCHREMP: Yeah, as like a couple of following
questions too -- so thank you for that, Paul, that was very
helpful.

So it's my understanding on the volatility of
Bakken Crude, the associated natural gas for that, that the
regulations North Dakota has put into effect are such that
they bring down the volatility of that crude oil to that of
like say, gasoline. Isn't that the standard, that it can
be the same as gasoline being shipped? So the complaint is
that that's still too high, but I think that's sort of a
national hazardous materials classification or packaging
classification, no greater than gasoline, nothing in cases
it was higher.
So from what you're hearing is it that they want to get that down even further to sort of a new classification or Bakken that has in-trained natural gas. Is that kind of where people might be headed?

MR. KING: Well, again I don't know. You may know more about this than me, it sounds like you do. But no, I don't know what criterion they had used and the criticisms, I don't know. I've never validated them myself, but one of the criticisms that I've seen out there is that the volatility is about the same as it was in Lac-Mégantic, the standard. So again, on its face if that were the case that would not be good. And I don't know what criterion the proponents have for reducing it further.

MR. SCHREMP: Okay. And then what you were talking about this morning, about working with the Class 1 railroads with regard to advanced notification. And I think to paraphrase one of your comments about they certainly know where their trains are and what's in their trains from their operating system, sort of their control centers if you will.

So I had a question regarding unit trains, (indiscernible) saying unit trains whether that's say for coal or grain or oil that's sort of a priority rail movement. You know, once they get going they sort of don't stop until they get to their destinations. And they have
to do some sort of scheduling ahead of time to see where
these trains are going throughout the United States and
even internationally into Canada to make sure all of that's
sort of coordinated. So do you know how far in advance
they look at unit train movements as opposed to say,
manifest cars? Is there some sort of rule of thumb, is it
like weeks in advance they sort of know or is it much more
near-term than that?

MR. KING: Well, just to clarify a couple of
things. My understanding is the highest-priority trains
are the ones based on value and timeliness and generally
those would be the double-stack container trains. They
contain very high-value things such as electronics, so they
would generally have a priority. As well Amtrak has a
priority, because they have a schedule agreement. I would
say as far as a priority over other trains, the bolt
(phonic) trains aren't necessarily a high-priority
scheduling train. They very well could take a siding on a
single-track railroad.

The most important point for a unit train is that
it's not put into a terminal and switched. For example, a
train coming out of Chicago that goes through Omaha -- I
don't know the eastern routes very well, but just
hypothetically -- could go into the yard there in Omaha and
be switched. And some cars might not get out of there for
a few days depending on their priority. The unit trains go from origin to destination without being switched and that's why there's an economy there for any new equipment like electronically-controlled brakes.

As far as scheduling goes the railroads are certainly a lot better than when I worked on them in the '70s about scheduling. But still there's so many variables about schedule that I would say when the Federal Railroad Administration sent a week's expectation out that was a very reasonable timeline, because it is a matter of days before a train gets here from the Midwest or North Dakota. So I think that was a reasonable timeline as far as a precise scheduling.

Still, that goes to the question of exactly what do emergency responders' need? How are they going to prepare and what kind of advance notice do they need to have? I really need it for those two: the emergency response planners and experts. We just will take what they advise and advocate for it.

MR. SCHREMP: Thank you. And I guess kind of a final question I have is you briefly touched on it this morning -- I mean, you covered it in great deal, which was excellent, what's been going on with PHMSA and the FRA. But I think there was a brief mention of there's some Canadian activity certainly in the arena of both safe
operation of trains as well as the rail tank car safety
standards.

So from what you can tell from what Canada has
proposed, and what has been proposed federally, are there
still some either gaps or there's some areas where there is
not alignment? Because clearly rail tank cars go into
Canada and rail tank cars come out of Canada in the North
American Rail Network. So are there still some
misalignments that is being worked out or is everything
sort of dovetailing now in the arena of safety for both
Canada and the United States?

MR. KING: Yeah, I've been watching that. And
it's been nice to see actually ever since the Lac-Megantic
accident, we've seen the NTSB, the U.S. NTSB work closely
with the Transportation Safety Board of Canada. In fact, I
think NTSB participated in that investigation in Canada and
they've come up with similar recommendations.

As far as the regulatory side, FRA and PHMSA,
part of the problem there is Canada has different processes
and procedures written into law for promulgating
regulations different from the U.S. So the timeline has
been off, it's been hard to coordinate, because one country
can't quite know what the other country is going to do yet.
But otherwise it seems like they're on the same page. And
there's been a little bit of delay here or there for one
side, but they're coming together.

They will be harmonized. The tank car standards very clearly would be the first area of harmonization. Electronically-controlled brakes, I believe Canada was looking at doing that, but decided not to be the first one to do it. The FRA has put out the regulation, I think Canada is going to come along. This is something that's all in progress and is watching, but my view of it, what I've seen is that it will be harmonized. I mean, obviously if it's good for safety in one country it's good for safety in the other. And the necessity to have interoperability of course will push that as well.

MR. SCHREMP: Well, that's good news. I was looking for the word harmonization, so thanks Paul. That's good to hear.

MR. KING: You've prompted me well.

MR. SCHREMP: It sounds like on all facets there's a tremendous amount of progress being made to achieve alignment. So that's, I think, really good news. And I think I lied, there was one other question that came to mind. It's my understanding based on ethanol movement, that became I think interdicted significantly, there was some snow, some weather issues, there was some upset with ethanol railcar movements. And so as a consequence of all of all that activity there's a requirement for a weekly
report on how my rail activity is going. And sort of what
I've seen is this STB I think has these. And so there's
like how much time delay off of normal and how many
d diverting cars, so there's a variety of statistics that are
reported. So have you looked at any of that information
and found any of that to be potentially valuable with
regard to train activity in California or is it not
granular enough in its information density?

    MR. KING: Well, we haven't watched the volume so
much as they vary from week to week, because like I
mentioned before most of our work is preventing derailments
no matter what train. And the ethanol I can't respond to
that, but the team I mentioned before, the crude recon
team, they're also looking at ethanol and the routing. And
they're on top of that.

    Ethanol has been coming into the state for quite
a while. And there's an interesting observation where if
you look at the dates of the derailments and the trains
that have exploded, for ethanol they seem to have stopped
about the time the crude oil trains started. In 2012 was
that last Montana one. There's an exception, during this
last year there was one in Dubuque, Iowa that derailed and
three or four cars burned. And there was quite a large
fire.

    But, you know, as far as the day-to-day
variability we have not been on top of that. Our folks are mainly out there performing the inspections, like I've said before the bread and butter, to keep them all on the track.

Mr. Schremp: Yeah, and it's a good point you mention about ethanol and the use in California. You're absolutely right, the lion's share of the ethanol used in our gasoline is imported from outside of the state. It is in rail cars and I neglected to have a slide on that this morning, I apologize. But we do track what comes in by rail, all commodities and I know we're just talking about crude oil. But by far and away, the largest volume of material is ethanol, hands down. And so I think it was a nexus of 1.4 billion gallons in 2014, so an awful lot of it coming by rail.

And whatever gasoline does over time, and the degree of instate production, will determine sort of what comes in. And there could be some reduction of ethanol by rail if companies start bringing in some additional ethanol via water say from Brazil, because it has a lower carbon intensity to help achieve compliance with that part of the regulation. That might be something that sort of reduces the ethanol rail movements into California, but I guess certainly time will tell on that.

Well, I guess we're coming to Ryan here at OSPR. I think probably I'll offer up the same sort of question to
you that I did to Paul King, because you brought a great
deal of very beneficial information to us this morning.
Are there either some other areas that OSPR thinks is
pretty important, that needs some additional examination or
things seem to be going pretty good as far as you're
concerned?

MR. TODD: Well, as you know we're now a
statewide program and so that's new for us. You know, the
other agencies here, you've been statewide your whole life
so to speak. So it'll be interesting for us to see how our
requirements for spill plans and drills evolve inland in
the inner part of the state, because there are facilities
there that are not going to be as familiar with these
requirements. And how are they ready to manage an
incident, because we expect the operator to show up and at
least initially start running a spill.

That works out pretty well in the marine side,
because it's been going on for 24 plus years. But that's
something we'll have to really track, because obviously
earlier management of a spill is critical to getting a
handle on it and figuring out what the best response
strategies would be and figuring out what equipment needs
to show up initially.

We're meeting with Rail in August, our regs might
be out in a few weeks, so we'll see if maybe that meeting
gets postponed for them. You know, they might want to look at the regs before the meeting. They've seen a draft already, but this'll be the final version. So hopefully that meeting will be about how their response planning and capabilities are going to evolve here in California. But like I said, that meeting is still in the works, and we are looking forward to that meeting.

And then PHMSA had the Advanced Notice of Proposed Rulemaking about oil spill planning requirements for rail. And that was about a year ago, so PHMSA has been pretty quiet. PHMSA and the FRA have been pretty quiet about our program as it applies to rail, so it'll be interesting to see what PHMSA and the FRA come up for with the Spill Planning. Again, that's a big unknown for us, but we're looking forward to working with them. And if they want to reach out to us we'll gladly provide input and hopefully develop something that works for California and for them nationally.

And that's about it. I mean, again for us it's going statewide that's new. And that's a developing and evolving situation.

MR. SCHREMP: Okay. Thanks for that. I actually wanted to touch base with you just a little bit, if we will, on something similar to Paul King about getting sort of an advanced notification of trains whether that goes to
the SRP (phonetic) or the OES. Your agency has been
working a couple of decades in the arena of marine
movements, certainly. So you do receive some advanced
notification of marine movements ahead of time, could you
sort of explain how that works and what you're getting?

MR. TODD: So the Coast Guard requires notice of
arrivals for vessels and our staff receives those notices
from the marine exchanges in the state. And with that
information we decide which ships to go aboard. But for
rail movement it's my understanding -- I don't think our
staff receive those notices. As I recall the legislation
was pretty tight on how those notices were distributed.
And I don't think we can get those.

But our requirements are based on reasonable
worst-case spill. So even if we don't get the notice, our
planning standards are going to be such that if there's a
large incident we should know -- the idea is we would know
what to roll out and how quickly it can get there. As one
person said, if you know one large train has come through
you have a good idea of what you need to do to prepare for
it.

Thanks Paul Penn.

MR. SCHREMP: So kind of I guess a final question
to is -- and you may not have the answer and that's okay
and you could think about that, and maybe circle back with
us. Is there anything -- as I explained and as you're aware, we do collect a lot of the information here at the Energy Commission -- I just wondered if there is anything that we could do to help work with your agency and even the other agencies here at the table, that we could provide some input into data collection that we do. Or summaries of information, awareness, whatever that might be if there might be something we can help out there we'd be happy to do so.

MR. TODD: Sure, I appreciate the offer. Our office is generally not a source of data generation like you folks do. But as you know the Board of Equalization collects the fee that funds our program, so that's as close as we get as to sort of a data collection entity. But I appreciate the offer.

MR. SCHREMP: Well, I guess at this point I didn't have any other questions. Commissioner Scott, did you want to open this up to others that might have questions or how would you like to proceed?

COMMISSIONER SCOTT: Yes, that sounds good. I've asked all my questions as well.

MR. SCHREMP: So Heather, how would you like to proceed at this point?

MS. RAITT: Well, we can just move on to public comment. I don't know if anyone in the room had questions
or comments? If not, I know there's one person on WebEx.
Syreeta Williams, I think your line is open Syreeta, if you
had a question? Sounds like is your mute on Syreeta? We
don't hear you if you're there.

Okay. Anyone else? So we can go ahead and open
up the phone lines then and see if anyone on --

MR. SCHREMP: Syreeta just messaged me, she
doesn't think we can hear her on her mic.

MS. RAITT: Okay. So we're having some WebEx
problems with getting Syreeta on here.

COMMISSIONER SCOTT: Could she maybe type her
question to you and you could read it from there or we
could try again to open up her line?

Maybe while we're waiting, did the panel members
have any questions for each other? Okay.

MR. KING: This is Paul. I just have a comment,
I just really appreciate this forum. And I really
appreciate the information that Gordon is able to pull
together. I've used it many times when folks ask me
questions about the issue. He's the go-to guy. His
PowerPoints are to be envied and I've used them any times
and I watch for them and tuck them away safely. So thanks,
Gordon and thanks to the Commission for providing this
venue.

COMMISSIONER SCOTT: Thank you all for being
here. And I will second your remarks about Gordon's fantastic PowerPoint presentations.

Any luck with Syreeta's line?

MS. RAITT: No, but she's written something out that we can try to get, it will take a few minutes though.

MR. PENN: While we're waiting I did drop off a two-page fax sheet on our ongoing activities that I dropped off up front. I have a copy for you if you'd like and there is much more additional information on the Interagency Refinery Task Force at the CalEPA/Refinery page that will give you information on the proposed regulations, a number of the presentations including one of Gordon's. So again, that's a resource that is made available.

COMMISSIONER SCOTT: Thank you for that.

MS. RAITT: All right, I can go ahead and start reading her questions. The first one -- actually the second one in the order was what kind of crude is expected to arrive in California via crude by rail?

MR. SCHREMP: So this is Gordon, crude by rail receipts I think, the projects we've looked at, can certainly fall into two categories. One is in some cases to be able to receive crude oil that is obviously heavy, because there's a steam operation at the receiving end. So they'll want to warm that back up to extract the crude from the rail tank cars and other non-heavy crudes coming into
California. So I think from a refiner perspective they would certainly look at wanting to bring in what they refer to as advantaged crudes. Meaning discounted crude oils relative to what they can purchase on the open market here on the West Coast at international prices, which the foreign crudes relate to those prices, because they're all in competition with one another.

So I think there's no specific detailed forecast. And even if there was and I were to offer one it would be wrong. I know that for a fact, because what's changing are both the relative prices of the crude oils in these various points of origin, the amount or lack of pipeline takeaway capacity in these producing regions, which affects their local value. As well as refinery projects throughout the United States and in Canada that are modifications designed to handle greater quantities of light crude oil now.

This is a change from seven or eight years ago, when modifications at refineries were designing themselves to handle heavier crude oils. Those were the crude oils that were coming online incrementally speaking. And so refineries had to tool up in the United States to handle the heavier diet. Well, that's all now changed.

So I guess my point is that there's a lot of moving factors here that will ultimately dictate what crude oil comes in. And probably the most important factor is
going to be whether or not -- to what extent these projects are obtaining approval ultimately. How many will ultimately dictate where the crude -- how much crude oil comes in and where it comes from will depend a lot on what the refineries are trying to achieve.

And I guess another couple of points on that, I should point out what do refineries -- sort of how do they handle the crude oil they do receive? It's not like a trainload of crude comes in, they put that in a storage tank, and then will process it. Actually it's quite different than that. Refineries will actually blend crude oils they have in storage tanks and then process this blend. And so why are they doing that? They're trying to get their crude oil, that's in that blend, to be in a range of proper use whether that's the density of the crude, the sulfur content, the amount of total acid number. Properties like that, that can have an impact on their operation and certainly most importantly, how that crude oil behaves when they cook it, when it's distilled.

So the distillation course of the crude oil depends on what kinds of ratio products you get out at the refinery level. So what are the targets? The volume of fuels that are produced based on their refinery equipment. They have a limit, there's a range, and they're flexible, but it depends a lot on what's already in place at the
refinery and the quality of the crude oil they're feeding into their system. So they can vary that quality by changing the mix of the imports or purchase of crude oil to a little bit heavier diet or a little bit lighter diet.

So that is something that keeps moving all the time, so there's no definitive answer for you I'm sorry to say. But I guess a final point in that is the refineries in California are pretty sophisticated. I think Jim Duffy from ARB knows of this in their examination refinery capability and complexity. And so they can essentially handle almost anything, real heavy crudes, real light crudes, anything in between. So that's what the crude by rail is. They're looking for what's the best price and how's that going to fit into their system for the products they want to make in every refinery capability that they have.

MS. RAITT: Thank you, Gordon.

So her comment was in reference to your slide 11, the statement that says, "Increased crude oil by rail is likely to back out marine receipts of similar quality." You may have already answered this one, but she had two more questions.

The next question was, "Where will most of this crude oil by rail be sourced from?" And then I'll go ahead and ask the next one. It was, "What sorts of foreign
grades from what countries will the crude be backed out from California?"

MR. SCHREMP: Well, I think that means -- I mean I guess simplistically speaking, if you're looking a project and you're targeting some light crude oil to bring into your refinery. And you're already using a significant amount of light crude oil from a specific destination -- so this something you see up in Washington State where Alaska oil is declining. And replacement was occurring from some lighter oil coming in from the domestic lower 48.

So in that very simplistic example you'll replace light crude oil imports by rail with light over the water, for wash and shift refineries. The same will be in California, if you can replace that, that's fine. But you have to keep it in perspective of the relative volumes. Crude by rail in California in 2014 was one percent of all crude oil processed by refineries. So it's not like you're replacing tanker-fulls of crude oil coming in from Saudi Arabia. It's a significant volume differential.

Now, fast forward a couple of years and we have some prudent and operating crude by rail projects and that dynamic can change. But also keep in mind that, for example, the Plains All American facility in Bakersfield, that project puts crude oil into the headwaters of the pipeline distribution system going north to the California
refineries and south to maximize potential customers. So then once again, what portion of their total crude oil imports is now coming from say rail? So if it's still rather relatively small you won't replace a lot or all coming from a specific country. But certainly the easiest replacement is if a light crude oil comes in, you replace and decrease foreign imports.

So when you look at the Crude by Rail Project in Colusa County or Tesoro Savage Project, their target is California. So whatever is coming into the facility is going to be coming in to California and that kind of rail marine movement will displace foreign marine imports.

And it will likely be something of similar quality, but see we don't know what that will be. It will likely be some mix of heavier and lighter crude oils, but ultimately we don't know.

COMMISSIONER SCOTT: Did we have any other public comment?

MS. RAITT: We may have one more, no? Do we? Maybe we can open up the phone lines, so if you're on the phone this will be an opportunity to comment. If you don't have comments please mute your line. It looks like we're done, we don't have any comments.

COMMISSIONER SCOTT: All right. I tried to write a brief summary of what I heard during the day. And it was
a lot of really good information. It's great, I think, to help give a finer point and really help us understand in more detail the different agency roles.

And this is a space where there are a lot of moving pieces, right? We've got the pipelines. We have waterways, we have railroad tracks, refineries, tank cars, terminals, storage tanks and each agency has a different component of that. And so I'm glad to have everyone convene -- not everyone -- but all of the state agencies convened here at the table today to help talk about that.

All of these components also have a federal and a state and a local, so it does get a little complex when you're trying to figure out who does which part. So I appreciate you all coming here to help provide additional clarification.

I think some of the things that I heard during the day where we listened from the OSPR presentation, we heard about the Oil Spill Contingency Plans, the expansion to become a statewide agency and include all surface waters. We learned that working with UC Davis we have some of the best wildlife recovery centers and plans in the country.

And we learned a lot about certifying the responders, the subcontractors and the contractors who actually go out and help respond to the spills and making
sure that they're all certified and can actually carry out
the work that they said that they would be able to get done
for us.

From the Public Utilities Commission we got a
great update on what's going on federally including the new
braking provisions, provisions for stronger tanks, for
speed limits for trains depending on which areas they're --
driving's not the right word, I guess training, through?
We know that we need better information on a specific
product and it volatility that's in the rail car and that
that's something that we're still working on.

We understood some more about some of the
critical areas of concern along the tracks here in
California. I thought that was a very informative map that
you had at the beginning of your presentation, Paul.

We talked about how the Public Utilities
Commission folks are out there every day performing
inspections. And we saw some of the places that they're
looking at. For example, that I5, the bridge over I5 and
the train track below it.

And we talked and this was kind of a theme all
the way through, I think, of the day -- the type of
information, and how important it is that we get the right
type of data, so that the emergency responders and the
people who are working really hard in this space can most
effectively do their jobs. And in some cases we have a lot
of the information we needed, some cases it seems like
there's still some data gaps or some ways that the
information needs to be presented in a different way so
that we're able to use it.

We learned from Air Resources Board about the
carbon intensity of crude oils in California and how you
measure that and the type of data that you collect to be
able to do that.

We heard from CalEPA a focus on safety and
prevention, most especially prevention. And we talked a
little bit about damage mechanisms reviews or the hierarchy
of hazard controls and how important that could be. We
also learned about the Emergency Preparedness and Response,
the enforcement coordination and the outreach and the types
of workshops that CalEPA has been hosting all around the
state over the last 18 months or so.

Let's see, we heard from the State Fire Marshall
also about what they are working on in terms of pipelines.
And a lot of what they focus on is the design and
construction, the maintenance, inspection, testing
procedures and personnel to make sure that again we can
respond appropriately when needed.

We heard from Gordon's very thorough presentation
about the trends, the trends that we're seeing in this
space. You know, the prices, where crude oil is being produced, where is it coming from, how is it getting to use here in California. And I thought that that was interesting as well. And then some themes that I heard across all of the presentations were that a lot of this is under federal jurisdiction, so we need to work closely with our federal partners to make sure the different safety things, the training, some of the information that we need is provided.

We have most of the state agencies here, I think, but we also learned how important it is for the local jurisdictions, because a lot of times the things that we're talking about and put in place go to the local jurisdictions. And they are the ones who are on the ground in making sure that things get taken care of.

We talked a little bit about best practices, highlighted some in Contra Costa County and other places, in thinking about how can we take those and put those in place. And a theme, again that I heard, was really trying to figure out how do we make sure that everyone has the best data and information that they need, to be well prepared and well trained to do the best job that they can, in each one of these spaces that we talked about today.

So I really wanted to thank all of you for your participation. You've been an excellent panel. We had
great presentations this morning. And I thought we had a really thoughtful discussion this afternoon. And I'm going to turn it to Heather just to kind of walk us through next steps, so people know how to provide additional information if they would like to comment.

MS. RAITT: Thank you, Commissioner.

I would just like to thank the various speakers as well again. It was very informative today. Written comments are welcome and due on August 3rd and the Notice on our website provides the instructions for how to file comments. We're using the e-Filing System now, so you can go ahead and use that. And if you have any questions just contact us and we can -- myself, Heather Raitt, or Raquel Kravitz and we can get you some more detailed instructions if needed.

COMMISSIONER SCOTT: Great and a special thanks to Gordon for his terrific putting together of today and his terrific moderation of the panel. And to the IEPR team for, as always, making sure everything runs smoothly and well.

So I think with that we're adjourned. Thanks everybody.

(Whereupon, at 2:33 p.m., the workshop was adjourned)

--oOo--

REPORTER’S CERTIFICATE
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.

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

IN WITNESS WHEREOF, I have hereunto set my hand this 70th day of July, 2015.

[Signature]

Kent Odell
CER**00548
TRANSCRIBER'S CERTIFICATE

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 transcribed by me, a certified transcriber and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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

IN WITNESS WHEREOF, I have hereunto set my hand this 27th day of July, 2015.

_________________
Myra Severtson
Certified Transcriber
AAERT No. CET**D-852