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CALIFORNIA ENERGY COMMISSION

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WORKSHOP ON GROSS GASOLINE REFINING MARGIN FRAMEWORK

HYBRID VIA IN-PERSON AND ZOOM

THURSDAY, SEPTEMBER 12, 2024

10:00 A.M.

Reported by:

Martha Nelson

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P R O C E E D I N G S

10:04 a.m.

THURSDAY, SEPTEMBER 12, 2024

MR. SMITH: All right, once again, good morning, everyone. Thank you for joining this California Energy Commission SB X1-2 workshop. My name is Jeremy Smith. I'm a Deputy Director in the Energy Assessments Division. Today's topic is the maximum gross gasoline refining margin and penalty.

Next slide, please.

Before we get started, I'd like to share some housekeeping items with everyone.

First, please be aware, this meeting is being recorded.

Second, we welcome and appreciate your feedback. We have time allotted for public comment at the end of the presentations. We also welcome written comments, which are due by 5:00 p.m. on Friday, September 27th. We'll have slides with instructions on how to provide written and oral comments later in the presentation.

For in-person attendees, restrooms are located outside the auditorium and to the right.

If there's an emergency and we need to evacuate the building, please follow staff to Roosevelt Park, which is two blocks east.

Next slide, please.

Under SB X1-2, the CEC is tasked with six primary implementation activities.

First is data collection and monitoring. A year ago, we didn't really understand why gasoline prices spiked. Since then, CEC staff have been analyzing over 1,000 industry data submissions each month to better understand the underlying causes of price spikes and identify ways to prevent them.

Next is market oversight analysis. SB X1-2 created the Division of Petroleum Market Oversight, which is an independent division within the CEC, to conduct market oversight and investigate potential market manipulation.

The Transportation Fuels Assessment Report, which was published and adopted by the CEC last month, describes the current state of the California transportation fuels market and identifies policy options to mitigate price spikes and ensure a reliable supply of affordable and safe transportation fuels in California.

The CEC is also monitoring refinery maintenance activities to understand the timing and impact of outages that may lead to price spikes.

The CEC is tasked with determining a maximum gross gasoline refining margin and whether to impose a

penalty on refiners that exceed it. This is the topic of today's workshop.

Finally, the CEC is collaborating with the California Air Resources Board to develop a Transportation Fuels Transition Plan, which will incorporate findings from the assessment and plan for and monitor progress towards the state's transition away from petroleum fuels.

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To help set the stage, I'd like to provide a timeline of events relevant to the max margin and penalty work the CEC has been conducting leading up to today's workshop.

First, Senate Bill X1-2 was signed by Governor Newsom in March 2023 and took effect last June. The law was designed to protect Californians from experiencing price gouging at the pump by oil companies. Among other things, the law provided the CEC with the authority to collect additional data from the petroleum industry to better understand the causes of price spikes and provide the necessary facts to develop policies that prevent Californians from overpaying at the pump.

The law also tasked the Energy Commission with investigating whether to establish a maximum gross gasoline refining margin and penalty for refiners that exceed it. The bill text says,

"The commission shall not set a maximum gross gasoline refining margin or accompanying penalty unless it finds that the likely benefits to consumers outweigh the potential costs, looking at potential impacts to gasoline supply and demand balance and average prices at the pump."

At the October 18th, 2023 business meeting, the CEC voted to open a proceeding looking at whether to establish a maximum gross gassing refining margin and penalty.

On November 28th, 2023, the CEC hosted the first workshop on the max margin and penalty, which featured a panel discussion with representatives from industry, labor, environmental justice and consumer advocates on the impacts and benefits of implementing a maximum margin and penalty.

The second workshop held on April 11th, 2024, featured a panel of experts that provided perspectives on analytical approaches and considerations for the max margin and penalty.

Next slide, please.

The purpose of today's workshop is to continue our discussion and exploration of approaches and considerations to determining a maximum gross gasoline refining margin. We will start with a brief update on the current gasoline market conditions. We'll share key data

sources and inputs that are being used in the maximum margin and penalty analysis. We will review the history of market conditions, refinery margins, and the drivers of recent price spikes. And finally, we will discuss CEC's analytical approach to and considerations in determining whether to set a maximum gross gasoline refining margin.

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This is the agenda for today's workshop. In just a moment, we'll hear opening comments from the dais.

We're joined this morning by Vice Chair Gunda of the California Energy Commission, Director Milder of the Division of Petroleum Market Oversight, and Director Maduros of the California Department of Tax and Fee Administration. Thank you all for joining us this morning.

We have four presentations lined up. In the first, I will present a gasoline market update and then step through the key data sources to support our maximum margin analysis. Next, Dr. Gigi Moreno from the DPMO will present a market overview and price spike analysis. Afterwards, Dr. Esther Shears from the DPMO will discuss market conditions and the maximum gross gasoline refining margin. And finally, our last presenter is Dr. Zaragoza-Watkins, a CEC consultant and economics professor at the University of California, Davis, who will discuss the analytical approaches to determining a maximum gross

gasoline refining margin.

After our presentations, we'll have reactions and comments from the dais, followed by a public comment period before adjourning.

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With that, I'll hand it over to Vice Chair Gunda for opening comments.

VICE CHAIR GUNDA: Thank you, Jeremy, and welcome, everybody. And thank you for joining us, taking the time to be here to continue the discussion on this really important topic.

I want to begin by thanking Jeremy, the Energy Assessments Division, I see Aleecia here, as well as the DPMO team for the incredible for work that we have been able to do over the last several months.

I also want to recognize the CDTFA, as well as CARB, for their contributions as we continue this work as one big state team.

I just want to welcome my two colleagues here, Directors Maduros and Milder, for joining me on the dais.

As Jeremy noted, this is the third in the series of thinking through the penalty and the maximum margin. In addition to this being the third one, there was also an effort, Jeremy, if you inform as you speak through, we had an RFI, you know, Request for Information, from, you know,

just an open document to collect different ideas around the penalty.

As we think through this really important element of SB X1-2, I think it's important for us to remind ourselves why we are here. And it's rooted in the collective goal, I would say, that are present here today in making sure we protect the consumers of California. The (indiscernible) hand in SB X1-2 is price spikes hurt consumers, even more so those amongst us, you know, who are in the low-income brackets. So it was really important for us to really set the goal of this entirety of SB X1-2 rooted in making sure we are doing this right by every Californian.

Then come into these important elements, much of the first year, our work was focused on data gathering. SB X1-2 gave us a number of tools. The staff estimate that we've spent about 15,000 hours in collecting information and processing that over the last year to really begin to get an understanding of the complexity of the industry and how it works and what the different variables are as we consider this.

I would be remiss to say, you know, I want to extend my gratitude to the industry, I see industry colleagues here, for being there, giving us the data and working with us and providing the information.

As with anything that the CEC does or most state governments do, especially when we develop regulations, they come with a lot of benefits and risks. An important part of doing a thorough rulemaking process or a public process is to make sure that we maximize the benefits towards the goals that we set for ourselves and minimize the risks and think through the mitigation of those risks. And that's what we're trying to do.

Penalty is an important tool that the legislature gave us. They did not say we should set it. They asked us to think it through, and that is what we're trying to do; figure out if there should be a max margin, and if it is, how do you set a penalty? And if it is, you know, how do you implement them? And in doing so, not just the Energy Commission, but state agencies come with the commitment of doing them thoughtfully, collaboratively, and making sure it's done in a transparent and a trusting manner.

I cannot be more proud of the team that we have at the CEC who tirelessly try to embrace those ideas of commitment, competence, and public service. So Jeremy, to you, and by extension of all the staff, I just want to say thank you, and also my DPMO colleagues here.

But I am really looking forward to the presentations today. Now we'll hear from both the chief and the deputy chief economists from the DPMO and Dr.

Zaragoza-Watkins in furthering this conversation and making sure we protect consumers of California in the end.

So with that, I would like to give it up to Director Milder.

DIRECTOR MILDER: Thank you, Vice Chair. I want to echo those comments directed at staff, and also thank you and Director Maduros for coordination at all levels to work on these really important issues.

As we get started today, and I see members of industry and the public here, I think it's really important to set a very clear baseline for what we're talking about, and also address what I think has been some misunderstanding or even misinformation out there in the public, which is this potential penalty would only apply within the state of California and for sales of gasoline in California. So it does not apply to neighboring states if implemented, does not apply to Nevada, does not apply to Arizona. And I think that's critically important to keep in mind as we talk about the potential impacts.

I also want to set the context here. We've seen prices surging around the state in recent days and weeks, and particularly in Northern California. And whenever that happens, I think it's important for us to really focus on consumers and to remember that it impacts lower income stratas the most, people who don't have alternative modes

of transportation they can turn to, may drive further for work, may have older vehicles with worse gas mileage. It eats up a much higher proportion of income for those consumers.

And so I think as we see prices surging, it's a great time to remember we have different tools in our toolbox. And so getting economic expertise to explain what's happening in California, what's been happening, I'll be listening very intently to understand why hasn't the California market been functioning as well as it could, like a truly competitive market would, in terms of supply and prices, and then want to hear how the state-of-the-art in economics can view a tool to change the incentives.

And so, looking forward to the presentations today, and appreciative of all the work behind it.

VICE CHAIR GUNDA: Thank you, Director Milder.

Director Maduros?

DIRECTOR MADUROS: Thank you so much, and thank you, everybody, for joining us today, and thank you for including CDTFA in today's workshop.

You know, this has been an incredible now two-year journey. It was almost two years ago exactly that price spikes became so extreme that the governor stepped in and took some extraordinary action, and CDTFA and CEC have been working together closely over those two years to try

to figure out what's going on and to try to figure out what the state can do to help California consumers and protect them from surging prices.

So I'd like to, you know, thank the CEC team for all of their work over those two years. I think we are in an incredibly better place than we were two years ago in terms of having the background knowledge and the data in order to make smart public policy decisions.

I'd also like to thank industry for their work with our teams over the past couple of years, helping us to get that knowledge and data.

As both of you said, this is, from our perspective, just, you know, the focus is on protecting California consumers and doing that in a way that makes sense from an economic perspective. This is not -- you know, I'm a tax administrator. This is not an ideological thing for me. We're just trying to look at the data and figure out what makes sense. And I do think today's workshop is an important opportunity to get the best economic thinking we can to try to chart a path forward that makes sense.

So I would just hope that today we can focus on that rather than, you know, it's easy to get sort of torn off into some of the more ideological aspects of this, but I'm hoping we can take all the data we've learned over the

last two years and make some smart decisions.

Thank you.

VICE CHAIR GUNDA: Thank you so much, Director Maduros.

So with that, I think before we send back to Jeremy, I just want to say a big thank you to everybody in attendance in the room, where we have a number of participants online. The process is only as good as your participation and you're volunteering your time for free to be a part of these conversations and ensuring that the process reflects good information and then we're moving in the right direction.

So with that, back to you, Jeremy, and thank you.

MR. SMITH: Let's go to the next slide, and thank you, Vice Chair.

So I'd like to take this opportunity to provide a brief update on current gasoline market conditions before I get into my presentation on data sources to inform the maximum gross gasoline refining margin determination.

Next slide, please.

So I'd like to start by providing a look at recent retail gasoline prices in California. This graph shows the statewide average daily price of regular gasoline in California. Where the red line is the 2022 trend, the green line is the 2023 trend, and the blue line is the 2024

trend. The vertical black line marks September 11th, which was yesterday, and the prices for all three years.

As you can see in the 2022 and '23 lines, at this time during the last two years we were in the early stages of significant price spikes. Prices on September 11th of 2022 and 2023 were $5.39 and $5.44 per gallon respectively.

Looking now at the blue line for this year, we can see that since mid-June, prices at the pump had been below what we experienced over the last two years. However, starting in late August, just a couple of weeks ago, we observed a rapid increase in gas prices. The average statewide price yesterday was $4.75. While that is still nearly $0.70 lower than the price this time last year, prices have increased more than $0.10 statewide just in the last week, with the majority of that increase felt in Northern California.

Next slide, please.

So let's look at some data that helps explain why prices have been going up over the last couple of weeks.

This chart shows the weekly stocks of reformulated gasoline and blend stocks on the West Coast, starting in June through the end of October for the last three years. These data come from the U.S. Energy Information Administration's reporting of gasoline inventories in Pad 5. Like the last slide, the red line is 2022, the green

line is 2023, and the blue line is 2024.

Gasoline inventories this summer have, in general, been higher than that observed in 2022 and 2023, and we understand this has played a part in keeping prices lower so far this summer. However, we observe about a 13 percent decrease in RBOB stocks, from a peak of about 15 million barrels down to about 13 million barrels, that's since the peak at the beginning of July 2024, that I point out there, just to last week. While West Coast inventories have not yet reached levels as low as what was observed in the last two years, this downward trend helps explain why we are seeing prices increase, particularly in the spot market, which we'll look at now.

Next slide, please.

This slide shows four different price trends observed from January 2021 to today, which I'll walk through one at a time to help explain how they relate to one another.

The green line at the top is the daily average retail price of regular gasoline in California in dollars per gallon. This is the price consumers pay at the pump. This is the same trend I showed earlier, only this time rather than showing each year is a separate line, this is just the entire trend over that period. In 2022 Californians saw gasoline prices exceed $6.00 a gallon on

multiple occasions. Prices also spiked above $6.00 in late summer 2023. And finally we saw elevated prices averaging $5.50 earlier this spring. These three price spikes are shaded in yellow.

Off to the right of the green line you can see the statewide average price. Yesterday, as I said, was $4.75.

Below that, the red line is the average retail price of gasoline across the United States. Prices generally follow a similar pattern of higher summer prices and lower winter prices, but fluctuations are less pronounced, apart from times when crude oil prices spiked, like in the first half of 2022. The average U.S. price yesterday again on the right side of the chart was $3.25 per gallon.

Next, going from top to bottom is the blue line, which represents the difference between the California and U.S. average retail prices. As of yesterday, the California average price was $1.50 above the U.S. average.

Finally, the purple line at the bottom of the chart represents the California gasoline spot market differential. The spot market is a high-volume, physical trade market located at pipeline hubs where market participants, including refiners, buy fuel when they don't have enough to meet their contractual obligations or sell

when they have a surplus. The trades are priced in reference to the New York Mercantile Exchange or NYMEX price.

Spot trades and this spot price differential can have a significant impact on California's retail prices. It can be observed that when the spot price spikes, which occurs when traders bid up the price of gasoline in the spot market, the higher cost of fuel is passed on to consumers. When gasoline supplies are healthy, this differential can be $0.25 or less. The differential increases when supply conditions in California tighten, like what we are observing with decreasing inventory levels in recent weeks.

Looking at the right side of the chart, you can see the purple line spiking, with the average of the Los Angeles and San Francisco spot market prices exceeding the NYMEX by nearly $0.80 per gallon, a level not seen since the price spike in September 2023. This differential has climbed by over $0.50 in the last two weeks.

So while retail prices are still lower than this time in previous years, higher spot market prices will put upward pressure on retail prices. And we'll hear more on these recent price trends in an upcoming presentation.

Next slide, please.

So next, to help set the stage for the upcoming

presentations on historical refining margins and our approach to determining a maximum gross gasoline refining margin, or MGGRM as many of us will refer to it, I'll share a brief overview of the key data sources used in our analysis.

Next slide, please.

So there are currently three primary data sources being used in CEC's analysis to determine a maximum gross gasoline refining margin. Each of these reports are collected monthly by the Transportation Fuels Market Unit within the CEC's Energy Assessments Division. I'll go through each of these a little bit more detail, but at a high level, the three reports are the California Monthly Refining Margin Report, or CEC-M1322, the California Sales Monthly Report, or CEC-M782B, and the Monthly Refinery Report, which includes the EIA-810 and CEC-M810.

Next slide, please.

Okay, so starting with the California Monthly Refining Margin Report, or CEC-M1322, this report is received monthly and includes sales, volumes, prices, and cost information for California specification gasoline originating from individual refinery locations. Revised data regulations were adopted in May 2024 and the M1322 form was subsequently revised, among other things, to collect better information on refinery operational costs

allocated to gasoline production. All refiners operating in the state that refine crude into California Motor Gasoline, of which there are currently nine, must file this report for each refinery.

Next slide.

The M1322 report provides several key data inputs for our analysis to determine a maximum gross gasoline refining margin. Refiners report their monthly gross gasoline refining margins as the volume-weighted average of all gasoline sales less their volume-weighted input cost of crude oil.

Refiners also report their monthly net gasoline refining margins as the gross gasoline refining margin less the refinery operational costs allocated to gasoline production.

Wholesale gasoline volumes and prices are broken down by sales channel, which includes branded and unbranded rack, dealer tank wagon, bulk, and spot pipeline sales. All applicable taxes and fees are reported, including the volume-weighted average, Low Carbon Fuel Standard, or LCFS, and cap-at-the-rack fees.

Operational costs for numerous categories, including refining and distribution costs, and operational costs such as blending components, chemicals, electricity, labor, and maintenance, are provided at both the total

refinery level, as well as allocated to gasoline production.

Next slide, please.

The California Sales Monthly Report, or M782B, which was modeled after the EIA's 782B report, collects monthly sales volumes and prices for various petroleum products. The report also provides the end-use customer type for each of these sales. All refiners and petroleum product marketers operating in California who filed the EIA-782B with the U.S. Energy Information Administration files this report with the CEC.

Next slide, please.

Since the M782B report is submitted by both refiners and product marketers, we receive a broader view of petroleum product sales than we do in the M1322 report. This report also captures sales details for a wider range of petroleum products, including all grades of motor gasoline, diesel, propane, aviation fuel, and residual fuel oil. This information can help identify the opportunity cost of producing and selling one product over another. And, as I mentioned earlier, these petroleum product volumes and prices are broken out by various end-use customers.

Next slide.

The last data report I wanted to discuss is the

monthly refinery report which includes both the EIA-810 and the CEC-M810. Once again, the CEC form was modeled after the EIA form but the two reports complement each other.

The 810 report collects information regarding the balance between the supply at the beginning of the month and at the end of the month. This includes receipts, inputs, production, shipments, and refinery fuel use and losses of crude oil and refined products located in refineries and California. The EAI-810 report also provides unit operating capacities which are used to analyze refinery utilization rates. All refiners located in California must file this report.

Next slide.

Some of the key data inputs received from the EAI-810 and CEC-M810 include refinery inputs of crude oil by source, whether that's Alaskan, domestic, or foreign, and blending components. We also receive beginning and end of month stocks of gasoline, blend stocks, and other petroleum products. The CEC form, the M810, even breaks down the gasoline and blend stocks by the various California, Arizona, and Nevada blends.

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That concludes my presentation. I'm happy to answer any immediate questions or we can move on to our next presentation.

VICE CHAIR GUNDA: Thanks, Jeremy. Just a quick question on the data process.

You know, I know you've been spending a lot of time working with the team to better the data. Could you just comment on both the process in terms of improvements, you know, how you see it's going in the near term, what do you think we should be doing? And also, given that we know more than we started last year, what are some additional data points you're beginning to think about that would be helpful?

MR. SMITH: Absolutely. First, I just want to start by acknowledging the effort. I mean, we've kind of hinted at the number of hours that the team spends and the thousand or so reports that we receive every month. It's a lot of effort to process this data. And a lot has changed in the last year since we really started collecting data this aggressively, like starting last June. And the more we learn, the more we begin to ask better questions. And we've made modifications to some of the data regulations to help us capture the information that we find most critical.

We're going through a lot of improvements with the team and, again, just so much data collection. We're automating ingestion and data cleaning and validation so that we can develop these narratives and understand things in a way that we can process data more quickly.

I would say one of the greatest advancements in some of the data collection efforts that we've made is the improvements to the M1322 data. As I mentioned, the CEC adopted revised data regulations in May which expanded what we collect there. And that's really going to help inform more of our analysis on the MGGRM, specifically understanding fixed and variable costs of operating the refinery and specifically those that are allocated to gasoline production. This is information in our older version of the forms and older data that we collected that just wasn't as available and was not as clear and is critical to understanding how implementing a maximum gross gasoline refining margin and penalty would impact refinery operations, production levels, and prices.

So it's so important for us to work with industry, and they've been so collaborative and responsive to all these requests, which I greatly appreciate. You know, it just helps us begin to understand more and more of what's going on and what the, you know, environment or the market could be like under any new conditions like after implementing a policy like that, so --

VICE CHAIR GUNDA: Great. Just another question, Jeremy.

In terms of, you know, one of the spirit of CEC, you know, we always want to protect the data and the

confidentiality, but also maximize our ability to put information out there, right, and then kind of educate the consumers, educate the public. Do you feel like we're doing that well? Think we could do better? Can you just comment on that?

MR. SMITH: I mean, I think we can always strive to do better. I think that we, you know, if you just really look at where we were a year ago, we were all saying, like, we don't understand what's happening, and we've made a lot of progress there.

I do think that we need to continue to improve how effective we are at communicating that information to the public to inform them what's going on, while at the same time respecting that, you know, much of this data that we collect is not to be shared with the public. And we, you know, respect that confidentiality. The industry engages with us and has, you know, conversations with us and helps us understand these things. And, you know, we do have to respect that process. It's so critical to our continued learning and to help us make good decisions.

But again, I think we can always just continue to strive more to keep the public informed. I think that some of the things that we're working on in terms of developing additional tools and dashboards and trying to present this information, again, respecting the privacy and proprietary

information, but synthesizing it down into information that is for public consumption so that, you know, when they're out there and going, why am I paying $0.20 more this week than I was just a week ago, what's happening, they can turn to us and know that we're monitoring it, we're interpreting this, and can help provide information as to why.

VICE CHAIR GUNDA: Thank you, Jeremy, again, really appreciate all the work.

DIRECTOR MILDER: We echo the appreciation from the Vice Chair. In the spirit of that question about sort of communicating with the public, I was hoping we could spend just 30 seconds on that recent developments price chart slide that you had up a moment ago. If we could go back to the slide that has the national prices, the California prices, and then the margins?

So for folks who may not be as familiar with this data, I was hoping you could kind of explain how it's the case, how this chart reflects whether a price spike that's occurring in California is also occurring in the rest of the country?

MR. SMITH: Sure, yeah, absolutely. I mean, one of the things that, again, the reasons why we compare both retail prices to the rest of the United States, as well as we observe very closely what's going on in our neighboring states of Nevada and Arizona, we need a baseline to compare

and understand what's happening here. Is it isolated to California or is it something that's happening elsewhere?

So if you start with just the retail price, you know, one of the reasons when we look at this and go -- and I even have that blue line of being the difference is there are times when the U.S. price does go up, and we saw that in the first half of 2022. That's going to be a result of crude oil prices spiking and things like that. That will also impact us. You can see, even in that case, the green line went up too. And so, you know, we're subject to those changes as well.

There are a lot of issues that are isolated to California. And particularly when we talk about supply constraints or tighter supply and stuff like that, that's when you compare to another reference point like the U.S. average or -- and I'll get to the spot market, too, you know, it helps you understand, this is something that's here and impacting us and thus is something that we need to investigate, you know, here. And it's perhaps something that we can manage or improve with policies, whereas international crude oil prices is not something that, you know, we can we can really make much of a difference on.

When we look at the spot market, I just wanted to mention again, the differential is a comparison to what, you know, spot trades are or at least referenced to for the

rest of the United States. So again, when we see that purple line spike, that is an issue isolated to the California market in reference to what's happening in trades or, you know, in the rest of the country.

And we do observe in all these cases, and again it's particularly in those yellow bars, when the that NYMEX or the California versus NYMEX price spikes, especially getting above $0.50 over the NYMEX or higher, then we do see within, you know, the coming days or weeks significant price increases in the retail market. And they may not be reflected in the U.S. price but they would be isolated to California, so --

DIRECTOR MILDER: And so if you're tracking, that purple line is going up, and is that because the California prices are going up at the same time the national prices are going down?

MR. SMITH: It can. That's a really good point, again, the differential. You know, if the U.S. price, or in the case of the spot market, if that NYMEX goes down, even if the California prices don't go up, then that differential grows just because one number got lower and thus the difference between them grows.

But what we're seeing lately is actually the combination of both. We have seen the NYMEX price and the U.S. prices, if you look at the red line in general, have

been tracking down a little bit over the last month or so. But what we're observing now in the last two weeks is both that continued decline, but also an increase in prices in the spot market in California. So it's kind of like both of them is really exacerbating the problem and making it much more significant. But that will -- that differential is what we ultimately see reflected in the retail price, so, yeah.

VICE CHAIR GUNDA: Yeah, I don't know if Director Midler was going here, just kind of got this question going.

So in terms of, you know, we had -- we heard concern from colleagues in Nevada, colleagues in Arizona, about the price spikes, right, and all the different things we're doing. Could you just kind of, from the data that we observed today, what happens to the California -- what happens to the Nevada-U.S. differential and Arizona-U.S. differential in relation to what happens in California?

MR. SMITH: Absolutely. Great question.

Nevada receives something on the order of 90 percent or so of their gasoline from California. There's pipelines going into Nevada from both Northern California and Southern California. Southern California feeds into like Las Vegas. And because they receive so much of their gasoline from California, what happens here does end up

impacting them. So when we see California prices go up, we typically see Nevada prices go up as well.

Now, while the value, their retail price is just in general lower than ours to begin with, the differential, the changes that we observe when prices are going up are reflected. So if you just look at the daily change or something like that, Nevada typically tracks the California price pretty closely.

Arizona, on the other hand, does not get the vast majority of their fuel from California, so they're a little bit more isolated from events here. In fact, looking at recent trends in Arizona, I believe they've been tracking more with the U.S. average and actually going down a little bit recently. But that does not mean that they're, you know, completely isolated from issues here as they do receive fuel from California. And I think they're going to probably fall somewhere in the middle of balancing what's going on to the east of them with what's going on out here.

VICE CHAIR GUNDA: Just I thought, really, so I think, you know, that kind of talks to the interconnectedness of the market. I think it's important then to acknowledge the vice versa works; right? You know, given the interconnectedness, you know, the spikes here are correlated with spikes elsewhere, but the measures we do here, and conceivably putting downward pressure on the

spikes, could impact positively on neighbors.

MR. SMITH: Absolutely. Yes.

VICE CHAIR GUNDA: Thank you.

DIRECTOR MADUROS: One of your slides there mentioned the gross and net refining margin data that CEC is collecting. Can you talk a little bit about how accurate you're finding that data, how uniform in standards, since that would obviously be an essential component of any (indiscernible)?

MR. SMITH: Yeah, absolutely. So I'll say that in general, when we observe the margins, we also compare to other public filings and things like that to just kind of give a baseline an understanding of is this in the ballpark? And so we're always doing that.

In general, the gross margins that we've been collecting, we believe, do track with our understanding of the prices and sales volumes and things. So those tend to make a lot of sense to us when we interpret it. We've been posting gross margins much longer on our SB 1322 website.

With the passage of SB X1-2, beginning last summer, we started collecting information on net margins. And one of the reasons I talked about before that we went through that and adopted new data regulations was to try and improve that. We were observing some trends in the net margins that did not track with what we saw in public

filings. And we just, you know, again, want to make sure that we're asking the right questions, that we're framing questions, we're collecting the data in the way that it actually makes sense.

That takes time and it takes a lot of coordination with industry talking through exactly what we're looking for. And we've made improvements to those forms and had discussions that help us get closer and closer to what we believe is an accurate representation of operational costs. And once we get that, and those are allocated specifically to gasoline, then we will have more faith in net margin information. But that has been an ongoing process.

Again, these forms were adopted just a few months ago, and it takes time for both industry to, you know, build the processes to present and share that information with us the way that we're asking, and also to go through any other clarifications or, you know, to make sure there's no misunderstandings of what we're asking for. So that's been a process.

And again, just want to appreciate industry's collaboration on, you know, having those conversations and getting to better and better data.

So I think that it's been improving. And just to summarize, I'd say the gross margins I feel confident in

for the last year or two that we've been collecting it, the net margins, I feel like, are getting there. We're getting much closer, and that information is critical to our analysis on an MGGRM.

VICE CHAIR GUNDA: Thank you, Jeremy. All right, no more questions.

MR. SMITH: All right, so if we can go up to, I believe, it's about next slide? There we go. Okay.

So if you please allow me to introduce our next speaker, Dr. Gigi Moreno, the Chief Economist of the Division of Petroleum Market Oversight.

DR. MORENO: Good morning. My name is Gigi Moreno and I am DPMO's Chief Economist. Today, I will share an update of gasoline market conditions in California and observations from DPMO's analysis of gasoline prices and industry reported cost and production data that Jeremy just talked about.

The California gas price gouging and transparency law took effect a little over a year ago. This law came about after of California consumers experienced some of the highest gasoline prices ever recorded in California in the fall of 2022. So let's look at what has been happening in the gasoline market since 2022.

Next slide.

This chart shows average weekly gasoline prices

in California from January 2022 through the end of August 2024. Prices shown on this graph are adjusted for inflation and reported in 2023 dollars. Gasoline prices you can see are highly variable and in California are characterized by periods of pronounced and sustained price increases or price spikes.

Many of my charts today will highlight the approximate dates when California's gasoline market was in a price spike. Except when noted, I report prices in dollars per gallon.

We know that price spikes, as was mentioned earlier, we know that price spikes impose a significant burden on consumers who cannot easily adjust their consumption of gasoline. Over a short period of time, a few weeks, a few months, it would be extremely costly or impossible for most consumers to adjust to spiking gasoline prices by changing their commutes or modes of transportation.

We also know that lower income households are most harmed by gasoline price spikes. For these households, gasoline expenditures make up a large share of their budgets, and they also have the least flexibility to adjust to price spikes.

Gasoline price volatility also disproportionately impacts fuel-dependent industries, such as the logistics

sector, a key driver of Southern California's economy.

So what is driving these price spikes we see in this chart in California's gasoline market?

One possible explanation is increased and volatile costs of production, in particular the cost of crude oil. Crude input costs make up a significant share, or the largest share, of the cost of producing gasoline. So let's explore the relationship between the cost of crude and the retail price of gasoline in California.

Next slide.

In this chart, I've added the cost of crude. In early 2022, the global petroleum market was rattled by Russia's invasion of Ukraine. As you can see, this resulted in a months-long price spike. During this time, the price of Alaskan North Slope crude increased by $0.71, which I've marked with a little arrow going up, $0.71. The average price of gasoline in California during this period increased by $1.57 per gallon. This was a significant exogenous shock to petroleum and gasoline markets that pushed prices up around the world.

In September 2022, California gasoline prices shot up, increasing by $1.17 in less than a month, an increase of approximately $0.04 per day. During this time, however, the cost of crude fell by $0.61.

In September 2023, that's the third highlighted

bar there, was almost -- we saw another sustained increase with almost identical timing as in 2022. Prices increased in California by $0.74 in less than a month. During this time, the cost of crude only increased by $0.04.

Earlier this year, we saw another price spike that started in early March and peaked in mid April. During this time, California gasoline prices increased by $0.59, and the cost of crude increased by $0.19.

At this point, you might be wondering, crude prices are determined globally, so what's going on with gasoline in the rest of the U.S.? So let's take a look.

Next slide.

This chart now adds a line for the average retail prices in the rest of the U.S. So this will be a little different from Jeremy's lines because I'm only showing the rest of the U.S. not including California. This chart shows the rest of U.S. prices are moving in line with changes in the cost of crude.

During the Ukraine invasion price spike in early 2022, the gasoline prices in the rest of the U.S. responded to the shock, the Ukraine invasion shock similarly to California prices. Again, this is expected for such a significant global economic shock.

Now let's look at how the rest of U.S. retail prices fared during California price spike periods.

During the fall of 2022 price spike, the crude prices, this is when crude prices decreased by $0.61, the average price of gasoline in the rest of the U.S. decreased by about $0.091. During the fall 2023 California price spike, when crude prices increased by $0.04, the rest of U.S. gasoline prices decreased by $0.087 per gallon. During the spring 2024 price spike in California, crude prices increased by $0.19 and the rest of U.S. gasoline prices increased by $0.23.

Based on the relationships between gasoline prices and crude prices, we can say that gasoline, that California gas prices do not appear to be driven by increases in crude prices, while the rest of the U.S. gasoline prices might appear more in line with fluctuations in crude prices.

One possible explanation for this is that suppliers in California's gasoline market are able to pass a larger share of cost to consumers, a signal of firms exercising market power. We know that the California gasoline market is significantly more concentrated than the gasoline market in the rest of the U.S. Drs. Shears and Zaragoza-Watkins, who will present later, will explore the problem of market power in their presentations.

Next slide.

An observation we have made previously is that

gross gasoline refining margins, or GGRM, spike when prices spike. The top half of this chart shows average gasoline prices in California with price spike periods highlighted. The bottom of the chart shows the average GGRMs reported by California refiners on the CEC Form 1322. We see here that average gasoline refining margins spike during price spikes. This shows a strong correlation between price spikes and increased profitability of gasoline refining in California.

I would now like to turn to the gasoline spot markets in California and make some observations during the past few weeks.

Next slide.

This chart shows a historical view of California gasoline spot prices. The blue line shows the L.A. spot market price relative to NYMEX price and the orange line shows the San Francisco spot market price relative to NYMEX. Notice that during -- oh and the other thing I plot here is the -- I shade the retail price spike time periods as well.

Notice that during retail price spikes, the spot prices also spike, which makes sense because gasoline prices are typically indexed to spot prices. During the retail price spikes, the spot prices vary quite significantly, but the way they vary may differ from price

spike to price spike. And I would like to draw your attention to the spot prices, where there's this black arrow, during the past couple of weeks.

Next slide.

Let's zoom in. This is the same chart, but zooming in to August and September of this year, we see that the San Francisco spot price has increased dramatically during the first week of September, signaling an emergent price spike.

Next slide.

Now let's look at daily retail prices over the past three weeks. We see that in early September the retail price of gasoline in Northern California, shown in that green line, has increased sharply. The Northern California prices are pulling up the average gasoline price in the state as a whole, which is the gold line. Even though the North and South gasoline markets are interrelated, the Southern California prices have not increased as dramatically.

So what's happening to gasoline prices in the rest of the U.S.? That's the blue line. We see that average retail prices in the rest of the U.S. are on a significant downturn and deviating from the California prices.

Next slide.

On August 20, 2024, the difference between the retail gasoline prices in Northern California and the rest of the U.S. was $1.48. On September 10th, a couple days ago, this gap grew to $1.85 per gallon.

What's going on with crude prices during these three weeks?

Next slide.

We know that during the past three weeks, the price of crude has dropped precipitously. In particular, the price of the Alaskan North Slope crude dropped from $78.00 per barrel on August 20th to $70.00 per barrel on September 10th. Once again, we see a price spike in California that is not driven by increases in the cost of production.

Next slide.

So today I have shared with you data showing price spikes -- a price spike currently developing in Northern California, even though the costs of crude oil are at historic lows.

Another fact that I have shared is that the emerging price spike in Northern California looks very much like the previous price spikes in September of 2022 and September of 2023. These are price spikes that motivated our work at DPMO. These price spikes do not appear to be driven by increasing costs. However, we repeatedly observe

a strong correlation with increased gross gasoline refining margins and retail gasoline price spikes.

Under our mandate from the California Gas Price Gouging and Transparency Law, DPMO and the California Energy Commission are exploring several tools for mitigating the impacts of extreme market power in California's gasoline market.

Next, my colleagues Dr. Esther Shears -- my colleague Dr. Esther Shears will discuss the market conditions and mechanics of some of these -- of one of these policies, the maximum gross gasoline refining margin and penalty.

Next slide.

Thank you, and that concludes my presentation. Any questions?

VICE CHAIR GUNDA: Thank you so much.

MR. SMITH: Great. Thank you, Gigi, for that excellent presentation.

Now I'd like to introduce our next speaker, Dr. Esther Shears, the Deputy Chief Economist of the Division of Petroleum Market Oversight.

DR. SHEARS: Good morning. Today, I'll be speaking on the market conditions and the maximum gross gasoline refining margin and penalty. As this is my first time presenting at a CEC workshop, I would like to take one

moment to introduce myself.

My name is Esther Shears, and I'm the Deputy Chief Economist at the Division of Petroleum Market Oversight at the CEC. I received my PhD in Energy and Resources at UC Berkeley and have previously worked for the U.S. Department of Justice in the Antitrust Division in the Economic Analysis Group.

All right, let's dive in. Next slide, please.

The California Gas Price Gouging and Transparency Law of 2023, Senate Bill X1-2, took effect in June 2023, and through the oversight measures it enabled, aims to increase accountability of the petroleum industry in California. The law states, quote,

> "Fundamental change is necessary to prevent extreme price spikes and price gouging by oil companies, which are entitled to a reasonable return but are not entitled to reap exorbitant profits at the expense of Californians," end quote.

One such oversight measure that the law established was the authority to implement a maximum gross gasoline refining margin and penalty. My goal today is to provide an overview of the California petroleum refining sector and to discuss the details about the maximum gross gasoline refining margin and penalty policy option that is provided in the text of the law.

Next slide.

What prompted this law to come into effect, as has already been discussed, was a significant price spike in the fall of 2022. The law acknowledged that the 2022 gas price spike was, quote, "Due in significant part to opportunistic price gouging by oil companies," end quote.

A similar price spike occurred in the fall of 2023, where we saw average gasoline prices in California reach up to around $6.00 per gallon in late September and early October of last year. This graph was first presented by Dr. Gigi Moreno in the CEC Gasoline Summer Outlook Workshop this June, and this price spike cost California's consumer -- cost California consumers on average millions of dollars each day during the 105-day period of elevated gas prices, and all told cost California's consumers billions of dollars.

Next slide, please.

The California petroleum refining sector is highly concentrated. The top four companies, according to the total crude oil refining capacity, are Chevron, Marathon, PBF, and Valero. And these four companies are responsible for 90 percent of the state's total refining capacity. If you also consider the next largest company, Phillips 66, then 98 percent of the in-state refining capacity is accounted for.

In 2023, California ranked the third largest state by crude oil refining capacity, and last year California consumed 13.5 billion gallons of gasoline, so that's over 1 billion gallons of gasoline each month. Now on the basis of gasoline consumption per day, California is the fourth largest global market behind the U.S. as a total, China and Brazil.

Next slide, please.

So in addition to being highly concentrated with only a few large firms dominating the market, there a few other features that make California's petroleum refining industry more susceptible to market power abuse.

First, high fixed costs create barriers to entry, meaning it is less likely that we will see a new competitor enter the refining market. Because there are only a handful of firms, there is some degree of interdependence among these firms. This means that the firms consider not only consumer behavior when making production and pricing decisions, but also the behavior of their competitors. Again, because the market is highly concentrated, firms have some control over prices and are traditionally price setters, not price takers.

And finally, with the long-term trend for gasoline demand to be shrinking, this further suggests that no new entrant to the market is likely.

Next slide, please.

Now, the gross gasoline refining margin, or GGRM, as I'll often refer to it throughout this presentation, is defined in the law as, quote,

> "The difference between the volume-weighted average price of wholesale gasoline sold by a refiner and the average price of crude oil received by the refinery," end quote.

So more simply put, the GGRM is the wholesale price of gasoline minus the cost of crude. It's also important to note that this volume-weighted average price of wholesale gasoline sold by a refiner excludes all California state program costs.

Overall, crude oil constitutes by far the largest component of any refinery's direct variable costs, and the refined product sales, including gasoline, are the main source of revenue for a refinery. So gross gasoline refining margins are the main indicator of profitability for gasoline refining.

Next slide, please.

All right, so taking a step back to the entire refining industry, not just gasoline refining, in the oil and gas sector, gross, not net, refining margins are the industry standard for reporting profitability.

Refining profits are closely linked to the spread

or the difference between the prevailing price of crude and the prices of the refined products sold. In the refining industry and in financial markets, this is called the crack spread. Crack spreads, which are close approximations of gross refining margins, capture the margin ratio of multiple products.

Here, you can see PBF Energy reporting crack spreads by region in their SEC 10-K filing for 2023, and their numbers suggest greater profitability in the West Coast markets relative to the other U.S. markets.

All right, so bringing us back to gross gasoline refining margins, of all of the refining outputs produced, gasoline is the main focus of the CEC and the DPMO for the implementation of SB X1-2, hence the focus on gross gasoline refining margins.

Valero reports margins by product in their SEC 10-K filing for 2023. They report the product margins by region, but their only West Coast refineries are actually in California. They're all in California. So as you can see from the table, CARBOB, which is California's refined blend of gasoline, has the largest margin of any gasoline product, so when you're comparing the CARBOB number to the other CBOB gasoline sold in the other regions.

Next slide, please.

So here we plot the monthly average gross

gasoline refining margins in California from the year 2023 through the through April of 2024. This is reported in 2023 dollars per gasoline and it's the dark green line. This data is from the industry-reported M1322 data that Jeremy Smith discussed earlier. The GGRM reported by the refiners is a volume-weighted gross gasoline refining margin for the state on a monthly basis. This is the overall average for all of the refinery's data that you'll see here.

The gray-shaded areas first reflect the time period of the Torrance refinery shutdown in 2015, and then the second gray area is the COVID-19 pandemic, which affected the gasoline market mostly in the year 2020. The light green dotted line reflects the trend line of the GGRM over time.

So now comparing the GGRM to crack spreads, the GGRM better reflects the average stream of revenue from a refiner -- to a refiner from gasoline refining, because crack spreads relate to the spot market price, whereas the GGRM, as reported by California refiners, capture all sales channel of the refiner's gasoline output. So this is gasoline sold through dealer tank wagon, branded rack, unbranded rack, in addition to the spot market as well. So now in the past few years, the GGRM has had notable peaks in 2022 and 2023, and we're also trending upward through

2024 as well.

Next slide.

All right, bringing us back to the 2023 price spike that I started the presentation with, let's look at the weekly retail price in California from June through December of 2023. This is the blue line graph at the top half of the slide. The shaded gray area is the 105-day period of the fall 2023 price spike. The dark green bar chart below shows the monthly average of GGRM from the industry reported data over the same period of time. The bars correspond to the month labels that are positioned in between the two graphs.

Here, we find that refining margins are increasing on a monthly basis with the 2023 price spike period. As the average retail price of gasoline in California increased from late July through the end of September, the average retail price of gas in California reached its peak around $6.00 a gallon on October 1st. The average gross gasoline refining margin for California refiners peaked in September at $1.46 a gallon.

Next slide, please.

So when we also consider the retail margins during this price spike period, the picture becomes a little bit more complete. Refining margins are steadily increasing as the retail gas prices in California rise.

And then we see monthly retail margins dramatically peak in the last month of the 2023 price spike period. So after the retail price of gasoline peaked on October 1st, we see retail margins increase in that month as well as prices slowly begin to fall over time.

Next slide, please.

So returning to the monthly GGRM data from June through December of 2023, we can also look at the average GGRM by distribution channel.

So going from left to right, the orange bar, which looks quite dark here, but the orange bar on the left reflects the dealer tank wagon refining margins. The light blue bar, or the lighter blue bar, reflects the branded rack, the green bar in the middle reflects unbranded rack. The dark blue bar shows bulk refining margins. And the brown bar on the far right shows the spot pipeline refining margins.

So what is notable about this data is that we expect refiners to earn higher margins on dealer tank wagon and branded rack under the normal course of business. This is what we see, this is what we expect. We also expect unbranded rack bulk and spot refining margins to be relatively lower.

What we observed from June and July, moving into September, August and September where the majority of the

retail price spike occurred, is that the margins for unbranded bulk and spot rose considerably, nearly meeting the levels of dealer tank wagon and the branded rack margins in August. This shows a much narrower spread between all distribution channels in August and September, especially when you compare it to the other months, both in June and July and also at the end of the year as well.

This illustrates just how much refiners were able to earn in margins during this period of time for that even in their traditionally lower margin distribution channels, unbranded bulk and spot, their margins were quite high during the price spike period.

Next slide, please.

So to summarize market conditions and evidence of potential problems in the market that DPMO has observed, retail gas price spikes at the pump cost Californians billions of dollars each year. The petroleum refining industry in California is heavily concentrated. This suggests that refiners in California can exercise market power to earn higher margins in California than in the rest of the U.S., and we see this difference in margins and profitability reported in their SEC 10-K filings.

Additionally, during price spike periods, Gasoline refining margins increase during the price increase, and retail margins increase as prices slowly fall

from the price spike peak. Addressing excessive refining margins through policy intervention is worth exploring further.

Next slide.

So we have provided an overview of the market, identified some key potential problems in the market, and now let's discuss the policy tool that SB X1-2 has given the CEC and DPMO to consider.

The California Gas Price Gouging and Transparency Law of 2023 establishes the authority to implement a maximum gross gasoline refining margin and penalty, provides details about such a penalty, and defines a condition under which a policy may be implemented.

Next slide, please.

First, for identifying the maximum GGR, or max GGRM, or max GGRM, as I'll abbreviate to, the law provides flexibility with regards to how the max GGRM level should be set. The max GGRM level should be at the point where refiners choose to produce a quantity of gasoline that is optimal for market demand. As a result, the price for the gasoline set by refiners should also be such that refiners earn reasonable and not excessive profits. Identifying the appropriate max GGRM level is a core part of upcoming research and analysis.

Next slide, please.

So the law is more specific about the design of the penalty that may be implemented. It states that, quote,

"The penalty shall be a percentage of the amount by which the refiner's gross gasoline refining margin, excluding state program costs, exceeds the maximum gross gasoline refining margin converted from dollars per barrel to dollars per gallon multiplied by the number of gallons sold by the refiner during the calendar month for all transactions," end quote.

So, in other words, as I've tried to simplify here, the penalty shall be a percentage of the margins earned in excess of the max GGRM. To calculate this, you would take the difference between the refiner GGRM and the max GGRM level in dollars per gallon and multiply that by the gallons sold by refiner per month for all of the months where the refiner GGRM is greater than the max GGRM. The penalty would then be a percentage of this excess margin amount.

The max GGRM and penalty policy is not a price cap. Under any max GGRM and penalty policy, refiners can produce and price at whatever level they would like just as they do now.

Next slide, please.

As I mentioned in the last slide, the penalty

would be a percentage of an excess margin amount. The law then states that, quote,

"The penalty shall be tiered such that the penalty percentage shall increase with the amount by which the refiners gross gasoline refining margin excluding state program costs exceeds the maximum gross gasoline refining margin," end quote.

So the penalty will be progressive. This means that the greater the excess of refiner GGRM over the max GGRM level, the greater the penalty percentage will be set.

So imagine that Refiner A has gross gasoline refining margins of two hypothetical bags of money over the max GGRM level in month X, whereas Refiner B only has one hypothetical bag of money of gross gasoline refining margin over the max GGRM level. The percentage rate that would determine the penalty amount applied to Refiner A would larger than the penalty -- sorry, larger than the percentage rate used to determine the penalty applied to Refiner B.

Next slide, please.

So finally, it is important to note that the penalty is not designed to impact or even implicate sales to other states. The max GGRM and penalty will only be applied towards sales in California, within California, and this policy should not impact our neighbors.

Additionally, the penalty amounts collected by the state would benefit California consumers harmed by the excess gasoline refining margins.

Next slide, please.

So the law specifies certain conditions under which the policy may be implemented. To know if these conditions apply, we need to better understand the gasoline refining market. We are continuing to evaluate California's gasoline refining market and the conditions that may merit policy intervention. We are also continuing to work with the petroleum refiners in our state on data reporting that will be critical in our assessment of the industry and any policy proposals.

Before imposing any penalty, the CEC is required to demonstrate that the policy and the penalty will not negatively impact consumers. DPMO can weigh in on this process, but it is not our decision. From our perspective, we would not support a penalty unless it prevented price spikes on the front end or compensated consumers for price spikes on the back end.

Next slide, please.

That concludes my presentation. Thank you very much for your time and attention.

VICE CHAIR GUNDA: Thank you, Dr. Shears. Great presentation. And welcome to the public, you know,

engagement process --

DR. SHEARS: Thank you.

VICE CHAIR GUNDA: -- and introducing yourself.

I kind of wanted to take this opportunity, there's a lot of information, really helpful information, so let's just kind of go through a couple of points that anchor your presentation, which are really important as we consider the penalty framing.

Can we go back to the slide on the crack spread? I think it's 37, maybe 36. We should probably go to 35.

DR. SHEARS: More.

VICE CHAIR GUNDA: So just kind of talking through, like as you, as we consider, as we make this determination of, I think you famed it really well, towards the end of, you know, what your recommendation from DPMO would look like, which is we want to be able to solve the problem of blunting the spikes; right? That's kind of something we want to do --

DR. SHEARS: Yeah.

VICE CHAIR GUNDA: -- in putting a penalty. And we have been trying to figure out what that anchor data would be. So I think the crack spread has an importance in that, which is, you know, because I don't think we have a lot of information on the record about the crack spread.

Could you just kind of explain for the record

what crack spread means --

DR. SHEARS: Yeah.

VICE CHAIR GUNDA: -- and why it's an important data point for us to consider, how that might vary in California versus elsewhere, so we have the ability to kind of use that as a data point?

DR. SHEARS: Yeah, of course.

Can we go back a few more slides just to get to the -- one more slide. That's perfect. Thank you.

Yeah, of course. So in the policy as it's laid out, we are supposed to be using gross gasoline refining margins to make any type of maximum level determination if there should be one at all. Crack spreads are much more commonly used in industry and by refiners, by the people operating in this business, and also in the financial markets to quickly convey margins and profitability.

And so crack spreads -- and the reason crack spreads are often used is because refineries produce more than just one product. So we have gasoline, but there's also diesel, several other products that refiners produce. And so the benefit of using crack spreads often in industry is because they're capturing the ratio between multiple, the profitability of taking in the crude oil that they receive and then how much money they can get for all the different products that they produce.

So you'll see crack spreads often reported with three numbers and that number -- or usually three numbers and that number essentially refers to a specific combination of multiple product ratios with regards to a barrel of crude oil. So I'm just going to give one example.

So a 3-2-1 crack spread, which is the most commonly used crack spread for U.S. refining operations, that denotes the spread or the difference between the cost of buying three barrels of crude oil, so that's a three, and the revenues from selling two barrels of gasoline and one barrel of diesel fuel.

So in general, you can kind of quickly get a sense from these Cracks Bar numbers how much return a refinery is getting based on their purchase of the crude oil to what they're getting. The reason that, for the purposes of our focus on preventing price spikes in the gasoline market, we'll just be focusing on the specific refining margin on gasoline, so wholesale price of gasoline minus the cost of crude.

Did that answer your question?

VICE CHAIR GUNDA: Yeah, definitely super helpful. Just kind of like digging into that a tiny bit., so as you mentioned, you know, the crack spread, as I understand as well, is the hypothetical --

DR. SHEARS: Yeah.

VICE CHAIR GUNDA: -- kind of value that we could base the conversation around, but that talks to the entirety of the product suite. Could you just please help connect for the record, how we could use that specifically as we compare that to the gross margin that we're trying to look at, specifically gasoline? So how would we go about that? You know, is that indicative? How do you anchor that conversation?

DR. SHEARS: Yeah. Yeah, so I think crack spreads are more often reported by industry. And so it's important for us to be able to compare and also convert a crack spread value that we might see industry report or in their SEC filings, and also be able to kind of make a quick conversion or approximation to what the GGRM would be. So essentially, if you're just doing the crack spread for crude to gasoline, so it wouldn't be across multiple products, it would just be focusing on one.

So that's essentially the connection between those two, and so it's important for us to understand the relationship between crack spreads and GGRM, mostly just to level set the data that we may be receiving from the industry in the 1322 data. As Jeremy was describing, we have to make sure that the margins that are being reported to us we believe are reliable, and also what they're

reporting out in their own documents as well.

VICE CHAIR GUNDA: Great. Just a couple more clarifying questions.

In the slide 43, you talked about the various distribution channels --

DR. SHEARS: Yes.

VICE CHAIR GUNDA: -- and the importance of focusing on them as we go through this breaks. You know, I think, based on all the briefings and conversations, you know, behind the scenes, I track the importance of the point there, and on the trends we ought to be looking for in those different distribution channels and why it is important. If you just kind of expand the record, please?

DR. SHEARS: Yeah. Can we go forward a few slides to the distribution? Two. Two more. One more. One more. Oh, perfect. Thank you.

Yeah, so the reason that it's helpful to kind of break down the GGRM by distribution channel or sales channel, which is essentially how refiners are distributing their gasoline out to different retail stations, they will sell their gasoline through different distribution channels or sales channels. You'll see certain branded gasoline often being sold at the dealer tank wagon or the branded rack.

So the spread, to answer your question, the

spread that would expect to see is the trend that we see roughly in June and also in maybe November and December for lower margin months, where you're often going to see dealer tank wagon having the highest margins across all the sales channels. Then you're going to see branded rack and then unbranded rack, then bulk, then spot. Spot, you will almost always see kind of one of the lowest margins being earned on the spot or the bulk distribution channels.

So in terms of the appropriate spread, you kind of would expect to see in ordered that way, that kind of downward slope, and we would expect lower margins on those unbranded bulk and spot pipeline.

The reason that I was kind of calling attention to this during the periods of price spikes is that not only were dealer tank wagon and branded rack margins elevated, just like we see them mostly in most other months, we tend to see those elevated over the other three distribution channels, but they were elevated quite significantly during the price spike period, but we also saw these lower margin channels seeing much higher margins than normal. So the fact that I was calling attention to almost the leveling or all of the margins essentially rising in the same way during a price spike period suggests that the refiners are earning quite significant margins across all sales channels.

VICE CHAIR GUNDA: Yeah. I just want to note how important kind of like what you're describing here --

DR. SHEARS: Yeah.

VICE CHAIR GUNDA: -- in terms of the details of how we're going to think this through.

In that spirit of kind of, again, trying to expand the record on these issues, like specifically, could you comment on some of the things that are not seen on the spot market, for example, are the bulk rates' right? So --

DR. SHEARS: Sorry. Could you repeat?

VICE CHAIR GUNDA: -- could you just confirm that the bulk sales are not reflected on the spot market prices?

DR. SHEARS: Yes.

VICE CHAIR GUNDA: So, and I think what I'm getting to is like the importance of, because it's not necessarily seen on the spike in bulk purchases, but the prices would not be even reflected in the spot.

DR. SHEARS: Yes.

VICE CHAIR GUNDA: Could you confirm that?

DR. SHEARS: Yes, I can confirm that.

VICE CHAIR GUNDA: Yeah. Thank you.

So I think the last one, on the previous slide, and I thought this was really well done in terms of explaining the kind of the impact, you know, up like a rocket, down like a feather impact, would you just share,

when we talk about the gross margin, like kind of historically or like, you know, U.S. averages versus California, am I correct that the U.S. averages of the industry margins are typically $0.30, $0.40 lower than California?

DR. SHEARS: You mean the rest of the U.S.?

VICE CHAIR GUNDA: The rest of the U.S.

DR. SHEARS: Yeah, I believe so.

VICE CHAIR GUNDA: So on an average, they are there, and then they spike to these levels? I just want to make sure.

DR. SHEARS: Yeah. So this graph is not relative to the rest of the U.S. but, yes, in general, the margins in California, the industry margins in California tend to be that difference, and then that difference gets exaggerated during periods of price spikes.

VICE CHAIR GUNDA: Thank you.

DIRECTOR MILDER: No questions here, but thank you. You covered a lot of material.

DR. SHEARS: Thank you.

DIRECTOR MILDER: Director Maduros?

DIRECTOR MADUROS: On the slide showing the crack spreads versus other parts of the country, it looks like in 2023, crack spread here is about 50 percent higher. And I know there is talk about costs in California, you know,

that costs in California can be higher as well.

DR. SHEARS: Yeah.

DIRECTOR MADUROS: Do we have a sense of, I don't know that they're 50 percent higher if you look at the economic data, do we have a sense of that?

DR. SHEARS: I don't have the exact number for you, but I don't believe that the difference in the crack spread is 100 percent due to the difference in costs in California.

DIRECTOR MADUROS: And then just from an economics perspective, you know, if prices go up, or so there's a supply constraint, there's some outage at a California refiner, so as I understand it, we see, you know, the refiners go out better their contracts with some source of external supply, typically not more than that, because if they bring in more than it would decrease the price even of the gas that they're still able to produce.

And so, as I understand it, the idea here, as we consider whether to implement a gross gasoline refining margin, is to figure out, sort of from an economic perspective, to shift their profit incentives so that, you know, they maximize profit at a different price than they otherwise would. Is that sort of --

DR. SHEARS: Yeah, that's, I think, the correct economic thinking. I believe Matt will spend more time

kind of going through the actual frameworks for how we would expect the economics, the supply demand shifts under such a policy would play out.

DIRECTOR MADUROS: Great. Thank you.

DR. SHEARS: Great. Thank you.

VICE CHAIR GUNDA: Thank you, of course, again. Just thank you so much, super invaluable testimony. Thank you.

Back to you, Jeremy.

MR. SMITH: All right. Thank you, Esther, for that presentation and welcome to the team.

With that, allow me to introduce our final presenter, Dr. Matt Zaragoza-Watkins. He's a CEC consultant and economics professor at the University of California, Davis.

DR. ZARAGOZA-WATKINS: Good morning and thank you for the opportunity to present on the work that we're doing at CEC to try and understand and evaluate the potential impacts of a maximum gross gasoline refining margin and analysis.

Next slide.

So kind of to briefly give you an overview of what I'm going to be presenting on, though it's only 20 minutes, I'm going to spend a lot of time, and so thank you, Director Maduros, for teeing it up with your question,

sort of the oligopoly theory of what's underlying the refining industry in California, right, and how max margin and penalty structure might interact with that to change the incentives that firms face and, hopefully, subsequently their behavior.

To talk about the requirements for analysis and the structure of a potential MGGRM min penalty outlined in SB X1-2, which Dr. Shears presented initially, so it will be somewhat redundant to that.

And then finally, to talk about the empirical framework for analyzing a potential MGGRM min penalty analysis that we've developed at CEC and how we're going about analyzing that. Of course, that will necessarily be at a relatively high level but, hopefully, it'll help develop an intuition within the group for how this analysis is being conducted.

Next slide.

So to build on the presentations that we've seen so far, apparently, the California refining industry is operating in an oligopoly situation, which is leading to relatively imperfectly competitive equilibrium. And so what this figure on the right presents, essentially, is a visual of the profit decisions that a representative firm in this industry might be making.

So apologies that the colors are maybe a little

bit difficult to discern, but the curve labeled demand is going to be the residual demand curve faced by a firm. It's downward sloping because they have some ability to affect price by choosing quantity; right? So that's market power. This firm has some market power.

They have marginal costs, which are relatively flat and somewhat upward sloping as they expand their output. And so when this firm is making a decision about what quantity they want to produce in order to maximize their profits, what we think about is that they are going to set marginal revenue, that is the additional revenue they earn from selling one more gallon of gasoline, equal to the marginal cost that is of producing that additional barrel of gasoline.

Now, the trouble in this market is that marginal revenue and marginal cost intersect at a place that's well inside of where marginal cost hits demand, right, or price. And so what that leads to is firms choosing a quantity that leads to prices that are fine in excess of marginal cost. And that drives a wedge that's inefficient, right, relative to what a competitive market equilibrium might be.

And so just in thinking about these incentives and outcomes relative to what a competitive market would see, in a competitive market, a firm would face a flat residual demand curve; right? If they decide to produce

less, somebody else is going to step in and produce more, and so that flat residual demand curve would make marginal revenue flat as well. And so then competitive firm would choose to produce where marginal cost equals demand and that would be efficient.

Next slide, please.

So in light of this apparent inefficiency in the market, SB X1-2 authorizes the CEC to consider and potentially adopt maximum gross gasoline refining margin and a penalty for firms that exceed that maximum margin.

Next slide.

And it provides details about exactly how that would be designed, which Dr. Shears described earlier, but I'll repeat. So the penalty shall be a percentage of the amount by which the refiner's gross gasoline refining margin, excluding state program costs, exceeds the maximum gross gasoline refining margin converted from dollars per barrel to dollars per gallon, multiplied by the number of gallons sold by the refiner during the calendar month of that for all transactions. So we're essentially going to take the difference between input costs for oil and revenues associated with selling gasoline and calculate the difference.

Now if that difference is in excess of a certain threshold then penalties shall be tiered such that that

penalty percentage shall increase with amount by which the refiner's gross gasoline refining margin, excluding state program costs again, exceeds the maximum gross gasoline refining margin. So this is going to be a progressive penalty on excessive profits.

So how would a progressive penalty on excessive profits interact with the status quo market? I mean, this, Director Maduros, will start to get an answer to your question.

Next slide, please.

So this is a supply-side oriented policy, and what it's designed to do is rotate this representative firm's marginal revenue curve. And so here in gray, we've got residual demand and prior marginal revenue. And now the red line is representing the marginal revenue curve that a firm would face under a new max margin and penalty.

It's necessarily lower initially because if a firm is choosing to produce a very low quantity, that's going to lead to a high margin. That margin would be in excess of the maximum margin and therefore penalized. Effectively what that does is it blunts the revenue motivation or revenue incentive of a firm and we see that as a shift downward in red line. And then the rotation of the red line, right, because as firms choose to produce a greater quantity, the disincentive to increase quantity

that exists when they have market power is mitigated by the fact that a fraction of the profits that they're losing out on as a result of the penalty is less.

That shift down in rotation in the marginal revenue curve leads marginal revenue and marginal costs to intersect at a quantity that's in excess of what would happen under business as usual. It's going to lead firms to choose to produce a higher quantity at a lower price. Assuming that demand is relatively inelastic, but constantly so, that's also going to lead to less volatile and overall lower prices in this market.

Okay, so that's our theory, right, of how a max margin and penalty structure could change or affect the incentives of firms and how that could lead potentially to an efficiency-enhancing solution.

Next slide, please.

Maybe; right? Now SB X1-2 outlines a series of requirements in terms of analysis that must be done prior to the adoption and implementation of a max margin and penalty, essentially the due diligence.

In particular, we need to address whether it's likely that a max margin and penalty would lead to a greater imbalance between supply and demand in the California transportation fuels market than would otherwise exist; right? Whether it's likely that the max margin and

penalty would lead to higher average prices at the pump on an annual basis relative to business as usual. And then finally, whether it's possible that the use of case-by-case exemptions for firms that face cost shocks, right, which would lead to higher gross margins, would be sufficient in order to backstop instances where higher costs might lead to higher gross margins, also blunting the incentive to produce more quantity.

So taking those requirements, we've developed a research framework -- next slide -- that's going to analyze, essentially, those elements and more. And so we've refined those requirements into four sort of key research questions.

Overall, is there a max margin and penalty design that would improve the gasoline supply and demand balance in California and lead to ideally lower, not higher, average retail gasoline prices, essentially meeting the requirements of point one and two?

Now for that to be the case we need to understand whether firms have additional profitable importing production and storage capacity relative to business as usual. In order to expand the quantity that they market, they need to be able to have the capacity to do so.

How would a max margin and penalty affect the gasoline importing production and storage and marketing

behavior of those regulated firms? So not just the ability, right, but also understanding the incentives that a max margin and penalty would face and how that might affect their behavior.

And then finally, this is a policy tool that's aimed at one market; right? But as has been discussed so far, these are multi-product firms and their market, there are sort of multiple markets that they're considering when making production decisions. And so an important element of this is to understand how a max margin and penalty is going to affect their entire profit function and how that might then lead to effects in other unregulated markets.

Next slide.

So briefly, our analytical framework has three elements.

First, we'll be estimating firm-level profit and product-level production and cost functions to model the relationship between inputs, outputs, and cost. This is where our 810 and 1322 data are really going to shine.

Secondly, we estimate demand curves and construct, from our first element, aggregate supply in order to simulate business-as-usual refined market outcomes, making sure that our modeling framework is able to replicate what we've seen historically, is going to, in some ways, validate our ability to use it to project

alternative scenarios.

And finally, then we're going to simulate product market outcomes under alternative max margin and penalty designs. And again, because our focus here is on the gasoline market, we'll be focusing on average gasoline prices and volatility as our main outcome measures.

Next slide.

Over the next three slides, I'm going to provide a relatively high level overview of what is a complex and detailed statistical analysis. But, of course, I'm happy to answer any specific questions you might have.

So that first element, estimating product level production and cost functions for each firm, essentially that corresponds to the marginal cost curve in the prior figure. Production functions describe how firms take inputs and translate those into outputs.

Firms, of course, are going to take the costs of those inputs into consideration and are bound by certain technological constraints, and then are going to consider the relative prices of alternative outputs when deciding what mix to make. 3-2-1 is sort of the standard, but there's some flexibility that each firm has. And this isn't something that's directly reported or necessarily stated by these firms. And so what this analysis aims to do is infer these relationships using historical data, in

particular, the 810 and 1322 data.

Next slide.

In order to close the business as usual model, we want to understand where that marginal cost curve that we just estimated is going to interact or intersect the firm's marginal revenue curve; right? A firm's profits are a function of their costs and revenues. And so the second phase of the analysis looks to estimate demand, residual demand curves, that each firm faces for the products that they sell. The residual demand curve feeds into their revenue calculation. And so once we have that, then we're able to estimate marginal revenue. Here again, 1322 data and 782 data are going to be particularly useful.

Next slide.

So having identified the relationships, having identified the parameter estimates of marginal revenue curves and marginal cost curves, aggregating up supply to understand how firms are going to respond to quantity or supplying quantities in terms of the prices they face under business as usual and validating that that conforms to the historical record, the next thing we're going to do is to start really flexing the ability of this model, which is to take those parameter estimates and consider alternative counterfactual scenarios; right?

So we think that we've, at this point, or we'll

have identified what the marginal revenue curve of firms is under business as usual. And what the max margin and penalty structure aims to do is shift to those marginal revenue curves in a way that incentivizes firms to supply greater quantities at lower costs.

And so by adjusting the marginal revenue functions of firms, we're then able to see their responses in terms of quantities and essentially try and dial in and perform sensitivity analysis -- excuse me -- around how changes in the stringency of mixed margin and penalty structure would affect the quantities supplied by each firm and equilibria in the market.

Next slide, please.

So just to summarize, there was apparent market failure in the California gasoline market that's leading to higher and more volatile prices. That's consistent with an oligopoly model in which firms face downward sloping demand and are able to exercise market power. And market power leads to higher average prices and more volatile prices in general; right?

CEC has the opportunity to consider and implement a maximum margin and penalty structure as a means of mitigating the current exercise of market power in order to lead to lower and more stable retail gasoline prices. And we're currently in the process of evaluating the potential

for a well-designed max margin and penalty to improve supply demand balance in California, and to understand its impact on other unregulated markets.

Thank you for the opportunity to present and I look forward to your questions.

DIRECTOR MADUROS: Thank you for that. A couple questions.

One, and I think you sort of alluded to this, but as companies look to allocate their resources across their entire enterprise, which may global and looking at where they can sort of get the best return, is there -- how do we think about sort of that in relation so that we make sure California remains sort of not just profitable but at least equally profitable with other markets where they could put their capital so that they remain here in the market?

DR. ZARAGOZA-WATKINS: Yeah, absolutely, I think that question is central to our analysis; right? So this is a tool that is directed at the gasoline market, but of course there are other margins that these firms are considering, both in terms of the other products that are co-produced with California Gasoline, and then also, as you sort of alluded to, where do I want to put my next dollar of investment is going to be a function of what the relative margins are, not just here across products, but elsewhere.

Apparently, the California gasoline margins are higher than elsewhere, and so that would suggest that there is an opportunity to reduce those margins without necessarily driving California to be less competitive on the global investment stage.

Ultimately, the question of how firms are going to respond is an empirical one. And so we're going to try and use the historical record to make inferences about when margins for California gasoline change relative to other products, how do they respond?

DIRECTOR MADUROS: Well, and sort of a related topic, one notion that has come up over the past two years repeatedly is, well, we operated a loss, and so therefore when there's a chance to make money, well, that's, you know, we're making money, but we're making up for all of these periods when we were not making money. And does the data show that or -- I mean, other than I realize probably there was, you know, in the first and second quarter, maybe of 2020, there was a real disruption in the market due to COVID, but do we see that in the data? Does anybody know, or how are you taking that into account?

DR. ZARAGOZA-WATKINS: You know, I'm going to -- I'd like to give you a theoretical answer and tell you that the data are still out on that.

In theory, firms that operate at a loss don't

survive in the long run. But it's certainly true, right, that there are large fixed costs associated with this industry. And if you're going to amortize those fixed costs into every gallon of gasoline that you produce, there are going to be periods when you're apparently operating at a loss.

On the margin, it wouldn't make sense for a petroleum engineer to run a plant if they're going to make a loss on every barrel they produce, rather accept the fact that you have fixed costs and choose not to operate. I take that they're operating as an indication that it makes sense for them, but I will tell them how to run their business.

VICE CHAIR GUNDA: Thank you, Dr. Zaragoza-Watkins. Just a few kind of clarifying questions going forth, kind of continue to kind of build that muscle of how to do this.

You know, thinking through, I think, you know, Dr. Shear's kind of presentation before, too, it kind of makes the case for the profitability of the firms and our ability to use the penalty to potentially blunt that or eliminate the spikes; right? So I'm kind of hearing it loud and clear today on the record.

So one piece, going back to kind of your research questions, one of the first pieces of the second bullet you

talk about, do firms have additional possible importing production and storage capacity? And I kind of like that because you kind of are -- the way I interpret that is localized impacts as we think through a global plan; right? So that's kind of how I read it. Can you expand on, I tried to ask this to Jeremy, too, earlier and kind of got an answer from him too, it's like, how do we gather information to best be situated to answer those questions? And do we feel like we have the data right now? Do we need to expand, you know, a few more data sources? And how, as you're digging into this data, how are you feeling about audibility in terms of having clarity on some of these questions?

DR. ZARAGOZA-WATKINS: Yeah, so I think clarity is in reach is where I'd say we're at. The data exists and we're wrangling them. But in terms of capacity, I think that's an element of this that's probably most observable; right? Marginal production costs are a little trickier and those vary; right? But steel in the ground is something that's relatively well-documented, and we've seen in the historical record sort of where imports and storage and production peak, and so we can take those as measures of production possibility.

VICE CHAIR GUNDA: Great. Just another question. You know, the three kind of analysis that you laid out, and

then the last slide on the penalty simulation. Kind of like going to what Director Maduros was trying to ask is, you know, we want to set up a record where we fully answer some of the questions that are percolating in terms of the penalty would, let's say, reduce the production in California. Do you see any reasonable scenario under which that happens?

DR. ZARAGOZA-WATKINS: Any reasonable scenario under which a penalty reduces the price in California?

VICE CHAIR GUNDA: Production in California.

DR. ZARAGOZA-WATKINS: Oh, production in California, excuse me. I mean, I think an important empirical question is the cross price of elasticity of supply, right, which is a technical way of saying as we reduce the margin on California gasoline, how does that change the incentive to produce California gasoline relative to other products? And what is the technical ability of firms to change their product mix?

It's this analysis that's going to try and address those empirical questions, and I wouldn't want to prejudge it.

VICE CHAIR GUNDA: Interesting. Great.

And the last question, again, this is kind of trying to figure out how to -- you know, at the end of the day, I think the value of the penalty, at least in terms of

blunting the spikes and even potentially removing the underlying problem, I think has been pretty well documented over the last three workshops. I think the economic theory speaks to the opportunity here. The thing that I'm kind of thinking through is like, okay, what are the risks, right, and as we think of the benefits of it and how do we best have visibility of the risks and mitigate them?

And so in that spirit, the question of what Director Maduros asked, you know, there is this disincentive to invest in California as the margins shrink, because, you know, some of these companies are global companies investing everywhere else. And hence, by extension, because we are not investing here, you will see more summer outages, enhanced by extension, supply volatility enhanced by extension spikes.

Could you, again, I think you already laid out the case for this, that, you know, further investigation, but could you just frame, you know, maybe 30,000-foot level economic theory, you know, like what would be the conditions under which that doesn't happen, how we can avoid it?

DR. ZARAGOZA-WATKINS: Conditions that -- so there are lots of ways it could not happen, which is sort of the good news; right? But we, you know, do have to thread one of those needles.

So, directionally, it's true that if you make something less profitable, then it's going to be less attractive for investment; right? Now, we exist in a time of Uh, declining demand for California gasoline. And so one question, right, is how will the sort of long run dynamics play out? Demand is shifting and supply is shifting. And so it's possible, very possible, right, that a level of investment that's required from this industry will be in excess of what's needed to meet demand. That's one possibility; right?

I am excited to sort of tackle the empirical question of how these changes in the short-run profitability of the industry lead to changes in investment decisions by firms and what that does as we look into the sort of 5, 10, 20-year investment horizon. That's not necessarily immediately in the scope of this analysis, but it's certainly something that the CEC is looking into.

VICE CHAIR GUNDA: And I think this is where I think in the past, I think both you and Dr. Moreno kind of mentioned about the dynamism of this work; right? I mean, I think it's not a set and done tool, and then you get to devise and you get to understand the market dynamics and how they play out.

So, yeah, I invite -- Director Milder, you have questions?

DIRECTOR MILDER: Thank you so much.

Picking up on that question about profitability, as we think about this, Dr. Shears presented some information about California being the fourth largest gasoline market, at least in recent data, in the world. Also, that both the crack spread and the gasoline-specific crack spread reported publicly by refiners is higher in California than otherwise. And Jeremy Smith presented information about California refiners are also supplying other markets.

And so when you think about the profitability function and the need to balance that with recent data about the amount of profits and the refining margin spikes that happened during price spikes, you know, how are you going to be balancing both maybe the industry perspective, that is around how much they want to invest, based also on how much money they're making in California, and then sort of the larger economic picture about whether these refiners have other outlets for their products?

DR. ZARAGOZA-WATKINS: Sure. Well, you know, first and foremost, I'm going to let the data speak. And so we're going to do the empirical analysis and understand how historically firms have responded to, you know, the manifold of incentives that exist to produce California gasoline versus other products. And I'm going to take

their behavior in the past as indicative of what their behavior might be in the future.

The long run is always tricky because, in the long run, all the parameters are free. And so when we're talking about how it might change their investment behavior, we have to pin down some assumptions about what those other parameters might be in order to say specifically what that is.

This analysis is really going to focus on sort of the short to medium run. So, you know, think of over the next five years, how is it likely that this policy would affect, you know, the path of prices and volatility? And that's a period over which the level of investment that we're talking about is relatively.

DIRECTOR MILDER: And apologies, because you're going last, you're getting questions from a variety of presentations. The last one for me.

Dr. Moreno's presentation showed some pretty striking data that the cost of crude and national gasoline prices are pretty well correlated. And for some reason in California, that's not seemingly as strong of a correlation, where, in fact, food prices can go down and then California gasoline prices go up. Does economic theory provide any potential explanations for that phenomenon?

MR. ZADROZNA: Yeah, it's really beautiful actually, you know, in an academic sort of way; right?

So the California gasoline demand function is pretty inelastic, right, so prices are really responsive to small changes in quantity. Now, when firms have the ability to exercise market power and they face that relatively inelastic demand, what that leads them to do is amplify their cost changes in the prices that they pass through, we call that pass-through greater than 100 percent, whereas a competitive market is going to provide 100 percent cost pass-through as a benchmark.

And so one interpretation of what we see in California, right, is that the reason the correlation maybe is a little bit less strong is because their pricing responses are amplified. So you don't see that 1-to-1, it's more like a, you know, 1.2 or 1.5 to 1 change in prices, particularly during periods when demand is high and relatively inelastic. And so they're able to sort of fully exercise their market power as opposed to during periods when demand is relatively weak and the market power that they're able to exercise is relatively more modest. It's that variation over time that sort of informs the relationship, I think.

DIRECTOR MILDER: Thank you.

VICE CHAIR GUNDA: Thank you so much, Dr.

Zaragoza-Watkins, Dr. Shears, and Dr. Moreno.

Can I just invite the three of you, we had a lengthy discussion, anything that, you know, as the discussion was unfolding, anything that you might want to add to the record, anything that would be helpful for us to raise from each other's presentations and the questions that we had? Thank you so much.

Back to you, Jeremy.

MR. SMITH: Yeah. With the four presentations concluded, I just wanted to give you all an opportunity to make any final comments from the dais before we move to public comment. So if you'd like to do that now, before we move?

VICE CHAIR GUNDA: I would suggest we move to public comment and then we'll come back.

MR. SMITH: Okay.

VICE CHAIR GUNDA: Thank you.

MR. SMITH: All right, well, thank you.

We can go to the next slide and I'll hand it over to you, Aria.

MS. BERLINER: Now we'll move on to our public comment period. One person per organization may comment and comments are limited to three minutes per speaker.

For in-person comments, we call on you to come to the -- we will call on you to come to the microphone to

make comments.

For the Zoom platform, use the raise hand feature to let us know you'd like to comment. We will call on you and open your line to make comments.

For those on the phone, dial star nine to raise your hand and star six to mute or unmute your phone line. We will unmute your line from our end.

Is there anyone here in the room that would like to make public comment?

MR. JEFFRIES: Good morning, Chair. My name is Timothy Jeffries. I'm the International Rep for the International Brotherhood of Boilermakers. Thank you for the opportunity to testify this morning. I'm an International Rep for the United States. I'm an International Rep for the International Brotherhood of Boilermakers and a proud veteran of the United States Marine Corps.

The boilermaker works in California refineries doing required maintenance turnarounds. Thousands of our skilled and trained members feed their families because of the good work of our refineries. California seems determined to try and chase our refineries out of state well before we are done needing refined fuel. This is what is costing every Californian as we already are paying the price for down one refinery and paying for the supply

issues that resulted.

Continuing to create punitive regulations will only chase away thousands of our members' jobs as these refineries make the choices to refine elsewhere. And what that means ultimately is California and all for the U.S. becomes more dependent on foreign jurisdictions, and it will be these count countries that ultimately decide how much we will pay for our daily commute for members like mine.

Thank you, sir.

MS. BERLINER: And may I ask that you spell your name for the record too? I'm sorry.

MR. JEFFRIES: Timothy Jeffries, J-E-F-F-E-R-I-E-S.

MS. BERLINER: Thank you.

MR. MONAGAN: Good morning. Mike Monaghan on behalf of the California State Building and Construction Trades. We represented about 500,000 men and women in the industry. My remarks are going to mirror a little bit of what Mr. Jeffries just shared with you. Our fear is jobs, jobs moving out of state.

It seems to me that we have a supply problem. And we're not going to have any more refineries in California in the future than we do today. So that's going to be a function of a number of factors, I realize that.

It seems to me the penalty situation that you guys are considering as a function of the legislation has the potential for moving and reducing the up of these refineries, hence the jobs will be lost and communities will suffer.

Thank you.

Monagan, M-O-N-A-G-A-N.

MS. BERLINER: Thank you.

Is there anyone else in the room who'd like to comment? Please spell your first and last name before commenting.

MS. REHEIS-BOYD: It doesn't count on my time, does it?

MS. BERLINER: No.

MS. REHEIS-BOYD: Cathy Reheis Boyd, C-A-T-H-Y R-E-H-E-I-S hyphen B-O-Y-D, President and CEO of the Western States Petroleum Association.

So good morning. And I definitely appreciate the continued dialogue that we're all having on this topic because, frankly, we're not going to get through it if we don't. We've talked earlier about that. So it's very, very important. I did like the key research slide that was up because it indicates the additional things that we're all going to need to talk about, so I appreciate that.

I'm going to give you much more of a

comprehensive view from my lens of the situation that we think we find ourselves in. Some of this you certainly know and heard; right? But California's fuel supply is facing a imminent crisis if we continue down this path. and it's a comprehensive path, it's not just this topic. You noted, thank you, that SB X1-2 explicitly prohibits policies that hurt Californians, but that is exactly what will happen if we impose margin caps and we enforce unworkable regs.

We have a chronic structural fuel supply problem that remains, frankly, unaddressed in California. Turner Mason's latest study, which we'll be submitting, shows California's in-state crude production is falling by 15 percent annually. That's ten times faster than the ARB has projected, not because we don't have crude oil, but we cannot get permits from the state of California. We are effectively facing a defective oil production ban, and that's forcing more than 75 percent of the crude our state uses to be shipped from overseas.

Our crude oil pipelines are reaching minimum flow levels, and the marine imports that are supposed to pick up the slack are already near capacity and they're, frankly, not ready. If refining is further constrained in this state, we would need to become increasingly dependent on marine imports when we need to supply our unique gasoline

blend from places that take 30 to 40 days to get here. And of course, we know the impact that has on greenhouse gas emissions.

CARB'S At Berth Reg, set to take in effect very shortly, a few months, will exasperate this problem because it will restrict port and marine vessels, causing significant declines in the supply of crude oil and other transportation fuel products that we need to meet the state's energy demand. This is a supply chain disaster waiting to happen and we must address this issue. And I know we're having conversations.

Penalizing profits will make California a less attractive investment and potentially will make most marginal refiners unprofitable. A margin cap guarantees a poor return on investment, higher prices, less availability. And I won't get into all of the things that go towards that. But refiners cannot and will not willingly violate a margin cap in order to comply. They'll have to look at ramping down gasoline production in order to prevent revenues from triggering the cost.

And I know I'm up on time but if I -- that, of course, we have the new current focus on minimum inventory, which there'll be another conversation about, gives certain certainly concerns to all the points that I'm making.

But none of this does anything on the existing

infrastructure. So those conversations have got to continue. That is going to be critical for any of this transition to even be on the table.

So in short, again, I think if we're not careful we're going to induce a self-inflicted fuel crisis. So these measures have to be taken very, very much seriously. I appreciate the depth that we're hitting them and will continue to hit them.

We will be supplying extensive comments on all of the slides which we've just received, understandably, but we will go through every slide and provide comments on every one of them because we want to help on doing the homework. And just for the record, we did submit 43 documents yesterday to the docket, 23 that are no longer available for the public, but we think they're important and are relevant to this conversation.

So just in closing, we've got to get this right. It's the most complicated energy transition we've all ever undertaken and there's just too much at stake. We really have to make sure that everything is aligned. And I'm very concerned that these policies are not going to help in that situation.

VICE CHAIR GUNDA: Thank you. You still remained on time. Thank you so much.

MS. BERLINER: That concludes comments from those

in person. We'll move on to folks on Zoom.

For those with raised hands on Zoom, I will first call on folks using the raised hand feature on Zoom.

Okay, Ms. Nguyen, your line is open. You may need to unmute on your end. Please state and spell your name and affiliation for the record after you are unmuted and before commenting. Ms. Nguyen, are you there? You'll need to unmute on your end. Okay, I will come back to you next.

Next up, we have CHCC staff. I've unmuted your line. You'll need to unmute on your end.

MR. BUTLER: Hello there. Anthony Butler, A-N-T-H-O-N-Y B-U-T-L-E-R, again with the California Hispanic Chambers of Commerce. Good afternoon, Chair and Committee.

While we understand the desire to control fuel costs, we are worried that this profit margin cap will do the exact opposite for all small business owners. If refineries are penalized for making profits, they might cut back on production or not invest in what is needed. That means less fuel, and less fuel means higher prices for us all.

We've all seen what happens when there's a shortage of gas. The price shoots up. Small businesses are the ones who must pay more at the pump. This proposal

feels like it's going to make that problem worse.

At the end of the day, as an organization, we want to make sure that the policies being put in place are helping small businesses, not making life more expensive.

Thank you.

MS. BERLINER: Thank you.

Ms. Nguyen, I have opened your line again. I will come back to you.

Doug Kessler, I have opened your line. You'll need to unmute on your end.

MR. KESSLER: Doug Kessler, last name K-E-S-S-L-E-R, representing the Northern and Central Valley Yemen Society. Can you hear me? Hello?

MS. BERLINER: Yes, we can hear you.

MR. KESSLER: Oh, okay. Okay.

In the area that we represent, you know, oil jobs, petroleum jobs are very hard to get. People, families wait a long time to get it. What you want to institute will cause people, you know, to lose jobs, good paying jobs.

But more importantly, you know, the figures just don't add up on what you're trying to do. They're guesstimates. And I ask and we ask that you slow down, really look at these. You know, you heard a lot today of their guesstimates, we're not sure, we don't know, you

know, exactly what it will do. They may or may not get fined. And, you know, so we ask that you slow down and look at this and consider the amount of jobs that will be lost.

Thank you.

MS. BERLINER: Thank you.

Next up we have Alexander Kim. Alexander, I have opened your line.

MR. KIM: Thank you. My name is Alexander Kim, A-L-E-X-A-N-D-E-R, last name Kim, K-I-M, as in Mary. I'm speaking on behalf as the Government Affairs Director for the Coalition of Filipino American Chambers of Commerce. Our organization represents over 46 Filipino American chambers across the nation, and 13 of them in the state of California, as we're growing to serve the needs of the top three most populous Asian Americans in comparison to our fellow South Asian and Chinese American communities.

The proposed policies to control the fuel costs are understandable, being that the state is expensive to do business in, you know, with the high costs of different issues and inflation and the COVID pandemic really causing a lot of our small business to shut down. So doing this at this inopportune time is of concern.

So we're very concerned that this -- you know, it's a well-meaning consideration to place profit margin

cap to control the cost but, you know, this will only exacerbate the situation with higher costs for our members and small businesses that will pass it down to the consumer, and many of our consumers are low-income communities.

So having, you know, any government agency controlling profits, let alone penalizing for making an extra revenue is of concern. And, you know, this is creating a parade of horribles or, you know, what other industries will be on the crosshairs? And, you know, as small businesses, we do want to let the commission know of our concern for this. It may be an overreach of doing something to control profits.

You know, we believe in more of the market to determine that. You know, if energy producers are penalized for making such profits, you know, they might cut back in production and invest in the capacity that we need as small business owners that highly rely on transportation for the cost of delivery and services. It's a supply and demand thing. And when there's a gas shortage, we do understand the costs of prices going up. And, you know, this is really not the best situation to control the costs.

You know, our minority communities just want to make sure that policies are being put in place to actually helping small and mostly immigrant small businesses. You

know, we are the economic engine for the state and the country, and we want to have policies that do not increase the cost of doing business in a very beautiful state and we want to keep it that way.

Thank you so much for your time.

MS. BERLINER: Thank you.

Ms. Nguyen, I've opened your line. I will come back to you.

Phone line ending in 806, I've opened -- I've unmuted your line.

DR. GUERRA: Good afternoon. This is Dr. Ruben Guerra, R-U-B-E-N, last name G-U-E-R-R-A, representing the Latin Business Association, representing over close to the 750,000 Latino businesses in California.

And I really agree with the other organizations, especially my Filipino friends, that, you know, the representation of lost jobs and to securing our small businesses, at the end of the day, we just want to make sure that policies being put in place are actually helping people like me and businesses like mine and our communities. Because at the end of the day, we're the ones paying at the pump, more money, and this is really going to affect us.

And we're really tired of our businesses leaving California and, you know, because of our King Newsome. And

I really believe that the CEC is very intelligent people on your Commission. And I appreciate that you're listening to us today and we'll make the right decision.

Thank you.

MS. BERLINER: Thank you.

Dr. Robert Sausedo, I have unmuted your line.

DR. SAUSEDO: Excellent. Can you hear me?

MS. BERLINER: Yes.

DR. SAUSEDO: Robert Saucedo, R-O-B-E-R-T, Saucedo, S-A-U-S-E-D-O. I am President and CEO of Community Build.

And while I appreciate all of the work that's been done here and the laudable efforts, I will tell you that we are creating a self-inflicted supply and demand issue with margin caps and slowing down production.

In a time when we have global crisis facing us that can potentially place us back in war theaters around the globe, we need to ensure the supply, demand, and ongoing production continues to meet our needs, recognizing that this would put jobs at risk and communities at risk, specifically communities of concern. With reduced production, to ramp back up would be additional costs. So what we're doing is moving costs downstream to meet a supply and demand issue, as I see, it in this report.

So I would urge you to look, go back and look at

some of the key issues, some of the things left to be resolved. Can it be held as finished or care of (phonetic) or as blend stocks? Downstream impacts could impact spot market prices again, something very of great concerns to our communities. We have to look at address this in a way that we do deal with environmental issues correctly, but we cannot impact the price pump any further. People are already making life decisions at the gas pump and other petroleum needs as we face high prices today.

Thank you for your time.

MS. BERLINER: Thank you.

Next up, we have Pilar Freeman. Pilar, I have opened your line.

MS. FREEMAN: Hi. Pilar Freeman, P-I-L-A-R F-R-E-E-M-A-N.

I was just mirroring what some of the other people said. As a working mom, I drive to work like almost two hours every day. And, you know, like we've all seen what happens when there's a shortage of gas. So I just feel like working moms like me, that's really who I'm representing, are the ones who have to pay more at the pump.

And so I just wanted to, you know, say that this proposal feels like it's going to make the problem worse just because the economy is so bad and gas is so crucial in

our everyday lives.

So that's it, thanks.

MS. BERLINER: Thank you.

Next up, we have Jamie Court. Jamie, I've opened your line.

MR. COURT: Hi. Can you hear me?

MS. BERLINER: Yes.

MR. COURT: Okay. Jamie Court, President of Consumer Watchdog.

I want to thank the Energy Commission for its hard work. I mean, this analysis is really thorough, it's really complete, and it shows unequivocally we need a price gouging penalty. I mean, the correlation between the price spikes and the profit spikes, the idea that every channel of distribution during a price spike results in greater profits shows that these companies are using their market power to inflict pain on all consumers when they have the ability to do it. And if you create a max margin, you're taking away their ability to do it, their incentive to do it.

And the only thing I would say is we knew a lot of this, not that level of detail, but we knew a lot of this a year ago. We knew price spikes were profit spikes. We didn't realize how much money they had made off the price spikes. We did not know the level of detail you do

now know, but it's been a year and it's time to come up with a penalty. It's time to write this rule and get it out the door.

If we had had this rule in March, we would not have suffered the price spike we did in April. We saw on the margins posted on the Energy Commission website that the oil refiners reported $1.22 in gross margin in April. And that is a really high margin and it corresponds to the price spikes, and we know it's profits. If this rule had been in place, you could have spared consumers millions of dollars a day.

And it's time to get the rule out the door is all I would say. You've done a thorough analysis. It is thoroughly backed up by the research. And whatever the level of the penalty, it can be adjusted, can be adjusted up, it can be adjusted down, but we need a penalty.

And as, you know, from what is happening now in the Northern California Bay Area, with these prices going through the roof, the price going up, you know, in a week by $0.20 in the retail market, it is only going to keep going up. And as we watch these price spikes, as they continue to grow, know that every day you delay a rule, more people are going to be suffering, more people are going to be in pain. It's time to get the rule out the door and get it done. And I'm looking forward to seeing

it.

Thank you.

MS. BERLINER: Thank you.

Ms. Nguyen, are you -- I've opened your line. Ms. Nguyen, we ask that if you have any public comment or questions, that you reach out to our office.

But for right now, that concludes public comment for those on Zoom with raised hands.

VICE CHAIR GUNDA: Thank you, Aria. We'll move to closing comments.

Jeremy?

MR. SMITH: Yeah, actually, before we do that, can we just go back one more slide before the public comment, just because I didn't get a chance to say this? I just wanted to.

As a reminder, if you did not provide an oral public comment today, you can submit a written comment to our docket, that's 23-OIIP-01. Again, those written comments are due by 5:00 p.m. on Friday, September 27th.

I just want to thank everyone, our presenters here, and all the work that goes into, you know, putting these workshops together, and the team that is. As I said before, I'm just so proud to be part of this team and see how hard they work every day. There's just so much data, so much progress being made, and just really appreciate

everyone's hard work on this as we continue to get more clarity and feel more and more confident in the positions that we're taking and our understanding of the problem. So again, thanks to all of our presenters.

If you have any other final closing thoughts from the dais, I welcome that.

VICE CHAIR GUNDA: Thank you, Jeremy.

Let me go to Director Milder.

DIRECTOR MILDER: Thank you, Jeremy, as well. And thank you to every presenter today and for the work that went into it.

After hearing the public comments, I feel like it's important to kind of take a step back, particularly as we think about California profitability and investments in California. We are here today because the California gasoline market has been profitable at record levels, excessively profitable.

And so the question that we face is how do we protect consumers who pay those prices when the prices spike? And I think the early work of DPMO shows, and this is not in dispute, that when prices spike, taxes and fees don't change. From today's presentation, we also see crude oil sometimes is going down as those prices spike. So the evidence is stark and unmistakable that what happens during price spikes is the refiner margins go up. And for small

business people, and working parents who drive their children long distances, as I do, you know, this is about protecting you from those price spikes, from the $6.00 a gallon gasoline.

Something that seems pretty clear is that there's something in this market that's not working competitively. The dynamic that you can produce less, import less, and still earn more money speaks to a marketplace that isn't having the right measure of competition. And this is just one tool to address that, to try and address that lack of competition. And I can say on behalf of DPMO, we are laser focused on the idea that that tool has to be deployed very thoughtfully. It has to protect consumers, either by preventing price spikes in the first place or recouping some of those dollars.

And I just want to repeat that what we saw in 2022 and 2023 is not normal. And so if we're trying to curb price spikes, it doesn't mean an end of profitability. Businesses need to make a reasonable profit and be part of the solution in California. But we don't have to choose between price spikes on the one hand and having industry at all on the other hand. We can engage in a good faith conversation and design a program if the industry is not doing what it can to return to competitive prices to have a policy that helps in that regard.

So we are very appreciative of the work that went into today's presentations and the future work that lies ahead. Thank you.

VICE CHAIR GUNDA: Thank you so much.

Director Maduros?

DIRECTOR MADUROS: Thank you. I would just echo the thanks to the team at DPMO and CEC for all of their data work and the team also at CDTFA for their work on this over the past two years.

On the comments, I would just say, it should be clear from today's workshop and from prior workshops and from all of the work that has gone into this that, you know, this state is committed to moving deliberatively and based on data and evidence. Going back to my comments at the beginning of this that, you know, this is not an ideological logical thing. We're trying to look at, you know, what the evidence is and what the data is, and then proceed appropriately to protect California consumers if there is something that we can do that would provide that protection.

And just a couple of points that I would just encourage the team to look at based on the public comments, you know, there was this -- there has been raised this notion that industry wouldn't violate the caps. Yeah, I'm just -- we've heard that now, repeatedly. I'm not sure how

to work that into the equation because I don't think there's -- you know, the prices are set by the market, it's just that the market is not operating -- it may not be operating efficiently. So for people not to violate the caps, they would then have to just stop all sales, which I think, I mean, once the margin got to a certain level, or would just have to sell at a lower margin.

So I'm just, I'm not sure how that works. And I would just encourage you to consider and maybe talk to industry to see what they mean by that because it's hard for me to sort of wrap my mind around what that actually looks like.

And I would also say, and this didn't come up earlier, but, you know, the refiners in California have very different business models where some of them are vertically integrated. And so it becomes possible to push both profit and costs either up or back in the supply chain, so, you know, or downstream to retailers or upstream to the production. And I think it's important that we sort of think about that and figure out, as we do create a system, we obviously want to make one that is fair for everyone and doesn't allow some to operate sort of outside the prescribed parameters.

Anyway, those are just a few thoughts, but thank you again, and thank you to all the participants. It's

really helpful to hear your perspectives.

VICE CHAIR GUNDA: Thank you, Dr. Maduros -- Director Maduros. We had too many doctors.

So we're going to just sign off. Just in the spirit of closing this, first of all, thank you, Director Milder and Director Maduros, for your continued engagement and taking the time from your day to be here. I think it's worth reiterating a few points I think both of you made, but also providing a comfort to the stakeholders, specifically that made comments today.

I think it's the DNA of any public agency, and then I can attest to the CEC's commitment on all regulations that we work on, to ensure that the work that we do is data-driven, the questions are asked and, you know, all the answers are provided with transparency and understanding the benefits and risk and mitigating them. So I want to just provide that commitment to people who made comments today that the work we do here is in public interest and nothing but public interest. And that is our job here at the Energy Commission.

Second, I think, you know, at a high level, you know, Director Milder mentioned this, the whole reason we are even doing this right now is because of those high prices at the pump in '22 and '23, and also 2019. Now, we could kind of underpin this with some basic, you know,

fundamental factual information.

In '22 and '23, prices went to extraordinary levels. And those times, those two years, every-- the majority of the commentators today, including myself, I still drive a gas car, I'm hoping to move to an electric in the future, but I feel pain. I'm a father. I drop my kids in the morning. That is important to us.

I think it's important to then kind of consider what is the alternative? Let's assume we don't do anything, no policy intervention, and these prices spikes keeps happening. Is that what we want; right? The answer is no. The answer is, is there a policy intervention that we could do to protect us from those price spikes? And I think that's what we're trying to answer.

The next one that's available is, you know, as Director Milder mentioned, this is not about affordability of the industry or protecting the consumers. Those are not mutually exclusive tasks that we have here. A reasonably profitable industry operating is essential for the economy of the state and the jobs that we talked about today as we transition to our clean energy goals, but also protecting the consumers can happen and coexist. And I think that's a part of the job that we have here.

And I have incredible confidence in the staff at the agencies, the consultants we have, the stakeholder

voices, and many of you keep us accountable to not drive this work from our own personal agendas. This is about trying to figure out together what's the best thing that we can do. So I continue to come in and make sure that we voice that commitment towards making sure this whatever we do as a commission here ultimately results in a net benefit to the state.

And the commentators who, today, kind of expressed their fear that any tool that we implement here could further exasperate is that's exactly what we want to avoid, and I, you know, want to commit that. That's something that we're going to continue to work, make sure that we take all that evidence into account as we move forward.

And finally, this is going to be a dynamic process. As we move forward, depending on the implementation of the tools we have, we will have to adjust because we're in a transition. And that transition might require sometimes going up, going down on those penalties and ensuring that, you know, we are ultimately laser focused on protecting the consumers.

And finally, to Cathy's comments, you know, from a wholistic perspective, we work within the construct of the state policies and legislative policies, we honor them. And so this particular work is within the confines and the

sandbox that the current policy that are in California works. I take point of the broader transitional things, and I'm hoping that the transitional planning work will take more of those things into account as we move forward.

Thank you again for everyone's comments. This is super important work. And none of us on this dais or the staff working on this take this easily. This keeps us up at night. We want to do this right and we want to protect our consumers. We want to protect our businesses. We want to protect our workers, everything. So thank you all.

With that, we'll adjourn for today.

(The workshop adjourned at 12:36 p.m.)

CERTIFICATE OF REPORTER

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 19th day of November, 2024.

MARTHA L. NELSON, CERT**367

CERTIFICATE OF TRANSCRIBER

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.

I certify that the foregoing is a correct transcript, to the best of my ability, from the electronic sound recording of the proceedings in the above-entitled matter.

MARTHA L. NELSON, CERT**367

November 19, 2024